



Monday, 28 March 2016

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

Dear Ms Langstaff,

Data Submission February 2016

Please find enclosed the monthly data submission for routine environmental monitoring undertaken at our Ruabon Landfill Site during February 2016.

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

APPENDIX 1

Field Logs

Field log report

Ruabon

02-February-2016

Equipment 01 Calibration Due	23/04/2016
Equipment 01 Last Calibration	23/10/2015
Equipment 01 Serial No.	GM10109
Equipment 01 Type	GM2000+
Personnel 01	J Crawford, G Forrest
Time OFF	13:00
Time ON	09:30
Weather	Overcast

Issued By:

Signed By :

Name :

Field log report

Ruabon

04-February-2016

Equipment 01 Last Calibration	22/10/2015
Equipment 01 Serial No.	GEM2000Plus + GM10338
Personnel 01	INF00925 Alan.Parry
Time OFF	14:08
Time ON	08:41
Weather	Wet

Issued By:

Signed By :

Name :

Field log report

Ruabon

08-February-2016

Equipment 01 Last Calibration	22/10/2015
Equipment 01 Serial No.	GEM2000Plus + GM10338
Personnel 01	INF00925 Alan.Parry
Time OFF	15:29
Time ON	11:48
Weather	Wet

Issued By:

Signed By :

Name :

Field log report

Ruabon

12-February-2016

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	13:24
Time OFF	12:00
Time ON	09:00
Time ON	09:18
Weather	Wet
Weather	Sunny

Issued By:

Signed By :

Name :

Field log report

Ruabon

17-February-2016

Equipment 01 Last Calibration	22/10/2015
Equipment 01 Serial No.	GEM2000Plus + GM10338
Personnel 01	INF00925 alan.parry
Time OFF	15:15
Time ON	08:46
Weather	Wet

Issued By:

Signed By :

Name :

Field log report

Ruabon

18-February-2016

Equipment 01 Calibration Due	28/04/2016
Equipment 01 Last Calibration	09/02/2016
Equipment 01 Last Calibration	22/10/2015
Equipment 01 Serial No.	GEM2000Plus + GM10338
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
Personnel 01	INF00925 Alan.Parry
Time OFF	15:18
Time OFF	15:45
Time ON	08:34
Time ON	08:43
Weather	Ice
Weather	Sunny

Issued By:

Signed By :

Name :

Field log report

Ruabon

23-February-2016

Equipment 01 Last Calibration	22/10/2015
Equipment 01 Serial No.	GEM2000Plus + GM10338
Personnel 01	INF00925 Alan.Parry
Time OFF	15:13
Time ON	08:37
Weather	Wet

Issued By:

Signed By :

Name :

Field log report

Ruabon

25-February-2016

Equipment 01 Serial No.	79281-10
Equipment 01 Type	Geotechnical Atex Dip Meter
Personnel 01	S Williams
Time OFF	15:30
Time ON	14:00
Weather	sun, cold

Issued By:

Signed By :

Name :

Field log report

Ruabon

26-February-2016

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	11:40
Time ON	08:50
Weather	Sunny

Issued By:

Signed By :

Name :

APPENDIX 2

Perimeter Borehole Gas Data

Ruabon Perimeter Borehole Gas Data - February 2016



From : 02/02/2016

To : 26/02/2016

02/02/2016

Sample Point	AtPress (mBar)	CH4 (%v/v) (%)	CO2 (%v/v) (%)	H2S (ppm)	O2 (%v/v)	Rel Press (mBar)
RUBH0006	998	0	0.7	0	20.8	0.08
RUBH0007	998	0	0	0	21.2	1.06
RUBH0008	996	0	0.1	0	20.9	-0.01
RUBH0009	996	0	0.3	0	20.9	-0.65
RUBH0010	995	0	0.1	0	20.9	-0.07
RUBH0013	997	0	0.3	0	20.9	0.1
RUBH0014	995	0	0	0	20.9	-0.02
RUBH0015	998	0	0.3	0	19.4	0.17
RUBH0016	995	0	0.4	0	20.5	-0.04
RUBH001A	996	0	0.4	0	19.7	-0.01
RUBH001B	996	0	0.7	0	19.8	0.25
RUBH002A	996	1.4	5.4	0	3.1	-0.35
RUBH002B	996	0	0	0	20.5	-0.31
RUBH003A	996	0	2.1	0	15.5	-0.31
RUBH003B	996	0	0.9	0	19.6	-0.3
RUBH004A	997	0	1.7	0	15.4	0.02
RUBH004B	997	0	0.1	0	20.2	-0.01
RUBH011A	996	0.2	0.6	0	19.6	0.05
RUBH011P	997	0	0	0	21.1	0
RUGBH001	997	0	0.1	0	20.4	0.02
RUGBH002	997	0	0	0	20.6	0
RUGBH003	998	0	0	0	20.7	-0.02
RUGBH004	997	0	0	0	20.7	-0.07
RUGBH005	997	0	0.1	0	21	0.03
RUGBH006	997	0	0.9	0	20.5	-0.13
RUGBH007	995	0	0.3	0	18.7	0.39
RUGBH008	995	0	0.2	0	20.9	-0.18
RUGBH009	996	0	0.2	0	20.7	0
RUGBH010	996	0	1.3	0	20.3	0.09
RUGBH02A	997	0	1.3	0	19.9	0.04
RUGP0001	996	2	0.3	0	19.1	0.81
RUGP0002	996	0.1	0.1	0	19.6	0
RUGP0003	996	0	0.1	0	20.3	-0.08
RUGP0004	996	0	0.4	0	20.2	0.04
RUGP0008	996	0	2.1	0	18.1	-0.29
RUGP0009	996	2.2	3.7	0	7.2	-0.37
RUGP0010	996	0	0	0	20.4	-0.51
RUGP0011	996	0	0.2	0	20.6	-0.34
RUGP0012	996	0	0	0	20.7	-0.27
RUGP0013	996	0	0.1	0	18.6	0.01
RUGP0014	997	0	0.1	0	20.1	0.74
RUGP0015	997	0	0.1	0	20.9	0.05
RUGP0016	995	0	0.3	0	21	-0.14
RUGP0018	996	0	0.1	0	20.9	0.11
RUGP0019	995	0	0	0	20.9	-0.28
RUGP0020	995	0	0.9	0	19.6	-1.26
RUGP0021	995	0	3.1	0	18.6	-0.86
RUGP00A1	997	0	0	0	21.3	0.19
RUGP00A2	997	0	0.1	0	19.3	0.04

Issued By:

Ruabon Perimeter Borehole Gas Data - February 2016



From : 02/02/2016

To : 26/02/2016

02/02/2016

	AtPress (mBar)	CH4 (%v/v) (%)	CO2 (%v/v) (%)	H2S (ppm)	O2 (%v/v)	Rel Press (mBar)
RUGP00A3	997	0	0	0	21.3	-0.04
RUGP00B1	998	0	0	0	21.2	0.01
RUGP00B2	998	0	0.5	0	20.7	0.17
RUGP00B3	998	0	0	0	20.7	0.15
RUGP00C1	998	0	0	0	20.7	-0.03
RUGP00C2	998	0	0.1	0	20.7	-1.33
RUGP00C3	997	0	0	0	20.7	-0.02
RUGP00D1	997	0	0	0	20.6	0.02
RUGP00D2	997	0	0.1	0	19.8	0.02
RUGP00D3	998	0	0	0	19.3	-0.12
RUGP00E1	997	0	0	0	20.7	-0.04
RUGP00E2	997	0	0	0	20.8	-0.02
RUGP00E3	997	0	0	0	20.5	0.33
RUGP00F1	998	0	0.1	0	20.6	-0.03
RUGP00F2	998	0	0	0	20.6	-0.01
RUGP00F3	998	0	0.6	0	20.2	0
RUWB001A	996	0	0.2	0	17.8	-0.24
RUWB001B	996	0	0.3	0	20.1	-0.16
RUWB002A	996	0	0.1	0	20.6	-0.13
RUWB002B	996	0	0.1	0	20.6	-0.06
RUWB002C	996	0	0.7	0	19.5	-0.12
RUWB002D	996	0	0	0	20.7	-0.43
RUWB003A	994	0	0.1	0	20.9	-0.02
RUWB003B	994	0	0.9	0	20.3	-0.52
RUWB004A	995	0	0.2	0	20.8	0.06
RUWB004B	995	0	0.1	0	18.9	-0.18
RUWB005A	997	0	0	0	20.8	0.13
RUWB005B	997	0	0.1	0	20.7	0.2

