

December 10, 2020

Ms. Cindy Koepke
Bureau for Remediation and Redevelopment
Wisconsin Department of Natural Resources
3911 Fish Hatchery Road
Fitchburg, WI 53711

Re: DNR BRRTS Activity #02-33-582970
Landfill Gas Monitoring, Darlington City Historic Landfill
149 Wells Street, Darlington, WI
December 2020 Monitoring Results

Dear Ms. Koepke:

Ayres Associates Inc (Ayres), on behalf of the City of Darlington (City), is providing the December 2020 sampling results of gas probes on the site perimeter at 149 Wells Street. This monitoring event was conducted on December 3, 2020. This is the eleventh event conducted under the July/December monitoring events as noted in September 10, 2015, Wisconsin Department of Natural Resources letter detailing revised monitoring frequency.

Results Discussion

All currently approved monitoring locations were accessible, dry, and the probes and sample ports appeared in good working order, except for GW-20R. Ayres received permission to remove GW-20R from the sampling protocol in an email dated February 24, 2020. This was the second sampling event that did not need to include GW-20R, but another attempt was made to locate the probe. City Public Works staff were able to find the location through metal detection, and noted it was buried beneath a thin layer of soil which they attempted to remove. Residual soil remained over some of the well during the December 3 sampling event. Due to these frozen soil conditions, seized bolts, and inability to remove enough soil to pry open the well cap, the probe at GW-20R remained inaccessible for gas sampling. However, now that the probe has been relocated, we hope that during the July 2021 sampling event with more robust field equipment we can remove the screwed well cap and soil and begin sampling this again. Marks were made on the asphalt parking and measurements made so that this can be relocated in the future.

The biannual monitoring used a calibrated Landtec GEM 2000 landfill gas meter. The attached monitoring results show that three of the eleven monitoring points sampled had detections of methane in them, only one of which (GW-22R) was over the lower explosive limit (LEL) of 5% methane. None of the methane detects were over the upper explosive limit (UEL) of 15%. The last sampling event which occurred in July 2020 showed six methane detections, two of which were over the LEL and one of which was over the UEL. The sampling event from December 2019 exhibited two methane detections, one of which was over the LEL.

Overall, there were fewer methane detects this sampling event compared to the previous one, and one more detect this year compared to December 2019. Sample probe GW-22R has had methane detects above the LEL for the past three semi-annual sampling events. This probe is located near the front door of the Piggly Wiggly, in the parking lot area. Other nearby probes (GP-101 and GP-104) have consistently shown low-level detects below the LEL or non-detects since January 2012 which could be simple calibration float. Nine of the eleven sample points were between 0.1 to 0.3 percent methane, nearly non-detect and likely calibration float. Detailed sample results for this event are shown on attached Table 1.

Passively venting the system continues to provide an avenue for any subsurface gas to be released from beneath the site. Many of the sampling points that have had historical measurable levels of methane have been significantly reduced, with most having non-detects or non-detect equivalents in more recent sampling events. The attached Table 2 details historical sampling results noting these trends.

Indoor Air Monitoring

Alarms are installed within the building at various locations to alert personnel of the presence of methane should any venting occur within the building from subsurface conditions. New meters were installed in November 2014 and continue to appear to be operating properly. A new alarm was installed at the former Badgerland Financial office on the northeast side of the tenant space, replacing the missing Alarm Number 1. This new alarm also appeared to be working properly.

To date, no audible alarms have been noted within the building from tenants or the landlord. If any audible alarms are noted within the building, the WDNR will be notified of this event, and response actions will be taken according to the Explosive Gas Alarm Contingency Plan.

The next regularly scheduled sampling event will be in July 2021.

Please contact me with any further questions.

