

July 11, 2018

Mr. Jeff Ackerman
Bureau for Remediation and Redevelopment
Wisconsin Department of Natural Resources
3911 Fish Hatchery Road
Fitchburg, WI 53711

Re: DNR BRRTS Activity #02-33-544202
Landfill Gas Monitoring, Dick's Supermarket Site
149 Wells Street, Darlington, WI
July 2018 Monitoring Results

Dear Mr. Ackerman:

Ayres Associates Inc (Ayres), on behalf of the City of Darlington (City), is providing the July 2018 site sampling results of gas probes on the site perimeter at 149 Wells Street. This monitoring event was conducted on July 10, 2018. This is the sixth event conducted under the July/December monitoring events as noted in the September 10, 2015, Wisconsin Department of Natural Resources letter detailing monitoring frequency.

Results Discussion

All monitoring locations were accessible, dry, and the probes and sample ports appeared in good working order. The quarterly monitoring used a calibrated Landtec GEM 5000 landfill gas meter. The attached monitoring results show that 6 of the 13 sample locations (probe or blower sampling ports) monitored had detections of methane in them but all were below the methane lower explosive limit (LEL) of 5% by volume. The measured methane levels ranged from 0.0 to 4.3 percent by volume. Historically the summer sampling event has shown a few hits of methane, and this event is no different. Compared to last year's summer sampling event, the July 2018 event had three fewer sample probes above LEL. 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. 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. Alarm meter Number 1, located in the former Badgerland Financial office on the northeast side of that tenant space, could not

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be accessed by Ayres Associates staff during the sampling event since the location has been permanently closed. Other meters were tested and confirmed to be working. To date, no audible alarms have been noted within the building. 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 December 2018.

Please contact me with any further questions.

Sincerely,

Ayres Associates Inc

A handwritten signature in black ink that reads "Ben Peotter". The signature is written in a cursive, flowing style.