Issued By:

Ruabon Perimeter Borehole Gas Data - February 2016



From : 02/02/2016

To : 26/02/2016

12/02/2016

Sample Point	AtPress (mBar)	CH4 (%v/v) (%)	CO2 (%v/v) (%)	H2S (ppm)	O2 (%v/v)	Rel Press (mBar)
RUBH0006	980	0	1	0	18.7	-0.39
RUBH0007	980	0.2	0.6	0	18.7	-2.56
RUBH0008	980	0	1	0	20.4	-0.61
RUBH0009	980	0	1.4	0	20.3	-0.05
RUBH0010	979	0	0.2	0	20.5	0.22
RUBH0013	978	0	0.2	0	20.7	-0.26
RUBH0014	977	0	2.8	0	18.5	-0.29
RUBH0015	979	0	0.3	0	18.5	-0.14
RUBH0016	979	0	0.3	0	20.6	-0.04
RUBH001A	980	0	0.3	0	20.3	-0.33
RUBH001B	980	0	0.9	0	18.6	0
RUBH002A	980	2.1	5.5	0	2.1	-0.36
RUBH002B	980	0	0.1	0	20.6	0.06
RUBH003A	980	0	0.6	0	19.7	0.17
RUBH003B	980	0	0	0	20.9	0
RUBH004A	980	0	1.5	0	19.3	4.74
RUBH004B	980	0	0.1	0	20.8	-0.1
RUBH011A	978	0	1.2	0	20.3	3.14
RUBH011P	978	0	0.1	0	20.7	0.76
RUGBH001	980	0	5	0	15.7	-0.04
RUGBH002	980	0	0.2	0	20.9	-0.05
RUGBH003	980	0	0.2	0	20.6	-0.58
RUGBH004	980	0	0.4	0	20.3	-0.29
RUGBH005	980	0	0.1	0	20.7	-0.15
RUGBH006	980	0	2.3	0	19.4	-0.57
RUGBH007	977	0	0.4	0	20.6	-0.09
RUGBH008	978	0	0.2	0	20.7	-0.12
RUGBH009	978	0	0.4	0	20.6	-0.21
RUGBH010	978	0	0.1	0	20.8	-0.05
RUGBH02A	980	0	0.1	0	20.8	-0.4
RUGP0001	980	0.9	0.1	0	20	-3.48
RUGP0002	980	0	0.3	0	20.3	0.03
RUGP0003	980	0	0.3	0	18.6	0.47
RUGP0004	980	0	2.1	0	16.6	-0.45
RUGP0008	980	0	0.1	0	20.5	0
RUGP0009	980	5.5	8.2	0	2	-0.15
RUGP0010	980	0	1.3	0	19.4	-0.06
RUGP0011	980	0	2.6	0	13.9	-0.04
RUGP0012	980	0	0.1	0	20.8	-0.08
RUGP0013	980	0	0.5	0	20.4	-0.08
RUGP0014	980	0	3.9	0	15.6	0.32
RUGP0015	979	0	0.1	0	20.7	-0.69
RUGP0016	978	0	3.9	0	17.1	-12.73
RUGP0018	978	0	0.2	0	20.3	1.93
RUGP0019	978	0	0	0	20.6	0.18
RUGP0020	978	0	0.1	0	20.8	-0.05
RUGP0021	977	0	0.5	0	20.1	-0.13
RUGP00A1	980	0	0	0	20.7	-0.11
RUGP00A2	980	0	0.2	0	18.2	4.76

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Ruabon Perimeter Borehole Gas Data - February 2016



From : 02/02/2016

To : 26/02/2016

12/02/2016

	AtPress (mBar)	CH4 (%v/v) (%)	CO2 (%v/v) (%)	H2S (ppm)	O2 (%v/v)	Rel Press (mBar)
RUGP00A3	980	0	0	0	20.5	-0.11
RUGP00B1	980	0	0	0	19.8	-0.11
RUGP00B2	980	0	0.1	0	20.6	-0.21
RUGP00B3	980	0	0	0	20.7	-0.09
RUGP00C1	980	0	0	0	20.7	-0.09
RUGP00C2	980	0	0	0	19.5	-0.62
RUGP00C3	980	0	0	0	20.6	-0.21
RUGP00D1	980	0	0	0	20.4	-0.17
RUGP00D2	980	0	0	0	20.7	-0.16
RUGP00D3	980	0	0	0	20.4	-0.6
RUGP00E1	980	0	0.1	0	20.6	-0.17
RUGP00E2	980	0	0.1	0	20.6	-0.23
RUGP00E3	980	0	0.1	0	20.6	-0.22
RUGP00F1	980	0	0	0	20.6	0.02
RUGP00F2	980	0	0	0	19.8	-0.12
RUGP00F3	980	0	0	0	20.6	-0.58
RUWB001A	980	0	0.2	0	17.6	0.09
RUWB001B	980	0	1.1	0	18.8	0.08
RUWB002A	980	0	0.1	0	18.2	0.04
RUWB002B	980	0	0.6	0	20.4	0.01
RUWB002C	980	0	3.7	0	17.4	0.76
RUWB002D	980	0	0.3	0	20.6	0.1
RUWB003A	977	0	0.5	0	12.6	-7.33
RUWB003B	977	0	0.2	0	15.5	3.81
RUWB004A	978	0	0.1	0	17.7	1.47
RUWB004B	978	0	0.6	0	15	0.51
RUWB005A	979	0	0	0	20.7	-0.62
RUWB005B	980	0	0.4	0	20.4	-0.28

Issued By:

Ruabon Perimeter Borehole Gas Data - February 2016



From : 02/02/2016

To : 26/02/2016

18/02/2016

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	1000	0	0.9	1.45	0	19.6	-1.1	11.71
RUBH0007	1000	0.1	0.6	2.34	0	19.1	-29.89	38.66
RUBH0008	999	0	1.3	0.92	0	20.4	-0.05	42.36
RUBH0009	999	0	1.3	2.02	0	20	-0.29	7.5
RUBH0010	999	0	0.3	2.37	0	20.1	-0.25	36.11
RUBH0013	997	0	0.7	1.38	0	20.2	-0.05	34.59
RUBH0014	997	0	2.8	2.64	0	18.1	0.26	10.72
RUBH0015	998	0	0.4	5.7	0	17.7	-0.25	41.58
RUBH0016	998	0	0.3	9.92	0	20.1	-0.13	47.15
RUBH001A	998	0	0.4	4.85	0	20.3	0.12	12.86
RUBH001B	998	0	0.8	4.9	0	18.9	0.11	6.38
RUBH002A	998	1.9	4.9	5.05	0	3.6	0.03	6.49
RUBH002B	998	0	0	5.13	0	20.7	0.14	11.71
RUBH003A	999	0	0.6	5.33	0	19.9	-1.92	13.09
RUBH003B	999	0	0	5.27	0	20.9	-0.18	6.37
RUBH004A	999	0	1.4	5.26	0	19.3	2.32	9.6
RUBH004B	999	0	1.6	5.17	0	19.6	-0.51	6.32
RUBH011A	997	0	0.8	1.74	0	20.2	-0.12	12.78
RUBH011P	997	0	0.1	2.5	0	20.3	0.23	14.42
RUBH012A	997	0	0.9	0.31	0	20.1	0	5.38
RUGBH001	999	0	5	6.06	0	15.7	-0.17	6.06
RUGBH002	999	0	0.1	1.79	0	20.7	1.54	7
RUGBH003	1000	0	0.1	1.98	0	20.8	1.06	4.93
RUGBH004	1000	0	0.5	2.07	0	20.4	-0.01	21.9
RUGBH005	1000	0	0.1	2.07	0	20.8	-0.05	6.32
RUGBH006	1000	0	2.3	0.74	0	19.7	0	6.86
RUGBH007	997	0	0.2	0.53	0	20.4	0	2.94
RUGBH008	997	0	0.2	1.07	0	20.4	0.04	6.16
RUGBH009	997	0	0.4	0.93	0	20.3	-0.29	8.22
RUGBH010	997	0	0.9	0.65	0	19.9	-5.05	3.95
RUGBH02A	999	0	0.1	1.03	0	20.7	0.14	1.4
RUGP0001	998	1.7	0.3		0	19.6	4.32	
RUGP0002	998	0	0.4		0	20.4	1.09	
RUGP0003	999	0	0.6		0	17.5	3.93	
RUGP0004	998	0	2.2		0	16.6	0.13	
RUGP0008	998	0	0.4		0	20	0.32	
RUGP0009	998	6	8.7		0	1.6	0.17	
RUGP0010	999	0	1.3		0	19.4	0.52	
RUGP0011	999	0	2.5		0	17.3	0	
RUGP0012	998	0	0.1		0	20.8	0.49	
RUGP0013	999	0	0.5		0	20.5	-0.14	
RUGP0014	999	0	3.8		0	17.1	-0.6	
RUGP0015	998	0	0.1		0	20.5	-0.12	
RUGP0016	997	0	1.9		0	19	0.01	
RUGP0018	998	0	0.1		0	20.3	-1.65	
RUGP0019	997	0	0		0	20.4	0.12	
RUGP0020	997	0	0		0	20.5	0.24	
RUGP0021	997	0	0.7		0	19.5	-4.39	
RUGP00A1	1000	0	0		0	20.7	-0.24	

Issued By:

Ruabon Perimeter Borehole Gas Data - February 2016



From : 02/02/2016

To : 26/02/2016

18/02/2016

	AtPress (mBar)	CH4 (%v/v) (%)	CO2 (%v/v) (%)	Dip to Water (m)	H2S (ppm)	O2 (%v/v)	Rel Press (mBar)	TD (m)
RUGP00A2	1000	0	0.8		0	12.6	-0.24	
RUGP00A3	1000	0	0		0	20.4	0.16	
RUGP00B1	1000	0	0		0	19.8	0.29	
RUGP00B2	1000	0	0.1		0	20.5	0.43	
RUGP00B3	1000	0	0		0	20.6	-0.36	
RUGP00C1	1000	0	0		0	20.7	0	
RUGP00C2	1000	0	0		0	19.3	0.14	
RUGP00C3	1000	0	0		0	20.8	-3.01	
RUGP00D1	1000	0	0		0	20.3	-0.01	
RUGP00D2	1000	0	0		0	20.5	-0.13	
RUGP00D3	1000	0	0		0	20.6	-0.01	
RUGP00E1	1000	0	0		0	20.8	1.01	
RUGP00E2	1000	0	0		0	20.7	0.98	
RUGP00E3	1000	0	0		0	20.5	1.03	
RUGP00F1	1000	0	0		0	20	0.76	
RUGP00F2	1000	0	0		0	17.7	1.01	
RUGP00F3	1000	0	0		0	20.5	1.04	
RUWB001A	999	0	0.1	2.77	0	18.2	0.2	48.95
RUWB001B	999	0	1.3	3.93	0	18.6	0.22	7.88
RUWB002A	999	0	0.1	4.55	0	18.6	-1.51	21.44
RUWB002B	999	0	0.9	5.84	0	20.2	-0.15	10.49
RUWB002C	999	0	3.7	6.07	0	17.7	0.49	8
RUWB002D	999	0	0.3	5.79	0	20.6	-0.01	21.66
RUWB003A	997	0	0.5	9.2	0	12.1	1.13	10.68
RUWB003B	997	0	0.3	0.18	0	10.7	-16.76	7.54
RUWB004A	997	0	0.1	2.93	0	17.1	-3.01	48.8
RUWB004B	997	0	0.5	0.85	0	15.9	-0.19	8.55
RUWB005A	998	0	0	3.9	0	20.5	0.74	25.33
RUWB005B	998	0	0.4	1.35	0	20.2	0.05	8.38

Issued By:

Ruabon Perimeter Borehole Gas Data - February 2016



From : 02/02/2016

To : 26/02/2016

26/02/2016

Sample Point	AtPress (mBar)	CH4 (%v/v) (%)	CO2 (%v/v) (%)	H2S (ppm)	O2 (%v/v)	Rel Press (mBar)
RUBH0006	993	0	1.1	0	18.9	0.04
RUBH0007	993	0.1	2.2	0	10.1	-0.02
RUBH0008	993	0	1.1	0	20.3	-0.21
RUBH0009	993	0	0.1	0	20.6	-0.2
RUBH0010	992	0	0.3	0	20.3	-0.23
RUBH0013	991	0	0.5	0	20.4	-0.21
RUBH0014	990	0	2.3	0	18.6	0.33
RUBH0015	992	0	0.5	0	18	-0.15
RUBH0016	992	0	0.3	0	20.5	-0.24
RUBH001A	993	0	0.3	0	20.6	0.04
RUBH001B	993	0	1	0	18.7	0.05
RUBH002A	993	1.8	4.4	0	4.7	0.13
RUBH002B	993	0	0	0	20.8	0.03
RUBH003A	993	0	0.4	0	20.2	0.7
RUBH003B	993	0	0	0	20.7	-0.11
RUBH004A	993	0	1.2	0	19.5	-1.44
RUBH004B	993	0	1.4	0	19.9	-0.21
RUBH011A	991	0	0.2	0	20.6	-0.23
RUBH011P	991	0	0	0	20.6	-0.23
RUBH012A	991	0	1.1	0	20.2	-0.2
RUGBH001	993	0	4.9	0	15.7	-0.17
RUGBH002	994	0	0.1	0	20.8	-0.2
RUGBH003	994	0	0.1	0	20.8	-0.21
RUGBH004	994	0	0.4	0	20.4	-0.21
RUGBH005	993	0	0.1	0	20.7	-0.23
RUGBH006	993	0	1.9	0	19.7	-0.27
RUGBH007	990	0	0.1	0	20.5	0.3
RUGBH008	991	0	0.2	0	20.5	-0.2
RUGBH009	991	0	0.1	0	20.5	-0.46
RUGBH010	991	0	1.1	0	19.8	-0.12
RUGBH02A	993	0	0.1	0	20.8	-0.19
RUGP0001	994	1.2	0.2	0	20.4	1.98
RUGP0002	994	0	0.2	0	20.7	0.71
RUGP0003	994	0	0.2	0	20.1	0.29
RUGP0004	993	0	2.2	0	15.5	0.03
RUGP0008	993	0	0.1	0	20.5	0.09
RUGP0009	993	6.8	8.7	0	2.2	0.02
RUGP0010	993	0	1.2	0	19.5	0
RUGP0011	993	0	2.3	0	17.9	-0.07
RUGP0012	993	0	0.1	0	20.6	-0.29
RUGP0013	993	0	0.4	0	20.3	-0.12
RUGP0014	993	0	3.4	0	17.1	-0.18
RUGP0015	992	0	0.1	0	20.5	-0.44
RUGP0016	991	0	1.8	0	19	-0.19
RUGP0018	992	0	0.1	0	20.5	-0.19
RUGP0019	991	0	0	0	20.5	-0.23
RUGP0020	991	0	0	0	20.6	-0.27
RUGP0021	991	0	0.5	0	19.7	-5.29
RUGP00A1	993	0	0	0	20.7	-0.23

