



Thursday, 28 January 2016

Ms Amanda Langstaff,
Natural Resources Wales,
Chester Road,
Buckley,
Flintshire.
CH7 3AJ

Dear Ms Langstaff,

Data Submission December 2015

Please find enclosed the monthly data submission for routine environmental monitoring undertaken at our Ruabon Landfill Site during December 2015.

We trust this is satisfactory, please do not hesitate to contact us should you require further clarification.

**Yours sincerely,
for FCC ENVIRONMENT**

Geoff Forrest

Compliance Advisor, North Wales



Ruabon Landfill Site

Routine Environmental Monitoring Data Submission

December 2015

Prepared by G.Forrest
28th January 2016

APPENDIX 1

Field Logs

Field log report

Ruabon

03-December-2015

Equipment 01 Calibration Due	28/04/2016
Equipment 01 Last Calibration	01/12/2015
Equipment 01 Serial No.	LT1
Equipment 01 Type	Hannah Instruments HI98130
Equipment 02 Last Calibration	N/A
Equipment 02 Serial No.	30858
Equipment 02 Type	Dip Meter, In Situ Rugged Level tape 200
Personnel 01	L.Terrace
Time OFF	15:40
Time ON	08:47
Weather	Raining

Issued By:

Signed By :

Name :

Field log report

Ruabon

04-December-2015

Equipment 01 Last Calibration	14/09/2015
Equipment 01 Serial No.	GA5000 + G501011
Personnel 01	INF00925 alan.parry
Time OFF	15:28
Time ON	09:12
Weather	Cold

Issued By:

Signed By :

Name :

Field log report

Ruabon

07-December-2015

Equipment 01 Last Calibration	14/09/2015
Equipment 01 Serial No.	GA5000 + G501011
Personnel 01	INF00925 alan.parry
Time OFF	15:18
Time ON	08:42
Weather	Clear

Issued By:

Signed By :

Name :

Field log report

Ruabon

11-December-2015

Equipment 01 Calibration Due	28/04/2016
Equipment 01 Last Calibration	28/10/2015
Equipment 01 Last Calibration	14/09/2015
Equipment 01 Serial No.	GA5000 + G501011
Equipment 01 Serial No.	GA11581
Equipment 01 Type	GA2000plus
Personnel 01	L Terrace
Personnel 01	INF00925 alan.parry
Time OFF	16:17
Time OFF	11:30
Time ON	08:45
Time ON	13:08
Weather	Wet
Weather	Sunny / cold

Issued By:

Signed By :

Name :

Field log report

Ruabon

14-December-2015

Equipment 01 Last Calibration	14/09/2015
Equipment 01 Serial No.	GA5000 + G501011
Personnel 01	INF00925 alan.parry
Time OFF	15:16
Time ON	08:53
Weather	Wet

Issued By:

Signed By :

Name :

Field log report

Ruabon

18-December-2015

Equipment 01 Last Calibration	14/09/2015
Equipment 01 Serial No.	GA5000 + G501011
Personnel 01	INF00925 Alan.Parry
Time OFF	14:39
Time ON	09:10
Weather	Wet

Issued By:

Signed By :

Name :

Field log report

Ruabon

21-December-2015

Equipment 01 Last Calibration	14/09/2015
Equipment 01 Serial No.	GA5000 + G501011
Personnel 01	INF00925 Alan.Parry
Time OFF	14:08
Time ON	09:55
Weather	Wet

Issued By:

Signed By :

Name :

Field log report

Ruabon

22-December-2015

Equipment 01 Serial No.	79281-10
Equipment 01 Type	Geotechnical Atex Dip Meter
Personnel 01	S Williams
Time OFF	15:45
Time ON	13:45
Weather	o/c, mild

Issued By:

Signed By :

Name :

Field log report

Ruabon

23-December-2015

Equipment 01 Calibration Due	28/04/2016
Equipment 01 Last Calibration	28/10/2015
Equipment 01 Last Calibration	22/10/2015
Equipment 01 Serial No.	GEM2000Plus + GM10338
Equipment 01 Serial No.	GA11581
Equipment 01 Type	GA2000plus
Personnel 01	L Terrace
Personnel 01	INF00925 alan.parry
Time OFF	14:44
Time OFF	11:30
Time ON	08:30
Time ON	10:38
Weather	Wet
Weather	Sunny

Issued By:

Signed By :

Name :

Field log report

Ruabon

29-December-2015

Equipment 01 Last Calibration	05/10/2015
Equipment 01 Serial No.	GA5000 + G500112
Personnel 01	INF00971 Alastair.Millin
Time OFF	11:26
Time ON	10:51
Weather	Clear

Issued By:

Signed By :

Name :

Field log report

Ruabon

31-December-2015

Equipment 01 Calibration Due	28/04/2016
Equipment 01 Last Calibration	28/10/2015
Equipment 01 Serial No.	GA11581
Equipment 01 Type	GA2000plus
Personnel 01	L Terrace
Time OFF	11:25
Time ON	08:45
Weather	Overcast

Issued By:

Signed By :

Name :

APPENDIX 2

Perimeter Borehole Gas Data

Ruabon Perimeter Borehole Gas Data - December 2015



From : 03/12/2015

To : 31/12/2015

03/12/2015

Sample Point	AtPress (mBar)	CH4 (%v/v) (%)	CO2 (%v/v) (%)	Dip to Water (m)	H2S (ppm)	O2 (%v/v)	Rel Press (mBar)	TD (m)
RUBH0006	999	0	1.1	1.55	0	5	0.67	11.71
RUBH0007	999	6	8.3	3.38	0	0.8	0.33	38.66
RUBH0008	998	0	0.6	0.44	0	20.5	-0.12	42.36
RUBH0009	998	0	1.6	1.65	0	19.2	-0.1	7.5
RUBH0010	997	0	0.4	2.23	0	20.4	-0.12	36.11
RUBH0013	995	0	0.6	0.92	0	20.4	-0.16	34.59
RUBH0014	995	0	2.6	2.25	0	17.2	-0.59	10.72
RUBH0015	997	0	0.5	4.1	0	12.8	-0.1	41.58
RUBH0016	996	0	0.2	10.79	0	20.5	-0.12	47.15
RUBH001A	1001	0	0.5	4.81	0	20	-0.11	12.86
RUBH001B	1001	0	1.1	5.08	0	19.4	-0.12	6.38
RUBH002A	1001	0	4.6	5.1	0	2.9	0.03	6.49
RUBH002B	1001	0	0.1	5.14	0	20.5	-9.3	11.71
RUBH003A	1000	0	1.3	5.73	0	19.5	0.91	13.09
RUBH003B	1000	0	0.2	5.31	0	20.7	-0.14	6.37
RUBH004A	999	0	2.1	5.54	0	18.8	6.13	9.6
RUBH004B	999	0	0.1	5.42	0	20.7	-0.13	6.32
RUBH011A	996	0	2	1.64	0	19.4	0.65	12.78
RUBH011P	996	0	0.2	5.86	0	20.3	8.88	14.42
RUBH012A				0.04				5.38
RUGBH001	999	0	3.1	6.05	0	18.2	-0.13	6.05
RUGBH002	999	1.3	7	2.34	0	4.9	-0.17	7
RUGBH003	999	0	0.6	2.56	0	18.5	-0.13	4.93
RUGBH004	999	0	0.2	2.74	0	20.6	-0.11	21.9
RUGBH005	999	12.2	13	2.76	0	0.2	-0.08	6.32
RUGBH006	999	0	2.1	0.67	0	19.4	-0.12	6.86
RUGBH007	994	0	0.5	0.53	0	20.4	-0.42	2.94
RUGBH008	994	0	0.1	0.72	0	20.6	-0.18	6.16
RUGBH009	995	0	1.2	0.83	0	19.5	-0.17	8.22
RUGBH010	994	0	1.1	0.5	0	20	-0.14	3.95
RUGBH02A	999	0	0.1	1.18	0	20.6	-0.1	1.4
RUGP0001	1001	1.5	1.5		0	16.8	0.59	
RUGP0002	1001	0	5.4		0	14.5	-0.18	
RUGP0003	1001	0	1.8		0	3.5	4.27	
RUGP0004	1001	0	2.5		0	18	-0.12	
RUGP0008	1000	0	0.9		0	19	0.23	
RUGP0009	1000	0	1.5		0	18.1	0	
RUGP0010	1000	0	1.8		0	19.4	-0.03	
RUGP0011	1000	0	2.4		0	19.8	-0.03	
RUGP0012	1000	0	0.1		0	20.5	0.05	
RUGP0013	1000	0	0.7		0	20.2	-0.03	
RUGP0014	999	0	4		0	17.5	-0.15	
RUGP0015	995	0	0.6		0	20.2	-0.14	
RUGP0016	995	0	0.6		0	19.6	-0.32	
RUGP0018	995	0	0.3		0	19.5	7.9	
RUGP0019	995	0	0.1		0	20.4	9.91	
RUGP0020	995	0	0		0	20.6	-0.18	
RUGP0021	994	0	1.7		0	17.4	-1.4	
RUGP00A1	999	0	0		0	20.4	-0.23	

