

Caulmert Limited

Engineering, Environmental & Planning
Consultancy Services

Standard Landfill Site

Flintshire County Council Waste Management Services

Quarterly Monitoring Review

April – June 2015

Prepared by:

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1.0 INTRODUCTION

1.1 Background

- 1.1.1 This report has been compiled in accordance with the Environmental Permit for Standard Landfill Site, Buckley, which requires a quarterly review of the environmental monitoring data collected at the site. The data reviewed by this report was collected between the 1st of April and the 30th of June 2015.
- 1.1.2 This report records and discusses the monitoring data collected for landfill gas, groundwater, leachate, and surface water. For details regarding the site location, surrounding land-use, site history and development and environmental context please refer to the Standard Landfill Site Annual Monitoring Review 2014, document reference 1902.14.FCC.SDB.JDM.A0, submitted to Natural Resources Wales by Caulmert Ltd, on behalf of Flintshire County Council Waste Management Services in January 2015.

2.0 LANDFILL GAS

2.1 Introduction

- 2.1.1 Routine landfill gas (LFG) monitoring was carried out on a weekly basis at 29 perimeter boreholes during the review period. Methane, carbon dioxide, oxygen, relative pressure and atmospheric pressure were recorded at each borehole.
- 2.1.2 Borehole locations are shown on the drawing entitled 'Environmental Monitoring Locations' enclosed. A summary table displaying methane and carbon dioxide concentrations and can be found in Appendix 1.

2.2 Methane

- 2.2.1 Methane was only detected in BH22, with an average concentration of 0.3 %. A methane trigger level of 1.0 % was proposed for BH22 in EPR Compliance Assessment Report (CAR) ID 37073/0202764 issued by Natural Resources Wales (NRW) on the 27th of February 2014. The proposed trigger level was not exceeded at BH22 during this review period, with a maximum concentration of 0.5 %.

2.3 Carbon Dioxide

- 2.3.1 Carbon dioxide trigger levels were agreed with the Environment Agency during Q3 of 2011 and can be found in Appendix 1 along with the monitoring data. The carbon dioxide trigger values for boreholes BH16 and BH22, 3.0 % and 3.1 % respectively, were approved in EPR Compliance Assessment Report (CAR) ID 37073/0202764.
- 2.3.2 Carbon dioxide concentrations remained below the trigger levels in all locations throughout the review period.

3.0 GROUNDWATER

3.1 Introduction

- 3.1.1 During the review period groundwater levels were recorded on a monthly basis at seven groundwater monitoring boreholes, GW1, GW2, GW3, GW4R, GW5, GW6 and GW7R. Samples were collected from GW1, GW3, GW5 and GW6 and analysed for the quarterly suite of parameters listed below:

Carbon, Inorganics, Filtered (Dissolved) Metals, Mineral Oil/Oil & Greases and TPH CWG.

3.2 Groundwater Levels

- 3.2.1 Groundwater level data was recorded on a monthly basis in meters below ground level (mbgl), where borehole cover level data was available this also resulted in a calculation for groundwater level in metres above Ordnance Datum (mAOD).
- 3.2.2 Groundwater levels, in mBGL and mAOD are displayed in a summary table included in Appendix 2. Groundwater levels remained relatively stable over the review period.
- 3.2.3 Borehole GW2 is blocked and so no samples could be retrieved during this review period. Boreholes GW4 and GW7 were previously blocked but were remediated in early April, therefore samples can now be collected, and the results are included in this report.

3.3 Groundwater Quality

- 3.3.1 Samples were collected from GW1, GW3, GW4, GW5, GW6 and GW7 on the 30th of June 2015. A groundwater quality summary table for this review period is included in Appendix 2.
- 3.3.2 GW6 continues to exhibit elevated concentrations of several parameters, following the leachate outbreak which was detected at the north west edge of the site, close to gas monitoring borehole 2.2 in May 2013. A summary of the water quality at this location has been compiled as part of this report to better identify any trends since the leachate outbreak. A summary table and time series graphs of concentrations at GW6 between April 2013 and June 2015 are included in Table 2.3 in Appendix 2.
- 3.3.3 As displayed in the graphs, ammoniacal nitrogen, chloride and COD concentrations in GW6 have shown a generally decreasing trend since 2013.
- 3.3.4 Ammoniacal nitrogen concentrations were comparatively low in GW1 (<0.2 mg/l), GW3 (2.1 mg/l) GW4 (0.41 mg/l), GW5 (5.61 mg/l) and GW7 (1.06 mg/l). COD was highest in GW4 and GW5 at 303 mg/l and 294 mg/l respectively. In GW1, GW3 and GW7 COD concentration was 37.7 mg/l, 90.5 mg/l and 13.4 mg/l respectively.
- 3.3.5 No toluene or xylenes were detected in any of the groundwater locations.

4.0 LEACHATE

4.1 Introduction

- 4.1.1 Leachate levels were recorded monthly at nine leachate monitoring locations, LC2.1, LC3, LC4, LC7, S1, S2, S3, SSR5 (LS5) and SSR6 (LS6). Additionally, samples from LC chambers were analysed for the quarterly suite of determinants listed below:

Carbon, Inorganics and Filtered (Dissolved) Metals,

- 4.1.2 Well locations are shown on the Environmental Monitoring Location drawing enclosed.

4.2 Leachate Levels

- 4.2.1 Leachate levels were recorded on a monthly basis. A summary table displaying leachate levels, in metres below ground level (mbgl) and in metres above Ordnance Datum (mAOD), can be found in Appendix 3.
- 4.2.2 Table 1 below displays minimum, maximum and average leachate head levels in metres above well base. Average levels range between 1.22 m above well base in LS6 to 1.82 m above well base in LC7.

Table 1: Leachate Head Levels in metres above well base

Location	Leachate head (m above cell base)		
	Min	Max	Average
LC2.1	1.44	1.49	1.47
LC3	1.63	1.69	1.66
LC4	1.39	1.48	1.43
LC7	1.77	1.86	1.82
LS5	1.34	1.36	1.35
LS6	1.20	1.23	1.22
S1	1.19	1.30	1.24
S2	1.67	1.75	1.71
S3	1.51	1.57	1.54

4.3 Leachate Quality

- 4.3.1 Quarterly leachate quality sampling was undertaken at four monitoring locations (LC2, LC3, LC4 and LC7). A summary of the analysis is shown in Table 3.2 in Appendix 3.
- 4.3.2 Concentrations of ammoniacal nitrogen within the leachate ranged between 727 mg/l in LC4 and a maximum concentration of 1530 mg/l in LC2.

5.0 SURFACE WATER

5.1 Introduction

5.1.1 Surface water samples are collected at four locations; SW1, SW2, SW4 and SW5 which are shown on the Environmental Monitoring Locations drawing enclosed.

5.1.2 Surface water samples were analysed on one occasion for the following parameters:

Ammoniacal nitrogen, chloride, chemical oxygen demand (COD), electrical conductivity and pH.

5.1.3 Surface water samples collected on the 30th of June 2015 were also analysed for the quarterly suite below:

Inorganics, Filtered (Dissolved) Metals, phenols, combined Pesticides and Herbicides.

5.1.4 Summary tables displaying the surface water analysis results are presented in Appendix 4.

5.2 Surface Water Quality

5.2.1 Average ammoniacal nitrogen concentrations ranged between <0.2 mg/l in SW5 to 19 mg/l in SW4. This maximum concentration in SW4 is significantly higher than that recorded in the previous review (<0.2 mg/l). Chemical oxygen demand ranged between 48.1 mg/l in SW2 and 7000 mg/l in SW1.

5.2.2 SW4 also recorded a high COD concentration of 2860 mg/l, which was significantly higher than the 17.4 mg/l in the previous review period. pH in the surface water ranged between an average of 6.9 in SW4 to 8.2 in SW5.

5.2.3 No phenols or combined pesticides and herbicides were detected at any of the surface water locations during this review period, with the exception of SW4, where a phenol concentration of 2.48 mg/l was detected.

6.0 CONCLUSIONS

6.1 Landfill gas

- 6.1.1 None of the permitted trigger levels for carbon dioxide were exceeded during this review period.
- 6.1.2 Methane was only detected in BH22, remaining below the trigger level of 1.0 % throughout the review period, with an average concentration of 0.3 %.

6.2 Groundwater

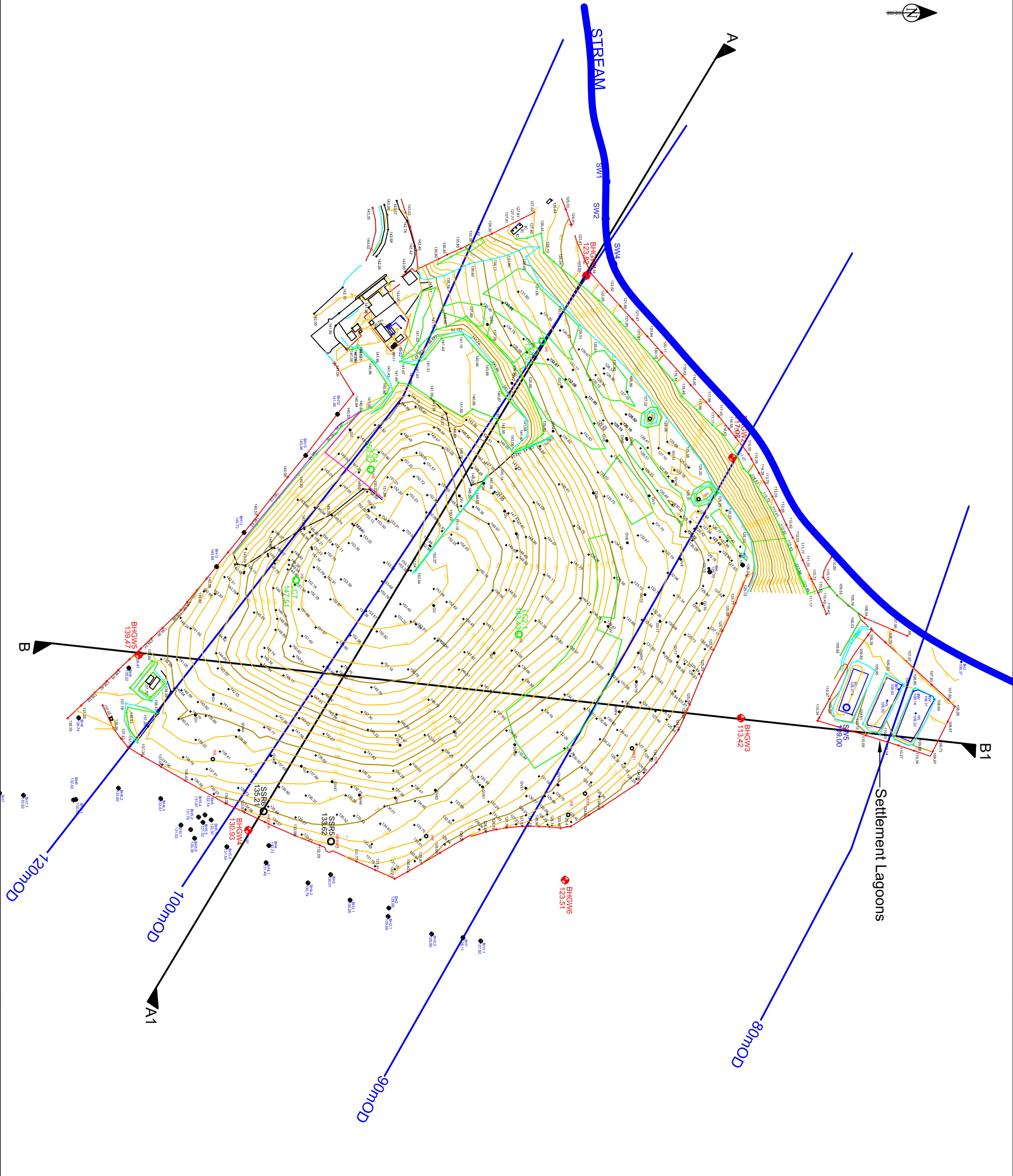
- 6.2.1 Groundwater quality was generally good in all locations, with the exception of GW6.
- 6.2.2 GW6 continued to display the highest concentrations of most parameters potentially due to the residual impact of the leachate outbreak close to this borehole which was detected in May 2013. The concentrations of key leachate indicator parameters appear to have decreased since the outbreak.

6.3 Leachate

- 6.3.1 Leachate levels remained low for the duration of the review period.
- 6.3.2 Leachate quality results indicate that a medium to strong leachate is present. This is to be expected given the age of the waste mass and the closed and capped nature of the site.

6.4 Surface Water

- 6.4.1 Elevated COD concentrations were recorded in SW1 (7000 mg/l) and SW4 (2860 mg/l) in June 2015. Ammoniacal nitrogen concentrations in these locations were also higher than in previous review periods, at 2.3 mg/l and 19.0 mg/l respectively. Surface water quality in SW2 and SW5 was relatively good.



Notes

-  Groundwater Borehole
-  Side Slope Riser
-  Leachate Chamber
-  Surface Water Monitoring Point
-  Cross Section
-  Ground Water Contours

Notes

Monitoring Point Height (mOD)
Given Below Identity Number

Ground Water Contour Based on
2005 Levels



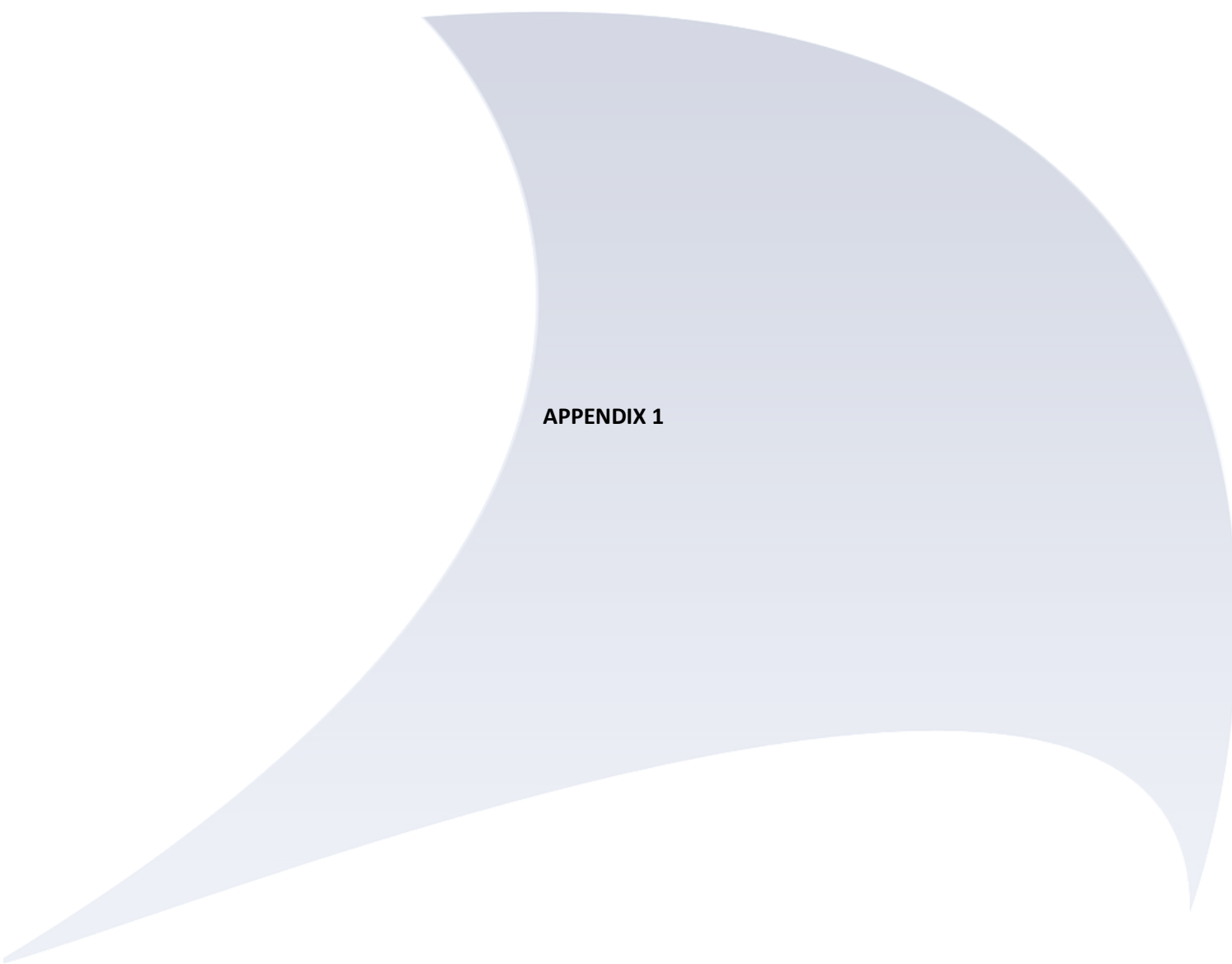
Bold Business Centre, Bold Lane,
Sutton, St Helens WA9 4TX



Site
**Standard Landfill
Buckley**

Title
**Environmental Monitoring
Locations**

Scale	1:1500	@ A2
Drawing No.	0987/1/002	
Rev	Date	Description
File	Standard Landfill3863a-TCL Revision001.dwg	
Date	03/09	Engineer CB
Drawn	SH	Checked JB