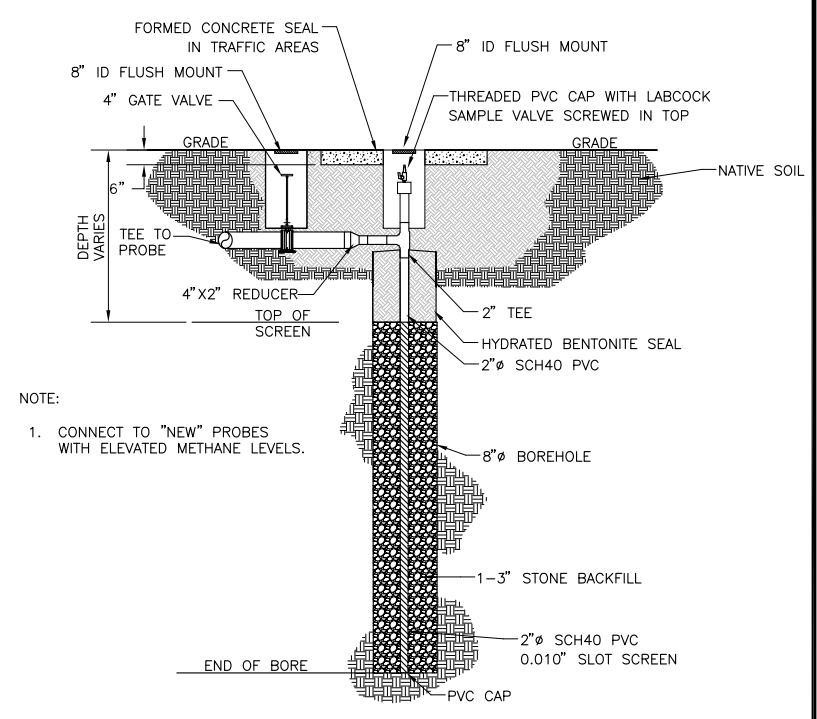
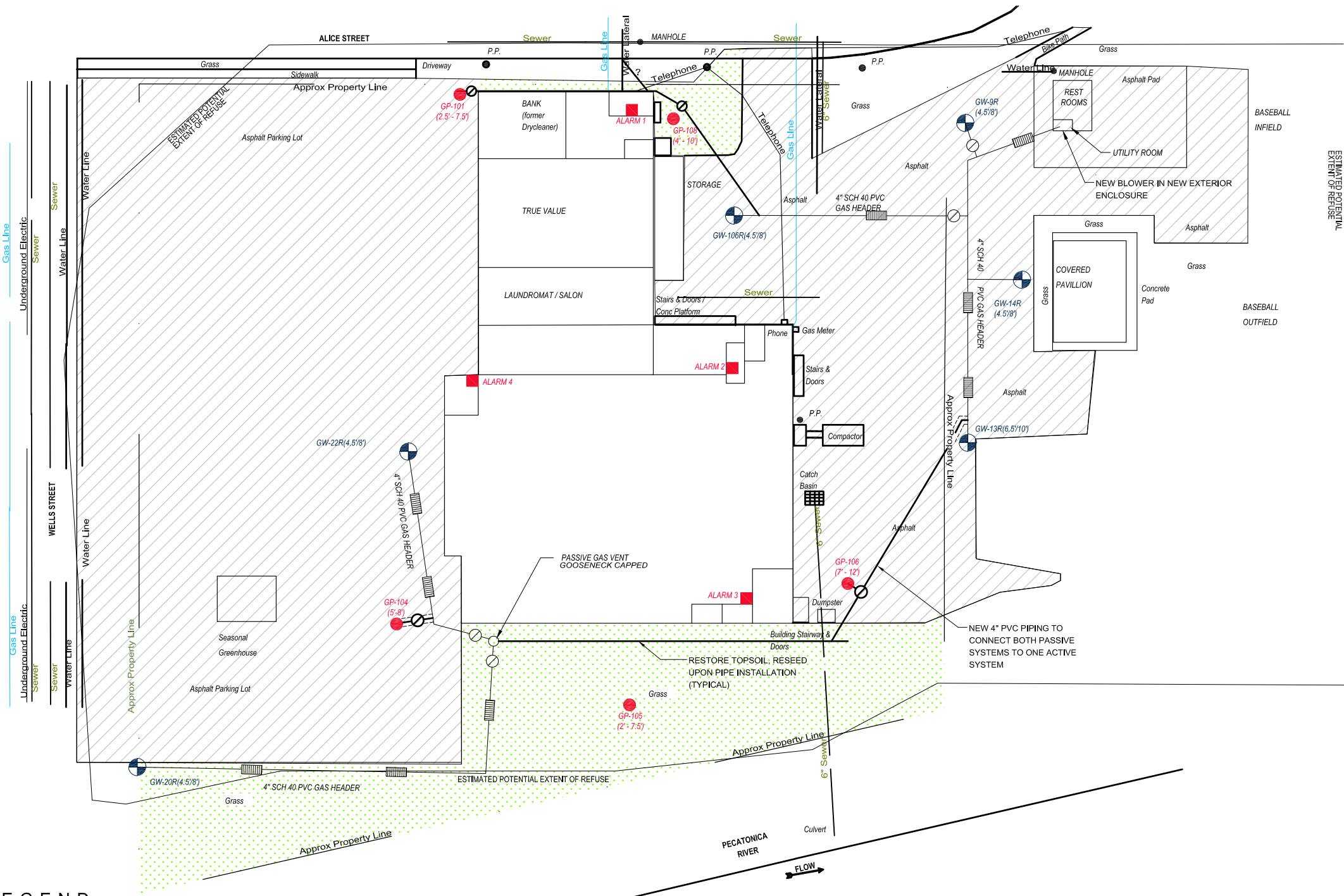
Ben Peotter, P.E.
Project Manager

Direct: 608.443.1206
Cell: 608.577.9593
PeotterB@AyresAssociates.com

BP:sm

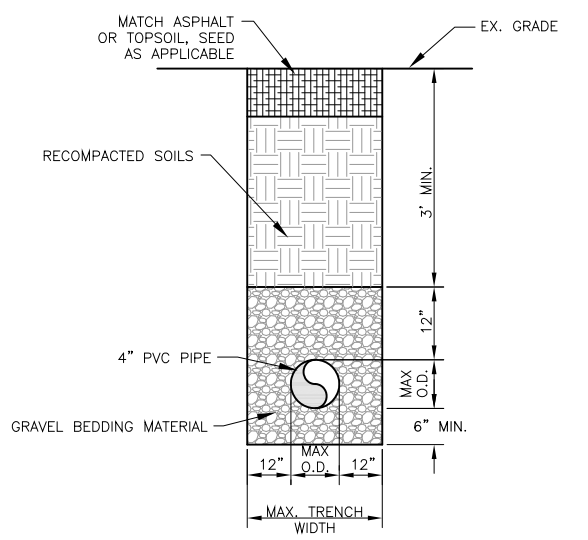
Enclosure

cc: Stewart Wangard – Wangard Partners, Inc.
Mayor Dave Breunig – City of Darlington
Jeremy Williams – City of Darlington