Issued By:

Ruabon Perimeter Borehole Gas Data - December 2015



From : 03/12/2015

To : 31/12/2015

03/12/2015

	AtPress (mBar)	CH4 (%v/v) (%)	CO2 (%v/v) (%)	Dip to Water (m)	H2S (ppm)	O2 (%v/v)	Rel Press (mBar)	TD (m)
RUGP00A2	999	2.5	4		0	1.6	24.7	
RUGP00A3	999	0	0		0	19.4	1.76	
RUGP00B1	999	0	0		0	17.8	0.16	
RUGP00B2	999	0	0.1		0	20.4	0.61	
RUGP00B3	999	0	0		0	20.6	0.93	
RUGP00C1	999	0	0		0	20.6	-0.09	
RUGP00C2	999	0	0		0	18.4	-0.15	
RUGP00C3	999	0	0		0	20.6	-1.4	
RUGP00D1	999	0	0		0	19.7	0.36	
RUGP00D2	999	0	0		0	20.6	-2.8	
RUGP00D3	999	0	0		0	17.4	-5.24	
RUGP00E1	999	0	0		0	20.6	-0.16	
RUGP00E2	1000	0	0		0	20.7	-0.14	
RUGP00E3	1000	0	0		0	20.6	0.4	
RUGP00F1	999	0	0		0	20.3	1.82	
RUGP00F2	999	0	0		0	20.2	-0.3	
RUGP00F3	999	0	0		0	17.5	-4.12	
RUWB001A	1000	0	0.2	2.95	0	19.6	-0.01	48.95
RUWB001B	1000	0	1.5	4.6	0	19.3	-0.01	7.88
RUWB002A	1000	0	0.1	4.78	0	17.8	2.37	21.44
RUWB002B	1000	0	2	6.1	0	19.3	-0.51	10.49
RUWB002C	1000	0	1.9	6.24	0	19.6	-0.08	8
RUWB002D	1000	0	0.2	6.05	0	20.7	3.24	21.66
RUWB003A	995	0	0.4	9.07	0	15.6	1.26	10.68
RUWB003B	995	0	0.1	0.84	0	20	-0.17	7.54
RUWB004A	995	0	0.1	3.18	0	16	3	48.8
RUWB004B	995	0	1.2	0.69	0	15.1	0.94	8.55
RUWB005A	995	0	0	2.98	0	20.3	-0.25	25.33
RUWB005B	996	0	0.6	5.61	0	19.7	0.15	8.38

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Ruabon Perimeter Borehole Gas Data - December 2015



From : 03/12/2015

To : 31/12/2015

11/12/2015

Sample Point	AtPress (mBar)	CH4 (%v/v) (%)	CO2 (%v/v) (%)	H2S (ppm)	O2 (%v/v)	Rel Press (mBar)
RUBH0006	1004	0	0.7	0	12.7	-0.51
RUBH0007	1004	6.8	7.3	0	1	0.1
RUBH0008	1003	0	2.9	0	19.7	-31.89
RUBH0009	1003	0	1.6	0	19.8	-1.93
RUBH0010	1003	0	0.4	0	20.6	-0.11
RUBH0013	1001	0	0.4	0	20.7	-0.2
RUBH0014	1001	0	2.1	0	18.4	0.29
RUBH0015	1002	0	0.5	0	17.2	-0.12
RUBH0016	1002	0	0.2	0	20.7	-0.09
RUBH001A	1004	0	0.3	0	20.6	0.09
RUBH001B	1004	0	0.5	0	20.4	0.14
RUBH002A	1004	0	0	0	20.8	0.1
RUBH002B	1003	0	0.2	0	20.7	0.11
RUBH003A	1003	0	0.9	0	19.7	0.77
RUBH003B	1003	0	0	0	20.9	0.02
RUBH004A	1004	0	1.9	0	19	1.68
RUBH004B	1004	0	1.5	0	20	-0.04
RUBH011A	1002	0	2	0	19.5	-1.71
RUBH011P	1002	0	0.1	0	20.7	5.93
RUBH012A	1002	0	2.7	0	18	1.46
RUGBH001	1004	0	3.2	0	18.1	0.02
RUGBH002	1004	0	0.4	0	20.6	-0.02
RUGBH003	1004	0	0.1	0	20.9	0.02
RUGBH004	1004	0	0.6	0	20.2	0
RUGBH005	1004	0	1.7	0	17.3	-0.05
RUGBH006	1004	0	1.2	0	20.3	-0.06
RUGBH007	1001	0	0.6	0	20.6	-0.14
RUGBH008	1001	0	0.3	0	20.6	-0.14
RUGBH009	1002	0	1.5	0	19.4	-0.12
RUGBH010	1002	0	1	0	20.3	-0.19
RUGBH02A	1004	0	0	0	20.9	0.02
RUGP0001	1004	1.3	1.3	0	17.7	-0.08
RUGP0002	1004	0	5.5	0	13.4	0.04
RUGP0003	1004	0	0.3	0	18	15.66
RUGP0004	1004	0	2.1	0	19.5	0.14
RUGP0008	1003	0	0.2	0	20.3	0.18
RUGP0009	1003	0	1.6	0	18.8	0.14
RUGP0010	1004	0	1.5	0	19.6	0.13
RUGP0011	1004	0	1.8	0	19.9	0.13
RUGP0012	1003	0	0.2	0	20.6	-0.01
RUGP0013	1003	0	0.7	0	20.4	0.1
RUGP0014	1004	0	4.7	0	17	0.03
RUGP0015	1002	0	0.3	0	20.5	-0.31
RUGP0016	1001	0	0.9	0	19.9	-0.16
RUGP0018	1002	0	0.3	0	19.9	1.62
RUGP0019	1002	0	0	0	20.7	-0.07
RUGP0020	1001	0	0.1	0	20.6	1.08
RUGP0021	1001	0	1.5	0	17.6	0.06
RUGP00A1	1004	0	0	0	20.8	-0.02

Issued By:

Ruabon Perimeter Borehole Gas Data - December 2015



From : 03/12/2015

To : 31/12/2015

11/12/2015

	AtPress (mBar)	CH4 (%v/v) (%)	CO2 (%v/v) (%)	H2S (ppm)	O2 (%v/v)	Rel Press (mBar)
RUGP00A2	1004	0.5	0.7	0	15.9	1.36
RUGP00A3	1004	0	0	0	20.4	-0.14
RUGP00B1	1004	0	0	0	19.9	0.06
RUGP00B2	1004	0	0.2	0	20.5	-0.18
RUGP00B3	1004	0	0	0	20.9	0
RUGP00C1	1004	0	0	0	20.9	0
RUGP00C2	1004	0	0	0	19.8	-0.02
RUGP00C3	1004	0	0	0	20.8	-0.39
RUGP00D1	1004	0	0	0	20.3	-0.18
RUGP00D2	1004	0	0	0	20.9	0.01
RUGP00D3	1004	0	0	0	19.7	-6.19
RUGP00E1	1004	0	0	0	20.9	0
RUGP00E2	1004	0	0	0	20.9	0.01
RUGP00E3	1004	0	0	0	20.8	-0.04
RUGP00F1	1004	0	0	0	20.5	0.03
RUGP00F2	1004	0	0	0	20.5	-0.01
RUGP00F3	1004	0	0	0	18.4	-5.26
RUWB001A	1003	0	0.2	0	18.9	-2.03
RUWB001B	1003	0	0.1	0	20.7	0.16
RUWB002A	1004	0	0.1	0	20.1	0.06
RUWB002B	1003	0	2.2	0	19.3	0.07
RUWB002C	1003	0	2.8	0	19	-0.04
RUWB002D	1003	0	0.2	0	20.7	0.08
RUWB003A	1001	0	0.5	0	15.2	0.05
RUWB003B	1001	0	0.2	0	20	-0.11
RUWB004A	1002	0	0.1	0	17	1.31
RUWB004B	1002	0	1.1	0	15.5	-1.55
RUWB005A	1003	0	0	0	20.4	-0.48
RUWB005B	1003	0	0.6	0	20.2	-0.14