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Ruabon Perimeter Borehole Gas Data - February 2016



From : 02/02/2016

To : 26/02/2016

26/02/2016

	AtPress (mBar)	CH4 (%v/v) (%)	CO2 (%v/v) (%)	H2S (ppm)	O2 (%v/v)	Rel Press (mBar)
RUGP00A2	993	0	0.2	0	18.8	-0.33
RUGP00A3	993	0	0	0	20.7	0.42
RUGP00B1	993	0	0	0	20.2	-0.32
RUGP00B2	993	0	0	0	20.7	-0.3
RUGP00B3	993	0	0	0	20.7	-0.21
RUGP00C1	993	0	0	0	20.8	-0.21
RUGP00C2	993	0	0	0	19.9	-0.42
RUGP00C3	993	0	0	0	20.7	-1.32
RUGP00D1	994	0	0	0	20.5	-0.23
RUGP00D2	994	0	0	0	20.8	-0.22
RUGP00D3	994	0	0	0	20.8	-0.23
RUGP00E1	994	0	0	0	20.7	-0.33
RUGP00E2	994	0	0	0	20.8	-0.21
RUGP00E3	994	0	0	0	20.7	-0.22
RUGP00F1	993	0	0	0	20.5	-0.21
RUGP00F2	994	0	0	0	19.4	-0.58
RUGP00F3	994	0	0	0	20.7	-0.2
RUWB001A	993	0	0.1	0	18.6	0.02
RUWB001B	993	0	1	0	19.5	0.02
RUWB002A	993	0	0.1	0	18.3	-0.22
RUWB002B	993	0	1.3	0	19.6	-0.15
RUWB002C	993	0	2.6	0	18.5	-0.14
RUWB002D	993	0	0.2	0	20.6	-0.13
RUWB003A	990	0	0.4	0	13.6	0.69
RUWB003B	990	0	0	0	20.4	-1.17
RUWB004A	991	0	0.1	0	18	1.76
RUWB004B	991	0	0.3	0	17.3	-0.22
RUWB005A	992	0	0	0	20.6	-0.19
RUWB005B	993	0	0.4	0	20.3	-0.26

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APPENDIX 3

Landfill Gas Field Extraction and Balancing Data

Ruabon In-waste Landfill Gas Extraction & Balancing Data - February 2016

Well ID	Date/Time	CH4 (%)	CO2 (%)	O2 (%)	Balance Gas (%)	Vacuum (mbar)	Atmos Press (mb)	CO (ppm)	H2S (ppm)	CH4 + CO2 (%)	Original Valve (%)	Depart Valve (%)
RUAW0024	01/02/2016 09:10	42.2	31.4	0.4	26	-50.86	987	0	0	73.6	45	45
RUAW0027	01/02/2016 09:14	42.8	18.5	3.9	34.8	-38.59	988	0	0	61.3	20	20
RUAW025R	01/02/2016 09:17	50	32.5	0.2	17.3	-47.84	988	0	0	82.5	10	10
RUAW026R	01/02/2016 09:21	22.6	25.6	0	51.8	-27.21	988	0	0	48.2	5	5
RUAW030R	01/02/2016 09:26	37.4	29.7	1.4	31.5	-43.91	989	0	0	67.1	10	10
RUAW031R	01/02/2016 09:31	38.5	31.9	0.1	29.5	-35.63	987	0	0	70.4	10	10
RUAW034R	01/02/2016 09:35	35.9	28	0.5	35.6	-29.44	987	0	0	63.9	10	10
RUAW033R	01/02/2016 09:40	4.9	3.8	19.2	72.1	-49.25	988	0	0	8.7	5	5
RUARW042	01/02/2016 09:45	43.9	28.2	0	27.9	-48.95	989	0	0	72.1	10	10
RUARW041	01/02/2016 09:47	0.1	2.3	20.2	77.4	-36.16	989	0	0	2.4	0	0
RUARW040	01/02/2016 09:49	24.8	19.2	0.7	55.3	-52.53	989	0	0	44	20	20
RUARW039	01/02/2016 09:51	22.2	10.1	14.1	53.6	-52.12	989	0	0	32.3	50	50
RUARW038	01/02/2016 09:53	0.9	1.7	20.3	77.1	-51.28	989	0	0	2.6	10	10
RUARW037	01/02/2016 09:55	54.4	34.1	0.1	11.4	-51.05	989	0	0	88.5	100	100
RUAW0054	01/02/2016 13:49	0.1	6.1	14.9	78.9	-3.33	990	0	0	6.2	0	0
RUAW0004	01/02/2016 13:52	22.1	20.5	0.2	57.2	-4.86	990	0	0	42.6	0	0
RUAW0005	01/02/2016 13:54	54.6	26.7	1.4	17.3	-22.95	990	0	0	81.3	5	5
RUAW1404	01/02/2016 13:56	25.8	23.5	0.1	50.6	-9.49	990	0	0	49.3	10	1
RUAW1404	01/02/2016 13:58	25.8	23.9	0	50.3	-9.75	990	0	0	49.7	-	-
RUAW0052	01/02/2016 14:04	48.1	19.4	5.9	26.6	-52.84	990	0	0	67.5	10	1
RUAW0052	01/02/2016 14:05	46.7	19.3	6.2	27.8	-52.72	990	0	0	66	1	1
RUAW0035	01/02/2016 14:07	32.7	26.7	2.6	38	-52.59	989	0	0	59.4	10	10
RUAW0036	01/02/2016 14:09	40.4	28.5	0.2	30.9	-49.18	990	0	0	68.9	5	5
RUAMW003	01/02/2016 14:10	4.2	6.5	17.3	72	-35.31	989	0	0	10.7	5	0
RUAMW003	01/02/2016 14:11	4.3	4.2	18.4	73.1	-45.11	989	0	0	8.5	0	0
RUAW1403	01/02/2016 14:16	12.5	20.4	0.7	66.4	-10.81	989	0	0	32.9	0	0
RUAW0059	01/02/2016 14:18	39.8	28.9	0.4	30.9	-50.94	989	0	0	68.7	10	10