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

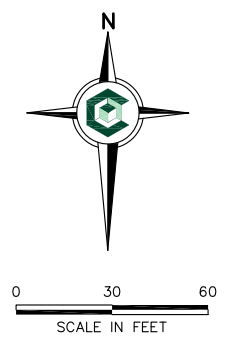
GAS PROBE
DETAIL 1
SCALE: NOT TO SCALE



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

CORNERSTONE
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CITY OF DARLINGTON LANDFILL
DARLINGTON, WISCONSIN

AS-BUILT GAS PIPING MODIFICATIONS

SHEET NO.
1
PROJECT NO.
100207

Darlington
 10-Jul-18
 Landtec GEM 2000 (S/N: G501369)

Table 1: Methane Gas Monitoring Results

ID	Sampler	Time	CH4 %	CO2 %	O2 %	Balance Gas	Barometric Pressure (inHg)	Barometric Trend	Relative Humidity	Wind Speed / Direction	Air Temp. (°F)	Cloud Cover	Precipitation	Valve Open (%)	Comments
GW-9R	ENG	11:04	0.0	0.1	19.4	80.5	29.31	falling	55%	8 mph/ ENE	82	mostly sunny	0 in	100%	
GW-13R	ENG	11:15	0.0	4.3	13.3	82.3	29.30	falling	55%	8 mph/ ENE	82	mostly sunny	0 in	N/A	
GW-14R	ENG	11:10	1.1	10.2	4.5	83.3	29.31	falling	55%	8 mph/ ENE	82	mostly sunny	0 in	N/A	
GW-106R	ENG	11:22	4.0	3.3	0.0	92.7	29.29	falling	55%	8 mph/ ENE	82	mostly sunny	0 in	50%	H2S: 26%
GW-20R	ENG	11:44	0.0	4.7	9.7	85.6	29.28	falling	55%	8 mph/ ENE	82	mostly sunny	0 in	100%	
GW-22R	ENG	11:52	4.3	6.1	3.6	86.0	29.12	falling	55%	8 mph/ ENE	82	mostly sunny	0 in	100%	
GP-101	ENG	11:57	0.0	3.3	15.7	80.9	29.28	falling	55%	8 mph/ ENE	82	mostly sunny	0 in	75%	
GP-104	ENG	11:39	0.0	3.9	13.2	82.8	29.29	falling	55%	8 mph/ ENE	82	mostly sunny	0 in	100%	
GP-105	ENG	11:29	0.0	4.7	13.1	81.7	29.29	falling	55%	8 mph/ ENE	82	mostly sunny	0 in	N/A	H2S: 1%
GP-106	ENG	12:07	1.9	10.0	0.2	88.0	29.29	falling	55%	8 mph/ ENE	82	mostly sunny	0 in	100%	H2S: 1%
GP-108	ENG	12:01	0.2	0.0	0.2	93.6	29.29	falling	55%	8 mph/ ENE	82	mostly sunny	0 in	100%	H2S: 1%
BLOWER Port	ENG	11:00	0.1	7.9	10.5	81.6	29.30	falling	55%	8 mph/ ENE	82	mostly sunny	0 in	N/A	H2S: 1%
Gooseneck	ENG	11:35	0.0	1.5	17.2	81.0	29.28	falling	55%	8 mph/ ENE	82	mostly sunny	0 in	N/A	

**Dick's Supermarket Site - Darlington, WI
December 2017 Gas Monitoring Event**

Table 2: Summary of Methane Sample Data (July 28, 2008 to July 10, 2018)

Date	Percent by Volume Methane (LEL=5%, UEL=15%)												BLOWER
	GW-9R	GW-13R	GW-14R	GW-106R	GW-20R	GW-22R	Gooseneck	GP-101	GP-104	GP-105	GP-106	GP-108	
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	0.2	1.2	0.1	1.4	0.1	0	1.7	1.8	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	Capped after blower installation since system is no longer passive venting	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		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	0.0	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								New probes installed of June 8, 2011
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