Issued By:

Ruabon Perimeter Borehole Gas Data - December 2015



From : 03/12/2015

To : 31/12/2015

23/12/2015

Sample Point	AtPress (mBar)	CH4 (%v/v) (%)	CO2 (%v/v) (%)	H2S (ppm)	O2 (%v/v)	Rel Press (mBar)
RUBH0006	1001	0	0.8	0	13.2	-0.26
RUBH0007	1001	6.2	4	0	2.5	5.9
RUBH0008	1000	0	0.5	0	20.8	-0.19
RUBH0009	1000	0	2.5	0	19.6	-15.23
RUBH0010	1000	0	0.3	0	20.8	0.05
RUBH0013	998	0	0.1	0	20.6	0
RUBH0014	998	0	2.4	0	18.6	0.55
RUBH0015	999	0	0.4	0	18.9	0.02
RUBH0016	999	0	0.3	0	20.6	-0.14
RUBH001A	1000	0	0.3	0	20.4	0.11
RUBH001B	1000	0	0.5	0	20	0.11
RUBH002A	1000	0	0	0	20.8	-0.01
RUBH002B	1000	0	0.2	0	20.7	-9.93
RUBH003A	1000	0	0.7	0	20.1	0.16
RUBH003B	1000	0	0	0	21	0.15
RUBH004A	1000	0	1.9	0	18.9	-0.51
RUBH004B	1000	0	1.9	0	19.5	0.08
RUBH011A	999	0	0.9	0	20.4	0.03
RUBH011P	999	0	0.2	0	20.3	6.97
RUBH012A	999	0	0	0	20.7	0
RUGBH001	1000	0	3.4	0	17.6	0.12
RUGBH002	1001	0	0.1	0	20.8	0.08
RUGBH003	1001	0	0.1	0	20.8	0.06
RUGBH004	1001	0	0.4	0	20.2	0.05
RUGBH005	1001	0	0.1	0	20.9	0.05
RUGBH006	1001	0	1	0	20.4	0.04
RUGBH007	998	0	0.5	0	20.5	0
RUGBH008	998	0	0.4	0	20.5	0
RUGBH009	999	0	0.8	0	19.7	-11.59
RUGBH010	999	0	0.6	0	20.3	0.78
RUGBH02A	1000	0	0	0	20.8	0.08
RUGP0001	1000	12.5	1.8	0	13.5	-0.37
RUGP0002	1000	0	3.8	0	15.2	0.14
RUGP0003	1000	0	0.4	0	16.6	7.92
RUGP0004	1000	0	2	0	19.2	0.13
RUGP0008	1000	0	0.1	0	20.6	0.24
RUGP0009	1000	0	0	0	20.9	-0.13
RUGP0010	1000	0	1.6	0	19.5	0.14
RUGP0011	1000	0	1.5	0	19.8	0.15
RUGP0012	1000	0	0.1	0	20.7	0.09
RUGP0013	1000	0	0.8	0	20.2	0.14
RUGP0014	1000	0	4.9	0	16.7	0.09
RUGP0015	999	0	0.3	0	20.4	-0.19
RUGP0016	998	0	4.5	0	16.8	5.41
RUGP0018	999	0	0.4	0	19.5	1.37
RUGP0019	998	0	0	0	20.6	0
RUGP0020	998	0	0.1	0	20.3	1.03
RUGP0021	998	0	1	0	18.3	0.15
RUGP00A1	1001	0	0	0	20.8	0.06

Issued By:

From : 03/12/2015

To : 31/12/2015

23/12/2015

	AtPress (mBar)	CH4 (%v/v) (%)	CO2 (%v/v) (%)	H2S (ppm)	O2 (%v/v)	Rel Press (mBar)
RUGP00A2	1001	0.6	1.3	0	11	16.45
RUGP00A3	1001	0	0	0	19.2	0.06
RUGP00B1	1001	0	0	0	19.2	0.06
RUGP00B2	1001	0	0.1	0	20.2	-4.17
RUGP00B3	1001	0	0	0	20.8	0.03
RUGP00C1	1001	0	0	0	20.8	0.06
RUGP00C2	1001	0	0	0	19.9	0.3
RUGP00C3	1001	0	0	0	20.7	-1.32
RUGP00D1	1001	0	0	0	19.9	-0.44
RUGP00D2	1001	0	0.1	0	20.3	0.04
RUGP00D3	1001	0	0	0	18.5	-3.48
RUGP00E1	1001	0	0	0	20.8	-0.03
RUGP00E2	1001	0	0	0	20.7	0.07
RUGP00E3	1001	0	0	0	20.7	0.07
RUGP00F1	1001	0	0.1	0	20.6	0.09
RUGP00F2	1001	0	0	0	20.2	0
RUGP00F3	1001	0	0	0	20.5	-4.81
RUWB001A	1000	0	0.2	0	18	-1.49
RUWB001B	1000	0	2.4	0	18.2	0.15
RUWB002A	1000	0	0.1	0	19.9	0.1
RUWB002B	1000	0	1.8	0	19.7	0.1
RUWB002C	1000	0	2.7	0	18.9	0.13
RUWB002D	1000	0	0.3	0	20.5	0.15
RUWB003A	998	0	0.5	0	14.1	-12.36
RUWB003B	998	0	0.2	0	19.7	0.02
RUWB004A	999	0	0.1	0	16.4	0.05
RUWB004B	999	0	0.9	0	14.8	-7.42
RUWB005A	1000	0	0	0	20.2	-0.68
RUWB005B	1000	0	0.5	0	20.2	0.01

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Ruabon Perimeter Borehole Gas Data - December 2015