Sincerely,

Ayres Associates Inc



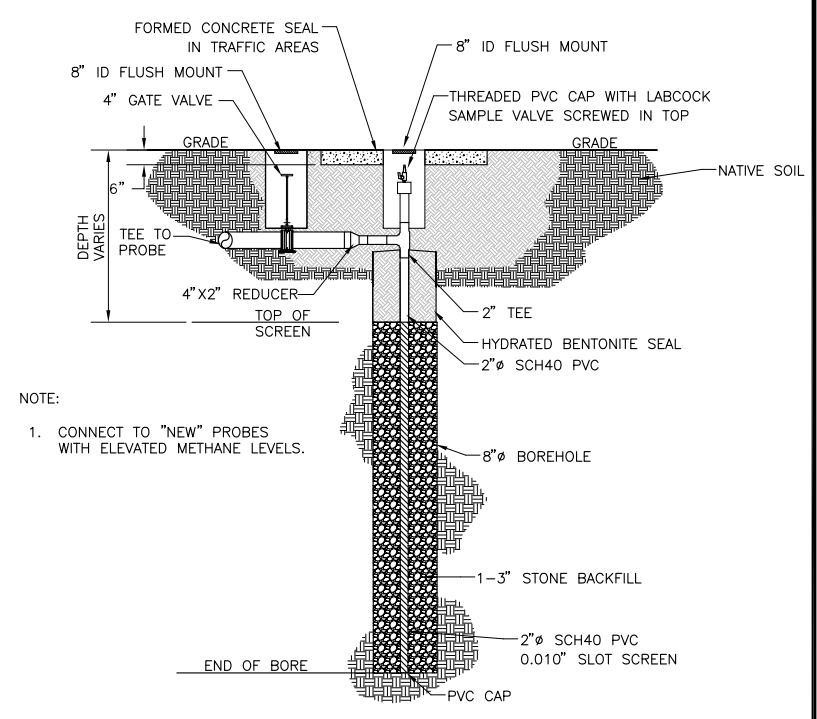
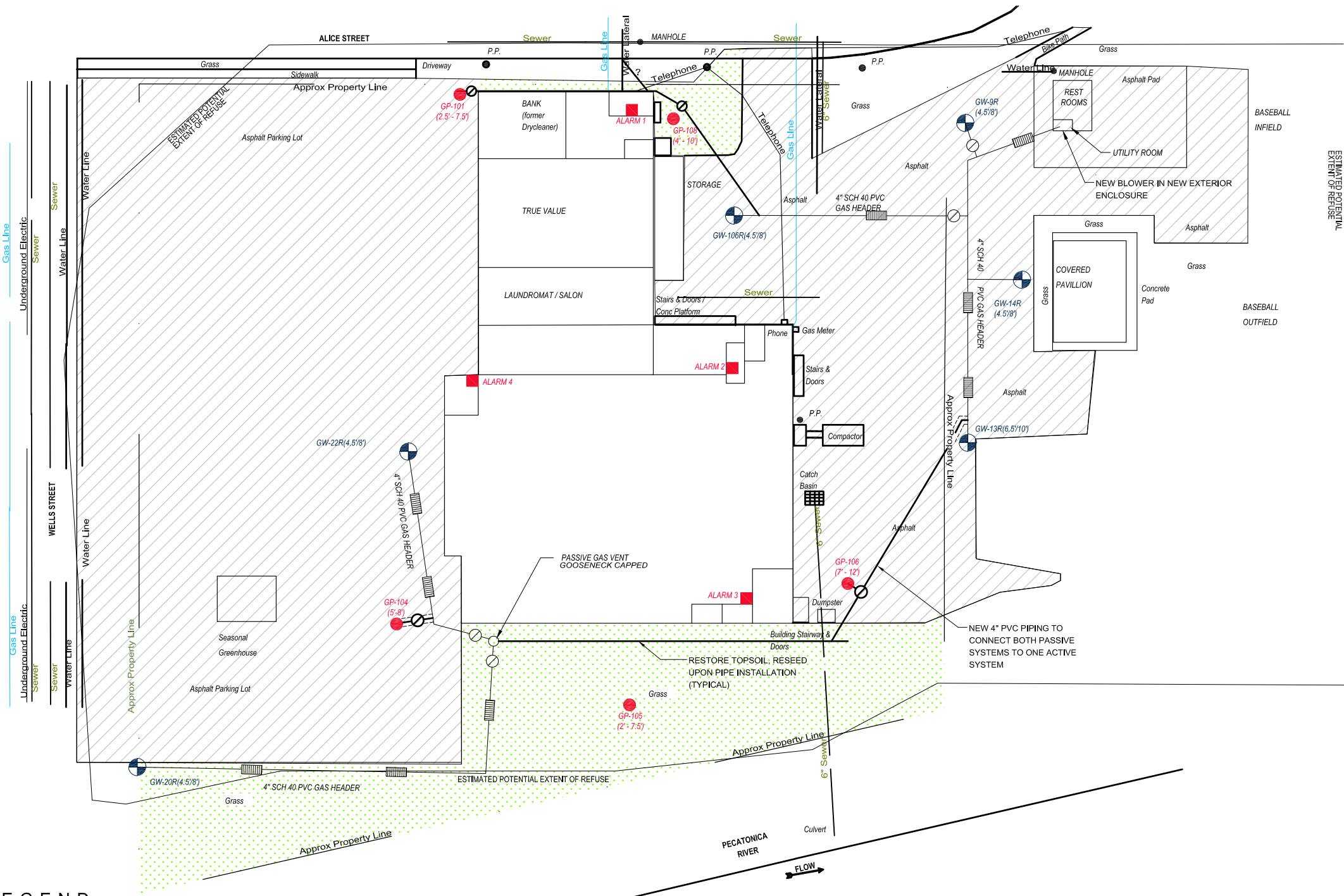
Ben Peotter, P.E.
Manager – Environmental Services
Direct: 608.443.1206
Cell: 608.577.9593
PeotterB@AyresAssociates.com

