

January 8, 2019

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

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

Dear Ms. Koepke:

Ayres Associates Inc (Ayres), on behalf of the City of Darlington (City), is providing the December 2018 site sampling results of gas probes on the site perimeter at 149 Wells Street. This monitoring event was conducted on December 6, 2018. This is the seventh 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, except for GW-14R. The sampling nozzle broke off after sampling at 10:18am. The quarterly monitoring used a calibrated Landtec GEM 2000 landfill gas meter. The attached monitoring results show that 1 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 1.6 percent by volume. Historically the winter sampling event has shown a few hits of methane, and this event is no different. Compared to last year's winter sampling event, the December 2018 event had six 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,

Project: 19-571.00 File:

Cindy Koepke  
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located in the former Badgerland Financial office on the northeast side of that tenant space, could not be accessed by Ayres Associates staff during the sampling event since the location has been permanently closed. A new owner operates the retail space north of the grocery store, but the space is currently unoccupied. 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 July 2019.

Please contact me with any further questions.

Sincerely,

Ayres Associates Inc

A handwritten signature in cursive script that reads "Ben Peotter".

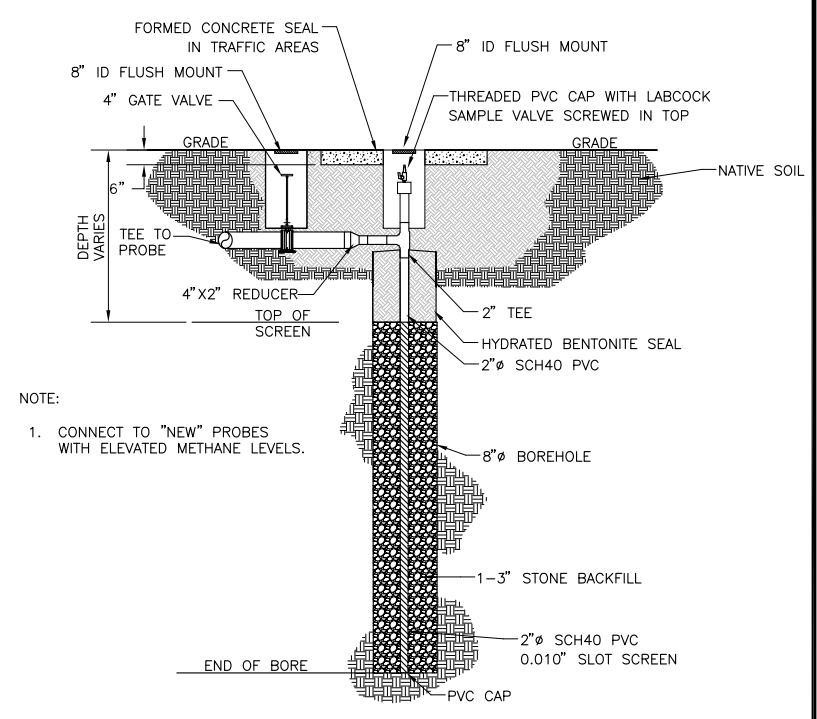
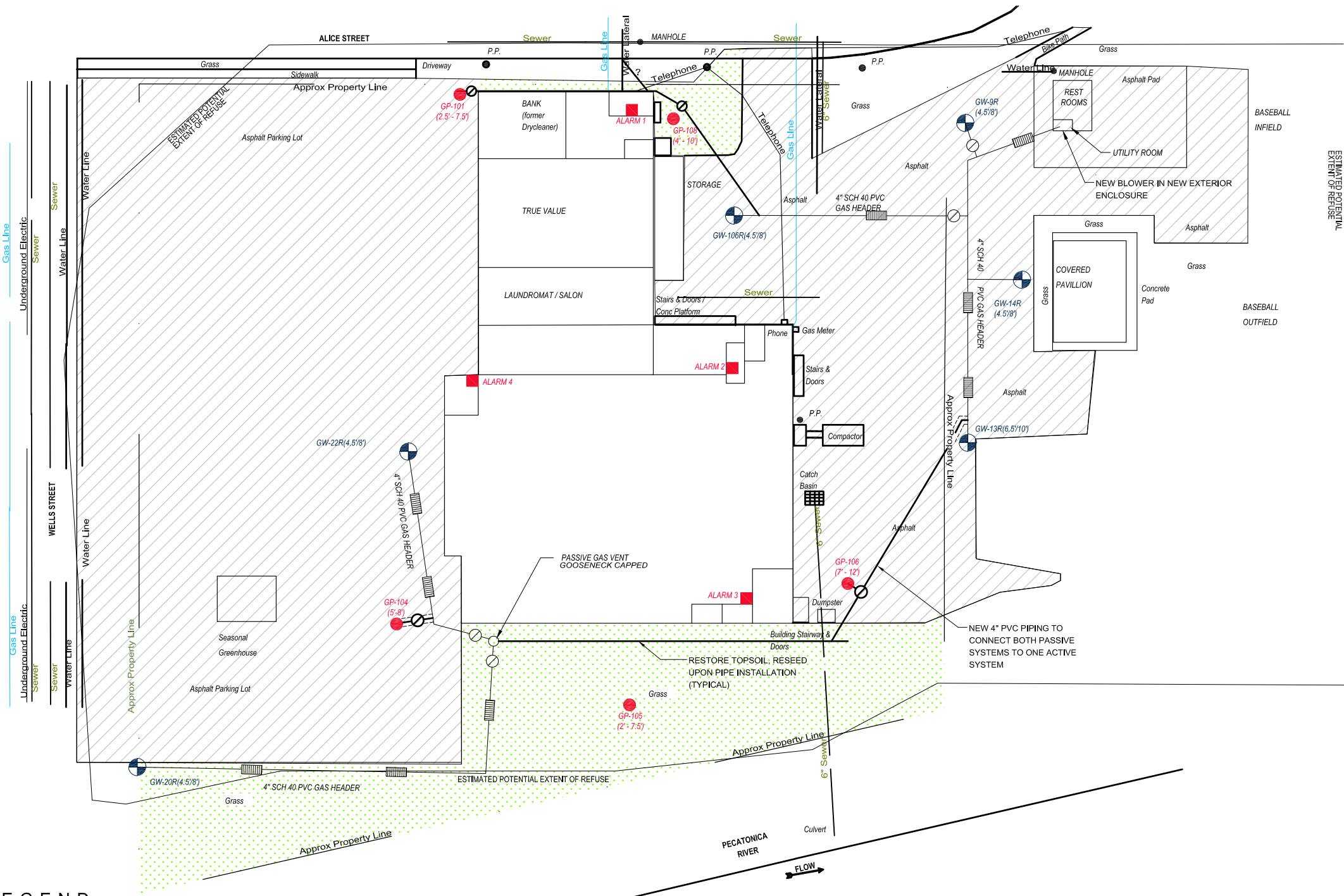
Ben Peotter, P.E.  
Project Manager