From : 03/12/2015

To : 31/12/2015

31/12/2015

Sample Point	AtPress (mBar)	CH4 (%v/v) (%)	CO2 (%v/v) (%)	H2S (ppm)	O2 (%v/v)	Rel Press (mBar)
RUBH0006	992	0	1	0	12.3	-9.54
RUBH0007	992	5	3.4	0	5	7.96
RUBH0008	992	0	1.2	0	20.5	-0.08
RUBH0009	992	0	2.6	0	19.3	-4.38
RUBH0010	991	0	0.4	0	20.6	-0.16
RUBH0013	990	0	0.1	0	20.7	-0.29
RUBH0014	989	0	2.5	0	19	-0.23
RUBH0015	991	0	0.5	0	18.1	-0.23
RUBH0016	991	0	0.3	0	20.6	-0.18
RUBH001A	992	0	0.3	0	20.5	0.19
RUBH001B	992	0	0.3	0	20.2	0.25
RUBH002A	992	0	0	0	20.8	0
RUBH002B	992	0	0.2	0	20.7	-7.03
RUBH003A	992	0	0.8	0	20.1	-1.19
RUBH003B	992	0	0	0	20.9	-0.06
RUBH004A	992	0	1.8	0	19	-2.08
RUBH004B	992	0	1.8	0	19.6	-0.06
RUBH011A	990	0	0.3	0	20.7	-1.19
RUBH011P	990	0	0.1	0	20.4	4.07
RUBH012A	990	0	0.1	0	19.4	2.31
RUGBH001	992	0	3.9	0	16.9	-0.05
RUGBH002	992	0	0.1	0	20.8	-0.08
RUGBH003	992	0	0.2	0	20.8	-0.13
RUGBH004	992	0	0.5	0	20.2	-0.1
RUGBH005	992	0	0.1	0	20.8	-0.1
RUGBH006	992	0	1.3	0	20.1	-0.13
RUGBH007	989	0	0.4	0	20.6	-0.22
RUGBH008	989	0	0.4	0	20.6	-0.24
RUGBH009	990	0	1	0	19.6	-0.03
RUGBH010	990	0	1.1	0	20.1	0.04
RUGBH02A	992	0	0.1	0	20.8	-0.09
RUGP0001	992	2.6	0.3	0	19.2	0.22
RUGP0002	992	0	0.9	0	19.3	-0.24
RUGP0003	992	0	0.3	0	17.6	8.3
RUGP0004	992	0	1.6	0	19.8	0.26
RUGP0008	992	0	0.1	0	20.5	-3.41
RUGP0009	992	0	0	0	20.9	0.01
RUGP0010	992	0	1.4	0	19.5	0
RUGP0011	992	0	1.5	0	19.7	0.01
RUGP0012	991	0	0.1	0	20.8	0.04
RUGP0013	992	0	1	0	19.9	-0.01
RUGP0014	992	0	5.3	0	16.2	-0.06
RUGP0015	990	0	0.3	0	20.5	-0.46
RUGP0016	989	0	3.6	0	18.1	9.99
RUGP0018	990	0	0.3	0	19.7	1.19
RUGP0019	989	0	0	0	20.6	0.5
RUGP0020	989	0	0	0	20.7	-0.2
RUGP0021	989	0	0.6	0	18.9	1.08
RUGP00A1	992	0	0	0	20.5	-1.87

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From : 03/12/2015

To : 31/12/2015

31/12/2015

	AtPress (mBar)	CH4 (%v/v) (%)	CO2 (%v/v) (%)	H2S (ppm)	O2 (%v/v)	Rel Press (mBar)
RUGP00A2	992	0.3	0.6	0	15.3	6.76
RUGP00A3	992	0	0	0	20.4	-0.25
RUGP00B1	992	0	0	0	19.3	-0.47
RUGP00B2	992	0	0.1	0	20.6	-2.66
RUGP00B3	992	0	0	0	20.8	-0.1
RUGP00C1	992	0	0	0	20.8	-0.05
RUGP00C2	992	0	0	0	20.3	-0.32
RUGP00C3	992	0	0	0	20.7	-1.9
RUGP00D1	992	0	0	0	20.1	-1.07
RUGP00D2	992	0	0	0	20.8	-0.31
RUGP00D3	992	0	0	0	19.9	-0.1
RUGP00E1	992	0	0	0	20.8	-0.1
RUGP00E2	992	0	0	0	20.8	-0.15
RUGP00E3	992	0	0	0	20.7	-0.09
RUGP00F1	992	0	0	0	20.4	-2.25
RUGP00F2	992	0	0	0	20.2	-0.11
RUGP00F3	992	0	0	0	18.5	-8.13
RUWB001A	992	0	0.2	0	17.3	0.37
RUWB001B	992	0	3.2	0	16.4	0
RUWB002A	992	0	0.1	0	20.1	-0.04
RUWB002B	992	0	1.6	0	19.7	-0.03
RUWB002C	991	0	2.7	0	18.7	-0.02
RUWB002D	992	0	0.3	0	20.5	0.03
RUWB003A	989	0	0.5	0	13.5	-4.93
RUWB003B	989	0	0.1	0	19.7	-0.19
RUWB004A	990	0	0.1	0	16	-2.23
RUWB004B	989	0	1	0	14.1	-7.4
RUWB005A	991	0	0	0	20.4	-0.47
RUWB005B	991	0	0.4	0	20.4	-0.25

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APPENDIX 3

Landfill Gas Field Extraction and Balancing Data

RUABON IN-WASTE LANDFILL GAS EXTRACTION AND BALANCING DATA - December 2015

Well ID	Date/Time	CH4 (%)	CO2 (%)	O2 (%)	Balance Gas (%)	Vacuum (mbar)	Atm Press (mbar)	CO (ppm)	H2S (ppm)	CH4 + CO2 (%)	Original Valve (%)	Depart Valve (%)
RUAW0024	04/12/2015 13:34	41.3	30.7	0.6	27.4	-57.94	1005	2	0	72	40	40
RUAW0027	04/12/2015 13:39	50.7	22.3	1.9	25.1	-58.58	1006	1	0	73	20	20
RUAW025R	04/12/2015 13:42	48	30.7	0	21.3	-53.33	1006	2	0	78.7	20	30
RUAW025R	04/12/2015 13:44	47	32.7	0	20.3	-56.24	1006	2	0	79.7	30	30
RUAW026R	04/12/2015 13:50	19.1	22.6	0	58.3	-35.59	1006	3	0	41.7	10	10
RUAP1411	04/12/2015 13:55	0.1	4.5	20.5	74.9	-20.37	1009	2	0	4.6	0	0
RUAW030R	04/12/2015 13:57	37.8	28.9	0.5	32.8	-58.62	1007	2	0	66.7	10	10
RUAW031R	04/12/2015 14:02	37.7	28.9	0.4	33	-27.97	1008	2	0	66.6	10	20
RUAW031R	04/12/2015 14:04	35	31.7	0	33.3	-34.25	1008	2	0	66.7	20	20
RUAW034R	04/12/2015 14:09	31.9	28.5	0.3	39.3	-40.36	1006	2	0	60.4	10	10
RUAW033R	04/12/2015 14:14	24.8	18.6	4.8	51.8	-55.65	1007	2	0	43.4	10	10
RUARW042	04/12/2015 14:19	54.6	26.7	0.2	18.5	-35.49	1007	1	0	81.3	5	10
RUARW042	04/12/2015 14:20	52.6	30	0	17.4	-55.38	1007	2	0	82.6	10	10
RUARW041	04/12/2015 14:22	0	2.2	20.9	76.9	-29.11	1011	1	0	2.2	0	0
RUARW040	04/12/2015 14:25	0	1	20.9	77.8	-41.38	1011	1	0	1	0	0
RUARW039	04/12/2015 14:28	49.8	26.4	0	23.8	-58	1011	1	0	76.2	50	50
RUARW038	04/12/2015 14:30	58.1	32.3	0.3	9.3	-57.01	1011	2	0	90.4	80	80
RUARW037	04/12/2015 14:32	48.8	32.4	0	18.8	-56.79	1010	3	0	81.2	80	80
RUAP1410	04/12/2015 14:36	0	1.8	20.8	77.4	-14.32	1010	1	0	1.8	0	0
RUAP1409	04/12/2015 14:38	0	1	20.9	77.7	-16.03	1009	1	0	1	0	0
RUAP1408	04/12/2015 14:39	0	0.7	20.9	78	-22.01	1009	2	0	0.7	0	0
RUAP1407	04/12/2015 14:41	0	0.6	20.9	78	-22.58	1009	1	0	0.6	0	0
RUAP1406	04/12/2015 14:43	0	0.5	20.9	78.1	-24.06	1009	1	0	0.5	0	0
RUAW0024	07/12/2015 09:00	46.8	29.4	0.8	23	-45.45	1004	2	0	76.2	40	40
RUAW0027	07/12/2015 09:05	56.1	20.3	1.8	21.8	-44.17	1004	1	0	76.4	20	30
RUAW0027	07/12/2015 09:07	55.4	21.3	1.6	21.7	-46.67	1004	1	0	76.7	30	30
RUAW025R	07/12/2015 09:11	47.5	32.9	0.1	19.5	-42.28	1005	2	0	80.4	30	30