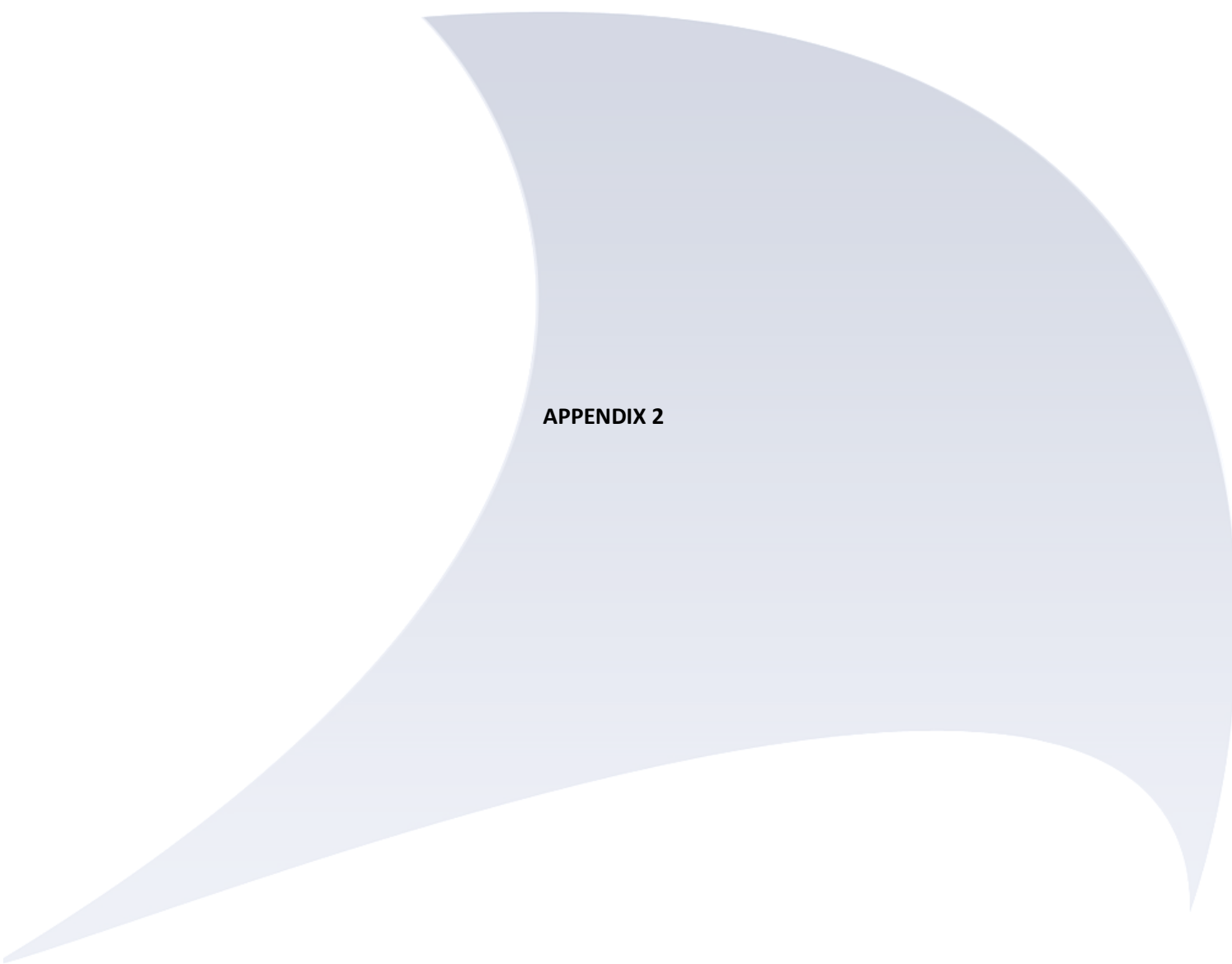
APPENDIX 1

APPENDIX 1

Table 1 – Summary of Landfill Gas Concentrations

Location		CH4 (%v/v)	Trigger (%v/v)	CO2 (%v/v)	Trigger (%v/v)	Location		CH4 (%v/v)	Trigger (%v/v)	CO2 (%v/v)	Trigger (%v/v)
BH 1	Min	0.0	1.0	1.2	5.37	BH 4.1	Min	0.0	1.0	1.4	7.12
	Max	0.0		2.4			Max	0.0		2.3	
	Ave	0.0		1.6			Ave	0.0		1.9	
	Count	13		13			Count	13		13	
BH 1.1	Min	0.0	1.0	1.1	5.35	BH 4.2	Min	0.0	1.0	1.0	8.59
	Max	0.0		1.7			Max	0.0		2.5	
	Ave	0.0		1.4			Ave	0.0		1.8	
	Count	13		13			Count	13		13	
BH 2.0	Min	0.0	1.0	1.0	7.05	BH 5.0	Min	0.0	1.0	0.9	19.42
	Max	0.0		1.9			Max	0.0		2.5	
	Ave	0.0		1.3			Ave	0.0		1.6	
	Count	13		13			Count	13		13	
BH 2.1	Min	0.0	1.0	1.0	7.57	BH 5.1	Min	0.0	1.0	1.0	5.8
	Max	0.0		2.1			Max	0.0		1.9	
	Ave	0.0		1.4			Ave	0.0		1.4	
	Count	13		13			Count	13		13	
BH 2.2	Min	0.0	1.0	1.0	5.82	BH 5.2	Min	0.0	1.0	0.9	9.64
	Max	0.0		3.2			Max	0.0		1.6	
	Ave	0.0		2.0			Ave	0.0		1.3	
	Count	13		13			Count	13		13	
BH 3.0	Min	0.0	1.0	1.5	6.7	BH 5.3	Min	0.0	1.0	1.5	6
	Max	0.0		2.4			Max	0.0		2.6	
	Ave	0.0		1.9			Ave	0.0		2.1	
	Count	13		13			Count	13		13	
BH 3.1	Min	0.0	1.0	1.0	7.76	BH 5.4	Min	0.0	1.0	1.8	16.03
	Max	0.0		1.7			Max	0.0		2.8	
	Ave	0.0		1.3			Ave	0.0		2.2	
	Count	13		13			Count	13		13	
BH 4.0	Min	0.0	1.0	1.4	10.65	BH 5.5	Min	0.0	1.0	1.1	17.06
	Max	0.0		2.6			Max	0.0		1.9	
	Ave	0.0		1.7			Ave	0.0		1.5	
	Count	13		13			Count	13		13	

Location		CH4 (%v/v)	Trigger (%v/v)	CO2 (%v/v)	Trigger (%v/v)	Location		CH4 (%v/v)	Trigger (%v/v)	CO2 (%v/v)	Trigger (%v/v)
BH 5.7	Min	0.0	1.0	1.8	7.07	BH 12	Min	0.0	1.0	1.1	6.48
	Max	0.0		2.6			Max	0.0		1.9	
	Ave	0.0		2.2			Ave	0.0		1.4	
	Count	13		13			Count	13		13	
BH 6.0	Min	0.0	1.0	1.2	8.92	BH 13	Min	0.0	1.0	1.5	5.2
	Max	0.0		2.3			Max	0.0		2.4	
	Ave	0.0		1.7			Ave	0.0		2.0	
	Count	13		13			Count	13		13	
BH 6.1	Min	0.0	1.0	1.4	3.72	BH 15	Min	0.0	1.0	1.0	8.3
	Max	0.0		2.3			Max	0.0		2.6	
	Ave	0.0		1.8			Ave	0.0		1.8	
	Count	13		13			Count	13		13	
BH 6.2	Min	0.0	1.0	1.1	6.12	BH 16	Min	0.0	1.0	1.2	3
	Max	0.0		2.8			Max	0.0		2.6	
	Ave	0.0		2.0			Ave	0.0		1.8	
	Count	13		13			Count	13		13	
BH 6.3	Min	0.0	1.0	2.1	8.24	BH 22	Min	0.1	1.0	1.1	3.1
	Max	0.0		2.6			Max	0.5		2.6	
	Ave	0.0		2.3			Ave	0.3		1.6	
	Count	13		13			Count	13		13	
BH 7.0	Min	0.0	1.0	1.1	6.2						
	Max	0.0		3.0							
	Ave	0.0		1.9							
	Count	13		13							
BH 7.1	Min	0.0	1.0	1.1	5.49						
	Max	0.0		2.2							
	Ave	0.0		1.6							
	Count	13		13							
BH 9.0	Min	0.0	1.0	1.4	10.72						
	Max	0.0		2.6							
	Ave	0.0		2.1							
	Count	13		13							



APPENDIX 2

APPENDIX 2

Table 2.1 - Groundwater Levels

Location	Date	Dip Level (mBGL)	GW Level (mAOD)
GW 1	22/04/2015	24.23	99.85
	26/05/2015	25.03	99.05
	30/06/2015	26.23	97.85
GW 2	22/04/2015	9.09	108.12
	26/05/2015	9.05	108.16
	30/06/2015	9.07	108.14
GW 3	22/04/2015	29.99	83.43
	26/05/2015	30.27	83.15
	30/06/2015	32.65	80.77
GW 4R	22/04/2015	48.97	82.03
	26/05/2015	47.89	83.11
	30/06/2015	48.06	82.94
GW 5	22/04/2015	4.06	130.80
	26/05/2015	3.98	130.88
	30/06/2015	4.00	130.86
GW 6	22/04/2015	25.21	98.36
	26/05/2015	27.42	96.15
	30/06/2015	28.12	95.45
GW 7R	22/04/2015	40.12	101.88
	26/05/2015	40.26	101.74
	30/06/2015	39.87	102.13

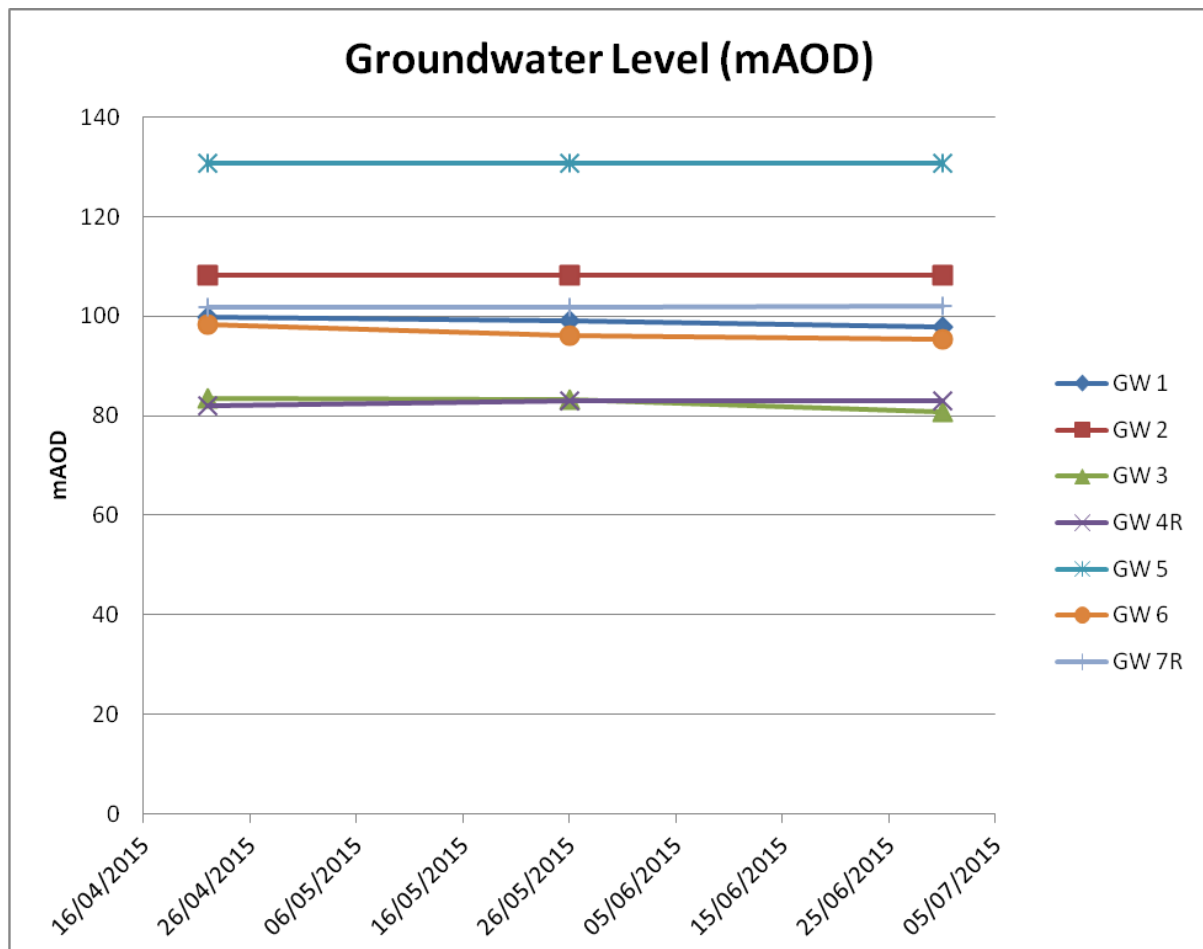


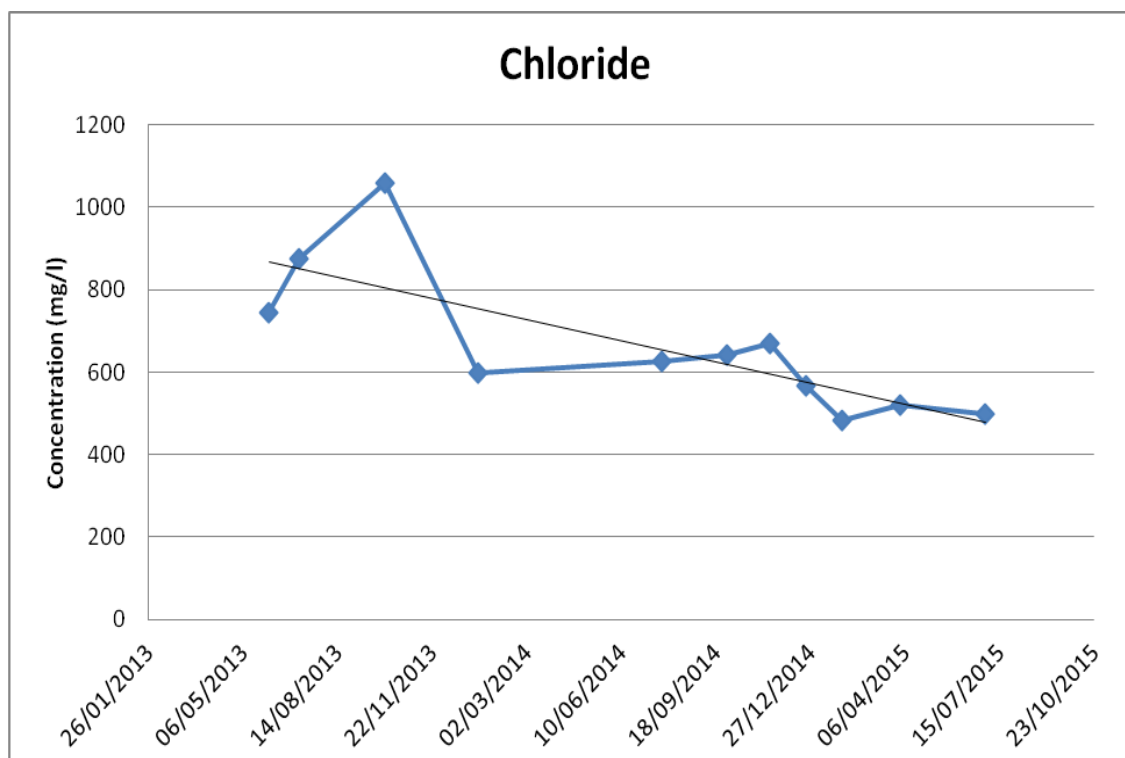
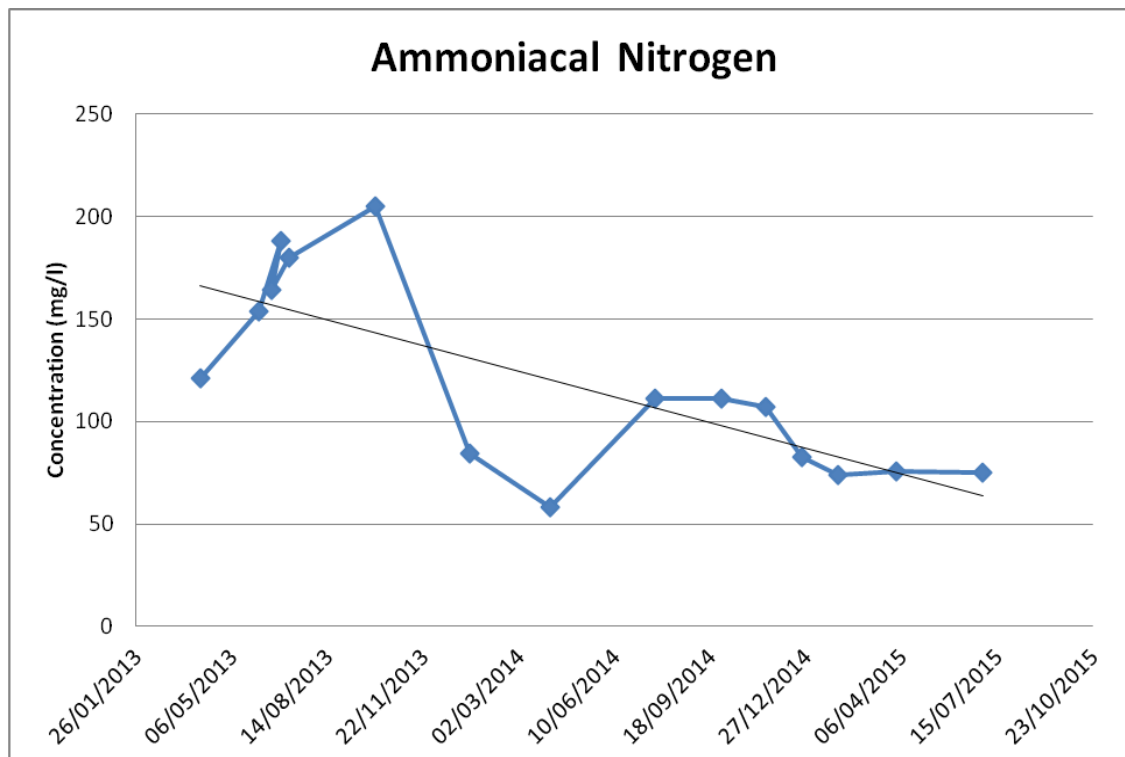
Table 2.2 - Groundwater Quality Data Summary

