



LANDFILL GAS MONITORING - FIELD MEASUREMENT

Section 2.8.1.2 - Drillholes and Piezometer Monitoring

Sampling equipment	Dates calibrated
GEM2000	18/01/2008

Sampling date	Weather conditions	Sample location	Sampling time	Atmospheric pressure (mBar)	Atmospheric temperature (°C)	Gas pressure (mBar)	Methane (%)	Carbon dioxide (%)	Oxygen (%)	Gas temperature (°C)	Remarks
18/01/2008	Sunny	GM1	08:50	1021	10.6	0.0	0.0	9.3	12.8	16.4	
		GM2	09:14	1021	10.7	0.0	0.0	6.9	15.2	13.4	
		GVQ1	09:25	1021	10.9	-0.1	0.0	5.8	15.4	14.9	
		GVQ2	09:29	1021	10.9	0.0	0.0	5.7	15.6	15.3	
		GVQ3	09:38	1021	10.9	0.0	0.0	0.9	19.7	16.3	
		P5	09:42	1021	10.9	0.0	0.0	5.3	15.7	16.5	
		GM4	09:54	1021	11.1	0.0	0.0	4.1	17.3	18.3	
		GM5	10:02	1021	11.3	0.0	0.0	7.1	13.6	16.9	Sampling of drillhole

Remarks:

	Compliance Limit
Methane	1% by volume
Carbon dioxide	1.5% by volume above the natural background level

Prepared by: Peggy Lo
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Checked by: M. H. Law
Deputy Project Manager



LANDFILL GAS MONITORING - FIELD MEASUREMENT

Section 2.8.1.2 - Drillholes and Piezometer Monitoring

Sampling equipment	Dates calibrated
GEM2000	04/02/2008

Sampling date	Weather conditions	Sample location	Sampling time	Atmospheric pressure (mBar)	Atmospheric temperature (°C)	Gas pressure (mBar)	Methane (%)	Carbon dioxide (%)	Oxygen (%)	Gas temperature (°C)	Remarks
04/02/2008	Cloudy	GM5	16:14	1002	10.3	-0.4	0.0	6.5	14.6	13.4	
		GM4	16:26	1002	10.2	0.0	0.0	4.2	16.9	12.4	
05/02/2008	Cloudy	GM1	09:39	1017	11.1	-0.1	0.0	9.9	12.1	11.0	
		P5	09:54	1017	11.2	0.0	0.0	1.2	19.5	12.1	
		GVQ3	09:59	1017	11.1	0.0	0.0	0.4	20.0	11.6	
		GVQ2	10:05	1017	11.1	0.0	0.0	4.6	16.0	11.5	
		GVQ1	10:10	1017	11.1	0.0	0.0	4.8	18.6	11.7	Sampling of drillhole
		GM2	10:17	1017	11.0	0.0	0.0	5.9	16.2	12.9	

Remarks:

Compliance Limit			
Methane	1% by volume		
Carbon dioxide	Up-gradient Zone	GM4, GM5	10% by volume
	Down-gradient Zone	GM1, GM2, GVQ1-3, P5	15% by volume

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LANDFILL GAS MONITORING - FIELD MEASUREMENT

Section 2.8.1.2 - Drillholes and Piezometer Monitoring

Sampling equipment	Dates calibrated
GEM2000	03/03/2008

Sampling date	Weather conditions	Sample location	Sampling time	Atmospheric pressure (mBar)	Atmospheric temperature (°C)	Gas pressure (mBar)	Methane (%)	Carbon dioxide (%)	Oxygen (%)	Gas temperature (°C)	Remarks
04/03/2008	Hazy	GM1	08:53	1017	19.0	0.3	0.1	8.0	13.5	21.1	Sampling of drillhole
		GM2	09:19	1017	18.9	0.1	0.1	5.9	15.8	20.2	
		GVQ1	09:23	1017	18.7	0.0	0.0	3.3	17.0	20.1	
		GVQ2	09:26	1017	18.7	0.3	0.0	5.7	15.1	20.4	
		GVQ3	09:29	1017	18.7	0.0	0.0	0.4	19.5	20.7	
		P5	09:33	1017	18.6	0.0	0.0	1.2	19.0	20.6	
		GM4	09:45	1019	19.5	0.0	0.0	4.1	17.0	25.6	
		GM5	09:58	1019	19.7	0.0	0.0	6.7	13.8	24.6	

Remarks:

Compliance Limit			
1% by volume			
Methane	Up-gradient Zone	GM4, GM5	10% by volume
	Down-gradient Zone	GM1, GM2, GVQ1-3, P5	15% by volume