Well ID	Date/Time	CH4 (%)	CO2 (%)	O2 (%)	Balance Gas (%)	Vacuum (mbar)	Atmos Press (mb)	CO (ppm)	H2S (ppm)	CH4 + CO2 (%)	Original Valve (%)	Depart Valve (%)
RUAW032R	01/02/2016 14:19	37.7	30.1	1.7	30.5	-39.92	989	0	0	67.8	10	10
RUAW057R	01/02/2016 14:21	39.3	32.5	0	28.2	-29.57	988	0	0	71.8	10	10
RUAW0051	01/02/2016 14:23	60	35.2	0.9	3.9	-28.63	988	0	0	95.2	10	10
RUAW0067	01/02/2016 14:26	29.2	28.6	0	42.2	-18.26	988	0	0	57.8	10	1
RUAW0067	01/02/2016 14:27	28.5	28.6	0	42.9	-18.5	988	0	0	57.1	1	1
RUAW0060	01/02/2016 14:28	0.4	2.7	20.1	76.8	-50.91	988	0	0	3.1	0	0
RUAW050R	01/02/2016 14:30	49.1	30.3	1.9	18.7	-1.87	987	0	0	79.4	5	5
RUAW0048	01/02/2016 14:33	35	29.5	5.3	30.2	-26.95	987	0	0	64.5	0	0
RUAW1401	01/02/2016 14:35	34.6	30.9	0	34.5	-6.07	987	0	0	65.5	10	10
RUAMW09R	01/02/2016 14:37	28.6	26.5	0.2	44.7	-9.18	987	0	0	55.1	10	1
RUAMW09R	01/02/2016 14:38	28.3	27.1	0.3	44.3	-9.44	987	0	0	55.4	1	1
RUAW1402	01/02/2016 14:40	55	31.1	0.2	13.7	-6.79	988	0	0	86.1	10	10
RUAW0061	01/02/2016 14:42	0.1	2.7	20.3	76.9	-6.13	988	0	0	2.8	0	0
RUAMW006	01/02/2016 14:44	38.8	27.1	0.2	33.9	-20.29	988	0	0	65.9	10	10
RUAMW005	01/02/2016 14:47	32.3	25.4	0	42.3	-17.69	988	0	0	57.7	10	1
RUAMW005	01/02/2016 14:48	32.1	25.9	0	42	-14.77	988	0	0	58	1	1
RUAW1405	01/02/2016 14:50	28.8	25.2	0	46	-9.46	988	0	0	54	10	0
RUAW1405	01/02/2016 14:51	28.6	25.4	0	46	-9.51	988	0	0	54	0	0
RUAW011R	01/02/2016 14:53	24.3	15.4	10	50.3	-8.51	988	0	0	39.7	0	0
RUAW065R	01/02/2016 14:55	43.9	22.2	0.4	33.5	-7.43	989	0	0	66.1	1	1
RUAMW002	01/02/2016 14:57	25.8	17.3	3.7	53.2	-6.39	989	0	0	43.1	5	0
RUAMW002	01/02/2016 14:58	24.9	21.1	0.1	53.9	-8.57	989	0	0	46	0	0
RUALMP2a	01/02/2016 14:59	43.6	19.1	1.5	35.8	-15.52	989	0	0	62.7	5	5
RUAW0024	04/02/2016 11:57	42.2	30.9	0.6	26.3	-44.81	1006	0	0	73.1	4	45
RUAW0027	04/02/2016 12:01	38.9	17.4	5.3	38.4	-41.83	1006	0	0	56.3	20	20
RUAW025R	04/02/2016 12:04	51.5	31	0.9	16.6	-47.41	1007	0	0	82.5	10	10
RUAW026R	04/02/2016 12:08	27.6	25.5	0.1	46.8	-22.58	1006	0	0	53.1	10	10
RUAW030R	04/02/2016 12:15	36.5	28.5	1.4	33.6	-42.94	1007	0	0	65	10	10
RUAW031R	04/02/2016 12:20	36.6	31.4	0.3	31.7	-35.89	1006	0	0	68	1	10

Well ID	Date/Time	CH4 (%)	CO2 (%)	O2 (%)	Balance Gas (%)	Vacuum (mbar)	Atmos Press (mb)	CO (ppm)	H2S (ppm)	CH4 + CO2 (%)	Original Valve (%)	Depart Valve (%)
RUAW034R	04/02/2016 12:24	35.7	28.9	0.5	34.9	-41.73	1006	0	0	64.6	100	10
RUAW032R	04/02/2016 12:29	68.9	29.9	0.6	0.6	-44.85	1007	0	0	98.8	10	10
RUARW042	04/02/2016 12:33	45.1	28	0.1	26.8	-33.98	1007	0	0	73.1	10	10
RUARW041	04/02/2016 12:35	0.1	1.7	20.8	77.4	-30.01	1007	0	0	1.8	0	0
RUARW040	04/02/2016 12:37	22.9	22.5	0.1	54.5	-61.68	1008	0	0	45.4	20	20
RUARW039	04/02/2016 12:39	74.2	28.6	0.8	0	-57.55	1008	0	0	102.8	50	50
RUARW038	04/02/2016 12:41	2.2	2.8	19.8	75.2	-61.37	1008	0	0	5	20	20
RUARW037	04/02/2016 12:43	54.2	34.1	0.4	11.3	-61.27	1008	0	0	88.3	100	100
RUARW042	08/02/2016 12:08	47.1	28.8	0.3	23.8	-53.82	959	0	0	75.9	10	10
RUARW041	08/02/2016 12:09	0.2	2.2	19.8	77.8	-33.75	960	0	0	2.4	0	0
RUARW040	08/02/2016 12:12	23.5	22.8	0.5	53.2	-54.55	960	0	0	46.3	20	20
RUARW039	08/02/2016 12:14	70.3	31.9	0.3	0	-54.63	960	0	0	102.2	50	50
RUARW038	08/02/2016 12:16	6.4	4.6	18.6	70.4	-54.52	960	0	0	11	20	20
RUARW037	08/02/2016 12:19	54.6	36.3	0.2	8.9	-54.6	960	0	0	90.9	100	100
RUAW025R	08/02/2016 12:30	51.5	32.8	0.8	14.9	-44.77	959	0	0	84.3	10	15
RUAW025R	08/02/2016 12:31	51.2	34.3	0.1	14.4	-54.16	959	0	0	85.5	15	15
RUAW0024	08/02/2016 12:35	44.6	32.1	0.9	22.4	-54.78	959	0	0	76.7	45	45
RUAW0027	08/02/2016 12:38	42.7	15.3	6.2	35.8	-53.95	959	0	0	58	10	10
RUAW026R	08/02/2016 12:41	35.6	27.6	1.2	35.6	-44.49	959	0	0	63.2	5	5
RUAW030R	08/02/2016 12:46	38.4	30.3	1.9	29.4	-55.63	960	0	0	68.7	10	10
RUAW033R	08/02/2016 12:50	70.5	31.5	0.7	0	-54.68	960	0	0	102	10	0
RUAW034R	08/02/2016 12:56	36.3	29.9	0.3	33.5	-49.12	959	0	0	66.2	10	10
RUAW031R	08/02/2016 13:00	39	31.6	0.7	28.7	-43.88	959	0	0	70.6	10	10
RUAW0024	12/02/2016 09:37	43.7	31.5	0.7	24.1	-50.03	976	0	0	75.2	50	50
RUAW0027	12/02/2016 09:41	37.4	17.1	6.2	39.3	-50.42	976	0	0	54.5	20	10
RUAW0027	12/02/2016 09:43	37	17.1	6.3	39.6	-50.69	976	0	0	54.1	10	10
RUAW025R	12/02/2016 09:46	50.6	33.7	0.2	15.5	-49.55	977	0	0	84.3	10	10
RUAW026R	12/02/2016 09:49	28.9	27.7	1.7	41.7	-33.45	977	0	0	56.6	10	10
RUAW030R	12/02/2016 09:56	33	27.3	3.6	36.1	-55.92	977	0	0	60.3	10	10