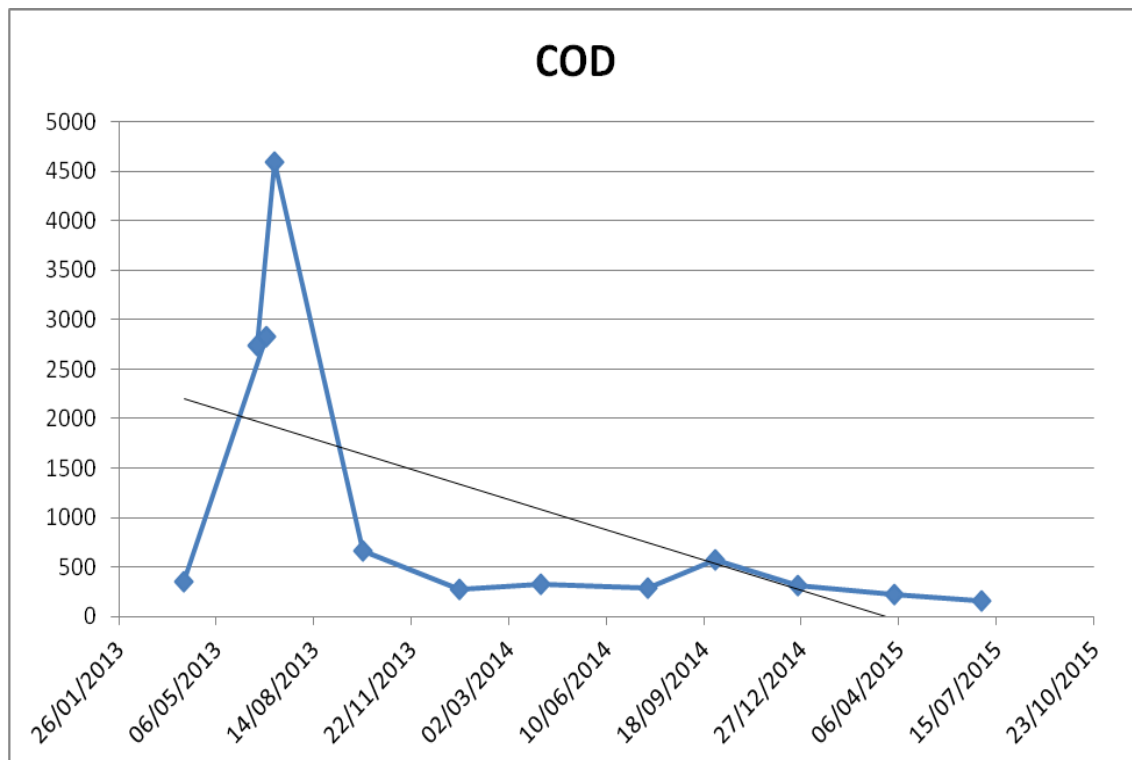
Parameter	Units	GW1	GW3	GW4	GW5	GW6	GW7
Carbon							
Organic Carbon, Total	mg/l	<3	6.05	3.09	15.4	37	<3
Inorganics							
Alkalinity, Total as CaCO ₃	mg/l	44.2	230	80	395	130	320
Ammoniacal Nitrogen as N	mg/l	<0.2	2.01	0.412	5.61	75	1.06
Chloride	mg/l	50.1	34.1	72.5	15.7	500	47.5
COD, unfiltered	mg/l	37.7	90.5	303	294	157	13.4
Conductivity @ 20 deg.C	mS/cm	0.588	0.711	0.687	0.674	2.91	0.9
Oxygen, dissolved	mg/l	5.34	3.49	3.86	<0.3	5.15	4.92
pH	pH	6.14	7.75	6.45	6.85	5.88	7.55
Sulphate	mg/l	222	182	228	282	355	160
Total Oxidised Nitrogen as N	mg/l	0.553	0.338	0.172	0.115	102	0.01
Filtered (Dissolved) Metals							
Cadmium (diss.filt)	mg/l	<0.0001	<0.0001	0.000451	<0.0001	0.00238	<0.0001
Calcium (diss.filt)	mg/l	50.6	80.6	69.7	111	70.2	71.8
Chromium (diss.filt)	mg/l	0.000653	0.00266	0.00113	0.00357	0.00176	0.000567
Copper (diss.filt)	mg/l	<0.00085	<0.00085	0.000925	<0.00085	0.00811	<0.00085
Iron (diss.filt)	mg/l	<0.019	<0.019	0.0352	33.8	0.0563	1.61
Lead (diss.filt)	mg/l	<0.00002	<0.00002	<0.00002	0.000021	0.000286	<0.00002
Magnesium (diss.filt)	mg/l	23.6	29.4	22.3	16.8	32.9	30.1
Manganese (diss.filt)	mg/l	0.44	0.139	4.56	6.14	8.8	0.558
Nickel (diss.filt)	mg/l	0.00127	0.00161	0.0759	0.00307	0.0791	0.0129
Potassium (diss.filt)	mg/l	9.36	13.2	8.1	10.9	56.2	12.5
Sodium (diss.filt)	mg/l	26.4	22.7	36	22.7	326	70.6
Zinc (diss.filt)	mg/l	0.0134	0.00469	0.102	0.000597	0.0662	0.0104
TPH Criteria Working Group (TPH CWG)							
Sum of detected Xylenes	mg/l	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011
Toluene	mg/l	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004

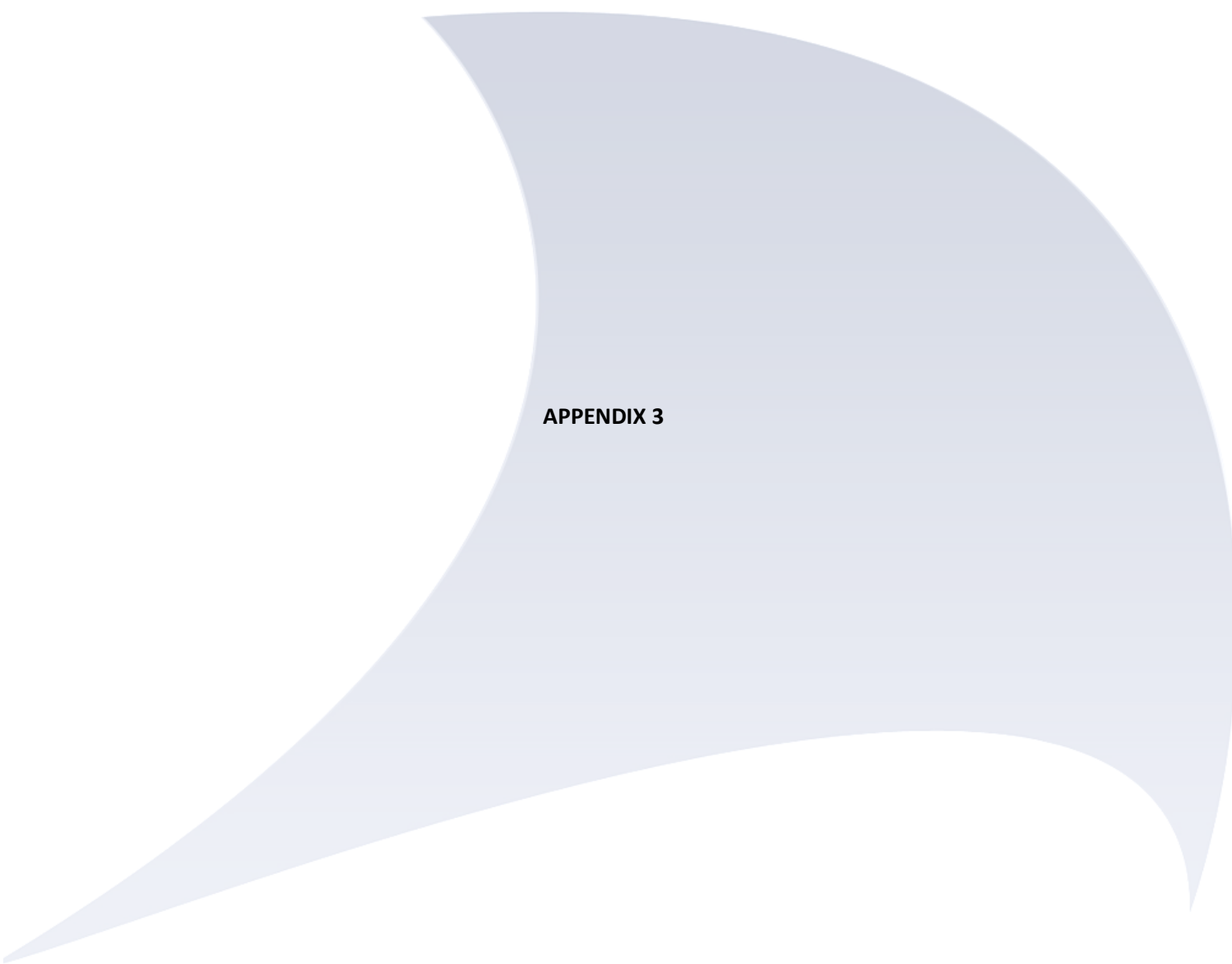
Table 2.3 - Groundwater Quality GW6 Summary

Parameter	Units	03/04/2013	03/06/2013	26/06/2013	17/06/2013	05/07/2013	03/10/2013
Alkalinity, Total as CaCO ₃	mg/l			795	-	-	690
Ammoniacal Nitrogen as N	mg/l	121	154	188	164	180	205
Chloride	mg/l	-	744	-	<0.08	874	1060
BOD, unfiltered	mg/l	5.62		26.2	-	-	-
COD, unfiltered	mg/l	350		2830	2740	4600	668
Cyanide, Total	mg/l	<0.05		<0.05	-	-	-
Nitrate as NO ₃	mg/l	6.03		8.53	-	-	-
Nitrite as NO ₂	mg/l	39.3		63.6	-	-	-
pH	pH Units	6.52	6.53	6.39	6.38	6.79	7.02
Total Oxidised Nitrogen as N	mg/l	10.7		16.9	-	-	80.3
Arsenic (diss.filt)	mg/l	0.00522		0.0108	-	-	-
Cadmium (diss.filt)	mg/l	0.0021		0.00273	-	-	0.00223
Calcium (diss.filt)	mg/l	-		-	-	-	70.1
Chromium (diss.filt)	mg/l	-		-	-	-	0.0248
Copper (diss.filt)	mg/l	0.0284		0.062	-	-	0.068
Iron (diss.filt)	mg/l	0.189		0.296	-	-	0.438
Lead (diss.filt)	mg/l	0.00101		0.00117	-	-	0.00135
Magnesium (diss.filt)	mg/l	40		46.5	-	-	44.1
Manganese (diss.filt)	mg/l	-		-	-	-	5.88
Mercury (diss.filt)	mg/l	0.000013		0.000029	-	-	-
Nickel (diss.filt)	mg/l	0.109		0.166	-	-	0.164
Potassium (diss.filt)	mg/l	71.5		101	-	-	139
Sodium (diss.filt)	mg/l	352		618	-	-	721
Zinc (diss.filt)	mg/l	0.0731		0.034	-	-	0.0407
Sum of detected Xylenes	mg/l	-		-	-	-	<0.011
Toluene	mg/l	-		-	-	-	<0.004

Parameter	Units	10/01/2014	04/04/2014	23/07/2014	30/09/2014	15/11/2014	23/12/2014	30/01/2015	01/04/2015	30/06/2015
Alkalinity, Total as CaCO ₃	mg/l	-	55	400	350	-	108	-	90	130
Ammoniacal Nitrogen as N	mg/l	84.7	58.1	111	111	107	82.9	73.7	75.5	75
Chloride	mg/l	599	-	627	642	671	567	482	519	500
BOD, unfiltered	mg/l	-	5.69	-	-	-	-	-	-	-
COD, unfiltered	mg/l	277	323	282	578	-	316	-	225	157
Cyanide, Total	mg/l	<0.05	<0.05	-	-	-	<0.05	-	-	-
Nitrate as NO ₃	mg/l	435	183	-	-	-	-	-	-	-
Nitrite as NO ₂	mg/l	3.91	2.74	-	-	-	-	-	-	-
pH	pH Units	5.85	7.12	6.76	6.86	6.35	5.86	5.97	6.43	5.88
Total Oxidised Nitrogen as N	mg/l	109	42.1	86.4	98.2	-	>106	-	>106	102
Arsenic (diss.filt)	mg/l	0.00583	0.00341	-	-	-	-	-	-	-
Cadmium (diss.filt)	mg/l	0.00393	0.00295	0.0024	0.00217	-	0.00466	-	0.00281	-
Calcium (diss.filt)	mg/l	-	-	74.2	74.3	-	72.4	-	79.9	70.2
Chromium (diss.filt)	mg/l	-	-	0.000569	0.00547	-	<0.00022	-	0.00419	-
Copper (diss.filt)	mg/l	0.0133	0.00694	0.0216	0.0208	-	0.0123	-	0.0069	-
Iron (diss.filt)	mg/l	0.305	0.131	0.0959	0.0844	-	0.0778	-	0.0613	0.0563
Lead (diss.filt)	mg/l	0.000881	0.00158	0.00044	0.000312	-	0.00121	-	0.000229	-
Magnesium (diss.filt)	mg/l	39.2	25.8	45.7	42.9	-	42.2	-	42.5	32.9
Manganese (diss.filt)	mg/l	-	-	-	-	-	-	-	8.3	-
Mercury (diss.filt)	mg/l	<0.00001	<0.00001	-	-	-	<0.00001	-	-	-
Nickel (diss.filt)	mg/l	0.155	0.114	0.101	0.0882	-	0.135	-	0.104	-
Potassium (diss.filt)	mg/l	71.5	41.9	82.9	78.3	-	60.4	-	64.3	56.2
Sodium (diss.filt)	mg/l	437	251	>400	440	-	381	-	365	326
Zinc (diss.filt)	mg/l	0.201	0.127	0.0629	0.042	-	0.137	-	0.0975	-
Sum of detected Xylenes	mg/l	-	-	<0.011	<0.011	-	<0.011	-	<0.011	<0.011
Toluene	mg/l	-	-	<0.004	<0.004	-	<0.004	-	<0.004	<0.004







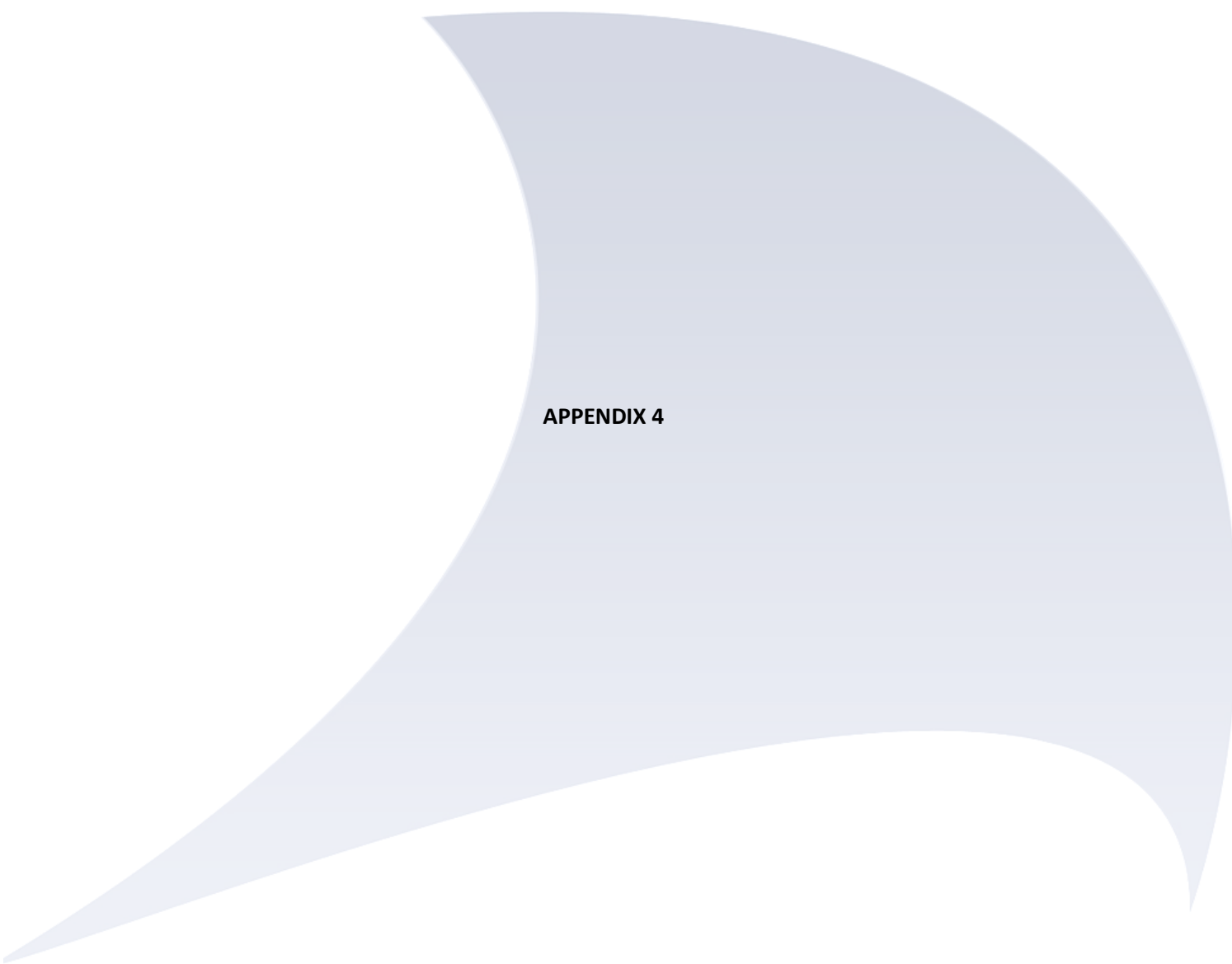
APPENDIX 3

APPENDIX 3**Table 3.1 - Leachate Levels**

Location	Date	Dip Level (mBGL)	Leachate Level (mAOD)	Leachate Level Head (m)
LC2.1	28/04/2015	29.58	111.47	1.49
	18/05/2015	29.51	111.54	1.48
	17/06/2015	29.58	111.47	1.44
LC3	28/04/2015	3.19	130.77	1.65
	18/05/2015	3.15	130.81	1.69
	17/06/2015	3.21	130.75	1.63
LC4	28/04/2015	17.59	131.06	1.41
	18/05/2015	17.61	131.04	1.39
	17/06/2015	17.52	131.13	1.48
LC7	28/04/2015	18.49	132.80	1.82
	18/05/2015	18.45	132.84	1.86
	17/06/2015	18.54	132.75	1.77
LS5	28/04/2015	28.61	104.70	1.35
	18/05/2015	28.59	104.72	1.36
	17/06/2015	28.63	104.68	1.34
LS6	28/04/2015	29.91	104.95	1.23
	18/05/2015	29.95	104.91	1.22
	17/06/2015	30.00	104.86	1.20
S1	28/04/2015	3.13	124.85	1.30
	18/05/2015	3.19	124.79	1.24
	17/06/2015	3.24	124.74	1.19
S2	28/04/2015	1.65	127.21	1.70
	18/05/2015	1.60	127.26	1.75
	17/06/2015	1.68	127.18	1.67
S3	28/04/2015	3.58	124.92	1.51
	18/05/2015	3.52	124.98	1.57
	17/06/2015	3.56	124.94	1.53

Table 3.2 - Leachate Quality Data Summary LC Wells

Parameter	Units	LC2	LC3	LC4	LC7
Carbon					
Organic Carbon, Total	mg/l	746	519	261	428
Inorganics					
Alkalinity, Total as CaCO ₃	mg/l	7820	6360	4160	5080
Ammoniacal Nitrogen as N	mg/l	1530	1050	727	866
BOD, unfiltered	mg/l	117	141	56.7	85
Chloride	mg/l	2150	1740	1160	1330
COD, unfiltered	mg/l	2360	1690	986	1290
pH	pH Units	7.75	7.6	7.78	7.94
Sulphate	mg/l	3.37	10.5	2.76	1.65
Total Oxidised Nitrogen as N	mg/l	<0.01	0.0598	2.59	<0.01
Filtered (Dissolved) Metals					
Calcium (diss.filt)	mg/l	25	52.1	84.8	69.2
Magnesium (diss.filt)	mg/l	41.9	55.2	67.9	87.3
Potassium (diss.filt)	mg/l	242	255	315	489
Sodium (diss.filt)	mg/l	1800	1350	1020	1240



APPENDIX 4

APPENDIX 4**Table 4.1 –Surface Water Weekly Quality Data Summary**

Location		Ammoniacal Nitrogen	COD	pH
		mg/l	mg/l	pH Units
SW1	30/06/2015	2.32	7000	7.2
SW2	30/06/2015	0.396	48.1	7.91
SW4	30/06/2015	19	2860	6.88
SW5	30/06/2015	<0.2	108	8.18