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LANDFILL GAS MONITORING - FIELD MEASUREMENT

Section 2.8.1.2 - Drillholes and Piezometer Monitoring

Sampling equipment	Dates calibrated
GEM2000	03/04/2008

Sampling date	Weather conditions	Sample location	Sampling time	Atmospheric pressure (mBar)	Atmospheric temperature (°C)	Gas pressure (mBar)	Methane (%)	Carbon dioxide (%)	Oxygen (%)	Gas temperature (°C)	Remarks
03/04/2008	Cloudy	GM1	11:06	1012	18.3	0.0	0.0	7.3	13.7	19.1	
		GM2	11:35	1012	18.5	0.0	0.0	5.4	15.8	19.8	
		GVQ1	11:40	1012	18.5	0.3	0.0	4.1	15.8	21.0	
		GVQ2	11:44	1012	18.5	0.3	0.0	10.0	10.1	21.3	
		GVQ3	11:47	1012	18.6	0.2	0.0	0.9	18.5	22.0	
		P5	11:50	1012	18.5	0.2	0.0	2.3	17.3	21.4	Sampling of piezometer
		GM4	14:13	1012	19.8	0.3	0.0	3.1	17.6	18.5	
		GM5	14:23	1012	19.7	0.0	0.0	6.4	14.2	19.8	

Remarks:

Compliance Limit			
1% by volume			
Methane	Up-gradient Zone	GM4, GM5	10% by volume
Carbon dioxide	Down-gradient Zone	GM1, GM2, GVQ1-3, P5	15% by volume

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LANDFILL GAS MONITORING - FIELD MEASUREMENT

Section 2.8.1.2 - Drillholes and Piezometer Monitoring

Sampling equipment	Dates calibrated
GEM2000	07/05/2008

Sampling date	Weather conditions	Sample location	Sampling time	Atmospheric pressure (mBar)	Atmospheric temperature (°C)	Gas pressure (mBar)	Methane (%)	Carbon dioxide (%)	Oxygen (%)	Gas temperature (°C)	Remarks
07/05/2008	Hazy	GM1	09:27	1003	28.1	-0.1	0.0	7.5	10.4	27.5	
		GM2	09:45	1003	28.2	-0.2	0.0	5.3	15.8	27.6	
		GVQ1	09:52	1003	28.1	-0.2	0.0	6.4	12.9	27.6	
		GVQ2	10:02	1003	27.9	-0.2	0.1	9.0	6.0	27.8	Sampling of drillhole
		GVQ3	10:09	1003	27.9	0.0	0.0	0.8	19.3	27.3	
		P5	10:15	1003	27.8	0.0	0.1	1.4	18.6	27.4	
		GM4	10:47	1003	28.7	0.0	0.1	2.7	17.3	31.4	
		GM5	10:57	1003	28.7	0.0	0.0	6.3	13.5	28.3	

Remarks:

Compliance Limit			
1% by volume			
Methane	Up-gradient Zone	GM4, GM5	10% by volume
Carbon dioxide	Down-gradient Zone	GM1, GM2, GVQ1-3, P5	15% by volume

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LANDFILL GAS MONITORING - FIELD MEASUREMENT

Section 2.8.1.2 - Drillholes and Piezometer Monitoring

Sampling equipment	Dates calibrated
GEM2000	04/06/2008

Sampling date	Weather conditions	Sample location	Sampling time	Atmospheric pressure (mBar)	Atmospheric temperature (°C)	Gas pressure (mBar)	Methane (%)	Carbon dioxide (%)	Oxygen (%)	Gas temperature (°C)	Remarks
04/06/2008	Rainy	GM1	09:57	1002	26.1	0.3	0.0	5.7	8.9	24.1	
		GM2	10:21	1002	26.3	0.1	0.1	5.9	15.6	25.3	
		GVQ1	10:27	1002	26.3	0.0	0.0	7.4	13.3	27.7	
		GVQ2	10:34	1002	26.2	0.0	0.0	11.0	3.2	29.5	
		GVQ3	10:38	1002	26.2	0.1	0.1	1.6	17.8	27.0	
		P5	10:41	1002	26.2	0.0	0.0	0.5	18.3	26.9	Sampling of piezometer
		GM4	11:20	987	25.8	0.0	0.0	4.7	15.0	25.2	
		GM5	11:35	987	25.7	0.0	0.0	5.6	13.1	25.1	

Remarks:

	Compliance Limit		
Methane	1% by volume		
Carbon dioxide	Up-gradient Zone	GM4, GM5	10% by volume
	Down-gradient Zone	GM1, GM2, GVQ1-3, P5	15% by volume