Well ID	Date/Time	CH4 (%)	CO2 (%)	O2 (%)	Balance Gas (%)	Vacuum (mbar)	Atmos Press (mb)	CO (ppm)	H2S (ppm)	CH4 + CO2 (%)	Original Valve (%)	Depart Valve (%)
RUAW031R	12/02/2016 10:01	36.5	31.8	0.2	31.5	-40.45	976	0	0	68.3	10	10
RUAW034R	12/02/2016 10:05	36.4	28.6	1.6	33.4	-45.19	975	0	0	65	10	10
RUAW033R	12/02/2016 10:10	69.8	31.9	0	0	-57.98	976	0	0	101.7	20	20
RUARW042	12/02/2016 10:15	46.8	27.7	2.3	23.2	-58.97	977	0	0	74.5	10	10
RUARW041	12/02/2016 10:17	0.2	1	20.9	77.8	-29.34	977	0	0	1.2	0	0
RUARW040	12/02/2016 10:25	25.3	23.7	0	51	-58.31	978	0	0	49	20	20
RUARW039	12/02/2016 10:47	70.8	30.9	0.5	0	-56.49	978	0	0	101.7	60	60
RUARW038	12/02/2016 11:18	7.9	4.9	18.3	68.9	-55.77	978	0	0	12.8	10	10
RUARW037	12/02/2016 11:25	54.4	34.1	1	10.5	-57.66	978	0	0	88.5	100	100
RUAW056R	12/02/2016 11:38	16.7	11.2	15.3	56.8	-6.82	976	5	0	27.9	0	0
RUAW0028	12/02/2016 11:40	44.3	41.7	1	13	4.35	976	0	0	86	1	1
RUAW029R	12/02/2016 11:42	40.9	34.5	0.7	23.9	-17.37	975	0	0	75.4	10	10
RUAW0049	12/02/2016 11:45	40.6	30.3	5.3	23.8	-1.43	975	0	0	70.9	1	1
RUAW0021	12/02/2016 11:47	30.9	28.2	0.4	40.5	-36.9	975	0	0	59.1	10	10
RUAW0068	12/02/2016 11:48	20.3	9.4	15.8	54.5	-47.78	975	0	0	29.7	0	0
RUAW0022	12/02/2016 11:50	51.9	35.5	1.1	11.5	-14.34	975	0	0	87.4	20	30
RUAW0022	12/02/2016 11:52	51.9	36.6	0	11.5	-17.4	975	0	0	88.5	30	30
RUAW0066	12/02/2016 11:53	34.9	29.5	2.7	32.9	-12.55	975	0	0	64.4	5	5
RUAW0023	12/02/2016 11:55	49.9	34.3	0.4	15.4	-50.05	975	0	0	84.2	20	20
RUAW0024	17/02/2016 09:41	47.2	32.2	0.4	20.2	-55.18	993	0	0	79.4	45	45
RUAW0027	17/02/2016 09:45	23.6	12.8	10.9	52.7	-55.42	994	0	0	36.4	10	10
RUAW025R	17/02/2016 09:50	48.4	33.3	0.2	18.1	-43.18	994	0	0	81.7	10	10
RUAW026R	17/02/2016 09:55	16.7	24.7	0.1	58.5	-30.14	994	0	0	41.4	10	10
RUAW030R	17/02/2016 10:01	57.3	27.9	0.4	14.4	-55.97	995	0	0	85.2	10	10
RUAW031R	17/02/2016 10:05	33.9	30.7	0.4	35	-36.6	994	0	0	64.6	10	10
RUAW034R	17/02/2016 10:10	39.6	30.1	0.2	30.1	-34.51	994	0	0	69.7	15	15
RUAW033R	17/02/2016 10:14	69.3	28.5	0.4	1.8	-57.29	994	0	0	97.8	15	15
RUARW042	17/02/2016 10:19	50.1	28.4	0.3	21.2	-56.72	995	0	0	78.5	10	-
RUARW041	17/02/2016 10:21	0.1	1.3	20.9	77.6	-27.45	995	0	0	1.4	0	0

Well ID	Date/Time	CH4 (%)	CO2 (%)	O2 (%)	Balance Gas (%)	Vacuum (mbar)	Atmos Press (mb)	CO (ppm)	H2S (ppm)	CH4 + CO2 (%)	Original Valve (%)	Depart Valve (%)
RUARW040	17/02/2016 10:25	25.4	22.6	0.4	51.6	-59.29	995	0	0	48	20	20
RUARW039	17/02/2016 10:27	70.8	30.6	0.5	0	-58.77	995	0	0	101.4	60	60
RUARW038	17/02/2016 10:29	10.7	6.7	17.5	65.1	-57.73	995	0	0	17.4	10	10
RUARW037	17/02/2016 10:31	50.2	34.7	0.1	15	-57.73	995	0	0	84.9	100	100
RUAW0001	17/02/2016 12:31	31.1	21.9	1.7	45.3	-4.23	993	0	0	53	55	5
RUAW0002	17/02/2016 12:33	0.2	2.9	16.9	80	-0.46	993	0	0	3.1	0	0
RUAMW001	17/02/2016 12:35	18.9	20.9	1.8	58.4	-0.86	993	0	0	39.8	0	0
RUAW0003	17/02/2016 12:39	9.6	5.2	12.5	72.7	-0.66	994	0	0	14.8	0	0
RUAW0053	17/02/2016 12:40	0.2	10.4	1.8	87.6	-0.66	993	0	0	10.6	0	0
RUALMP2a	17/02/2016 12:42	23.9	19	0.4	56.7	-1.41	993	0	0	42.9	0	0
RUAMW002	17/02/2016 12:44	31.7	22.1	0	46.2	-0.98	993	0	0	53.8	1	1
RUAW065R	17/02/2016 12:46	49.2	23.5	0	27.3	-1.46	993	0	0	72.7	5	5
RUAW011R	17/02/2016 12:49	40.7	23.4	3.5	32.4	-2.45	993	0	0	64.1	1	1
RUAW1405	17/02/2016 12:51	40.6	25.6	0.1	33.7	-0.96	992	0	0	66.2	1	1
RUAMW005	17/02/2016 12:53	36.5	26.6	0.3	36.6	-1.42	992	0	0	63.1	10	10
RUAW0061	17/02/2016 12:55	43.6	27.3	0.9	28.2	-0.62	992	0	0	70.9	0	5
RUAW0061	17/02/2016 12:56	42.1	27.7	0	30.2	-2.76	992	0	0	69.8	5	5
RUAMW006	17/02/2016 12:59	36.8	28.5	0.3	34.4	-26.09	992	0	0	65.3	10	10
RUAW0060	17/02/2016 13:01	26	18.3	7.1	48.6	-23.78	992	0	0	44.3	0	0
RUAMW09R	17/02/2016 13:03	50.2	32.7	0.3	16.8	-0.23	992	0	0	82.9	5	5
RUAW1402	17/02/2016 13:05	46.1	32	0.1	21.8	-3.61	992	0	0	78.1	5	5
RUAW1401	17/02/2016 13:08	36	30.1	0	33.9	-2.42	992	0	0	66.1	1	1
RUAW0048	17/02/2016 13:10	34	29.8	6.1	30.1	-48.92	992	0	0	63.8	0	0
RUAW050R	17/02/2016 13:12	53.4	38.2	0.2	8.2	-2.04	992	0	0	91.6	5	5
RUAW0067	17/02/2016 13:15	45.6	32.1	0	22.3	-5.09	992	0	0	77.7	5	5
RUAW0051	17/02/2016 13:17	55.5	32.6	2.8	9.1	-51.1	992	0	0	88.1	5	5
RUAW057R	17/02/2016 13:19	41.2	32.4	0.6	25.8	-38.38	992	0	0	73.6	10	10
RUAW032R	17/02/2016 13:21	29.9	26.6	3.6	39.9	-45.27	992	0	0	56.5	5	5
RUAW0059	17/02/2016 13:24	56.1	33.5	0.9	9.5	-47.93	993	0	0	89.6	10	10