Table 4.2 –Quarterly Surface Water Quality

Parameter	Units	SW1	SW2	SW4	SW5
Inorganics					
Alkalinity, Total as CaCO ₃	mg/l	520	250	570	185
Ammoniacal Nitrogen as N	mg/l	2.32	0.396	19	<0.2
BOD, unfiltered	mg/l	57.7	4.61	1290	2.41
COD, unfiltered	mg/l	7000	48.1	2860	108
Cyanide, Total	mg/l	<0.05	<0.05	0.07	<0.05
Nitrate as NO ₃	mg/l	7.47	<0.04	<0.2	<0.04
Nitrite as NO ₂	mg/l	1.14	0.484	<0.15	<0.03
pH	pH Units	7.2	7.91	6.88	8.18
Total Oxidised Nitrogen as N	mg/l	2.03	0.153	<0.01	<0.01
Filtered (Dissolved) Metals					
Arsenic (diss.filt)	mg/l	0.00287	0.00152	0.00325	0.0009
Cadmium (diss.filt)	mg/l	<0.0001	<0.0001	<0.0001	<0.0001
Copper (diss.filt)	mg/l	<0.00085	0.00107	0.00166	0.00285
Iron (diss.filt)	mg/l	0.143	0.227	10.3	<0.019
Lead (diss.filt)	mg/l	0.000028	0.00014	0.00102	<0.00002
Magnesium (diss.filt)	mg/l	21.2	14.7	5.98	35.1
Mercury (diss.filt)	mg/l	<0.00001	<0.00001	<0.00001	<0.00001
Nickel (diss.filt)	mg/l	0.00337	0.00567	0.0198	0.00375
Potassium (diss.filt)	mg/l	9.77	7.75	15.8	7.84
Sodium (diss.filt)	mg/l	47.5	74.9	418	29.3
Zinc (diss.filt)	mg/l	<0.00041	0.00254	0.00726	0.000861
Phenols					
Phenols, Total Detected 5 speciated	mg/l	<0.025	<0.025	2.48	<0.025

Parameter	Units	SW1	SW2	SW4	SW5
Combined Pesticides / Herbicides					
Aldrin	mg/l	<0.002	<0.00001	<0.00001	<0.00001
alpha-Hexachlorocyclohexane (HCH / Lindane)	mg/l	<0.002	<0.00001	<0.00001	<0.00001
Atrazine	mg/l	<0.2	<0.001	<0.001	<0.001
Azinphos-ethyl	mg/l	<0.002	<0.00001	<0.00001	<0.00001
Azinphos-methyl	mg/l	<0.002	<0.00001	<0.00001	<0.00001
beta-Hexachlorocyclohexane (HCH / Lindane)	mg/l	<0.002	<0.00001	<0.00001	<0.00001
Carbophenothion	mg/l	<0.002	<0.00001	<0.00001	<0.00001
Chlorfenvinphos	mg/l	<0.002	<0.00001	<0.00001	<0.00001
Chlorothalonil	mg/l	<0.002	<0.00001	<0.00001	<0.00001
Chlorpyrifos	mg/l	<0.002	<0.00001	<0.00001	<0.00001
Chlorpyrifos methyl	mg/l	<0.002	<0.00001	<0.00001	<0.00001
cis-Chlordane	mg/l	<0.002	<0.00001	<0.00001	<0.00001
Diazinon	mg/l	<0.002	<0.00001	<0.00001	<0.00001
Dichlorvos	mg/l	<0.002	<0.00001	<0.00001	<0.00001
Dieldrin	mg/l	<0.002	<0.00001	<0.00001	<0.00001
Dimethoate	mg/l	<0.002	<0.00001	<0.00001	<0.00001
Disulfoton	mg/l	<0.002	<0.00001	<0.00001	<0.00001
Endosulphan I	mg/l	<0.002	<0.00001	<0.00001	<0.00001
Endosulphan II	mg/l	<0.002	<0.00001	<0.00001	<0.00001
Endosulphan sulphate	mg/l	<0.002	<0.00001	<0.00001	<0.00001
Endrin	mg/l	<0.002	<0.00001	<0.00001	<0.00001
Ethion	mg/l	<0.002	<0.00001	<0.00001	<0.00001
Etrimphos	mg/l	<0.002	<0.00001	<0.00001	<0.00001
Fenitrothion	mg/l	<0.002	<0.00001	<0.00001	<0.00001
Fenthion	mg/l	<0.002	<0.00001	<0.00001	<0.00001
gamma-Hexachlorocyclohexane (HCH / Lindane)	mg/l	<0.002	<0.00001	<0.00001	<0.00001
Heptachlor	mg/l	<0.002	<0.00001	<0.00001	<0.00001
Heptachlor epoxide	mg/l	<0.002	<0.00001	<0.00001	<0.00001
Hexachlorobenzene	mg/l	<0.002	<0.00001	<0.00001	<0.00001
Isodrin	mg/l	<0.002	<0.00001	<0.00001	<0.00001
Malathion	mg/l	<0.002	<0.00001	<0.00001	<0.00001
Methyl parathion	mg/l	<0.002	<0.00001	<0.00001	<0.00001
Mevinphos	mg/l	<0.002	<0.00001	<0.00001	<0.00001
o,p-DDE	mg/l	<0.002	<0.00001	<0.00001	<0.00001
o,p-DDT	mg/l	<0.002	<0.00001	<0.00001	<0.00001
o,p-Methoxychlor	mg/l	<0.002	<0.00001	<0.00001	<0.00001
o,p-TDE (DDD)	mg/l	<0.002	<0.00001	<0.00001	<0.00001
p,p-DDE	mg/l	<0.002	<0.00001	<0.00001	<0.00001
p,p-DDT	mg/l	<0.002	<0.00001	<0.00001	<0.00001
p,p-Methoxychlor	mg/l	<0.002	<0.00001	<0.00001	<0.00001
p,p-TDE (DDD)	mg/l	<0.002	<0.00001	<0.00001	<0.00001
Parathion	mg/l	<0.002	<0.00001	<0.00001	<0.00001
Pendimethalin	mg/l	<0.002	<0.00001	<0.00001	<0.00001
Permethrin I	mg/l	<0.002	<0.00001	<0.00001	<0.00001
Permethrin II	mg/l	<0.002	<0.00001	<0.00001	<0.00001
Phosalone	mg/l	<0.002	<0.00001	<0.00001	<0.00001
Pirimiphos-methyl	mg/l	<0.002	<0.00001	<0.00001	<0.00001
Propetamphos	mg/l	<0.002	<0.00001	<0.00001	<0.00001
Quintozone (PCNB)	mg/l	<0.002	<0.00001	<0.00001	<0.00001
Simazine	mg/l	<0.2	<0.001	<0.001	<0.001
Tecnazene	mg/l	<0.002	<0.00001	<0.00001	<0.00001
Telodrin	mg/l	<0.002	<0.00001	<0.00001	<0.00001
Trans-chlordane	mg/l	<0.002	<0.00001	<0.00001	<0.00001
Triadimefon	mg/l	<0.002	<0.00001	<0.00001	<0.00001
Triallate	mg/l	<0.002	<0.00001	<0.00001	<0.00001
Triazophos	mg/l	<0.002	<0.00001	<0.00001	<0.00001
Trifluralin	mg/l	<0.002	<0.00001	<0.00001	<0.00001

APPENDIX 5

Standard Landfill Borehole Gas Monitoring

Date 03/04/2015
 Weather: dry
 Wind conditions: calm
 Air Temperature: 12 °C

Instrument: GA 2000
 Serial No: GA10692
 Calibrated To: 20/09/2015
 Operatives AS

Monitoring Point	Time Hrs	CH4 %	CO2 %	O2 %	Balance %	CO ppm	H2S ppm	Baro mb	Rel Pressure mb	Trigger lev CH4 %	Trigger lev CO2
STBH 1	11:35	0	1.6	20.1	78.3	0	0	999	-0.12	1	5.4
STBH 1.1	11:32	0	1.2	19.5	79.3	0	0	999	-0.05	1	5.4
STBH 2.0	11:39	0	1.3	19.8	78.9	0	0	999	-0.55	1	7
STBH 2.1	11:27	0	1	20	79	0	0	999	-0.77	1	7.6
STBH 2.2	11:30	0	1.3	19.6	79.1	0	0	999	-0.58	1	5.8
STBH 3.0	11:44	0	2	19.8	78.2	0	0	999	-0.26	1	6.7
STBH 3.1	11:25	0	1.3	20.1	78.6	0	0	999	0.3	1	7.8
STBH 4.0	11:48	0	1.8	19.7	78.5	0	0	999	0.86	10	10.6
STBH 4.1	11:16	0	2	20.1	77.9	0	0	999	1.22	1	7.1
STBH 4.2	11:21	0	1.6	19.9	78.5	0	0	999	1.03	1	8.6
STBH 5.0	11:51	0	0.9	19.3	79.8	0	0	999	0.62	15	19.4
STBH 5.1	11:55	0	1.8	19.4	78.8	0	0	999	0.44	1	5.8
STBH 5.2	11:08	0	1.1	20	78.9	0	0	999	0.27	1	9.6
STBH 5.3	11:11	0	2	19.8	78.2	0	0	999	-0.1	1	6
STBH 6.0	12:13	0	2.3	20.2	77.5	0	0	999	-0.94	1	5.4
STBH 6.1	10:57	0	1.5	19.8	78.7	0	0	999	-0.3	1	5.4
STBH 6.2	11:01	0	1.1	19.6	79.3	0	0	999	1.19	1	5.4
STBH 6.3	11:05	0	2.1	19.2	78.7	0	0	999	1.08	1	8.2
STBH 7.0	12:17	0	1.4	20	78.6	0	0	999	0.46	1	6.2
STBH 7.1	10:53	0	1.6	19.6	78.8	0	0	999	0.58	1	5.5
STBH 9.0	12:28	0	2	19.4	78.6	0	0	999	0.64	1	10.7
STBH 12	12:31	0	1.3	20	78.7	0	0	999	-0.9	10	6.5
STBH 13	12:35	0	1.5	19.7	78.8	0	0	999	-0.19	10	5.2
STBH 15	12:39	0	2	19.9	78.1	0	0	999	0.87	1	8.3
STBH 16	12:43	0	1.8	20	78.2	0	0	999	-0.78	1	3
STBH 22	12:47	0.4	1.1	19.7	78.8	0	0	999	0.65	1.6	3.1
STMBH 5.4	11:59	0	2.8	19.8	77.4	0	0	999	-0.64	1	16
STMBH 5.5	12:01	0	1.1	20.1	78.8	0	0	999	0.01	1	17.1
STMBH 5.7	12:04	0	2.1	19.9	78	0	0	999	-0.14	1	7.1

Standard Landfill Borehole Gas Monitoring

Date 10/04/2015
 Weather: slight rain
 Wind conditions: calm
 Air Temperature: 13 °C

Instrument: GA 2000
 Serial No: GA10692
 Calibrated To: 20/09/2015
 Operatives AS

Monitoring Point	Time Hrs	CH4 %	CO2 %	O2 %	Balance %	CO ppm	H2S ppm	Baro mb	Rel Pressure mb	Trigger lev CH4 %	Trigger lev CO2
STBH 1	10:19	0	1.5	19.8	78.7	0	0	1001	-0.17	1	5.4
STBH 1.1	10:16	0	1.3	19.6	79.1	0	0	1001	-0.04	1	5.4
STBH 2.0	10:23	0	1	19.9	79.1	0	0	1001	-0.58	1	7
STBH 2.1	10:11	0	1.3	20.1	78.6	0	0	1001	-0.84	1	7.6
STBH 2.2	10:14	0	1	19.7	79.3	0	0	1001	-0.58	1	5.8
STBH 3.0	10:28	0	2.3	19.5	78.2	0	0	1001	-0.28	1	6.7
STBH 3.1	10:09	0	1.4	19.9	78.7	0	0	1001	0.34	1	7.8
STBH 4.0	10:32	0	1.5	19.8	78.7	0	0	1001	0.9	10	10.6
STBH 4.1	10:00	0	2.1	20	77.9	0	0	1001	1.27	1	7.1
STBH 4.2	10:05	0	1.3	20	78.7	0	0	1001	0.97	1	8.6
STBH 5.0	10:35	0	1	19.6	79.4	0	0	1001	0.65	15	19.4
STBH 5.1	10:39	0	1.3	19.5	79.2	0	0	1001	0.42	1	5.8
STBH 5.2	09:52	0	1.5	20.1	78.4	0	0	1001	0.3	1	9.6
STBH 5.3	09:55	0	2.1	19.5	78.4	0	0	1001	-0.17	1	6
STBH 6.0	10:57	0	1.8	19.9	78.3	0	0	1001	-0.9	1	5.4
STBH 6.1	09:41	0	2.3	20	77.7	0	0	1001	-0.3	1	5.4
STBH 6.2	09:45	0	1.4	19.3	79.3	0	0	1001	1.18	1	5.4
STBH 6.3	09:49	0	2.3	19.5	78.2	0	0	1001	1.05	1	8.2
STBH 7.0	11:01	0	1.1	20.1	78.8	0	0	1001	0.5	1	6.2
STBH 7.1	09:37	0	1.2	19.2	79.6	0	0	1001	0.6	1	5.5
STBH 9.0	11:12	0	2.3	19.6	78.1	0	0	1001	0.71	1	10.7
STBH 12	11:15	0	1.4	20.1	78.5	0	0	1001	-0.91	10	6.5
STBH 13	11:19	0	1.6	19.3	79.1	0	0	1001	-0.12	10	5.2
STBH 15	11:23	0	2.3	19.5	78.2	0	0	1001	0.91	1	8.3
STBH 16	11:27	0	1.5	20.2	78.3	0	0	1001	-0.77	1	3
STBH 22	11:31	0.3	1.3	19.5	78.9	0	0	1001	0.67	1.6	3.1
STMBH 5.4	10:43	0	2.5	20.1	77.4	0	0	1001	-0.62	1	16
STMBH 5.5	10:45	0	1.2	19.9	78.9	0	0	1001	0.01	1	17.1
STMBH 5.7	10:48	0	2	20.1	77.9	0	0	1001	-0.13	1	7.1

Standard Landfill Borehole Gas Monitoring

Date 17/04/2015
 Weather: slight rain
 Wind conditions: breezy
 Air Temperature: 11 °C

Instrument: GA 2000
 Serial No: GA10692
 Calibrated To: 20/09/2015
 Operatives AS

Monitoring Point	Time Hrs	CH4 %	CO2 %	O2 %	Balance %	CO ppm	H2S ppm	Baro mb	Rel Pressure mb	Trigger lev CH4 %	Trigger lev CO2
STBH 1	09:54	0	1.7	20.1	78.2	0	0	997	0.52	1	5.4
STBH 1.1	09:51	0	1.4	19.8	78.8	0	0	997	-0.71	1	5.4
STBH 2.0	09:58	0	1.2	19.5	79.3	0	0	997	0.78	1	7
STBH 2.1	09:46	0	1.5	19.7	78.8	0	0	997	0.56	1	7.6
STBH 2.2	09:49	0	1.3	20	78.7	0	0	997	0.62	1	5.8
STBH 3.0	10:03	0	2	19.9	78.1	0	0	997	0.67	1	6.7
STBH 3.1	09:44	0	1.1	19.8	79.1	0	0	997	0.69	1	7.8
STBH 4.0	10:07	0	1.4	19.5	79.1	0	0	997	1.05	10	10.6
STBH 4.1	09:35	0	2	20.3	77.7	0	0	997	1.14	1	7.1
STBH 4.2	09:40	0	1.5	19.8	78.7	0	0	997	0.78	1	8.6
STBH 5.0	10:10	0	0.9	20.1	79	0	0	997	0.82	15	19.4
STBH 5.1	10:14	0	1.5	19.8	78.7	0	0	997	0.63	1	5.8
STBH 5.2	09:27	0	1.6	19.9	78.5	0	0	997	0.57	1	9.6
STBH 5.3	09:30	0	1.5	20.1	78.4	0	0	997	0.63	1	6
STBH 6.0	10:32	0	1.4	19.7	78.9	0	0	997	-0.87	1	5.4
STBH 6.1	09:16	0	2.1	20.3	77.6	0	0	997	0.49	1	5.4
STBH 6.2	09:20	0	2	19.4	78.6	0	0	997	0.85	1	5.4
STBH 6.3	09:24	0	2.1	19.8	78.1	0	0	997	0.7	1	8.2
STBH 7.0	10:36	0	1.4	20.3	78.3	0	0	997	0.65	1	6.2
STBH 7.1	09:12	0	1.5	19.5	79	0	0	997	0.89	1	5.5
STBH 9.0	10:47	0	2.6	19.8	77.6	0	0	997	0.77	1	10.7
STBH 12	10:50	0	1.1	20.3	78.6	0	0	997	1.36	10	6.5
STBH 13	10:54	0	2.1	19.6	78.3	0	0	997	-0.87	10	5.2
STBH 15	10:58	0	2.4	19.4	78.2	0	0	997	0.6	1	8.3
STBH 16	11:02	0	1.6	20.1	78.3	0	0	997	0.74	1	3
STBH 22	11:06	0.2	1.1	19.8	78.9	0	0	997	0.56	1.6	3.1
STMBH 5.4	10:18	0	2.6	19.6	77.8	0	0	997	0.89	1	16
STMBH 5.5	10:20	0	1.1	20.1	78.8	0	0	997	0.75	1	17.1
STMBH 5.7	10:23	0	2.6	19.9	77.5	0	0	997	-0.69	1	7.1

Standard Landfill Borehole Gas Monitoring

Date 24/04/2015
 Weather: dry
 Wind conditions: calm
 Air Temperature: 14 °C

Instrument: GA 2000
 Serial No: GA10692
 Calibrated To: 20/09/2015
 Operatives AS