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LANDFILL GAS MONITORING - FIELD MEASUREMENT

Section 2.8.1.2 - Drillholes and Piezometer Monitoring

Sampling equipment	Dates calibrated
GEM2000	11/07/2008

Sampling date	Weather conditions	Sample location	Sampling time	Atmospheric pressure (mBar)	Atmospheric temperature (°C)	Gas pressure (mBar)	Methane (%)	Carbon dioxide (%)	Oxygen (%)	Gas temperature (°C)	Remarks
11/07/2008	Cloudy	GM1	09:35	1000	25.6	0.1	0.0	5.8	3.8	27.2	
		GM2	10:03	1000	25.8	-0.1	0.0	7.1	12.2	25.6	
		GVQ1	10:09	1000	25.8	0.2	0.0	9.0	11.3	25.6	
		GVQ2	10:20	1000	25.8	0.3	0.0	0.7	16.7	26.1	
		GVQ3	10:50	998	25.9	0.3	0.0	1.5	18.0	26.3	
		GM4	13:40	984	26.2	0.1	0.0	5.7	12.1	27.5	
		GM5	13:55	984	26.4	0.2	0.0	5.0	11.8	28.2	
		P5	15:09	990	28.2	0.3	0.0	0.3	19.6	29.1	Sampling of piezometer

Remarks:

Compliance Limit			
Methane	1% by volume		
Carbon dioxide	Up-gradient Zone	GM4, GM5	10% by volume
	Down-gradient Zone	GM1, GM2, GVQ1-3, P5	15% by volume

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LANDFILL GAS MONITORING - FIELD MEASUREMENT

Section 2.8.1.2 - Drillholes and Piezometer Monitoring

Sampling equipment	Dates calibrated
GEM2000	7/8/08, 13/8/08

Sampling date	Weather conditions	Sample location	Sampling time	Atmospheric pressure (mBar)	Atmospheric temperature (°C)	Gas pressure (mBar)	Methane (%)	Carbon dioxide (%)	Oxygen (%)	Gas temperature (°C)	Remarks
07/08/2008	Cloudy	P5	14:00	993	28.9	0.3	0.4	5.2	6.8	30.1	Sampling of drillhole
13/08/2008	Sunny	GM4	08:43	989	31.0	-0.1	0.1	5.9	12.4	32.6	
		GM5	08:56	989	30.9	-0.1	0.0	5.8	11.2	31.0	
		GVQ3	14:44	992	35.6	0.0	0.0	1.4	17.1	35.3	
		GVQ2	14:46	992	35.7	-0.1	0.0	0.4	16.1	37.9	
		GVQ1	14:54	992	35.7	0.0	0.0	7.9	10.6	34.4	
		GM2	14:58	992	35.5	0.0	0.0	7.9	8.8	32.9	
		GM1	15:12	992	35.0	-0.1	0.0	9.3	3.1	34.7	

Remarks:

Compliance Limit			
Methane	1% by volume		
Carbon dioxide	Up-gradient Zone	GM4, GM5	10% by volume
	Down-gradient Zone	GM1, GM2, GVQ1-3, P5	15% by volume

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LANDFILL GAS MONITORING - FIELD MEASUREMENT

Section 2.8.1.2 - Drillholes and Piezometer Monitoring

Sampling equipment	Dates calibrated
GEM2000	09/09/2008

Sampling date	Weather conditions	Sample location	Sampling time	Atmospheric pressure (mBar)	Atmospheric temperature (°C)	Gas pressure (mBar)	Methane (%)	Carbon dioxide (%)	Oxygen (%)	Gas temperature (°C)	Remarks
09/09/2008	Sunny	P5	11:34	1001	32.2	0.7	0.1	0.9	19.1	28.6	Sampling of drillhole
22/09/2008	Hazy	GM1	08:24	998	31.0	0.6	0.0	12.5	7.3	31.2	
		GM2	08:46	999	30.8	0.5	0.0	9.6	9.5	30.1	
		GVQ1	08:53	999	30.8	0.5	0.0	6.9	14.0	30.7	
		GVQ2	09:00	999	30.9	0.6	0.0	14.0	6.2	30.9	
		GVQ3	09:03	999	30.8	0.5	0.0	1.0	18.5	30.8	
		GM4	09:16	999	31.0	-1.7	0.0	4.7	15.3	33.2	
		GM5	09:25	999	31.2	0.4	0.0	6.7	11.6	34.0	

Remarks:

Compliance Limit			
Methane	1% by volume		
Carbon dioxide	Up-gradient Zone	GM4, GM5	10% by volume
	Down-gradient Zone	GM1, GM2, GVQ1-3, P5	15% by volume