Direct: 608.443.1206  
Cell: 608.577.9593  
PeotterB@AyresAssociates.com

BP:sm

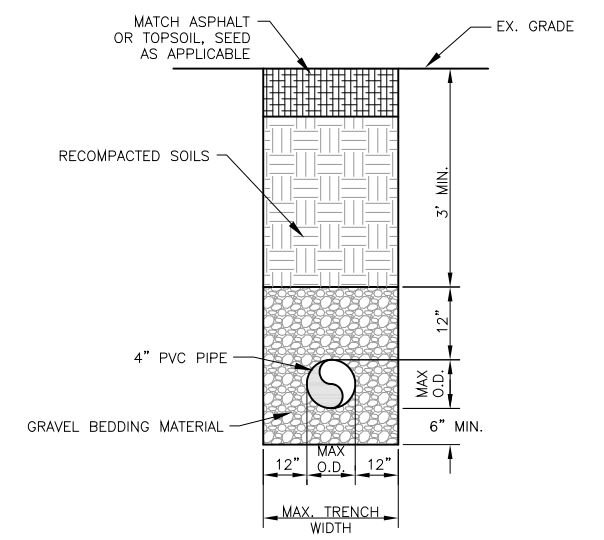
Enclosure

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



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

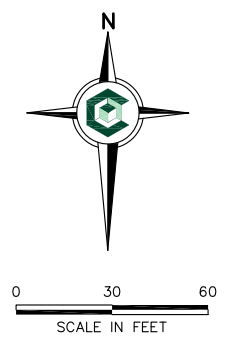
**GAS PROBE**  
**DETAIL 1**  
SCALE: NOT TO SCALE



**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
DATE OF ISSUE	JAN. 2012	DRAWN BY	MW	CHECKED BY	SW	APPROVED BY
		DESIGNED BY	BP	APPROVED BY	BP	

**CORNERSTONE**  
Environmental Group, LLC

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CITY OF DARLINGTON LANDFILL  
DARLINGTON, WISCONSIN

**AS-BUILT GAS PIPING MODIFICATIONS**

SHEET NO.  
**1**  
PROJECT NO.  
100207

Darlington  
 6-Dec-18  
 Landtec GEM 2000 (S/N: C418016)

**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	10:00	0.0	0.2	20.6	79.2	29.37	rising	81%	7 mph/ NW	26	Sunny	0 in	100%	
GW-13R	ENG	10:25	0.0	1.3	20.0	78.7	29.37	rising	81%	7 mph/ NW	26	Sunny	0 in	N/A	
GW-14R	ENG	10:18	0.0	0.3	21.5	78.2	29.37	rising	81%	8 mph/ NW	26	Sunny	0 in	N/A	Broke nozzle, needs replacement
GW-106R	ENG	11:35	0.0	2.5	13.3	84.2	29.42	falling	81%	9 mph/ NW	26	Sunny	0 in	50%	
GW-20R	ENG	11:08	0.0	0.4	20.6	79.0	29.42	rising	81%	10 mph/ NW	26	Sunny	0 in	100%	
GW-22R	ENG	11:14	0.0	0.2	21	78.8	29.42	rising	81%	11 mph/ NW	26	Sunny	0 in	100%	
GP-101	ENG	11:20	0.0	1.7	19.7	78.6	29.42	falling	81%	12 mph/ NW	26	Sunny	0 in	75%	
GP-104	ENG	10:48	0.0	0.3	20.6	79.1	29.37	rising	81%	13 mph/ NW	26	Sunny	0 in	100%	
GP-105	ENG	10:42	0.0	3.2	16.9	79.9	29.37	rising	81%	14 mph/ NW	26	Sunny	0 in	N/A	
GP-106	ENG	10:38	0.0	3.0	3	94.0	29.37	falling	81%	15 mph/ NW	26	Sunny	0 in	100%	
GP-108	ENG	11:25	1.6	6.1	4	88.3	29.42	rising	81%	16 mph/ NW	26	Sunny	0 in	100%	
BLOWER Port	ENG	9:57	0.0	0.4	20.5	79.1	29.37	rising	81%	17 mph/ NW	26	Sunny	0 in	N/A	
Gooseneck	ENG	10:46	0.0	0.3	20.9	78.8	29.37	falling	81%	18 mph/ NW	26	Sunny	0 in	N/A	

**Dick's Supermarket Site - Darlington, WI  
December 2018 Gas Monitoring Event**

**Table 2: Summary of Methane Sample Data (July 28, 2008 to December 6, 2018)**

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	
12/6/2018	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	0.2	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	0.1	0.2	--	0.1	0.1	0.2	0.2	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	0.6	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		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