Well ID	Date/Time	CH4 (%)	CO2 (%)	O2 (%)	Balance Gas (%)	Vacuum (mbar)	Atm Press (mbar)	CO (ppm)	H2S (ppm)	CH4 + CO2 (%)	Original Valve (%)	Depart Valve (%)
RUAW026R	07/12/2015 09:19	24.5	23.6	0.1	51.8	-32.18	1005	2	0	48.1	5	5
RUAP1411	07/12/2015 09:23	0	3.4	20	76.6	-20.46	1005	1	0	3.4	0	0
RUAW030R	07/12/2015 09:25	49.3	23.2	0	27.5	-46.74	1006	2	0	72.5	10	10
RUAW031R	07/12/2015 09:31	34.6	29.8	0.4	35.2	-37.95	1004	1	0	64.4	20	20
RUAW034R	07/12/2015 09:35	32.7	27.8	0.2	39.3	-31.57	1005	2	0	60.5	10	10
RUAW033R	07/12/2015 09:39	45.3	23.2	1.9	29.6	-45.88	1005	2	0	68.5	10	10
RUARW042	07/12/2015 09:44	48.5	23.9	2	25.6	-45.9	1006	1	0	72.4	10	10
RUARW041	07/12/2015 09:46	0	1.9	20.7	77.4	-29.52	1009	1	0	1.9	0	0
RUARW040	07/12/2015 09:49	5.4	4.4	16.8	73.4	-36.83	1009	1	0	9.8	0	0
RUARW039	07/12/2015 09:51	64.1	24.8	0.4	10.7	-48.47	1009	2	0	88.9	50	70
RUARW039	07/12/2015 09:52	61.5	28.8	0	9.7	-48.91	1009	2	0	90.3	70	70
RUARW038	07/12/2015 09:55	58.9	34.3	0	6.8	-48.02	1009	2	0	93.2	80	80
RUARW037	07/12/2015 09:57	50.4	31.8	0.2	17.6	-47.28	1009	2	0	82.2	60	60
RUAP1410	07/12/2015 10:01	0	1.8	20.7	77.5	-12.67	1008	1	0	1.8	0	0
RUAP1409	07/12/2015 10:02	0	1.1	20.9	77.9	-14.67	1007	1	0	1.1	0	0
RUAP1408	07/12/2015 10:04	0	0.8	20.9	78.1	-18.7	1008	1	0	0.8	0	0
RUAP1407	07/12/2015 10:06	0	0.7	20.9	78.2	-18.8	1008	1	0	0.7	0	0
RUAP1406	07/12/2015 10:08	0	0.5	20.9	78.4	-19.41	1008	1	0	0.5	0	0
RUAW0024	11/12/2015 13:22	46.8	29.1	1.3	22.8	-46.28	1002	2	0	75.9	40	40
RUAW0027	11/12/2015 13:27	58.7	19.3	1.4	20.6	-46.26	1003	2	0	78	30	30
RUAW025R	11/12/2015 13:31	48.1	32.1	0.1	19.7	-43.19	1002	2	0	80.2	30	30
RUAW026R	11/12/2015 13:35	23.4	21.1	1.7	53.8	-31.37	1003	2	0	44.5	5	5
RUAP1411	11/12/2015 13:39	0	3.5	20.1	76.4	-17.03	1003	1	0	3.5	0	0
RUAW030R	11/12/2015 13:41	34.4	28.3	0.6	36.7	-47.38	1003	2	0	62.7	10	10
RUAW031R	11/12/2015 13:46	32.8	29.2	0.4	37.6	-32.11	1002	1	0	62	20	20
RUAW034R	11/12/2015 13:51	37.4	28.1	0.4	34.1	-28.51	1002	2	0	65.5	10	10
RUAW033R	11/12/2015 13:55	32	22	3	43	-47.45	1002	2	0	54	10	10
RUARW042	11/12/2015 14:01	42.3	27	0.2	30.5	-46	1003	2	0	69.3	10	10
RUARW041	11/12/2015 14:03	0	3.2	20.4	76.4	-28.23	1006	0	0	3.2	0	0

Well ID	Date/Time	CH4 (%)	CO2 (%)	O2 (%)	Balance Gas (%)	Vacuum (mbar)	Atm Press (mbar)	CO (ppm)	H2S (ppm)	CH4 + CO2 (%)	Original Valve (%)	Depart Valve (%)
RUARW040	11/12/2015 14:05	27.3	20.7	0.4	51.6	-36.3	1007	2	0	48	0	10
RUARW040	11/12/2015 14:06	27.2	22	0.2	50.6	-39.49	1007	1	0	49.2	10	10
RUARW039	11/12/2015 14:08	65.1	26.5	0.3	8.1	-46.45	1007	1	0	91.6	70	70
RUARW038	11/12/2015 14:11	58.7	34.4	0.2	6.7	-47.78	1007	2	0	93.1	80	100
RUARW038	11/12/2015 14:12	58.4	35.2	0	6.4	-48.86	1007	1	0	93.6	100	100
RUARW037	11/12/2015 14:14	51.4	33.1	0	15.5	-46.05	1006	2	0	84.5	80	100
RUARW037	11/12/2015 14:16	50.4	34.6	0	15	-47.95	1006	1	0	85	100	100
RUAP1410	11/12/2015 14:20	0	2.5	20.4	77.1	-10.67	1003	1	0	2.5	0	0
RUAP1409	11/12/2015 14:22	0	1.2	20.9	77.6	-13.06	1006	1	0	1.2	0	0
RUAP1408	11/12/2015 14:24	0	0.7	20.9	78	-16.27	1006	0	0	0.7	0	0
RUAP1407	11/12/2015 14:28	0	0.6	20.9	78	-16.49	1006	0	0	0.6	0	0
RUAP1406	11/12/2015 14:30	0	0.4	20.9	78.2	-16.27	1005	0	0	0.4	0	0
RUAW0024	14/12/2015 09:11	46.4	33.2	0.5	19.9	-58.58	998	3	3	79.6	40	40
RUAW0027	14/12/2015 09:17	52.8	19.8	2.6	24.8	-62.2	998	2	0	72.6	30	40
RUAW0027	14/12/2015 09:19	53.1	20.1	2.3	24.5	-62.31	998	2	0	73.2	40	40
RUAW025R	14/12/2015 09:23	47.7	33.9	0.1	18.3	-50.02	1000	3	0	81.6	30	30
RUAW026R	14/12/2015 09:28	26.1	26	0	47.9	-34.95	998	3	9	52.1	10	10
RUAP1411	14/12/2015 09:34	0	0.1	20.9	78.9	-24.09	999	2	0	0.1	0	0
RUAW030R	14/12/2015 09:35	35	32	0.6	32.4	-62.5	999	3	37	67	10	10
RUAW031R	14/12/2015 09:41	33	30.6	1	35.4	-44.57	997	3	38	63.6	10	10
RUAW034R	14/12/2015 09:46	36.5	30.4	0.3	32.8	-40.49	998	3	14	66.9	10	10
RUAW033R	14/12/2015 09:51	58.9	29.7	1	10.4	-66.17	998	3	12	88.6	20	20
RUARW042	14/12/2015 09:56	41.4	29.4	0	29.2	-65.82	1000	2	17	70.8	10	10
RUARW041	14/12/2015 09:58	0	0.5	20.9	78.5	-39.57	1004	2	0	0.5	0	0
RUARW040	14/12/2015 10:01	27.9	23.4	0.2	48.5	-61.53	999	3	2	51.3	20	20
RUARW039	14/12/2015 10:04	64.2	30.3	0	5.5	-69.41	1004	3	62	94.5	70	100
RUARW039	14/12/2015 10:06	64.2	30.3	0	5.5	-69.15	1004	3	63	94.5	100	100
RUARW038	14/12/2015 10:08	58.1	35.6	0	6.3	-68.22	1004	3	8	93.7	100	100
RUARW037	14/12/2015 10:10	50.7	35	0	14.3	-67.82	1004	4	46	85.7	100	100