Monitoring Point	Time Hrs	CH4 %	CO2 %	O2 %	Balance %	CO ppm	H2S ppm	Baro mb	Rel Pressure mb	Trigger lev CH4 %	Trigger lev CO2
STBH 1	10:37	0	1.3	19.9	78.8	0	0	999	0.46	1	5.4
STBH 1.1	10:34	0	1.7	20.1	78.2	0	0	999	-0.68	1	5.4
STBH 2.0	10:41	0	1.4	19.6	79	0	0	999	0.89	1	7
STBH 2.1	10:29	0	1	20.1	78.9	0	0	999	0.52	1	7.6
STBH 2.2	10:32	0	1.4	19.4	79.2	0	0	999	0.6	1	5.8
STBH 3.0	10:46	0	1.8	20.3	77.9	0	0	999	0.74	1	6.7
STBH 3.1	10:27	0	1.4	19.9	78.7	0	0	999	0.71	1	7.8
STBH 4.0	10:50	0	1.9	19.8	78.3	0	0	999	1.13	10	10.6
STBH 4.1	10:18	0	2.3	20.2	77.5	0	0	999	1.37	1	7.1
STBH 4.2	10:23	0	1.3	19.6	79.1	0	0	999	0.66	1	8.6
STBH 5.0	10:53	0	1.1	20	78.9	0	0	999	0.9	15	19.4
STBH 5.1	10:57	0	1.2	19.9	78.9	0	0	999	0.62	1	5.8
STBH 5.2	10:10	0	1.6	20.3	78.1	0	0	999	0.48	1	9.6
STBH 5.3	10:13	0	1.9	19.6	78.5	0	0	999	0.74	1	6
STBH 6.0	11:15	0	1.7	19.9	78.4	0	0	999	-0.79	1	5.4
STBH 6.1	09:59	0	2	19.8	78.2	0	0	999	0.52	1	5.4
STBH 6.2	10:03	0	2.5	19.3	78.2	0	0	999	0.87	1	5.4
STBH 6.3	10:07	0	2.6	19.6	77.8	0	0	999	0.69	1	8.2
STBH 7.0	11:19	0	1.8	19.4	78.8	0	0	999	0.63	1	6.2
STBH 7.1	09:55	0	1.4	20.1	78.5	0	0	999	0.84	1	5.5
STBH 9.0	11:30	0	2.1	19.6	78.3	0	0	999	0.75	1	10.7
STBH 12	11:33	0	1.4	20	78.6	0	0	999	1.36	10	6.5
STBH 13	11:37	0	2.4	19.7	77.9	0	0	999	-0.84	10	5.2
STBH 15	11:41	0	1.9	20.1	78	0	0	999	0.65	1	8.3
STBH 16	11:45	0	1.3	19.4	79.3	0	0	999	0.7	1	3
STBH 22	11:49	0.3	1.4	19.6	78.7	0	0	999	0.52	1.6	3.1
STMBH 5.4	11:01	0	2.2	19.7	78.1	0	0	999	0.82	1	16
STMBH 5.5	11:03	0	1.5	20	78.5	0	0	999	0.73	1	17.1
STMBH 5.7	11:06	0	2.4	19.3	78.3	0	0	999	-0.67	1	7.1

Standard Landfill Borehole Gas Monitoring

Date 01/05/2015
 Weather: dry
 Wind conditions: calm
 Air Temperature: 15 °C

Instrument: GA 2000
 Serial No: GA10692
 Calibrated To: 20/09/2015
 Operatives AS

Monitoring Point	Time Hrs	CH4 %	CO2 %	O2 %	Balance %	CO ppm	H2S ppm	Baro mb	Rel Pressure mb	Trigger lev CH4 %	Trigger lev CO2
STBH 1	11:16	0	1.4	20.1	78.5	0	0	1004	0.5	1	5.4
STBH 1.1	11:13	0	1.5	19.9	78.6	0	0	1004	-0.62	1	5.4
STBH 2.0	11:20	0	1.1	19.8	79.1	0	0	1004	0.87	1	7
STBH 2.1	11:08	0	1.2	20	78.8	0	0	1004	0.61	1	7.6
STBH 2.2	11:11	0	2	19.6	78.4	0	0	1004	0.79	1	5.8
STBH 3.0	11:25	0	1.9	20.1	78	0	0	1004	0.62	1	6.7
STBH 3.1	11:06	0	1.1	19.5	79.4	0	0	1004	0.77	1	7.8
STBH 4.0	11:29	0	1.5	19.5	79	0	0	1004	1.01	10	10.6
STBH 4.1	10:57	0	2	20.1	77.9	0	0	1004	1.06	1	7.1
STBH 4.2	11:02	0	1	19.8	79.2	0	0	1004	0.92	1	8.6
STBH 5.0	11:32	0	1.3	20.1	78.6	0	0	1004	0.84	15	19.4
STBH 5.1	11:36	0	1	19.8	79.2	0	0	1004	0.63	1	5.8
STBH 5.2	10:49	0	1.4	20.1	78.5	0	0	1004	0.71	1	9.6
STBH 5.3	10:52	0	2	19.7	78.3	0	0	1004	0.69	1	6
STBH 6.0	11:54	0	1.6	20.1	78.3	0	0	1004	-0.83	1	5.4
STBH 6.1	10:38	0	2.3	19.9	77.8	0	0	1004	0.53	1	5.4
STBH 6.2	10:42	0	2.1	19.4	78.5	0	0	1004	0.79	1	5.4
STBH 6.3	10:46	0	2.4	19.7	77.9	0	0	1004	0.66	1	8.2
STBH 7.0	11:58	0	1.7	19.9	78.4	0	0	1004	0.51	1	6.2
STBH 7.1	10:34	0	1.6	20	78.4	0	0	1004	0.9	1	5.5
STBH 9.0	12:09	0	2.3	19.4	78.3	0	0	1004	0.85	1	10.7
STBH 12	12:12	0	1.6	19.9	78.5	0	0	1004	1.17	10	6.5
STBH 13	12:16	0	2.1	19.5	78.4	0	0	1004	-0.79	10	5.2
STBH 15	12:20	0	1.4	20.2	78.4	0	0	1004	0.69	1	8.3
STBH 16	12:24	0	1.5	19.6	78.9	0	0	1004	0.89	1	3
STBH 22	12:28	0.1	1.5	19.4	79	0	0	1004	0.54	1.6	3.1
STMBH 5.4	11:40	0	2	19.5	78.5	0	0	1004	0.84	1	16
STMBH 5.5	11:42	0	1.6	20.1	78.3	0	0	1004	0.76	1	17.1
STMBH 5.7	11:45	0	2.3	19.6	78.1	0	0	1004	-0.69	1	7.1

Standard Landfill Borehole Gas Monitoring

Date 08/05/2015
 Weather: dry
 Wind conditions: breezy
 Air Temperature: 11 °C

Instrument: GA 2000
 Serial No: GA10692
 Calibrated To: 20/09/2015
 Operatives AS

Monitoring Point	Time Hrs	CH4 %	CO2 %	O2 %	Balance %	CO ppm	H2S ppm	Baro mb	Rel Pressure mb	Trigger lev CH4 %	Trigger lev CO2
STBH 1	10:37	0	1.7	19.9	78.4	0	0	1002	0.4	1	5.4
STBH 1.1	10:34	0	1.1	20.1	78.8	0	0	1002	-0.65	1	5.4
STBH 2.0	10:41	0	1.2	19.4	79.4	0	0	1002	0.82	1	7
STBH 2.1	10:29	0	1.4	20.3	78.3	0	0	1002	0.45	1	7.6
STBH 2.2	10:32	0	2.3	19.8	77.9	0	0	1002	0.66	1	5.8
STBH 3.0	10:46	0	1.5	20.2	78.3	0	0	1002	0.62	1	6.7
STBH 3.1	10:27	0	1.2	19.6	79.2	0	0	1002	0.77	1	7.8
STBH 4.0	10:50	0	1.4	19.8	78.8	0	0	1002	1.2	10	10.6
STBH 4.1	10:18	0	2.3	20.2	77.5	0	0	1002	1.49	1	7.1
STBH 4.2	10:23	0	1.2	19.5	79.3	0	0	1002	0.78	1	8.6
STBH 5.0	10:53	0	1.5	19.9	78.6	0	0	1002	0.89	15	19.4
STBH 5.1	10:57	0	1.1	19.3	79.6	0	0	1002	0.72	1	5.8
STBH 5.2	10:10	0	1.2	20.3	78.5	0	0	1002	0.4	1	9.6
STBH 5.3	10:13	0	2.3	19.4	78.3	0	0	1002	0.82	1	6
STBH 6.0	11:15	0	1.9	20.2	77.9	0	0	1002	-0.68	1	5.4
STBH 6.1	09:59	0	2	19.4	78.6	0	0	1002	0.46	1	5.4
STBH 6.2	10:03	0	2.2	19.6	78.2	0	0	1002	0.8	1	5.4
STBH 6.3	10:07	0	2.1	19.9	78	0	0	1002	0.63	1	8.2
STBH 7.0	11:19	0	1.5	20.1	78.4	0	0	1002	0.54	1	6.2
STBH 7.1	09:55	0	1.8	20.3	77.9	0	0	1002	0.86	1	5.5
STBH 9.0	11:30	0	2.1	19.5	78.4	0	0	1002	0.71	1	10.7
STBH 12	11:33	0	1.4	19.4	79.2	0	0	1002	1.22	10	6.5
STBH 13	11:37	0	2	19.8	78.2	0	0	1002	-0.87	10	5.2
STBH 15	11:41	0	1.5	20.2	78.3	0	0	1002	0.71	1	8.3
STBH 16	11:45	0	1.2	20	78.8	0	0	1002	0.63	1	3
STBH 22	11:49	0.5	1.6	19.7	78.2	0	0	1002	0.45	1.6	3.1
STMBH 5.4	11:01	0	2.1	19.6	78.3	0	0	1002	0.88	1	16
STMBH 5.5	11:03	0	1.8	19.9	78.3	0	0	1002	-0.67	1	17.1
STMBH 5.7	11:06	0	2.1	19.8	78.1	0	0	1002	-0.57	1	7.1

Standard Landfill Borehole Gas Monitoring

Date 15/05/2015
 Weather: slight rain
 Wind conditions: breezy
 Air Temperature: 14 °C

Instrument: GA 2000
 Serial No: GA10692
 Calibrated To: 20/09/2015
 Operatives AS

Monitoring Point	Time Hrs	CH4 %	CO2 %	O2 %	Balance %	CO ppm	H2S ppm	Baro mb	Rel Pressure mb	Trigger lev CH4 %	Trigger lev CO2
STBH 1	09:54	0	1.3	19.9	78.8	0	0	1000	0.09	1	5.4
STBH 1.1	09:51	0	1.4	20.1	78.5	0	0	1000	0.08	1	5.4
STBH 2.0	09:58	0	1.2	19.5	79.3	0	0	1000	-0.46	1	7
STBH 2.1	09:46	0	1.5	19.8	78.7	0	0	1000	-0.15	1	7.6
STBH 2.2	09:49	0	2	20.3	77.7	0	0	1000	-0.29	1	5.8
STBH 3.0	10:03	0	1.5	19.8	78.7	0	0	1000	-0.17	1	6.7
STBH 3.1	09:44	0	1.2	19.5	79.3	0	0	1000	0.3	1	7.8
STBH 4.0	10:07	0	1.8	19.4	78.8	0	0	1000	0.55	10	10.6
STBH 4.1	09:35	0	2.3	20.2	77.5	0	0	1000	0.67	1	7.1
STBH 4.2	09:40	0	2.1	19.8	78.1	0	0	1000	-0.93	1	8.6
STBH 5.0	10:10	0	1.7	19.9	78.4	0	0	1000	0.8	15	19.4
STBH 5.1	10:14	0	1.2	19.6	79.2	0	0	1000	0.2	1	5.8
STBH 5.2	09:27	0	1.4	19.7	78.9	0	0	1000	0.46	1	9.6
STBH 5.3	09:30	0	1.8	20.1	78.1	0	0	1000	-0.41	1	6
STBH 6.0	10:32	0	1.2	19.9	78.9	0	0	1000	-0.18	1	5.4
STBH 6.1	09:16	0	1.4	20.1	78.5	0	0	1000	-0.43	1	5.4
STBH 6.2	09:20	0	1.8	19.8	78.4	0	0	1000	0.96	1	5.4
STBH 6.3	09:24	0	2.3	20	77.7	0	0	1000	0.72	1	8.2
STBH 7.0	10:36	0	2	19.6	78.4	0	0	1000	0.41	1	6.2
STBH 7.1	09:12	0	1.6	20.2	78.2	0	0	1000	0.38	1	5.5
STBH 9.0	10:47	0	2.1	19.9	78	0	0	1000	-0.27	1	10.7
STBH 12	10:50	0	1.4	20.1	78.5	0	0	1000	0.98	10	6.5
STBH 13	10:54	0	2.1	19.9	78	0	0	1000	0.03	10	5.2
STBH 15	10:58	0	1	20.1	78.9	0	0	1000	0.33	1	8.3
STBH 16	11:02	0	1.6	20	78.4	0	0	1000	-0.19	1	3
STBH 22	11:06	0.1	1.4	19.5	79	0	0	1000	0.43	1.6	3.1
STMBH 5.4	10:18	0	2.1	20.1	77.8	0	0	1000	-0.21	1	16
STMBH 5.5	10:20	0	1.5	20.3	78.2	0	0	1000	-0.18	1	17.1
STMBH 5.7	10:23	0	2.3	19.8	77.9	0	0	1000	-0.89	1	7.1

Standard Landfill Borehole Gas Monitoring

Date 22/05/2015
 Weather: slight rain
 Wind conditions: calm
 Air Temperature: 12 °C

Instrument: GA 2000
 Serial No: GA10692
 Calibrated To: 20/09/2015
 Operatives AS

Monitoring Point	Time Hrs	CH4 %	CO2 %	O2 %	Balance %	CO ppm	H2S ppm	Baro mb	Rel Pressure mb	Trigger lev CH4 %	Trigger lev CO2
STBH 1	09:32	0	1.2	19.6	79.2	0	0	999	0.08	1	5.4
STBH 1.1	09:29	0	1.3	20	78.7	0	0	999	0.14	1	5.4
STBH 2.0	09:36	0	1	19.9	79.1	0	0	999	0.41	1	7
STBH 2.1	09:24	0	1.2	19.4	79.4	0	0	999	0.32	1	7.6
STBH 2.2	09:27	0	2.1	19.6	78.3	0	0	999	1.01	1	5.8
STBH 3.0	09:41	0	1.6	19.4	79	0	0	999	0.26	1	6.7
STBH 3.1	09:22	0	1	19.9	79.1	0	0	999	0.01	1	7.8
STBH 4.0	09:45	0	1.5	20	78.5	0	0	999	0.2	10	10.6
STBH 4.1	09:13	0	2.1	20.3	77.6	0	0	999	0.48	1	7.1
STBH 4.2	09:18	0	2.4	20.1	77.5	0	0	999	0.96	1	8.6
STBH 5.0	09:48	0	1.6	20	78.4	0	0	999	1.06	15	19.4
STBH 5.1	09:52	0	1.5	20	78.5	0	0	999	1.23	1	5.8
STBH 5.2	09:05	0	1.5	19.9	78.6	0	0	999	1.09	1	9.6
STBH 5.3	09:08	0	2.1	19.5	78.4	0	0	999	0.34	1	6
STBH 6.0	10:10	0	1.4	20.1	78.5	0	0	999	-0.09	1	5.4
STBH 6.1	08:54	0	1.5	19.6	78.9	0	0	999	0.05	1	5.4
STBH 6.2	08:58	0	1.9	19.9	78.2	0	0	999	0.1	1	5.4
STBH 6.3	09:02	0	2.1	20.3	77.6	0	0	999	0.62	1	8.2
STBH 7.0	10:14	0	1.8	19.8	78.4	0	0	999	0.38	1	6.2
STBH 7.1	08:50	0	1.7	20	78.3	0	0	999	0.23	1	5.5
STBH 9.0	10:25	0	2.3	19.5	78.2	0	0	999	0.21	1	10.7
STBH 12	10:28	0	1.5	19.6	78.9	0	0	999	0.86	10	6.5
STBH 13	10:32	0	1.9	20.2	77.9	0	0	999	0.91	10	5.2
STBH 15	10:36	0	1.4	19.8	78.8	0	0	999	-0.08	1	8.3
STBH 16	10:40	0	1.7	20.1	78.2	0	0	999	0.14	1	3
STBH 22	10:44	0.3	1.6	19.6	78.5	0	0	999	0.32	1.6	3.1
STMBH 5.4	09:56	0	2	19.9	78.1	0	0	999	0.87	1	16
STMBH 5.5	09:58	0	1.6	20.1	78.3	0	0	999	-0.19	1	17.1
STMBH 5.7	10:01	0	2.1	19.9	78	0	0	999	0.29	1	7.1

Standard Landfill Borehole Gas Monitoring

Date 29/05/2015
 Weather: dry
 Wind conditions: calm
 Air Temperature: 18 °C

Instrument: GA 2000
 Serial No: GA10692
 Calibrated To: 20/09/2015
 Operatives AS

Monitoring Point	Time Hrs	CH4 %	CO2 %	O2 %	Balance %	CO ppm	H2S ppm	Baro mb	Rel Pressure mb	Trigger lev CH4 %	Trigger lev CO2
STBH 1	11:07	0	1.4	19.8	78.8	0	0	1007	0.01	1	5.4
STBH 1.1	11:04	0	1.6	20.1	78.7	0	0	1007	-0.14	1	5.4
STBH 2.0	11:11	0	1.2	19.5	79.1	0	0	1007	0.58	1	7
STBH 2.1	10:59	0	1.6	19.7	79.4	0	0	1007	0.83	1	7.6
STBH 2.2	11:02	0	3.2	19.8	78.3	0	0	1007	0.58	1	5.8
STBH 3.0	11:16	0	1.8	20	79	0	0	1007	0.63	1	6.7
STBH 3.1	10:57	0	1.3	19.6	79.1	0	0	1007	0.23	1	7.8
STBH 4.0	11:20	0	1.4	19.6	78.5	0	0	1007	1.28	10	10.6
STBH 4.1	10:48	0	1.8	19.8	77.6	0	0	1007	1.31	1	7.1
STBH 4.2	10:53	0	2.1	19.9	77.5	0	0	1007	1.08	1	8.6
STBH 5.0	11:23	0	1.4	20.1	78.4	0	0	1007	0.62	15	19.4
STBH 5.1	11:27	0	1.9	20.3	78.5	0	0	1007	0.45	1	5.8
STBH 5.2	10:40	0	1.6	19.5	78.6	0	0	1007	0.24	1	9.6
STBH 5.3	10:43	0	2	19.6	78.4	0	0	1007	0.98	1	6
STBH 6.0	11:45	0	1.9	19.9	78.5	0	0	1007	-0.88	1	5.4
STBH 6.1	10:29	0	1.4	20.3	78.9	0	0	1007	0.74	1	5.4
STBH 6.2	10:33	0	2.1	19.5	78.2	0	0	1007	1.32	1	5.4
STBH 6.3	10:37	0	2.4	20.1	77.6	0	0	1007	0.99	1	8.2
STBH 7.0	11:49	0	1.6	19.5	78.4	0	0	1007	0.09	1	6.2
STBH 7.1	10:25	0	1.5	20.1	78.3	0	0	1007	0.5	1	5.5
STBH 9.0	12:00	0	2.1	19.6	78.2	0	0	1007	0.66	1	10.7
STBH 12	12:03	0	1.6	20.3	78.9	0	0	1007	0.9	10	6.5
STBH 13	12:07	0	2.1	19.9	77.9	0	0	1007	-0.19	10	5.2
STBH 15	12:11	0	1.4	19.9	78.8	0	0	1007	0.82	1	8.3
STBH 16	12:15	0	2.3	20	78.2	0	0	1007	0.64	1	3
STBH 22	12:19	0.2	1.8	19.7	78.5	0	0	1007	0.56	1.6	3.1
STMBH 5.4	11:31	0	2.1	19.8	78.1	0	0	1007	0.58	1	16
STMBH 5.5	11:33	0	1.4	20.3	78.3	0	0	1007	-0.12	1	17.1
STMBH 5.7	11:36	0	2.6	20	78	0	0	1007	-0.2	1	7.1

Standard Landfill Borehole Gas Monitoring

Date 05/06/2015
 Weather: dry
 Wind conditions: calm
 Air Temperature: 19 °C

Instrument: GA 2000
 Serial No: GA10692
 Calibrated To: 20/09/2015
 Operatives AS