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LANDFILL GAS MONITORING - FIELD MEASUREMENT

Section 2.8.1.2 - Drillholes and Piezometer Monitoring

Sampling equipment	Dates calibrated
GEM2000	16/10/2008

Sampling date	Weather conditions	Sample location	Sampling time	Atmospheric pressure (mBar)	Atmospheric temperature (°C)	Gas pressure (mBar)	Methane (%)	Carbon dioxide (%)	Oxygen (%)	Gas temperature (°C)	Remarks
16/10/2008	Sunny	GM1	09:32	1009	27.8	0.8	0.0	10.3	8.5	29.9	Sampling of drillhole
		GM2	10:20	1009	27.9	0.2	0.1	10.3	9.0	27.7	
		GVQ1	10:27	1008	28.2	0.5	0.0	9.8	9.4	28.8	
		GVQ2	10:33	1008	28.3	0.6	0.0	9.3	4.9	28.6	
		GVQ3	10:40	1008	28.3	0.5	0.0	2.1	17.5	29.2	
		P5	10:44	1008	28.2	0.6	0.0	0.8	19.0	29.0	
		GM4	10:56	1008	29.1	0.4	0.1	4.6	15.0	33.0	
		GM5	11:06	1008	29.5	0.6	0.0	6.8	11.1	35.2	

Remarks:

Compliance Limit			
Methane	1% by volume		
Carbon dioxide	Up-gradient Zone	GM4, GM5	10% by volume
	Down-gradient Zone	GM1, GM2, GVQ1-3, P5	15% by volume

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LANDFILL GAS MONITORING - FIELD MEASUREMENT

Section 2.8.1.2 - Drillholes and Piezometer Monitoring

Sampling equipment	Dates calibrated
GEM2000	04/11/2008

Sampling date	Weather conditions	Sample location	Sampling time	Atmospheric pressure (mBar)	Atmospheric temperature (°C)	Gas pressure (mBar)	Methane (%)	Carbon dioxide (%)	Oxygen (%)	Gas temperature (°C)	Remarks
04/11/2008	Cloudy	GM1	13:21	1009	27.5	0.3	0.1	12.0	8.6	27.8	
		GM2	13:36	1009	27.6	0.2	0.1	10.5	9.2	27.6	
		GVQ1	13:41	1009	27.6	0.2	0.1	7.2	13.5	28.0	
		GVQ2	13:46	1009	27.9	0.0	0.1	9.6	11.6	29.7	
		GVQ3	13:51	1009	27.9	0.2	0.1	2.1	17.6	29.6	
		GM4	14:03	1009	27.8	0.2	0.1	4.8	15.5	27.8	
		GM5	14:13	1009	27.8	0.1	0.0	7.4	11.5	27.7	
05/11/2008	Cloudy	P5	11:21	1007	26.9	0.4	0.1	1.0	19.1	27.4	Sampling of piezometer

Remarks:

Compliance Limit			
1% by volume			
Methane	Up-gradient Zone	GM4, GM5	10% by volume
	Down-gradient Zone	GM1, GM2, GVQ1-3, P5	15% by volume
Carbon dioxide	Up-gradient Zone	GM4, GM5	10% by volume
	Down-gradient Zone	GM1, GM2, GVQ1-3, P5	15% by volume

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LANDFILL GAS MONITORING - FIELD MEASUREMENT

Section 2.8.1.2 - Drillholes and Piezometer Monitoring

Sampling equipment	Dates calibrated
GEM2000	03/12/2008

Sampling date	Weather conditions	Sample location	Sampling time	Atmospheric pressure (mBar)	Atmospheric temperature (°C)	Gas pressure (mBar)	Methane (%)	Carbon dioxide (%)	Oxygen (%)	Gas temperature (°C)	Remarks
03/12/2008	Sunny	GM1	09:35	1008	20.8	0.0	0.0	9.5	9.1	22.2	Sampling of drillhole
		GM2	10:06	1008	21.2	-0.1	0.0	9.9	12.1	23.4	
		GVQ1	10:10	1008	21.3	0.0	0.0	5.9	15.4	23.7	
		GVQ2	10:15	1008	21.3	-0.1	0.0	4.8	16.8	23.0	
		GVQ3	10:18	1008	21.3	0.0	0.0	1.1	19.4	23.5	
		P5	10:21	1008	21.2	0.0	0.0	2.0	18.4	22.6	
		GM4	10:33	1008	21.8	-0.1	0.0	5.3	16.1	23.0	
		GM5	10:42	1008	21.5	-0.1	0.0	7.5	12.8	24.9	

Remarks:

Compliance Limit			
1% by volume			
Methane	Up-gradient Zone	GM4, GM5	10% by volume
Carbon dioxide	Down-gradient Zone	GM1, GM2, GVQ1-3, P5	15% by volume

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