Well ID	Date/Time	CH4 (%)	CO2 (%)	O2 (%)	Balance Gas (%)	Vacuum (mbar)	Atm Press (mbar)	CO (ppm)	H2S (ppm)	CH4 + CO2 (%)	Original Valve (%)	Depart Valve (%)
RUAW0020	14/12/2015 11:01	30.7	29.4	0	39.9	-3.14	996	2	10	60.1	10	10
RUAW0021	14/12/2015 11:04	48.6	35.8	0	15.6	-9.36	999	3	9	84.4	20	20
RUAW0068	14/12/2015 11:06	31.2	17	10.2	41.6	-57.45	999	3	18	48.2	5	0
RUAW0068	14/12/2015 11:08	31.6	17.2	10.1	41.1	-48.67	999	3	18	48.8	0	0
RUAW0022	14/12/2015 11:10	57.5	39	0	3.5	-5.81	998	3	59	96.5	10	20
RUAW0022	14/12/2015 11:12	53.6	38.5	0	7.9	-6.02	998	4	49	92.1	20	20
RUAW0066	14/12/2015 11:14	54.9	37.1	0.1	7.9	-6.95	1000	4	20	92	5	5
RUAW0023	14/12/2015 11:17	43	32.5	0.5	24	-60.17	1000	4	27	75.5	30	30
RUAP1406	14/12/2015 11:20	0	0.1	20.9	78.8	-20.35	1003	2	1	0.1	0	0
RUAP1407	14/12/2015 11:22	0	0.1	20.9	78.6	-20.89	1002	3	0	0.1	0	0
RUAP1408	14/12/2015 11:23	0	0.1	20.9	78.6	-20.72	1004	2	0	0.1	0	0
RUAP1407	14/12/2015 11:25	0	0.1	20.9	78.5	-15.22	1004	2	0	0.1	0	0
RUAP1406	14/12/2015 11:27	0	0.3	20.9	78.7	-15.49	1002	3	0	0.3	0	0
RUALCM10	14/12/2015 11:29	56.8	33.4	1.3	8.5	-61.6	998	4	0	90.2	30	30
RUAW056R	14/12/2015 11:32	37.7	29.6	6.1	26.6	-4.29	1002	10	0	67.3	0	0
RUAW0028	14/12/2015 11:34	41.6	40.3	2.6	15.5	17.24	1000	10	0	81.9	0	5
RUAW0028	14/12/2015 11:36	41.5	40.4	2.5	15.6	-27.61	1000	10	0	81.9	5	5
RUAW029R	14/12/2015 11:39	46.8	35.7	0	17.5	-8.39	1002	5	14	82.5	5	5
RUAW0049	14/12/2015 11:41	54.5	33.8	1.5	10.2	-0.03	999	5	3	88.3	1	5
RUAW0049	14/12/2015 11:42	51.5	32.3	2.3	13.9	-53.64	999	5	2	83.8	5	5
RUAW0054	14/12/2015 14:02	0.1	5.9	14.8	79.2	0.03	1000	3	0	6	0	0
RUAW0004	14/12/2015 14:04	33.4	21.7	0	44.9	-1.48	998	3	20	55.1	0	0
RUAW0005	14/12/2015 14:06	45.4	26.1	0	28.5	-12.32	1004	4	17	71.5	1	1
RUAW1404	14/12/2015 14:14	32.1	26.1	0	41.8	-7.45	998	4	18	58.2	10	10
RUAW0052	14/12/2015 14:17	52.8	21.7	4.3	21.2	-59.1	1003	3	0	74.5	5	5
RUAW0035	14/12/2015 14:20	33.3	25.4	3	38.3	-60.08	1003	4	0	58.7	10	10
RUAW032R	14/12/2015 14:35	36.2	32.3	0	31.5	-37.49	1003	5	1	68.5	10	10
RUAW057R	14/12/2015 14:48	10	8.1	16.3	65.6	-18.05	1002	6	0	18.1	10	0
RUAW057R	14/12/2015 14:49	13.8	11.2	14.2	60.8	-19.36	1002	8	0	25	0	0

Well ID	Date/Time	CH4 (%)	CO2 (%)	O2 (%)	Balance Gas (%)	Vacuum (mbar)	Atm Press (mbar)	CO (ppm)	H2S (ppm)	CH4 + CO2 (%)	Original Valve (%)	Depart Valve (%)
RUAW1405	14/12/2015 14:56	36.8	26.6	0	36.6	-3.55	997	4	4	63.4	10	10
RUAW0024	18/12/2015 10:05	47.4	31.4	1	20.2	-50.17	998	2	0	78.8	40	40
RUAW0027	18/12/2015 10:09	48.6	18.6	3.6	29.2	-50.91	999	2	0	67.2	20	20
RUAW025R	18/12/2015 10:14	47.1	30.5	0.9	21.5	-35.21	999	2	0	77.6	30	30
RUAW026R	18/12/2015 10:22	27.4	25.8	0.1	46.7	-23.15	999	3	0	53.2	5	5
RUAP1411	18/12/2015 10:27	0	1	20.9	78.1	-19.82	1000	1	0	1	0	0
RUAW030R	18/12/2015 10:28	36.6	29.4	0.5	33.5	-49.43	1000	2	0	66	10	10
RUAW031R	18/12/2015 10:33	36.9	30.4	0.2	32.5	-45.45	1005	2	0	67.3	20	20
RUAW034R	18/12/2015 10:38	41.8	28.1	0.7	29.4	-23.8	999	2	0	69.9	10	10
RUAW033R	18/12/2015 10:42	36.8	25.3	2.3	35.6	-48.5	999	2	0	62.1	20	20
RUARW042	18/12/2015 10:46	39.3	27.7	0.1	32.9	-47.07	1004	2	0	67	10	10
RUARW041	18/12/2015 10:48	0	2.2	20.6	77.2	-33.37	1005	1	0	2.2	0	0
RUARW040	18/12/2015 10:50	20.2	21.7	0.2	57.9	-48.74	1004	2	0	41.9	20	20
RUARW039	18/12/2015 10:55	63.6	30	0.1	6.3	-50.12	1001	2	0	93.6	100	100
RUARW038	18/12/2015 11:05	58.6	35.2	0	6.2	-48.1	1004	2	0	93.8	100	100
RUARW037	18/12/2015 11:07	51.4	34.1	0	14.5	-47.36	1004	3	0	85.5	100	100
RUAP1410	18/12/2015 11:26	0	1.7	20.7	77.6	-13.81	999	2	0	1.7	0	0
RUAP1409	18/12/2015 11:27	0	0.9	20.9	78	-13.84	1003	1	0	0.9	0	0
RUAP1408	18/12/2015 11:28	0	0.7	20.9	78.1	-16.55	1004	1	0	0.7	0	0
RUAP1407	18/12/2015 11:30	0	0.5	20.9	78.2	-18.2	1003	2	0	0.5	0	0
RUAP1406	18/12/2015 11:31	0	0.4	20.9	78.3	-19.01	1003	1	0	0.4	0	0
RUAW0001	18/12/2015 12:34	21.8	23.3	0.1	54.8	-1.6	994	2	0	45.1	5	5
RUAW0002	18/12/2015 12:36	0.5	15.8	1	82.7	0.24	1000	2	0	16.3	0	0
RUAMW001	18/12/2015 12:38	26.5	20.4	2	51.1	-0.34	998	2	0	46.9	0	0
RUAMW003	18/12/2015 12:40	28.9	19.1	0	52	-0.5	999	2	0	48	0	0
RUAW0053	18/12/2015 12:43	0.9	19.2	0	79.9	-1.05	1001	2	0	20.1	0	0
RUALMP2a	18/12/2015 12:45	58.6	20.9	0	20.5	-31.61	1002	2	0	79.5	1	1
RUAMW002	18/12/2015 12:47	35	21.2	0	43.8	-3.93	1001	2	0	56.2	1	1
RUAW065R	18/12/2015 12:49	43.3	23.1	0	33.6	-2.93	1001	2	0	66.4	5	5