Well ID	Date/Time	CH4 (%)	CO2 (%)	O2 (%)	Balance Gas (%)	Vacuum (mbar)	Atmos Press (mb)	CO (ppm)	H2S (ppm)	CH4 + CO2 (%)	Original Valve (%)	Depart Valve (%)
RUAW1403	17/02/2016 13:26	13.8	21.7	0.7	63.8	-5.71	993	0	0	35.5	0	0
RUAW1404	17/02/2016 13:36	69.1	29.9	0.1	0.9	-2.11	993	0	0	99	5	10
RUAW1404	17/02/2016 13:38	56	28.3	0	15.7	-5.92	993	0	0	84.3	10	10
RUAW0005	17/02/2016 13:40	50.4	26.1	3.6	19.9	-53.34	993	0	0	76.5	5	5
RUAW0004	17/02/2016 13:43	17.7	19.4	2.8	60.1	-0.8	993	0	0	37.1	0	0
RUAW0054	17/02/2016 13:46	0.2	7.3	13	79.5	-0.54	993	0	0	7.5	0	0
RUAW0008	17/02/2016 14:02	4.9	16.8	1.6	76.7	-0.89	993	0	0	21.7	-	5
RUAW0063	17/02/2016 14:03	8.7	17.1	0.1	74.1	-0.87	993	0	0	25.8	0	1
RUAW0063	17/02/2016 14:05	8.7	17.1	0	74.2	-3.49	993	0	0	25.8	1	1
RUAW0007	17/02/2016 14:07	22.1	20.8	0.1	57	-0.76	992	0	0	42.9	1	1
RUAW0019	18/02/2016 09:16	42.8	30.7	0.2	26.3	-6.93	994	0	0	73.5	5	10
RUAW0019	18/02/2016 09:18	42.2	31.3	0	26.5	-7.91	994	0	0	73.5	10	10
RUAW0067	18/02/2016 09:24	40.3	30.1	0	29.6	-17.52	995	0	0	70.4	10	10
RUAW057R	18/02/2016 09:25	41.6	32.2	0.5	25.7	-35.36	995	0	0	73.8	15	15
RUAW0036	18/02/2016 09:29	35.9	29.2	0	34.9	-55.26	996	0	0	65.1	5	5
RUAW0035	18/02/2016 09:31	29.2	27.7	0.5	42.6	3.97	996	0	0	56.9	5	5
RUAW0023	18/02/2016 09:40	35.7	28.4	1.6	34.3	-62.27	994	0	0	64.1	30	20
RUAW0023	18/02/2016 09:42	35.3	30.9	0.3	33.5	-62.67	994	0	0	66.2	20	20
RUAW0066	18/02/2016 09:44	29.3	29.3	0.6	40.8	-22.82	995	0	0	58.6	5	0
RUAW0066	18/02/2016 09:46	27.6	27.9	1.9	42.6	-22.68	995	0	0	55.5	0	0
RUAW0022	18/02/2016 09:50	39.1	33.9	0.3	26.7	-20.36	994	0	0	73	0	20
RUAMW09R	18/02/2016 10:02	43.1	31.4	0	25.5	-8.48	995	0	0	74.5	10	15
RUAMW09R	18/02/2016 10:03	43.2	31.4	0	25.4	-15.52	995	0	0	74.6	15	15
RUAMW006	18/02/2016 10:05	36.6	28.5	0.1	34.8	-28.65	994	0	0	65.1	5	5
RUAW0019	23/02/2016 10:39	32.9	28.4	1.5	37.2	-13.61	998	0	0	61.3	10	5
RUAW0019	23/02/2016 10:40	32.9	29.3	0	37.8	-14.06	998	0	0	62.2	-	5
RUAW0018	23/02/2016 10:42	40.5	27.3	1.6	30.6	-38.33	998	0	0	67.8	10	10
RUAW0047	23/02/2016 10:44	39.4	23.9	5.4	31.3	-2.05	999	0	0	63.3	0	0
RUAW0064	23/02/2016 10:46	28.5	26.9	0	44.6	-6.43	999	0	0	55.4	0	0

Well ID	Date/Time	CH4 (%)	CO2 (%)	O2 (%)	Balance Gas (%)	Vacuum (mbar)	Atmos Press (mb)	CO (ppm)	H2S (ppm)	CH4 + CO2 (%)	Original Valve (%)	Depart Valve (%)
RUAW0017	23/02/2016 10:48	12.4	23.9	0	63.7	-5.86	999	0	0	36.3	0	0
RUAW0016	23/02/2016 10:50	0.1	2.2	19.7	78	-0.69	999	0	0	2.3	0	0
RUAW0046	23/02/2016 10:52	29.9	21.7	2.2	46.2	-6.75	999	0	0	51.6	0	0
RUAMW08R	23/02/2016 10:54	42.3	25.6	0.8	31.3	-15.26	999	0	0	67.9	10	10
RUAW0045	23/02/2016 10:56	0.3	2.3	19.8	77.6	-4.12	999	0	0	2.6	0	0
RUAW0015	23/02/2016 10:57	71.4	26.7	1.3	0.6	-6.54	999	0	0	98.1	10	10
RUAW0014	23/02/2016 11:00	69.6	26.4	0.6	3.4	-26.36	1000	0	0	96	5	5
RUAW0013	23/02/2016 11:01	14	18.2	3.1	64.7	-1.12	1000	0	0	32.2	1	1
RUAW0043	23/02/2016 11:03	33.6	17.8	9.6	39	-39.24	1000	0	0	51.4	1	1
RUAW0044	23/02/2016 11:05	11.5	11.4	11.6	65.5	-21.56	1000	0	0	22.9	1	1
RUALMP4a	23/02/2016 11:07	12.9	7.7	12.5	66.9	-41.73	1000	0	0	20.6	0	0
RUAMW004	23/02/2016 11:08	22.6	19.7	1.4	56.3	-9.31	1000	0	0	42.3	0	0
RUAMW07R	23/02/2016 11:10	33.4	24.5	1.8	40.3	-16.86	1000	0	0	57.9	5	5
RUAW0062	23/02/2016 11:13	26	22.3	0	51.7	-11.94	1000	0	0	48.3	5	0
RUAW0062	23/02/2016 11:14	26	22.4	0	51.6	-16.92	1000	0	0	48.4	0	0
RUAW0055	23/02/2016 11:17	0.3	13.7	7.3	78.7	-5.41	1000	0	0	14	1	1
RUAW065R	23/02/2016 11:23	33.3	22.7	0	44	-13.26	1000	0	0	56	1	1
RUAMW006	23/02/2016 11:27	34.3	27.1	0.1	38.5	-34.69	1000	0	0	61.4	10	10
RUAW0051	23/02/2016 11:33	25.6	12.3	15	47.1	-27.95	1000	0	0	37.9	10	0
RUAW0051	23/02/2016 11:34	25.1	16.8	11.8	46.3	-37.3	1000	0	0	41.9	0	0
RUAW057R	23/02/2016 11:37	39.5	31.9	0	28.6	-38.41	1000	0	0	71.4	10	10
RUAW0059	23/02/2016 11:39	60.4	32.1	1.4	6.1	-32.66	1000	0	0	92.5	10	10
RUAW1404	23/02/2016 11:48	23.3	22.8	0.1	53.8	-17.61	1001	0	0	46.1	10	0
RUAW1404	23/02/2016 11:50	23.3	22.9	0	53.8	-17.83	1001	0	0	46.2	0	0
RUAW0061	23/02/2016 11:56	25.2	23.4	0.1	51.3	-15.93	999	0	0	48.6	5	0
RUAW0061	23/02/2016 12:00	25	23.6	0	51.4	-16.99	999	0	0	48.6	0	0
RUAMW09R	23/02/2016 12:01	24.4	25.3	0.1	50.2	-22.57	999	0	0	49.7	5	0
RUAMW09R	23/02/2016 12:03	23.7	26	0	50.3	-21.98	999	0	0	49.7	0	0
RUAW1402	23/02/2016 12:05	17.6	24.7	0	57.7	-14.87	992	0	0	42.3	5	0