Monitoring Point	Time Hrs	CH4 %	CO2 %	O2 %	Balance %	CO ppm	H2S ppm	Baro mb	Rel Pressure mb	Trigger lev CH4 %	Trigger lev CO2
STBH 1	10:46	0	1.6	20.1	78.3	0	0	1004	0.09	1	5.4
STBH 1.1	10:43	0	1.4	19.9	78.7	0	0	1004	-0.07	1	5.4
STBH 2.0	10:50	0	1.1	19.7	79.2	0	0	1004	0.48	1	7
STBH 2.1	10:38	0	1.5	19.9	78.6	0	0	1004	0.85	1	7.6
STBH 2.2	10:41	0	2.9	20.1	77	0	0	1004	0.54	1	5.8
STBH 3.0	10:55	0	1.6	20.3	78.1	0	0	1004	0.64	1	6.7
STBH 3.1	10:36	0	1.4	19.8	78.8	0	0	1004	0.29	1	7.8
STBH 4.0	10:59	0	1.6	19.9	78.5	0	0	1004	1.25	10	10.6
STBH 4.1	10:27	0	1.5	20.1	78.4	0	0	1004	1.28	1	7.1
STBH 4.2	10:32	0	2.3	19.6	78.1	0	0	1004	1.06	1	8.6
STBH 5.0	11:02	0	1.9	19.9	78.2	0	0	1004	0.6	15	19.4
STBH 5.1	11:06	0	1.5	20.1	78.4	0	0	1004	0.43	1	5.8
STBH 5.2	10:19	0	1.4	19.6	79	0	0	1004	0.25	1	9.6
STBH 5.3	10:22	0	2.3	20.1	77.6	0	0	1004	0.92	1	6
STBH 6.0	11:24	0	1.5	19.6	78.9	0	0	1004	-0.92	1	5.4
STBH 6.1	10:08	0	1.6	20.1	78.3	0	0	1004	0.69	1	5.4
STBH 6.2	10:12	0	2	19.6	78.4	0	0	1004	1.35	1	5.4
STBH 6.3	10:16	0	2.3	20	77.7	0	0	1004	1.03	1	8.2
STBH 7.0	11:28	0	1.8	19.8	78.4	0	0	1004	0.17	1	6.2
STBH 7.1	10:04	0	1.1	20.3	78.6	0	0	1004	0.58	1	5.5
STBH 9.0	11:39	0	2.5	19.9	77.6	0	0	1004	0.67	1	10.7
STBH 12	11:42	0	1.4	19.8	78.8	0	0	1004	0.86	10	6.5
STBH 13	11:46	0	2	19.6	78.4	0	0	1004	-0.18	10	5.2
STBH 15	11:50	0	1.6	19.8	78.6	0	0	1004	0.89	1	8.3
STBH 16	11:54	0	2.1	20.1	77.8	0	0	1004	0.69	1	3
STBH 22	11:58	0.3	1.6	19.6	78.5	0	0	1004	0.54	1.6	3.1
STMBH 5.4	11:10	0	2.5	19.9	77.6	0	0	1004	0.57	1	16
STMBH 5.5	11:12	0	1.6	20.1	78.3	0	0	1004	-0.14	1	17.1
STMBH 5.7	11:15	0	2.4	20	77.6	0	0	1004	-0.2	1	7.1

Standard Landfill Borehole Gas Monitoring

Date 12/06/2015
 Weather: dry
 Wind conditions: calm
 Air Temperature: 17 °C

Instrument: GA 2000
 Serial No: GA10692
 Calibrated To: 20/09/2015
 Operatives AS

Monitoring Point	Time Hrs	CH4 %	CO2 %	O2 %	Balance %	CO ppm	H2S ppm	Baro mb	Rel Pressure mb	Trigger lev CH4 %	Trigger lev CO2
STBH 1	10:37	0	1.8	19.9	78.3	0	0	1000	0.09	1	5.4
STBH 1.1	10:34	0	1.2	20.1	78.7	0	0	1000	-0.15	1	5.4
STBH 2.0	10:41	0	1.3	19.8	78.9	0	0	1000	0.5	1	7
STBH 2.1	10:29	0	1.6	20.1	78.3	0	0	1000	0.79	1	7.6
STBH 2.2	10:32	0	2.6	20.3	77.1	0	0	1000	0.58	1	5.8
STBH 3.0	10:46	0	1.9	19.9	78.2	0	0	1000	0.6	1	6.7
STBH 3.1	10:27	0	1.7	19.5	78.8	0	0	1000	0.22	1	7.8
STBH 4.0	10:50	0	1.7	20.1	78.2	0	0	1000	1.25	10	10.6
STBH 4.1	10:18	0	1.4	19.8	78.8	0	0	1000	1.3	1	7.1
STBH 4.2	10:23	0	2.5	19.5	78	0	0	1000	1.07	1	8.6
STBH 5.0	10:53	0	2.3	19.8	77.9	0	0	1000	0.63	15	19.4
STBH 5.1	10:57	0	1.2	20.3	78.5	0	0	1000	0.45	1	5.8
STBH 5.2	10:10	0	1.2	20	78.8	0	0	1000	0.21	1	9.6
STBH 5.3	10:13	0	2.1	19.5	78.4	0	0	1000	0.95	1	6
STBH 6.0	11:15	0	1.6	19.8	78.6	0	0	1000	-0.97	1	5.4
STBH 6.1	09:59	0	1.4	20	78.6	0	0	1000	0.73	1	5.4
STBH 6.2	10:03	0	2.8	19.8	77.4	0	0	1000	1.31	1	5.4
STBH 6.3	10:07	0	2.6	20.2	77.2	0	0	1000	1.02	1	8.2
STBH 7.0	11:19	0	3	19.7	77.3	0	0	1000	0.12	1	6.2
STBH 7.1	09:55	0	2	20.1	77.9	0	0	1000	0.56	1	5.5
STBH 9.0	11:30	0	1.9	20.1	78	0	0	1000	0.67	1	10.7
STBH 12	11:33	0	1.1	19.6	79.3	0	0	1000	0.88	10	6.5
STBH 13	11:37	0	1.8	20.1	78.1	0	0	1000	-0.15	10	5.2
STBH 15	11:41	0	1.2	19.3	79.5	0	0	1000	0.83	1	8.3
STBH 16	11:45	0	2.6	19.9	77.5	0	0	1000	0.6	1	3
STBH 22	11:49	0.4	1.4	19.7	78.5	0	0	1000	0.54	1.6	3.1
STMBH 5.4	11:01	0	2.1	20.1	77.8	0	0	1000	0.57	1	16
STMBH 5.5	11:03	0	1.4	19.8	78.8	0	0	1000	-0.14	1	17.1
STMBH 5.7	11:06	0	2.1	19.6	78.3	0	0	1000	-0.18	1	7.1

Standard Landfill Borehole Gas Monitoring

Date 19/06/2015
 Weather: dry
 Wind conditions: calm
 Air Temperature: 17 °C

Instrument: GA 2000
 Serial No: GA10692
 Calibrated To: 20/09/2015
 Operatives AS

Monitoring Point	Time Hrs	CH4 %	CO2 %	O2 %	Balance %	CO ppm	H2S ppm	Baro mb	Rel Pressure mb	Trigger lev CH4 %	Trigger lev CO2
STBH 1	10:46	0	2.1	19.9	78	0	0	998	-0.2	1	5.4
STBH 1.1	10:43	0	1.5	20	78.5	0	0	998	-0.02	1	5.4
STBH 2.0	10:50	0	1.9	19.9	78.2	0	0	998	-0.59	1	7
STBH 2.1	10:38	0	2.1	19.6	78.3	0	0	998	-0.81	1	7.6
STBH 2.2	10:41	0	2	20	78	0	0	998	-0.62	1	5.8
STBH 3.0	10:55	0	2.3	19.6	78.1	0	0	998	-0.29	1	6.7
STBH 3.1	10:36	0	1.4	19.7	78.9	0	0	998	0.39	1	7.8
STBH 4.0	10:59	0	2.6	20	77.4	0	0	998	0.9	10	10.6
STBH 4.1	10:27	0	1.5	19.6	78.9	0	0	998	1.29	1	7.1
STBH 4.2	10:32	0	2.1	19.7	78.2	0	0	998	1.04	1	8.6
STBH 5.0	11:02	0	2.5	19.8	77.7	0	0	998	0.63	15	19.4
STBH 5.1	11:06	0	1.5	20	78.5	0	0	998	0.42	1	5.8
STBH 5.2	10:19	0	1.1	19.6	79.3	0	0	998	0.34	1	9.6
STBH 5.3	10:22	0	2.4	19.5	78.1	0	0	998	-0.13	1	6
STBH 6.0	11:24	0	2	20.3	77.7	0	0	998	-0.91	1	5.4
STBH 6.1	10:08	0	1.6	19.6	78.8	0	0	998	-0.24	1	5.4
STBH 6.2	10:12	0	2.2	20	77.8	0	0	998	1.28	1	5.4
STBH 6.3	10:16	0	2.6	19.8	77.6	0	0	998	0.98	1	8.2
STBH 7.0	11:28	0	3	19.5	77.5	0	0	998	0.49	1	6.2
STBH 7.1	10:04	0	2.2	20.1	77.7	0	0	998	0.54	1	5.5
STBH 9.0	11:39	0	1.4	20	78.6	0	0	998	0.72	1	10.7
STBH 12	11:42	0	1.9	19.6	78.5	0	0	998	-0.94	10	6.5
STBH 13	11:46	0	2.1	20.3	77.6	0	0	998	-0.17	10	5.2
STBH 15	11:50	0	2.2	19.6	78.2	0	0	998	0.83	1	8.3
STBH 16	11:54	0	2.4	20.1	77.5	0	0	998	-0.75	1	3
STBH 22	11:58	0.3	2.3	19.4	78	0	0	998	0.61	1.6	3.1
STMBH 5.4	11:10	0	1.8	19.5	78.7	0	0	998	-0.7	1	16
STMBH 5.5	11:12	0	1.6	19.8	78.6	0	0	998	-0.01	1	17.1
STMBH 5.7	11:15	0	1.8	19.9	78.3	0	0	998	-0.18	1	7.1

Standard Landfill Borehole Gas Monitoring

Date 26/06/2015
 Weather: dry
 Wind conditions: calm
 Air Temperature: 19 °C

Instrument: GA 2000
 Serial No: GA10692
 Calibrated To: 20/09/2015
 Operatives AS

Monitoring Point	Time Hrs	CH4 %	CO2 %	O2 %	Balance %	CO ppm	H2S ppm	Baro mb	Rel Pressure mb	Trigger lev CH4 %	Trigger lev CO2
STBH 1	11:11	0	2.4	20	77.6	0	0	996	-0.12	1	5.4
STBH 1.1	11:08	0	1.2	19.7	79.1	0	0	996	-0.1	1	5.4
STBH 2.0	11:15	0	1.6	19.5	78.9	0	0	996	-0.6	1	7
STBH 2.1	11:03	0	1.9	19.8	78.3	0	0	996	-0.76	1	7.6
STBH 2.2	11:06	0	2.1	20.2	77.7	0	0	996	-0.66	1	5.8
STBH 3.0	11:20	0	2.4	20.1	77.5	0	0	996	-0.3	1	6.7
STBH 3.1	11:01	0	1.6	19.8	78.6	0	0	996	0.3	1	7.8
STBH 4.0	11:24	0	2.1	20.1	77.8	0	0	996	0.8	10	10.6
STBH 4.1	10:52	0	1.8	19.5	78.7	0	0	996	1.24	1	7.1
STBH 4.2	10:57	0	2.3	20.1	77.6	0	0	996	1.01	1	8.6
STBH 5.0	11:27	0	2.2	19.6	78.2	0	0	996	0.67	15	19.4
STBH 5.1	11:31	0	1.2	20.1	78.7	0	0	996	0.48	1	5.8
STBH 5.2	10:44	0	0.9	19.5	79.6	0	0	996	0.25	1	9.6
STBH 5.3	10:47	0	2.6	19.8	77.6	0	0	996	-0.09	1	6
STBH 6.0	11:49	0	2.3	20.1	77.6	0	0	996	-0.9	1	5.4
STBH 6.1	10:33	0	1.8	19.9	78.3	0	0	996	-0.32	1	5.4
STBH 6.2	10:37	0	2.5	20.2	77.3	0	0	996	1.28	1	5.4
STBH 6.3	10:41	0	2.4	20.1	77.5	0	0	996	0.98	1	8.2
STBH 7.0	11:53	0	2.9	19.9	77.2	0	0	996	0.44	1	6.2
STBH 7.1	10:29	0	2.1	20.3	77.6	0	0	996	0.53	1	5.5
STBH 9.0	12:04	0	1.8	20.1	78.1	0	0	996	0.64	1	10.7
STBH 12	12:07	0	1.6	19.5	78.9	0	0	996	-0.95	10	6.5
STBH 13	12:11	0	2.3	20.1	77.6	0	0	996	-0.12	10	5.2
STBH 15	12:15	0	2.6	19.5	77.9	0	0	996	0.83	1	8.3
STBH 16	12:19	0	2.1	20.3	77.6	0	0	996	-0.77	1	3
STBH 22	12:23	0.4	2.6	19.8	77.2	0	0	996	0.64	1.6	3.1
STMBH 5.4	11:35	0	2	20.1	77.9	0	0	996	-0.71	1	16
STMBH 5.5	11:37	0	1.9	19.9	78.2	0	0	996	0.02	1	17.1
STMBH 5.7	11:40	0	2.1	20.1	77.8	0	0	996	-0.17	1	7.1

STANDARD			Gas Well Balance / Monitoring							
Date		06/04/2015								
Weather:		dry								
Wind conditions:		Calm								
Air Temperature:		16								
Instrument:		GA 2000								
Serial No:		GA10692								
Calibrated To:		20/09/2015								
Operative		AS								
Monitoring Point	Time	CH4 %	CO2 %	O2 %	Balance %	CO ppm	H2S ppm	Baro mb	Rel Pressure	Comments
GV1	10:25	50.2	30.9	0.4	18.5	7	6	1004		Open Full
GV2		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	No Access
GV3		49.1	28.4	0.3	22.2	6	11	1004	-26.0	open full
GV4		49.5	29.2	0.4	20.9	12	10	1004	-22.0	Open full
GV5		50.2	29.9	0.6	19.3	10	7	1004	-22.0	Open full
GV6		49.6	30.5	0.5	19.4	16	9	1004	-21.0	Open full
GV7		50.1	30.1	0.4	19.4	8	9	1004	-18.0	Open full
GV8		50.1	29.5	0.3	20.1	14	12	1004	-21.0	Open full
GV9		49.8	29.9	0.2	20.1	7	15	1004	-20.0	Left Open Full
GV10		49.6	30.5	0.5	19.4	11	8	1004	-25.0	Open full
GV11		41.2	30.2	3.0	25.6	9	14	1004	0.0	Left Off
GV18		51.4	32.5	0.9	15.2	12	11	1004	-24.0	Open full (pumped)
GV19		49.9	27.0	0.6	22.5	15	10	1004	-20.0	Open full
GV20		52.2	29.6	0.5	17.7	12	13	1004	-21.0	Left open full
GV22		48.5	29.8	0.3	21.4	9	9	1004	-21.0	Open full
GV24		47.5	30.2	0.5	21.8	11	7	1004	-26.0	Open full (pumped)
GV25		50.0	30.6	0.6	18.8	8	12	1004	-21.0	Open Full
GV27		52.3	28.5	0.3	18.9	10	9	1004	-21.0	Left Open Full
GV31		49.9	29.9	0.1	20.1	12	12	1004	-22.0	Open full (pumped)
GV32		48.3	30.2	0.7	20.8	9	11	1004	-19.0	left open full good gas
GV33		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Turned off (pumped)
GV34		32.5	18.9	3.2	45.4	13	12	1004	0.0	Left off bad gas
GV35		51.2	27.5	0.5	20.8	10	15	1004	-20.0	Open full
GV51		50.0	28.4	0.6	21.0	7	10	1004	-18.0	open full
GV55		46.5	30.2	0.2	23.1	10	9	1004	-19.0	Open full
Manifold C		49.9	30.5	0.6	19.0	13	10	1004	-24.0	
GV38		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	left off
GV39		31.5	20.5	3.1	44.9	10	10	1004	0.0	Left Off
GV40		50.2	30.7	0.3	18.8	8	14	1004	-21.0	Open full
GV41		48.5	32.2	0.5	18.8	11	13	1004	-20.0	Open full
GV42		47.6	25.4	0.1	26.9	9	10	1004	27.0	Open full
GV43		49.9	29.9	0.5	19.7	8	7	1004	-22.0	Left Open Full
Manifold B		51.2	31.2	0.5	17.1	7	10	1004	-20.0	
GV44		50.0	30.2	0.4	19.4	14	8	1004	-21.0	left open full
GV45		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Turned off
GV46		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Turned off
GV47		43.6	31.5	2.9	22.0	9	16	1004	0.0	Left off bad gas
GV48		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Turned off
GV49		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Turned off
GV50		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Turned off
GV52		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Turned off
GV53		52.6	30.1	0.6	16.7	8	8	1004	-24.0	Left open good gas
GV54		50.0	28.5	0.5	21.0	10	10	1004	-20.0	Open full
GV56		49.5	30.1	0.4	20.0	11	12	1004	-18.0	Open full
GV57		49.3	30.5	0.2	20.0	14	15	1004	-22.0	Open full
GV58		49.1	29.0	0.6	21.3	12	17	1004	-21.0	left opened full
GV59		51.2	31.0	0.8	17.0	8	16	1004	-24.0	Open full
Manifold A		50.2	28.5	0.5	20.8	9	11	1004	-16.0	
GV60		49.9	28.4	0.4	21.3	12	12	1004	-25.0	Left open full
GV61		46.2	29.9	0.6	23.3	10	8	1004	-20.0	Open Full
GV62		50.1	30.5	0.2	19.2	8	10	1004	-19.0	Open full
GV63		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Closed
GV64		50.0	28.0	0.4	21.6	11	15	1004	-21.0	Open full
GV65		48.2	27.4	0.1	24.3	10	8	1004	-22.0	Open full
GV66		49.3	29.6	0.6	20.5	8	16	1004	-20.0	Open full
New Wells										
GW60		51.6	31.2	0.4	16.8	11	9	1004	-20.0	Open full (pumped)
GW61		48.5	35.1	1.5	14.9	8.0	11.0	1004	-21	Reg closed to half way o2 high
GW62		52.1	28.4	0.3	19.2	12	7	1004	-21.0	Open full
GW63		48.1	30.2	0.1	21.6	7	13	1004	-19.0	Open full
GW64		48.3	28.4	0.4	22.9	10	10	1004	-22.0	Open full (pumped)
GW65		50.0	30.9	0.6	18.5	9	9	1004	-21.0	Open full
GW66		48.9	30.1	0.4	20.6	12	14	1004	-20.0	Left open full
Engine	16:10	50.0	29.9	0.9	19.2	n/a	n/a	1004	-20	600 kw