Well ID	Date/Time	CH4 (%)	CO2 (%)	O2 (%)	Balance Gas (%)	Vacuum (mbar)	Atm Press (mbar)	CO (ppm)	H2S (ppm)	CH4 + CO2 (%)	Original Valve (%)	Depart Valve (%)
RUAW011R	18/12/2015 12:51	47.3	27.8	0.3	24.6	-4.34	999	2	0	75.1	1	1
RUAW1405	18/12/2015 12:54	36.3	25.8	0	37.9	-3.64	1001	3	0	62.1	1	1
RUAMW005	18/12/2015 12:56	37.7	25.6	0	36.7	-7.45	1001	2	0	63.3	10	10
RUAW0061	18/12/2015 12:58	44	27.5	0.5	28	-4.07	998	2	0	71.5	5	5
RUAMW006	18/12/2015 13:01	44.5	29.9	0	25.6	-13.62	1000	2	0	74.4	10	10
RUAW1402	18/12/2015 13:03	31.3	25.8	0	42.9	-3.34	999	2	0	57.1	5	5
RUAMW09R	18/12/2015 13:05	39.4	28.5	0	32.1	-6.15	997	2	0	67.9	10	10
RUAW0060	18/12/2015 13:07	14	19.8	2.8	63.4	0.17	1001	2	0	33.8	0	0
RUAW1401	18/12/2015 13:09	57.7	35.7	0	6.6	-3.53	997	3	0	93.4	1	1
RUAW0048	18/12/2015 13:12	40.1	29.6	4.3	26	-35.16	1001	2	0	69.7	1	1
RUAW050R	18/12/2015 13:14	23.8	27.5	0.2	48.5	0.4	999	3	0	51.3	0	0
RUAW0067	18/12/2015 13:17	38.8	29.6	0.5	31.1	-5.5	999	3	0	68.4	5	5
RUAW0051	18/12/2015 13:19	60.5	35	0.7	3.8	-39.24	998	2	0	95.5	5	5
RUAW057R	18/12/2015 13:22	59	38.3	0	2.7	-4.07	1000	2	0	97.3	5	5
RUAW032R	18/12/2015 13:24	37	31.7	0	31.3	-33.42	1000	3	0	68.7	5	5
RUAW0036	18/12/2015 13:26	25.7	25.5	0	48.8	-14.89	999	2	0	51.2	5	0
RUAW0036	18/12/2015 13:28	25.7	25.7	0	48.6	-15.17	999	2	0	51.4	0	0
RUAW1403	18/12/2015 13:30	20.8	24.6	0	54.6	-6.05	998	3	0	45.4	5	0
RUAW1403	18/12/2015 13:31	20.6	24.7	0	54.7	-6.91	998	3	0	45.3	0	0
RUAMW003	18/12/2015 13:34	13.1	11.9	10	65	-26.7	998	2	0	25	5	0
RUAMW003	18/12/2015 13:35	12.5	11.1	10.7	65.7	-18.55	998	1	0	23.6	0	0
RUAW0055	18/12/2015 13:41	3.8	18.1	0.6	77.5	-0.1	999	2	0	21.9	0	0
RUAW0008	18/12/2015 13:43	0	10.4	9	80.6	-0.05	999	2	0	10.4	0	0
RUAW0063	18/12/2015 13:45	0	13.5	5.4	81.1	-0.05	999	1	0	13.5	0	0
RUAW0007	18/12/2015 13:47	29.6	20.5	0	49.9	-1.71	998	3	0	50.1	5	0
RUAW0007	18/12/2015 13:48	29.6	20.9	0	49.5	-2.48	998	2	0	50.5	0	0
RUAW0062	18/12/2015 13:50	0	5.4	16	78.6	-2.4	998	2	0	5.4	0	0
RUAMW07R	18/12/2015 13:52	35.1	25.9	0.9	38.1	-4	1000	3	0	61	5	5
RUAMW004	18/12/2015 13:55	22.3	23	0	54.7	-2.71	998	2	0	45.3	0	0

Well ID	Date/Time	CH4 (%)	CO2 (%)	O2 (%)	Balance Gas (%)	Vacuum (mbar)	Atm Press (mbar)	CO (ppm)	H2S (ppm)	CH4 + CO2 (%)	Original Valve (%)	Depart Valve (%)
RUALMP4a	18/12/2015 13:56	46.7	17.7	0	35.6	-60.82	1000	4	0	64.4	1	1
RUAW0044	18/12/2015 13:59	51.6	33.2	0.1	15.1	-1.14	1000	3	0	84.8	5	5
RUAW0043	18/12/2015 14:01	27.1	20.7	0.7	51.5	-39.55	1003	2	0	47.8	1	1
RUAW0013	18/12/2015 14:03	17.5	19.5	3.2	59.8	-0.16	999	2	0	37	0	0
RUAW0014	18/12/2015 14:05	26.9	17.1	10.2	45.8	-43.73	1003	3	0	44	0	0
RUAW0015	18/12/2015 14:08	21.1	16.3	6.4	56.2	-34.25	1003	1	0	37.4	10	0
RUAW0015	18/12/2015 14:09	21	18.8	5.7	54.5	-8.46	1003	2	0	39.8	0	0
RUAW0045	18/12/2015 14:12	0	2.8	18.9	78.3	-0.52	997	2	0	2.8	0	0
RUAMW08R	18/12/2015 14:15	28.8	24.4	0	46.8	-3.22	997	2	0	53.2	0	0
RUAW0046	18/12/2015 14:17	25.6	25.6	0	48.8	-0.67	996	2	0	51.2	0	0
RUAW0016	18/12/2015 14:19	2.5	2.7	17.7	77.1	0.28	1002	1	0	5.2	0	0
RUAW0017	18/12/2015 14:21	21.6	24.5	0.4	53.5	-0.21	997	2	0	46.1	0	0
RUAW0064	18/12/2015 14:23	36.1	29.7	0	34.2	-0.36	996	3	0	65.8	1	1
RUAW0047	18/12/2015 14:25	64	24.7	1.8	9.5	0.5	996	3	0	88.7	0	5
RUAW0047	18/12/2015 14:27	62.7	24.2	2.2	10.9	-40.61	996	4	0	86.9	5	5
RUAW0018	18/12/2015 14:29	63.2	31	0	5.8	-25.82	1001	3	0	94.2	10	10
RUAW0019	18/12/2015 14:31	59.6	33.2	0	7.2	-2.91	1000	2	0	92.8	5	5
RUAW0012	18/12/2015 14:36	9.6	6.8	17.6	66	-41.97	1000	1	0	16.4	1	1
RUAW0024	21/12/2015 13:22	46.8	31.3	1.1	20.8	-40.66	987	2	0	78.1	40	40
RUAW0027	21/12/2015 13:26	52.8	18.6	2.2	26.4	-41.04	988	2	0	71.4	30	30
RUAW025R	21/12/2015 13:30	47.9	31.9	0.3	19.9	-36.3	989	2	0	79.8	30	30
RUAW026R	21/12/2015 13:35	28.4	24.7	0.2	46.7	-26.4	989	3	0	53.1	5	5
RUAW030R	21/12/2015 13:39	75.3	22.1	1.3	1.3	-42	990	2	0	97.4	10	10
RUAW031R	21/12/2015 13:43	39.8	29.7	0.7	29.8	-35.57	989	2	0	69.5	20	20
RUAW034R	21/12/2015 13:48	41.9	27.2	0.9	30	-24.22	989	3	0	69.1	10	10
RUAW0059	21/12/2015 13:51	40.8	29.2	0.6	29.4	-38.38	989	2	0	70	10	10
RUAW0003	21/12/2015 13:53	34.3	9.5	0.5	55.7	-9.1	989	1	0	43.8	1	1
RUAMW003	21/12/2015 13:53	34.3	9.5	0.5	55.7	-9.1	989	1	0	43.8	1	1
RUAW033R	21/12/2015 13:56	58.5	31.1	0.1	10.3	-47.14	991	2	0	89.6	20	20