BP:ac

Enclosure

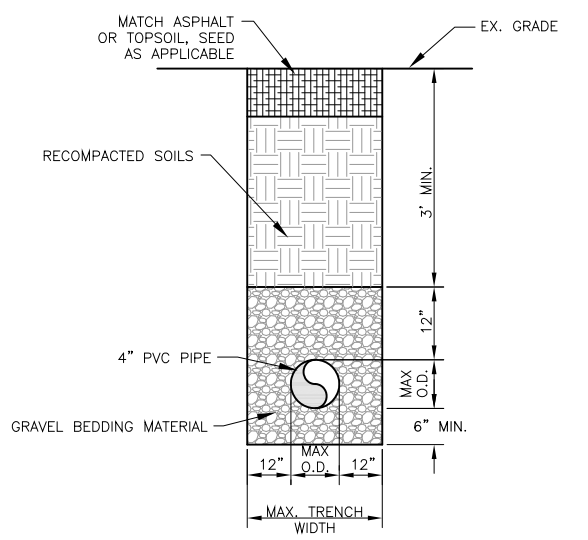
cc: Bryson Family Rental LLC
Mayor Mike McDermott – City of Darlington
Jeremy Williams – City of Darlington





NOTE:
1. CONNECT TO "NEW" PROBES WITH ELEVATED METHANE LEVELS.

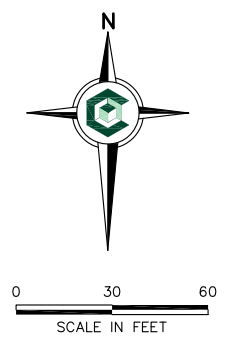
GAS PROBE
DETAIL 1
SCALE: NOT TO SCALE



TYPICAL TRENCH
DETAIL 2
SCALE: NOT TO SCALE

- LEGEND**
- GW-9R** REINSTALLED PASSIVE GAS EXTRACTION WELL WITH (SCREEN LENGTH/WELL DEPTH)
 - EXISTING VALVE
 - EXISTING ASPHALT
 - EXISTING GRASS
 - 4" PVC SLOTTED PIPE (10' LONG SECTIONS)
 - 4" PVC SOLID PIPE
 - EXPLOSIVE GAS ALARM LOCATION
 - NEW PROBE LOCATION (TOP OF SCREEN DEPTH - BOTTOM OF SCREEN / WELL BELOW GROUND SURFACE)
 - NEW VALVE
 - NEW 4" PVC SOLID PIPE

- NOTES**
1. EXISTING SYSTEM "A" INCLUDES GW-9R, 13R, 14R AND 106R.
 2. EXISTING SYSTEM "B" INCLUDES GW-20R, 22R.
 3. NEWLY INSTALLED PROBES ARE GP-101, 104, 105, 106 AND 108.



REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

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CITY OF DARLINGTON LANDFILL
DARLINGTON, WISCONSIN

AS-BUILT GAS PIPING MODIFICATIONS

SHEET NO.
1
PROJECT NO.
100207

**Dick's Supermarket Site - Darlington, WI
December 2020 Gas Monitoring Event**

Table 2: Summary of Methane Sample Data (July 28, 2008 to December 3, 2020)

Percent by Volume Methane (LEL=5%, UEL=15%)														
Date	GW-9R	GW-13R	GW-14R	GW-106R	GW-20R	GW-22R	Gooseneck	GP-101	GP-104	GP-105	GP-106	GP-108	BLOWER	
12/3/2020	0.1	0.1	0.1	0.1	NA-buried	13.2	NA	0.1	0.3	0.1	0.1	4.3	0.1	
7/8/2020	0.1	0.0	11.2	17.6	NA-buried	13.9	NA	0.0	NA-H ₂ O	0.0	0.2	0.6	0.0	
12/5/2019	0.0	0.0	0.0	0.0	NA-buried	6.0	NA	0.0	0.0	0.0	0.0	0.4	0.0	
7/19/2019	0.0	0.0	0.0	0.0	NA-buried	0.0	NA	0.0	0.0	0.0	0.0	0.0	0.0	
12/6/2018	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	
7/10/2018	0.0	0.0	1.7	4.0	0.0	4.3	0.0	0.0	0.0	1.9	0.2	0.1	0.0	
12/7/2017	0.0	0.0	0.0	0.2	1.2	0.1	1.4	0.1	0.0	1.7	1.8	0.0	0.0	
7/11/17	0.0	0.2	0.1	0.1	0.1	0.2	--	0.1	0.1	0.2	0.2	0.0	0.0	
12/2/2016	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
7/13/2016	0.0	0.0	16.4	1.0	0.0	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
12/9/2015	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
7/1/2015	0.0	0.0	10.7	0.0	0.0	3.7	--	0.0	0.0	0.0	10.6	0.0	0.0	
4/14/2015	0.0	0.1	0.0	0.1	0.0	0.1	--	0.1	0.3	0.1	23.9	0.1	0.0	
1/20/2015	0.0	Buried	0.0	0.0	Buried	0.0	0.1	0.0	0.0	0.0	Frozen	0.0	0.0	
10/21/2014	0.2	0.2	5.6	0.2	0.2	0.2	--	0.3	0.3	0.3	3.1	0.3	0.2	
8/19/2014	PASSIVE VENTING RESUMED													
7/9/2014	0.2	0.3	5.3	0.3	0	7.6		0.2	4.1	0.3	1.0	29.4	0.2	
4/8/2014	0.0	1.2	0.9	0.4	0.2	0.2		0.1	0.4	0.2	13.0	15.1	0.2	
1/24/2014	0.0	12.7	--	--	--	0.0		0.0	0.1	0.0	--	22.2	0.6	
10/4/2013	0.0	7.2	11.9	7.3	0.0	13.5		0.0	0.0	0.0	40.0	24.3	0.5	
7/9/2013	0.2	0.3	9.4	5.7	0.1	7.0		0.2	0.2	0.1	Watered Out	19.1	0.3	
4/10/2013	0.0	0.0	0.0	0.0	Watered Out	2.0		0.0	0.6	0.0	0.0	12.5	0.1	
1/11/2013	0.0	4.5	--	0.5	1.9	0.0	Capped after blower installation since system is no longer passive venting	0.6	0.1	0.0	--	0.2	0.0	