STANDARD			Gas Well Balance / Monitoring								
Date		11/05/2015									
Weather:		dry									
Wind conditions:		Calm									
Air Temperature:		19									
Instrument:		GA 2000									
Serial No:		GA10692									
Calibrated To:		20/09/2015									
Operative		AS									
Monitoring Point	Time	CH4 %	CO2 %	O2 %	Balance %	CO ppm	H2S ppm	Baro mb	Rel Pressure	Comments	
GV1	10:00	49.6	30.2	0.5	19.7	8	5	999		Open Full	
GV2		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	No Access	
GV3		50.1	27.5	0.4	22.0	8	10	999	-25.0	open full	
GV4		49.8	28.4	0.3	21.5	13	7	999	-23.0	Open full	
GV5		49.6	30.1	0.5	19.8	11	10	999	-21.0	Open full	
GV6		52.1	29.9	0.2	17.8	14	8	999	-20.0	Open full	
GV7		47.2	30.2	0.6	22.0	9	12	999	-17.0	Open full	
GV8		48.3	29.5	0.4	21.8	12	10	999	-25.0	Open full	
GV9		50.0	30.1	0.3	19.6	8	12	999	-22.0	Left Open Full	
GV10		48.2	29.9	0.2	21.7	9	7	999	-20.0	Open full	
GV11		40.1	29.6	2.5	27.8	12	11	999	0.0	Left Off	
GV18		50.2	27.8	0.8	21.2	10	10	999	-20.0	Open full (pumped)	
GV19		50.6	24.5	0.6	24.3	12	9	999	-19.0	Open full	
GV20		51.4	30.6	0.3	17.7	8	12	999	-19.0	Left open full	
GV22		49.9	30.1	0.2	19.8	8	8	999	-20.0	Open full	
GV24		48.5	29.9	0.4	21.2	14	9	999	-23.0	Open full (pumped)	
GV25		51.3	31.2	0.4	17.1	6	10	999	-17.0	Open Full	
GV27		50.2	27.5	0.3	22.0	8	6	999	-20.0	Left Open Full	
GV31		50.2	28.6	0.2	21.0	11	10	999	-22.0	Open full (pumped)	
GV32		49.9	31.5	0.6	18.0	10	14	999	20.0	left open full good gas	
GV33		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Turned off (pumped)	
GV34		33.5	19.5	3.8	43.2	12	10	999	0.0	Left off bad gas	
GV35		50.1	26.5	0.4	23.0	14	14	999	-17.0	Open full	
GV51		48.9	29.7	0.6	20.8	8	7	999	-20.0	open full	
GV55		47.5	30.5	0.3	21.7	9	10	999	-21.0	Open full	
Manifold C		50.2	29.9	0.1	19.8	12	9	999	-23.0		
GV38		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	left off	
GV39		32.5	21.4	2.7	43.4	9	9	999	0.0	Left Off	
GV40		48.5	31.2	0.4	19.9	9	6	999	-22.0	Open full	
GV41		47.1	31.4	0.6	20.9	15	8	999	-21.0	Open full	
GV42		48.3	26.8	0.2	24.7	10	12	999	-25.0	Open full	
GV43		50.2	30.2	0.8	18.8	10	8	999	-19.0	Left Open Full	
Manifold B		50.9	29.9	0.3	18.9	6	11	999	-23.0		
GV44		48.9	31.2	0.4	19.5	15	9	999	-20.0	left open full	
GV45		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Turned off	
GV46		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Turned off	
GV47		48.5	32.2	1.0	18.3	8	15	999	-7.0	Cracked open gas improved	
GV48		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Turned off	
GV49		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Turned off	
GV50		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Turned off	
GV52		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Turned off	
GV53		51.2	29.3	0.5	19.0	6	9	999	-20.0	Left open good gas	
GV54		50.2	28.1	0.6	21.1	9	12	999	-23.0	Open full	
GV56		48.1	29.4	0.4	22.1	12	14	999	-19.0	Open full	
GV57		48.3	29.6	0.2	21.9	16	12	999	-17.0	Open full	
GV58		48.1	28.5	0.1	23.3	10	19	999	-20.0	left opened full	
GV59		50.2	32.0	0.6	17.2	6	21	999	-21.0	Open full	
Manifold A		49.6	27.1	0.5	22.8	8	9	999	-18.0		
GV60		47.2	29.1	0.4	23.3	11	14	999	-25.0	Left open full	
GV61		48.2	30.4	0.8	20.6	9	9	999	-20.0	Open Full	
GV62		49.9	31.2	0.3	18.6	10	11	999	-19.0	Open full	
GV63		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Closed	
GV64		51.2	26.4	0.5	21.9	10	14	999	-21.0	Open full	
GV65		49.9	26.5	0.2	23.4	14	9	999	-22.0	Open full	
GV66		50.2	30.2	0.7	18.9	7	15	999	-20.0	Open full	
New Wells											
GW60		52.4	30.0	0.6	17.0	10	10	999	-19.0	Open full (pumped)	
GW61		49.5	32.5	0.9	17.1	9.0	7.0	999	-20	reg opened full gas improved	
GW62		50.3	29.7	0.4	19.6	11	8	999	-16.0	Open full	
GW63		47.8	31.2	0.5	20.5	8	12	999	-21.0	Open full	
GW64		47.1	29.7	0.9	22.3	8	9	999	-24.0	Open full (pumped)	
GW65		49.3	30.2	0.7	19.8	10	7	999	-19.0	Open full	
GW66		49.5	29.8	0.5	20.2	11	12	999	-18.0	Left open full	
Engine	15:05	49.9	30.1	0.5	20	n/a	n/a	999	-19	600 kw	

STANDARD			Gas Well Balance / Monitoring								
Date		08/06/2015									
Weather:		dry									
Wind conditions:		Calm									
Air Temperature:		22									
Instrument:		GA 2000									
Serial No:		GA10692									
Calibrated To:		20/09/2015									
Operative		AS									
Monitoring Point	Time	CH4 %	CO2 %	O2 %	Balance %	CO ppm	H2S ppm	Baro mb	Rel Pressure	Comments	
GV1	09:30	50.1	29.9	0.2	19.8	8	9	1006		Open Full	
GV2		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	No Access	
GV3		49.9	28.4	0.3	21.4	7	9	1006	-24.0	open full	
GV4		48.9	26.9	0.1	24.1	12	8	1006	-21.0	Open full	
GV5		50.2	30.9	0.4	18.5	9	12	1006	-19.0	Open full	
GV6		49.9	28.5	0.6	21.0	12	7	1006	-18.0	Open full	
GV7		48.6	30.5	0.8	20.1	8	11	1006	-19.0	Open full	
GV8		48.5	29.1	0.5	21.9	10	8	1006	-21.0	Open full	
GV9		50.3	29.8	0.4	19.5	9	11	1006	-20.0	Left Open Full	
GV10		49.6	30.2	0.3	19.9	10	8	1006	-23.0	Open full	
GV11		42.5	30.2	2.2	25.1	10	13	1006	0.0	Left Off	
GV18		50.0	28.4	0.6	21.0	9	9	1006	-19.0	Open full (pumped)	
GV19		48.5	25.3	0.7	25.5	10	7	1006	-20.0	Open full	
GV20		46.5	29.6	0.4	23.5	9	11	1006	-17.0	Left open full	
GV22		48.5	28.6	0.5	22.4	7	6	1006	-19.0	Open full	
GV24		49.3	30.0	0.3	20.4	11	13	1006	-21.0	Open full (pumped)	
GV25		50.2	30.1	0.8	18.9	8	12	1006	-18.0	Open Full	
GV27		51.3	28.4	0.5	19.8	7	8	1006	-21.0	Left Open Full	
GV31		52.0	29.6	0.5	17.9	10	11	1006	-24.0	Open full (pumped)	
GV32		48.9	30.2	0.4	20.5	13	12	1006	-21.0	left open full good gas	
GV33		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Turned off (pumped)	
GV34		30.9	19.2	4.1	45.8	3	9	1006	0.0	Left off bad gas	
GV35		50.2	27.8	0.5	21.5	6	12	1006	-18.0	Open full	
GV51		49.5	28.4	0.2	21.9	8	5	1006	-23.0	open full	
GV55		48.2	29.9	0.6	21.3	5	8	1006	-21.0	Open full	
Manifold C		48.9	30.2	0.3	20.6	1	10	1006	-24.0		
GV38		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	left off	
GV39		33.9	22.4	2.5	41.2	3	10	1006	0.0	Left Off	
GV40		49.9	28.1	0.5	21.5	8	7	1006	-25.0	Open full	
GV41		48.5	30.2	0.4	20.9	11	10	1006	-22.0	Open full	
GV42		48.9	27.8	0.8	22.5	10	6	1006	-23.0	Open full	
GV43		49.2	31.9	0.6	18.3	11	11	1006	-20.0	Left Open Full	
Manifold B		50.3	30.4	0.4	18.9	8	9	1006	-17.0		
GV44		49.1	30.2	0.5	20.2	12	12	1006	-19.0	left open full	
GV45		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Turned off	
GV46		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Turned off	
GV47		49.9	33.8	1.0	15.3	7	12	1006	-18.0	reg opened half way gas good.	
GV48		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Turned off	
GV49		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Turned off	
GV50		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Turned off	
GV52		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Turned off	
GV53		50.2	30.2	0.4	19.2	9	10	1006	-22.0	Left open good gas	
GV54		47.5	28.9	0.5	23.1	12	15	1006	-21.0	Open full	
GV56		48.0	30.2	0.9	20.9	9	9	1006	-18.0	Open full	
GV57		49.6	30.1	0.2	20.1	8	15	1006	-16.0	Open full	
GV58		48.3	29.6	0.6	21.5	9	18	1006	-19.0	left opened full	
GV59		49.3	31.2	0.4	19.1	8	12	1006	-20.0	Open full	
Manifold A		50.2	28.6	0.2	21.0	8	8	1006	-19.0		
GV60		48.1	28.4	0.6	22.9	12	12	1006	-22.0	Left open full	
GV61		48.5	29.9	0.7	20.9	14	8	1006	-21.0	Open Full	
GV62		50.2	30.2	0.4	19.2	9	14	1006	-20.0	Open full	
GV63		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Closed	
GV64		49.6	26.8	0.5	23.1	9	12	1006	-23.0	Open full	
GV65		50.9	29.9	0.9	18.3	12	8	1006	-20.0	Open full	
GV66		47.8	30.2	0.7	21.3	6	10	1006	-22.0	Open full	
New Wells											
GW60		51.1	29.9	0.8	18.2	8	9	1006	-21.0	Open full (pumped)	
GW61		50.2	31.4	0.5	17.9	12.0	8.0	1006	-18	LEFT Open full	
GW62		51.2	29.9	0.6	18.3	10	7	1006	-20.0	Open full	
GW63		48.9	30.2	0.2	20.7	7	11	1006	-18.0	Open full	
GW64		49.9	29.2	0.8	20.1	5	8	1006	-21.0	Open full (pumped)	
GW65		48.2	29.8	0.5	21.5	9	5	1006	-20.0	Open full	
GW66		49.1	30.1	0.6	20.2	12	11	1006	-19.0	Left open full	
Engine	14:15	50.1	30.0	0.6	19	n/a	n/a	1006	-21	600 kw	

Standard Groundwater Monitoring

Date 22/04/2015
Weather: Dry
Wind conditions: Breezy
Air Temperature: 12 °C

Instrument: Dip-Metre

Operative AS

Monitoring Point	Time Hrs	Dip-Lev Metres	Dip-Base Metres	Water-Lev Metres
ST GW 1	11:11	24.23	55.77	31.54
ST GW 2	11:26	9.09	9.1	0.01
ST GW 3	12:26	29.99	53.25	23.26
ST GW 4R	13:01	48.97	53	4.03
ST GW 5	11:51	4.06	10	5.94
ST GW 6	12:11	25.21	45.46	20.25
ST GW 7R	11:41	40.12	71	30.88

Standard Groundwater Monitoring

Date 26/05/2015

Weather: slight rain

Wind conditions: calm

Air Temperature: 15 °C

Instrument: Dip-Metre

Operative AS

Monitoring Point	Time Hrs	Dip-Lev Metres	Dip-Base Metres	Water-Lev Metres
ST GW 1	9:10	25.03	55.77	30.74
ST GW 2	9:28	9.05	9.1	0.05
ST GW 3	10:15	30.27	53.25	22.98
ST GW 4R	11:06	47.89	53	5.11
ST GW 5	10:00	3.98	10	6.02
ST GW 6	10:43	27.42	45.46	18.04
ST GW 7R	9:51	40.26	71	30.74

Standard Groundwater Monitoring

Date 30/06/2015
 Weather: dry
 Wind conditions: calm
 Air Temperature: 17 °C

Instrument: Dip-Metre

Operative AS

Monitoring Point	Time Hrs	Dip-Lev Metres	Dip-Base Metres	Water-Lev Metres	
ST GW 1	10:50	26.23	55.77	29.54	DRY
ST GW 2	11:05	9.07	9.1	0.03	
ST GW 3	12:05	32.65	53.25	20.6	
ST GW 4R	12:40	48.06	53	4.94	
ST GW 5	11:30	4	10	6	
ST GW 6	11:50	28.12	45.46	17.34	
ST GW 7R	11:20	39.87	71	31.13	

Standard Leachate Monitoring

Date 28/04/2015
 Weather: dry
 Wind conditions: Calm
 Air Temperature: 12 °C

Instrument: Dip-Metre

Operative AS

Monitoring Point	Time Hrs	Dip Level (m)	Base Level	Leachate Depth	Pumping Yes/No	Comments
LC2.1	09:21	29.58	31	1.42	YES	Pneumatic pumps
LC3	9:39	3.19	4.84	1.65	YES	Pneumatic pumps
LC4	9:59	17.59	19	1.41	YES	Pneumatic pumps
LC7	10:25	18.49	20.31	1.82	YES	Pneumatic pumps
LS5	10:47	28.61	32	1.35	YES	Electric Pump - Direct To Tanks
LS6	11:09	29.91	33	1.23	YES	Electric Pump - Direct To Tanks
S1	11:29	3.13	4.43	1.3	YES	Pneumatic pumps
S2	11:59	1.65	3.35	1.7	YES	Pneumatic pumps
S3	12:20	3.58	5.09	1.51	YES	Pneumatic pumps

Standard Leachate Monitoring

Date 18/05/2015
 Weather: dry
 Wind conditions: Calm
 Air Temperature: 15 °C

Instrument: Dip-Metre

Operative AS

Monitoring Point	Time Hrs	Dip Level (m)	Base Level	Leachate Depth	Pumping Yes/No	Comments
LC2.1	09:40	29.51	31	1.49	YES	Pneumatic pumps
LC3	9:52	3.15	4.84	1.69	YES	Pneumatic pumps
LC4	10:27	17.61	19	1.39	YES	Pneumatic pumps
LC7	10:38	18.45	20.31	1.86	YES	Pneumatic pumps
LS5	10:56	28.59	32	1.36	YES	Electric Pump - Direct To Tanks
LS6	11:06	29.95	33	1.22	YES	Electric Pump - Direct To Tanks
S1	11:27	3.19	4.43	1.24	YES	Pneumatic pumps
S2	11:46	1.6	3.35	1.75	YES	Pneumatic pumps
S3	12:02	3.52	5.09	1.57	YES	Pneumatic pumps

Standard Leachate Monitoring

Date 17/06/2015
 Weather: dry
 Wind conditions: Calm
 Air Temperature: 15 °C

Instrument: Dip-Metre

Operative AS

Monitoring Point	Time Hrs	Dip Level (m)	Base Level	Leachate Depth	Pumping Yes/No	Comments
LC2.1	10:15	29.58	31	1.42	YES	Pneumatic pumps
LC3	10:30	3.21	4.84	1.63	YES	Pneumatic pumps
LC4	10:40	17.52	19	1.48	YES	Pneumatic pumps
LC7	11:00	18.54	20.31	1.77	YES	Pneumatic pumps
LS5	11:15	28.63	32	1.34	YES	Electric Pump - Direct To Tanks
LS6	11:30	30	33	1.20	YES	Electric Pump - Direct To Tanks
S1	11:45	3.24	4.43	1.19	YES	Pneumatic pumps
S2	12:05	1.68	3.35	1.67	YES	Pneumatic pumps
S3	12:25	3.56	5.09	1.53	YES	Pneumatic pumps



Flintshire County Council
Waste Management Services
Brookhill Landfill Site
Pinfold Industrial Estate
Buckley
Flintshire
CH7 3PL

Attention: Paul Murphy

CERTIFICATE OF ANALYSIS

Date: 21 July 2015
Customer: H_FLINTCCO_BUC
Sample Delivery Group (SDG): 150702-5
Your Reference:
Location: Standard - April 2015
Report No: 321853

We received 19 samples on Wednesday July 01, 2015 and 14 of these samples were scheduled for analysis which was completed on Tuesday July 21, 2015. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

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

All chemical testing (unless subcontracted) is performed at ALcontrol Hawarden Laboratories.