Well ID	Date/Time	CH4 (%)	CO2 (%)	O2 (%)	Balance Gas (%)	Vacuum (mbar)	Atm Press (mbar)	CO (ppm)	H2S (ppm)	CH4 + CO2 (%)	Original Valve (%)	Depart Valve (%)
RUAW033R	21/12/2015 13:56	58.5	31.1	0.1	10.3	-47.14	991	2	0	89.6	20	20
RUARW042	21/12/2015 14:00	46.9	26.7	0.7	25.7	-49.1	991	2	0	73.6	10	10
RUARW041	21/12/2015 14:02	3.8	6.5	11.2	78.5	-29.39	994	2	0	10.3	0	0
RUARW040	21/12/2015 14:04	29.1	21.6	1.7	47.6	-42.07	991	2	0	50.7	20	20
RUARW039	21/12/2015 14:05	61.5	29.4	0.9	8.2	-40.93	997	3	0	90.9	100	100
RUARW038	21/12/2015 14:07	60.5	32.2	1.3	6	-40.36	997	2	0	92.7	100	100
RUARW037	21/12/2015 14:08	54.5	33.6	0.4	11.5	-39.43	996	2	0	88.1	100	100
RUARW037	21/12/2015 14:08	54.5	33.6	0.4	11.5	-39.43	996	2	0	88.1	100	100
RUAP1411	23/12/2015 10:47	0.3	0.6	20.9	77.9	-21.48	999	0	0	0.9	0	0
RUAW030R	23/12/2015 10:49	40.3	16.4	8.2	35.1	-47.5	999	0	0	56.7	10	10
RUAW031R	23/12/2015 10:53	40.9	30.7	1	27.4	-41.91	997	0	0	71.6	10	10
RUAW034R	23/12/2015 10:57	43	30.5	0.4	26.1	-26.12	998	0	0	73.5	10	10
RUAW033R	23/12/2015 11:02	57.8	29.2	1.2	11.8	-36	998	0	0	87	30	30
RUARW042	23/12/2015 11:08	51.8	29	0.2	19	-36.29	999	0	0	80.8	10	10
RUARW041	23/12/2015 11:09	0.2	1.9	20.9	76.6	-22	999	0	0	2.1	0	0
RUARW040	23/12/2015 11:12	25.4	22.1	0.5	52	-40.83	999	0	0	47.5	20	20
RUAW026R	29/12/2015 10:51	48.8	31.5	0.3	19.4	-23.7	999	4	0	80.3	10	10
RUARW037	29/12/2015 10:56	23.9	22.8	0.2	53.1	-37.44	1000	3	0	46.7	10	10
RUARW038	29/12/2015 10:59	66.2	29.6	0	4.2	-37.88	1000	3	0	95.8	0	100
RUARW039	29/12/2015 11:06	60.3	34.4	0	5.3	-38.51	1000	3	0	94.7	100	100
RUARW040	29/12/2015 11:09	54.5	34.7	0	10.8	-38.32	1000	4	0	89.2	100	100
RUAW026R	29/12/2015 11:16	31.3	25.2	0	43.5	-19.3	999	4	0	56.5	10	10
RUAW0035	29/12/2015 11:20	8.7	9.5	15.7	66.1	-14.05	999	0	0	18.2	10	0
RUAW0028	29/12/2015 11:23	44	39.4	2.2	14.4	-1.61	998	7	0	83.4	5	5
RUAW0024	29/12/2015 11:26	48.5	33.6	0.9	17	-43.22	998	3	0	82.1	40	40

APPENDIX 4

Leachate Level Data

Ruabon Leachate Level Data - December 2015



From : 22/12/2015

To : 22/12/2015

22/12/2015

Sample Point	Depth of Liq (m)	Dip to Water (m)	TD (m)	Water Level (mAOD)
LMP006R	1.37	18.55	19.03	112.77
LMP007R	1.01	17.78	18.98	111.81
LMP008R	1.58	20.89	21.94	111.58
LMP009R	1.76	21.22	21.67	112.06
RUGW00M1	1.39	12.78	14.62	111.84
RUGW00M3	1.63	11.26	11.84	113.88
RUGW00M5	1.44	19.88	21.07	111.94
RUGW00M10	1.81	25.69	26.48	97.81
RUGWM4r	1.27	16.56	17.55	111.35
RULMP2r	1.34	14.87	15.93	111.34

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APPENDIX 5

Groundwater Quality Data

Ruabon Groundwater Quality & Level Data - December 2015



From : 08/10/2015

To : 03/12/2015

03/12/2015

Sample Point	Alk (CaCO ₃ :m g/l)	Amm-N (N:mg/l)	BOD (mg/l)	Ca(D) (mg/l)	Cd(D) (mg/l)	Chloride (mg/l)	COD (mg/l)	Cond (uS / cm)	Cond(Fld) (uS / cm)	Cr(D) (mg/l)
RUBH0013	333	0.12	<2.0	137	<0.0001	12	10	754	770	<0.001
RUWB002A	116	1.7	<3.6	67	<0.0001	472	<5	1730	1740	<0.001
RUWB002B	286	0.7	<2.0	74	<0.0001	138	<5	964	1040	<0.001
RUWB002C	986	2.5	<2.0	194	<0.0001	381	19	2690	2730	0.003
RUWB002D	304	0.3	<2.0	14	<0.0001	29	6	713	690	<0.001
RUWB003A	374	1.2	6.5	7	<0.0001	23	8	721	720	<0.001
RUWB004A	543	0.4	2.6	2	<0.0001	21	7	1060	1040	0.001
RUWB005A	325	0.5	5.3	1	<0.0001	35	8	998	1030	<0.001
RUWB005B	136	1.2	<2.0	103	<0.0001	190	<5	891	910	<0.001

Sample Point	Cu(D) (mg/l)	Dip to Water (m)	Fe(D) (mg/l)	K(D) (mg/l)	Mg(D) (mg/l)	Mn(D) (mg/l)	Ni(D) (mg/l)	Pb(D) (mg/l)	pH (Lab)	pH(Fld)
RUBH0013	0.002	0.92	0.14	4	11	0.067	0.001	<0.001	7.6	6.81
RUWB002A	<0.001	4.78	0.09	24	43	0.236	0.004	<0.001	7.4	7.29
RUWB002B	<0.001	6.1	0.11	9	15	0.126	0.009	<0.001	7.9	7.5
RUWB002C	0.001	6.24	0.18	13	20	2.756	0.035	<0.001	7.1	6.59
RUWB002D	<0.001	6.05	0.03	7	4	0.066	<0.001	<0.001	8.3	7.08
RUWB003A	<0.001	9.07	0.01	17	14	0.231	<0.001	<0.001	8.1	7.59
RUWB004A	<0.001	3.18	0.41	7	<1	0.005	<0.001	<0.001	9.2	9.25
RUWB005A	<0.001	2.98	0.12	4	<1	0.004	<0.001	<0.001	9.6	9.88
RUWB005B	<0.001	5.61	0.13	12	14	0.563	0.003	<0.001	7.4	7.89

Sample Point	Na(D) (mg/l)	S.Solids (mg/l)	TD (m)	TOC (mg/l)	TON (mg/l)	Total S(D) SO ₄ :mg/l	WtrTemp (Deg C)	Zn(D) (mg/l)
RUBH0013	27	920	34.59	4.2	0.3	89	11	<0.002
RUWB002A	189	211	21.44	3	<0.2	<3	11	<0.002
RUWB002B	105	75	10.49	2.5	<0.2	<3	10.8	<0.002
RUWB002C	372	862	8	8.8	<0.2	40	11	0.003
RUWB002D	146	22	21.66	1.5	<0.2	36	10	<0.002
RUWB003A	133	126	10.68	3.5	<0.2	<3	10.8	0.006
RUWB004A	266	69	48.8	3.9	1.2	13	10.8	<0.002
RUWB005A	237	84	25.33	0.6	<0.2	287	10.8	<0.002
RUWB005B	34	57	8.38	3	<0.2	<3	11.2	<0.002

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APPENDIX 6

Surface Water Quality Data

Ruabon Surface Water Quality Data - December 2015



From : 08/10/2015

To : 03/12/2015

03/12/2015

Sample Point	Amm-N (N:mg/l)	BOD (mg/l)	Chloride (mg/l)	COD (mg/l)	Cond (uS / cm)	Cond(Fld) (uS / cm)	DO(Lab) (mg/l)
RUWP004A	1.6	<2.0	48	32	753	760	9.5

Sample Point	pH (Lab)	pH(Fld)	S.Solids (mg/l)	WtrTemp (Deg C)
RUWP004A	7.9	6.3	10	8.5

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APPENDIX 7

Leachate Quality Data