12/5/2012	0.0	0.6	0.1	0.8	0.0	8.8		0.0	1.0	0.0	5.0	13.3	0.1	
11/8/2012	0.0	0.7	8.5	1.4	0.1	15.5		0.0	0.6	0.1	5.8	13.6	0.2	
10/8/2012	0.3	0.9	0.0	2.1	0.1	22.6		0.0	0.0	0.0	9.5	9.3	0.1	
9/6/2012	0.1	0.4	16.8	0.1	0.1	17.6		0.2	0.4	0.1	12.3	N/A	0.4	
8/7/2012	0.2	0.1	27.3	2.8	0.1	17.5		0.2	0.8	0.1	16.3	0.2	0.4	
7/12/2012	0.0	0.0	11.0	2.3	28.7	8.0		0.0	1.0	0.0	20.0	5.8	0.0	
6/11/2012	0.1	0.0	14.7	0.0	Watered Out	1.2		0.0	Blockage	0.0	40.1	5.8	New probe installed July 12, 2012	
5/4/2012	0.0	0.1	4.2	0.0	Watered Out	0.3		0.0	Blockage	0.1	0.1	0.0		
4/12/2012	0.0	0.0	0.0	0.1	Watered Out	0.1		0.5	0.0	0.0	0.0	32.9		
3/8/2012	0.2	0.2	0.2	1.8	Watered Out	0.1		0.1	Buried	0.1	4.3	35.8		
2/14/2012	Under Ice	0.0	0.1	0.1	17.5	25.2		0.1	Buried	0.1	12.2	31.0		
1/9/2012	0.1	0.3	0.1	1.0	0.2	0.5		0.2	N/A	0.2	29.9	8.5		
1/9/2012	BLOWER SYSTEM INSTALLED													
12/5/2011	0.8	0.0	Car	11.0	0.0	24.4		0.0	15.8	52.3	0.0	78.4	7.8	
11/10/2011	2.1	0.0	10.2	8.8		27.8	0.2	15.4	49.8	0.0	89.9	50.1		
10/7/2011	0.0	0.0		0.1	0.0	16.4	0.0	6.1	44.9	0.1	88.0	52.4		
9/8/2011			11.6	10.3		19.9		5.8	38.3		83.5	49.2		
8/12/2011	0.2	0.1	18.1	11.2	7.3	7.0	0.1	0.1	32.1	0.2	85.5	42.9		
7/6/2011	0.2			2.4	9.8	4.7		3.9	15.8		72.1	13.8		
6/9/2011			7.8	0.8		0.4		0.3	0.8			0.1		
4/12/2011	0.1				0.1									
4/20/2010				0.9										
3/30/2010				0.2										
2/24/2010					19.5	20.5	0.3							
1/26/2010				0.4	0.8	6.7								
12/29/2009														
11/15/2009	0.4	6.3		6.0	0.4	24.9								
10/27/2009	1.1		4.1	11.3	50.0		0.9							
9/29/2009	3.9		3.0											
8/25/2009	2.8			4.6	1.0	39.1								
7/28/2009	1.1		0.4		0.2	30.2								
6/30/2009	1.1				28.5		0.3							
5/27/2009					0.3	19.1								
4/28/2009			0.9			3.7								
3/31/2009		2.5				6.1	0.5							
2/24/2009					5.8	27.7	0.1							
1/27/2009			0.2		28.9		0.8							
12/23/2008				10.5	41.8	22.4	0.2							
11/25/2008	0.2			0.1	31.1	22.8	0.4							
10/3/2008	32.4		9.2	2.6	18.8	29.8								
9/26/2008	45.1	10.5	16.3		59.1	41.8	6.8							
8/28/2008	43.6	0.1	21.0	11.3	27.2	27.3	0.2							
7/28/2008	10.4				0.2		1.0							

Note: all blanks indicated non-detect for methane during sampling event