Approved By:

Sonia McWhan

Operations Manager





SDG:	150702-5	Location:	Standard - April 2015	Order Number:	
Job:	H_FLINTCCO_BUC-62	Customer:	Flintshire County Council	Report Number:	321853
Client Reference:		Attention:	Paul Murphy	Superseded Report:	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
11638595	GW1			30/06/2015
11638597	GW3			30/06/2015
11638599	GW5			30/06/2015
11638600	GW6			30/06/2015
11638601	GW7			30/06/2015
11638598	GW4R			30/06/2015
11638607	LC3			30/06/2015
11638608	LC4			30/06/2015
11638609	LC7			30/06/2015
11638606	LC2 (closest well)			30/06/2015
11638610	S1			30/06/2015
11638611	S2			30/06/2015
11638612	S3			30/06/2015
11638613	SSR5			30/06/2015
11638614	SSR6			30/06/2015
11638602	SW1			30/06/2015
11638603	SW2			30/06/2015
11638604	SW4			30/06/2015
11638605	SW5			30/06/2015

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

[illegible]



CERTIFICATE OF ANALYSIS

SDG: 150702-5
Job: H_FLINTCCO_BUC-62
Client Reference:

Location: Standard - April 2015
Customer: Flintshire County Council
Attention: Paul Murphy

Order Number:
Report Number: 321853
Superseded Report:

LIQUID Results Legend X Test N No Determination Possible	Lab Sample No(s)		11638602	11638603	11638604	11638605
	Customer Sample Reference		SW1	SW2	SW4	SW5
	AGS Reference					
	Depth (m)					
	Container		1000ml glass bottle	1000ml glass bottle	1000ml glass bottle	1000ml glass bottle
Alkalinity as CaCO ₃	All	NDPs: 0 Tests: 14	X	X	X	X
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 14		X	X	X
Anions by ion Chromatography	All	NDPs: 0 Tests: 14	X	X	X	X
BOD True Total	All	NDPs: 0 Tests: 8	X	X	X	X
COD Unfiltered	All	NDPs: 0 Tests: 14	X	X	X	X
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 4		X	X	X
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 10	X	X	X	X
Mercury Dissolved	All	NDPs: 0 Tests: 4		X	X	X
Metals by iCap-OES Dissolved (W)	All	NDPs: 0 Tests: 14	X	X	X	X
OC, OP Pesticides and Triazine Herb	All	NDPs: 0 Tests: 4	X	X	X	X
pH Value	All	NDPs: 0 Tests: 14	X	X	X	X
Phenols by HPLC (W)	All	NDPs: 0 Tests: 4		X	X	X

Order Number:
Report Number: 321853
Superseded Report:

Page 5 of 13



CERTIFICATE OF ANALYSIS

SDG: 150702-5
Job: H_FLINTCCO_BUC-62
Client Reference:

Location: Standard - April 2015
Customer: Flintshire County Council
Attention: Paul Murphy

Order Number:
Report Number: 321853
Superseded Report:

Results Legend		Customer Sample R		LC3	LC4	LC7	LC2 (closest well)	SW1	SW2
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference		Water(GW/SW) 30/06/2015	Water(GW/SW) 30/06/2015	Water(GW/SW) 30/06/2015	Water(GW/SW) 30/06/2015	Water(GW/SW) 30/06/2015	Water(GW/SW) 30/06/2015
M	mCERTS accredited.								
aq	Aqueous / settled sample.								
diss.filt	Dissolved / filtered sample.								
tot.unfilt	Total / unfiltered sample.								
*	Subcontracted test.								
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery			01/07/2015 150702-5 11638607	01/07/2015 150702-5 11638608	01/07/2015 150702-5 11638609	01/07/2015 150702-5 11638606	01/07/2015 150702-5 11638602	01/07/2015 150702-5 11638603
(F)	Trigger breach confirmed								
1-5&*&@	Sample deviation (see appendix)								
Component	LOD/Units	Method							
Alkalinity, Total as CaCO3	<2 mg/l	TM043		6360	4160	5080	7820	520	250
			#	#	#	#	#	#	#
BOD, unfiltered	<1 mg/l	TM045		141	56.7	85	117	57.7	4.61
			♦ #	♦ #	♦ #	♦ #	♦ #	♦ #	♦ #
Organic Carbon, Total	<3 mg/l	TM090		519	261	428	746		
			♦ #	♦ #	♦ #	♦ #			
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		1050	727	866	1530	2.32	0.396
			#	#	#	#	#	#	#
COD, unfiltered	<7 mg/l	TM107		1690	986	1290	2360	7000	48.1
			#	#	#	#	#	#	#
Arsenic (diss.filt)	<0.00012 mg/l	TM152						0.00287	0.00152
								#	#
Cadmium (diss.filt)	<0.0001 mg/l	TM152						<0.0001	<0.0001
								#	#
Copper (diss.filt)	<0.00085 mg/l	TM152						<0.00085	0.00107
								#	#
Lead (diss.filt)	<0.00002 mg/l	TM152						0.000028	0.00014
								#	#
Nickel (diss.filt)	<0.00015 mg/l	TM152						0.00337	0.00567
								#	#
Zinc (diss.filt)	<0.00041 mg/l	TM152						<0.00041	0.00254
								#	#
Mercury (diss.filt)	<0.00001 mg/l	TM183						<0.00001	<0.00001
								#	#
Chloride	<0.08 mg/l	TM226		1740	1160	1330	2150		
			#	#	#	#	#		
Nitrite as NO2	<0.03 mg/l	TM226						1.14	0.484
								♦ #	♦ #
Nitrate as NO3	<0.04 mg/l	TM226						7.47	<0.04
								#	#
Sulphate	<0.1 mg/l	TM226		10.5	2.76	1.65	3.37		
			#	#	#	#	#		
Total Oxidised Nitrogen as N	<0.01 mg/l	TM226		0.0598	2.59	<0.01	<0.01	2.03	0.153
			#	#	#	#	#	#	#
Cyanide, Total	<0.05 mg/l	TM227						<0.05	<0.05
								♦ #	♦ #
Calcium (diss.filt)	<0.012 mg/l	TM228		52.1	84.8	69.2	25		
			#	#	#	#	#		
Sodium (diss.filt)	<0.076 mg/l	TM228		1350	1020	1240	1800	47.5	74.9
			#	#	#	#	#	#	#
Magnesium (diss.filt)	<0.036 mg/l	TM228		55.2	67.9	87.3	41.9	21.2	14.7
			#	#	#	#	#	#	#
Potassium (diss.filt)	<1 mg/l	TM228		255	315	489	242	9.77	7.75
			#	#	#	#	#	#	#
Iron (diss.filt)	<0.019 mg/l	TM228						0.143	0.227
								#	#
pH	<1 pH Units	TM256		7.6	7.78	7.94	7.75	7.2	7.91
			#	#	#	#	#	#	#
Phenols, Total Detected 5 speciated	<0.025 mg/l	TM259						<0.025	<0.025

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GRO by GC-FID (W)

[illegible]



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Attention: Paul Murphy

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OC, OP Pesticides and Triazine Herb

Results Legend		Customer Sample R	SW1	SW2	SW4	SW5		
#	ISO17025 accredited.							
M	mCERTS accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	Water(GW/SW) 30/06/2015 01/07/2015 150702-5 11638602	Water(GW/SW) 30/06/2015 01/07/2015 150702-5 11638603	Water(GW/SW) 30/06/2015 01/07/2015 150702-5 11638604	Water(GW/SW) 30/06/2015 01/07/2015 150702-5 11638605		
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	Subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery							
(F)	Trigger breach confirmed							
1-5&\$@	Sample deviation (see appendix)							
Component	LOD/Units	Method						
Volume	-	TM231	80	80	80	80		
Atrazine	<0.001 mg/l	TM231	<0.2	<0.001	<0.001	<0.001		
Simazine	<0.001 mg/l	TM231	<0.2	<0.001	<0.001	<0.001		
Dichlorvos	<0.00001 mg/l	TM231	<0.002	<0.00001	<0.00001	<0.00001		
Mevinphos	<0.00001 mg/l	TM231	<0.002	<0.00001	<0.00001	<0.00001		
Tecnazene	<0.00001 mg/l	TM231	<0.002	<0.00001	<0.00001	<0.00001		
Hexachlorobenzene	<0.00001 mg/l	TM231	<0.002	<0.00001	<0.00001	<0.00001		
Trifluralin	<0.00001 mg/l	TM231	<0.002	<0.00001	<0.00001	<0.00001		
alpha-Hexachlorocyclohexane (HCH / Lindane)	<0.00001 mg/l	TM231	<0.002	<0.00001	<0.00001	<0.00001		
Quintozone (PCNB)	<0.00001 mg/l	TM231	<0.002	<0.00001	<0.00001	<0.00001		
Diazinon	<0.00001 mg/l	TM231	<0.002	<0.00001	<0.00001	<0.00001		
Triallate	<0.00001 mg/l	TM231	<0.002	<0.00001	<0.00001	<0.00001		
Etrimphos	<0.00001 mg/l	TM231	<0.002	<0.00001	<0.00001	<0.00001		
gamma-Hexachlorocyclohexane (HCH / Lindane)	<0.00001 mg/l	TM231	<0.002	<0.00001	<0.00001	<0.00001		
Disulfoton	<0.00001 mg/l	TM231	<0.002	<0.00001	<0.00001	<0.00001		
Propetamphos	<0.00001 mg/l	TM231	<0.002	<0.00001	<0.00001	<0.00001		
Heptachlor	<0.00001 mg/l	TM231	<0.002	<0.00001	<0.00001	<0.00001		
Chlorpyrifos methyl	<0.00001 mg/l	TM231	<0.002	<0.00001	<0.00001	<0.00001		
Dimethoate	<0.00001 mg/l	TM231	<0.002	<0.00001	<0.00001	<0.00001		
Aldrin	<0.00001 mg/l	TM231	<0.002	<0.00001	<0.00001	<0.00001		
Chlorothalonil	<0.00001 mg/l	TM231	<0.002	<0.00001	<0.00001	<0.00001		
Pirimiphos-methyl	<0.00001 mg/l	TM231	<0.002	<0.00001	<0.00001	<0.00001		
beta-Hexachlorocyclohexane (HCH / Lindane)	<0.00001 mg/l	TM231	<0.002	<0.00001	<0.00001	<0.00001		
Chlorpyrifos	<0.00001 mg/l	TM231	<0.002	<0.00001	<0.00001	<0.00001		
Telodrin	<0.00001 mg/l	TM231	<0.002	<0.00001	<0.00001	<0.00001		
Methyl parathion	<0.00001 mg/l	TM231	<0.002	<0.00001	<0.00001	<0.00001		
Isodrin	<0.00001 mg/l	TM231	<0.002	<0.00001	<0.00001	<0.00001		
Malathion	<0.00001 mg/l	TM231	<0.002	<0.00001	<0.00001	<0.00001		
Fenthion	<0.00001 mg/l	TM231	<0.002	<0.00001	<0.00001	<0.00001		
Fenitrothion	<0.00001 mg/l	TM231	<0.002	<0.00001	<0.00001	<0.00001		
Heptachlor epoxide	<0.00001 mg/l	TM231	<0.002	<0.00001	<0.00001	<0.00001		
Triadimefon	<0.00001 mg/l	TM231	<0.002	<0.00001	<0.00001	<0.00001		



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OC, OP Pesticides and Triazine Herb

Results Legend			Customer Sample R		SW1	SW2	SW4	SW5		
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference		Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)		
M	mCERTS accredited.				30/06/2015	30/06/2015	30/06/2015	30/06/2015		
aq	Aqueous / settled sample.									
dis.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.									
*	Subcontracted test.									
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery				01/07/2015	01/07/2015	01/07/2015	01/07/2015		
(F)	Trigger breach confirmed				150702-5	150702-5	150702-5	150702-5		
1-5&+5@	Sample deviation (see appendix)				11638602	11638603	11638604	11638605		
Component	LOD/Units	Method								
Pendimethalin	<0.00001 mg/l	TM231			<0.002	<0.00001	<0.00001	<0.00001		
Parathion	<0.00001 mg/l	TM231			<0.002	<0.00001	<0.00001	<0.00001		
o,p-DDE	<0.00001 mg/l	TM231			<0.002	<0.00001	<0.00001	<0.00001		
Chlorfenvinphos	<0.00001 mg/l	TM231			<0.002	<0.00001	<0.00001	<0.00001		
Endosulphan I	<0.00001 mg/l	TM231			<0.002	<0.00001	<0.00001	<0.00001		
Trans-chlordane	<0.00001 mg/l	TM231			<0.002	<0.00001	<0.00001	<0.00001		
cis-Chlordane	<0.00001 mg/l	TM231			<0.002	<0.00001	<0.00001	<0.00001		
p,p-DDE	<0.00001 mg/l	TM231			<0.002	<0.00001	<0.00001	<0.00001		
Dieldrin	<0.00001 mg/l	TM231			<0.002	<0.00001	<0.00001	<0.00001		
o,p-TDE (DDD)	<0.00001 mg/l	TM231			<0.002	<0.00001	<0.00001	<0.00001		
Endrin	<0.00001 mg/l	TM231			<0.002	<0.00001	<0.00001	<0.00001		
o,p-DDT	<0.00001 mg/l	TM231			<0.002	<0.00001	<0.00001	<0.00001		
p,p-TDE (DDD)	<0.00001 mg/l	TM231			<0.002	<0.00001	<0.00001	<0.00001		
Ethion	<0.00001 mg/l	TM231			<0.002	<0.00001	<0.00001	<0.00001		
Endosulphan II	<0.00001 mg/l	TM231			<0.002	<0.00001	<0.00001	<0.00001		
p,p-DDT	<0.00001 mg/l	TM231			<0.002	<0.00001	<0.00001	<0.00001		
Carbophenothion	<0.00001 mg/l	TM231			<0.002	<0.00001	<0.00001	<0.00001		
o,p-Methoxychlor	<0.00001 mg/l	TM231			<0.002	<0.00001	<0.00001	<0.00001		
Triazophos	<0.00001 mg/l	TM231			<0.002	<0.00001	<0.00001	<0.00001		
p,p-Methoxychlor	<0.00001 mg/l	TM231			<0.002	<0.00001	<0.00001	<0.00001		
Endosulphan sulphate	<0.00001 mg/l	TM231			<0.002	<0.00001	<0.00001	<0.00001		
Permethrin I	<0.00001 mg/l	TM231			<0.002	<0.00001	<0.00001	<0.00001		
Phosalone	<0.00001 mg/l	TM231			<0.002	<0.00001	<0.00001	<0.00001		
Permethrin II	<0.00001 mg/l	TM231			<0.002	<0.00001	<0.00001	<0.00001		
Azinphos-methyl	<0.00001 mg/l	TM231			<0.002	<0.00001	<0.00001	<0.00001		
Azinphos-ethyl	<0.00001 mg/l	TM231			<0.002	<0.00001	<0.00001	<0.00001		



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Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample ¹	Surrogate Corrected
TM043	Method 2320B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part109 1984	Determination of alkalinity in aqueous samples		
TM045	MEWAM BOD5 2nd Ed.HMSO 1988 / Method 5210B, AWWA/APHA, 20th Ed., 1999; SCA Blue Book 130	Determination of BOD5 (ATU) Filtered by Oxygen Meter on liquids		
TM046	Method 4500G, AWWA/APHA, 20th Ed., 1999	Measurement of Dissolved Oxygen by Oxygen Meter		
TM090	Method 5310, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 415.1 & 9060	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water		
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser		
TM107	ISO 6060-1989	Determination of Chemical Oxygen Demand using COD Dr Lange Kit		
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter		
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS		
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry		
TM226	In-House Method	Determination of Anions in Waters using Ion Chromatography		
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate		
TM228	US EPA Method 6010B	Determination of Major Cations in Water by iCap 6500 Duo ICP-OES		
TM231	Agilent 6890 Gas Chromatograph system using an Agilent 5973 Mass Selective Detector (MSD)	Determination of Organochlorine and Organophosphorus Pesticides and Triazine Herbicides by GCMS		
TM245	By GC-FID	Determination of GRO by Headspace in waters		
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter		
TM259	by HPLC	Determination of Phenols in Waters and Leachates by HPLC		

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



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Test Completion Dates

Lab Sample No(s)	11638595	11638597	11638599	11638600	11638601	11638598	11638607	11638608	11638609	11638606
Customer Sample Ref.	GW1	GW3	GW5	GW6	GW7	GW4R	LC3	LC4	LC7	LC2 (closest well)
AGS Ref.										
Depth										
Type	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID
Alkalinity as CaCO ₃	13-Jul-2015	13-Jul-2015	10-Jul-2015	10-Jul-2015	10-Jul-2015	10-Jul-2015	10-Jul-2015	10-Jul-2015	13-Jul-2015	10-Jul-2015
Ammoniacal Nitrogen	13-Jul-2015	13-Jul-2015	13-Jul-2015	10-Jul-2015	10-Jul-2015	13-Jul-2015	10-Jul-2015	13-Jul-2015	10-Jul-2015	10-Jul-2015
Anions by ion Chromatography	08-Jul-2015	08-Jul-2015	08-Jul-2015	09-Jul-2015	07-Jul-2015	08-Jul-2015	09-Jul-2015	09-Jul-2015	09-Jul-2015	09-Jul-2015
BOD True Total							08-Jul-2015	08-Jul-2015	08-Jul-2015	08-Jul-2015
COD Unfiltered	11-Jul-2015	11-Jul-2015	11-Jul-2015	10-Jul-2015	11-Jul-2015	11-Jul-2015	11-Jul-2015	11-Jul-2015	11-Jul-2015	11-Jul-2015
Conductivity (at 20 deg.C)	08-Jul-2015	08-Jul-2015	08-Jul-2015	08-Jul-2015	08-Jul-2015	08-Jul-2015				
Dissolved Metals by ICP-MS	20-Jul-2015	20-Jul-2015	21-Jul-2015	20-Jul-2015	19-Jul-2015	21-Jul-2015				
Dissolved Oxygen by Probe	05-Jul-2015	05-Jul-2015	05-Jul-2015	05-Jul-2015	05-Jul-2015	05-Jul-2015				
GRO by GC-FID (W)	13-Jul-2015	13-Jul-2015	13-Jul-2015	10-Jul-2015	10-Jul-2015	13-Jul-2015				
Metals by iCap-OES Dissolved (W)	07-Jul-2015	07-Jul-2015	08-Jul-2015	03-Jul-2015	03-Jul-2015	07-Jul-2015	06-Jul-2015	10-Jul-2015	08-Jul-2015	06-Jul-2015
pH Value	10-Jul-2015	10-Jul-2015	10-Jul-2015	13-Jul-2015	13-Jul-2015	10-Jul-2015	10-Jul-2015	10-Jul-2015	10-Jul-2015	10-Jul-2015
Total Organic and Inorganic Carbon	11-Jul-2015	11-Jul-2015	11-Jul-2015	07-Jul-2015	07-Jul-2015	11-Jul-2015	11-Jul-2015	11-Jul-2015	11-Jul-2015	11-Jul-2015

Lab Sample No(s)	11638602	11638603	11638604	11638605
Customer Sample Ref.	SW1	SW2	SW4	SW5
AGS Ref.				
Depth				
Type	LIQUID	LIQUID	LIQUID	LIQUID
Alkalinity as CaCO ₃	10-Jul-2015	10-Jul-2015	10-Jul-2015	10-Jul-2015
Ammoniacal Nitrogen	13-Jul-2015	13-Jul-2015	10-Jul-2015	10-Jul-2015
Anions by ion Chromatography	07-Jul-2015	07-Jul-2015	07-Jul-2015	07-Jul-2015
BOD True Total	08-Jul-2015	08-Jul-2015	08-Jul-2015	08-Jul-2015
COD Unfiltered	11-Jul-2015	11-Jul-2015	11-Jul-2015	11-Jul-2015
Cyanide Comp/Free/Total/Thiocyanate	13-Jul-2015	13-Jul-2015	07-Jul-2015	07-Jul-2015
Dissolved Metals by ICP-MS	19-Jul-2015	20-Jul-2015	19-Jul-2015	19-Jul-2015
Mercury Dissolved	06-Jul-2015	07-Jul-2015	07-Jul-2015	07-Jul-2015
Metals by iCap-OES Dissolved (W)	03-Jul-2015	03-Jul-2015	06-Jul-2015	06-Jul-2015
OC, OP Pesticides and Triazine Herb	09-Jul-2015	09-Jul-2015	09-Jul-2015	09-Jul-2015
pH Value	13-Jul-2015	13-Jul-2015	10-Jul-2015	10-Jul-2015
Phenols by HPLC (W)	11-Jul-2015	11-Jul-2015	13-Jul-2015	13-Jul-2015



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Appendix General

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

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

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

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

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

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

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

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

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

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

11. Results relate only to the items tested.

12. LODs for wet tests reported on a dry weight basis are not corrected for moisture content.

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

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

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

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

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

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

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

21. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill /made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

Sample Deviations

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
4	Holding time exceeded before sample received
5	Samples exceeded holding time before preservation was performed
\$	Sampled on date not provided
♦	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to sampled on date
&	Sample Holding Time exceeded - Late arrival of instructions.

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than :
 - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.



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