Well ID	Date/Time	CH4 (%)	CO2 (%)	O2 (%)	Balance Gas (%)	Vacuum (mbar)	Atmos Press (mb)	CO (ppm)	H2S (ppm)	CH4 + CO2 (%)	Original Valve (%)	Depart Valve (%)
RUAW1402	23/02/2016 12:06	14.6	22.3	0	63.1	-18.97	992	0	0	36.9	0	0
RUAW0020	23/02/2016 13:51	16.1	22.5	0.4	61	-7.61	1000	0	0	38.6	5	0
RUAW0020	23/02/2016 13:53	14.9	22.9	0	62.2	-8.35	1000	0	0	37.8	0	0
RUAW0021	23/02/2016 13:55	40.2	28.9	0	30.9	-7.1	1000	0	0	69.1	5	10
RUAW0021	23/02/2016 13:56	41.9	30.2	0	27.9	-26.61	1000	0	0	72.1	20	20
RUAW0068	23/02/2016 13:59	64.8	34.7	0	0.5	35.17	1000	0	0	99.5	0	5
RUAW0068	23/02/2016 14:00	64.6	34.8	0	0.6	22.86	1000	0	0	99.4	5	5
RUAW0022	23/02/2016 14:02	36.1	31.5	0	32.4	-25.12	1000	0	0	67.6	30	30
RUAW0023	23/02/2016 14:04	49.8	33.5	0	16.7	-36.23	1000	0	0	83.3	20	30
RUAW0023	23/02/2016 14:05	50.1	34	0	15.9	-47.34	1000	0	0	84.1	30	30
RUALCM10	23/02/2016 14:27	56.4	31.2	2	10.4	-23.13	999	0	0	87.6	20	20
RUAW0012	23/02/2016 14:42	68	27.9	0.5	3.6	-1.63	1000	0	0	95.9	1	5
RUAW0012	23/02/2016 15:05	68.3	28.6	0	3.1	-11.44	1000	0	0	96.9	5	5

APPENDIX 4

Leachate Level Data

Ruabon Leachate Level Data - February 2016



From : 25/02/2016

To : 25/02/2016

25/02/2016

Sample Point	Depth of Liq (m)	Dip to Water (m)	TD (m)	Water Level (mAOD)
LMP006R	1.69	18.23	19.03	113.09
LMP007R	0.78	18.01	18.98	111.58
LMP008R	1.78	20.69	21.94	111.78
LMP009R	1.87	21.11	21.67	112.17
RUGW00M1	1.18	12.99	14.62	111.63
RUGW00M3	1.57	11.32	11.84	113.82
RUGW00M5	0.97	20.35	21.07	111.47
RUGW00M10	1.74	25.76	26.48	97.74
RUGWM4r	1.39	16.44	17.55	111.47
RULMP2r	0.78	15.43	15.93	110.78

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APPENDIX 5

Groundwater Quality Data

Ruabon Groundwater Quality & Level Data - February 2016



From : 18/02/2016

To : 18/02/2016

18/02/2016

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	325	0.16	<2.0	113	<0.0001	9	11	705	690	<0.001
RUWB002A	113	1.9	2.9	58	<0.0001	444	<5	1790	1680	<0.001
RUWB002B	297	0.9	<2.0	68	<0.0001	137	8	974	1040	<0.001
RUWB002C	962	3.4	<2.0	193	<0.0001	335	19	2820	2650	<0.001
RUWB002D	509	0.5	<2.0	2	<0.0001	21	5	1060	1030	<0.001
RUWB003A	383	0.6	2.4	6	<0.0001	31	10	752	710	<0.001
RUWB004A	546	1.3	2.2	8	<0.0001	22	<5	1050	1040	<0.001
RUWB005A	371	0.7	5.8	1	<0.0001	38	8	1250	1520	<0.001
RUWB005B	226	<0.01	<2.9	97	<0.0001	46	<5	703	740	<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	1.38	0.13	4	11	0.414	0.002	<0.001	7.1	7.08
RUWB002A	<0.001	4.55	0.08	23	37	0.182	0.004	<0.001	7.3	7.58
RUWB002B	<0.001	5.84	0.1	8	15	0.125	0.01	<0.001	7.6	7.73
RUWB002C	<0.001	6.07	0.18	15	21	2.314	0.036	<0.001	7	7.01
RUWB002D	<0.001	5.79	1.32	8	<1	0.02	0.001	<0.001	8.1	8.1
RUWB003A	<0.001	9.2	0.03	6	2	0.027	<0.001	<0.001	7.6	7.51
RUWB004A	<0.001	2.93	0.01	19	13	0.351	<0.001	<0.001	9.4	9.35
RUWB005A	<0.001	3.9	0.23	4	<1	0.004	<0.001	<0.001	10.1	9.66
RUWB005B	<0.001	1.35	0.17	12	18	0.048	<0.001	<0.001	7.7	8.22

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	1302	34.59	5.4	0.2	61	9.8	<0.002
RUWB002A	191	719	21.44	3.2	<0.2	<3	9.5	<0.002
RUWB002B	98	145	10.49	2.8	<0.2	<3	9.6	<0.002
RUWB002C	341	2286	8	7	0.5	40	9.3	0.019
RUWB002D	256	135	21.66	1.7	<0.2	8	8.5	<0.002
RUWB003A	254	463	10.68	2.6	<0.2	43	10	<0.002
RUWB004A	128	99	48.8	1.9	0.3	<3	9	0.004
RUWB005A	271	190	25.33	0.5	<0.2	217	8.9	<0.002
RUWB005B	20	105	8.38	4.1	<0.2	81	8.3	<0.002

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APPENDIX 6

Surface Water Quality Data

Ruabon Surface Water Quality Data - February 2016



From : 18/02/2016

To : 18/02/2016

18/02/2016

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	1.1	<2.0	40	20	741	710	8.9

Sample Point	pH (Lab)	pH(Fld)	S.Solids (mg/l)	WtrTemp (Deg C)
RUWP004A	7.6	8.14	20	4

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APPENDIX 7

Leachate Quality Data

Ruabon Quarterly Leachate Quality Data - February 2016



From : 18/02/2016

To : 18/02/2016

18/02/2016

Sample Point	Alk (CaCO ₃ :mg/l)	Amm-N (N:mg/l)	BOD (mg/l)	Ca(D) (mg/l)	Cd(D) (mg/l)	Chloride (mg/l)	Cr(D) (mg/l)
RULT0001	7330	1070	86.3	89	<0.001	2880	0.101

Sample Point	COD (mg/l)	Cond (uS / cm)	Cond(Fld) (uS / cm)	Cu(D) (mg/l)	Fe(D) (mg/l)	IonicBal (%)	Pb(D) (mg/l)
RULT0001	2050	18100	18060	<0.01	7.29	-3.5	<0.01

Sample Point	K(D) (mg/l)	Mg(D) (mg/l)	Mn(D) (mg/l)	Ni(D) (mg/l)	Nitrate (N:mg/l)	pH (Lab)	pH(Fld)
RULT0001	742	119	0.195	0.166	1.1	7.6	7.58

Sample Point	Na(D) (mg/l)	T.Anions (meq/l)	T.Cations (meq/l)	TOC (mg/l)	TON (mg/l)	Total S(D) SO ₄ :mg/l	WtrTemp (Deg C)
RULT0001	2400	230	214	890	1	91	7.6

Sample Point	Zn(D) (mg/l)
RULT0001	0.025

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