



March 22, 2020

Ms. Sunny Becker
Washington State Department of Ecology
3190 160th Avenue SE
Bellevue, WA 98008-5452

Subject: Fourth Quarter 2019 Progress Report, Southwest Harbor Project Remediation Areas 1, 2, 3, and 5 Ecology Facility/Site Numbers 2384, 2385, 2127, and 2383

Dear Sunny:

This letter provides the quarterly progress report for the Ecology-lead portions of the Southwest Harbor Project (SWHP) for remediation areas (RAs) 1, 2, 3, and 5 and covers October, November, and December 2019. This report satisfies the reporting requirement stipulated in the consent decrees for these sites as modified by the Port's November 15, 2016 letter to Ecology and subsequent communication from Ecology to the Port on December 2, 2016, and June 30, 2017.

A. List of on-site activities that have taken place during the quarter.

Landfill Monitoring:

The landfill gas collection system is currently operating in passive mode. The system was transitioned to passive operation December 2016, by replumbing the system discharge piping to bypass the blower and shutting the blower off.

Landfill gas was monitored at the following locations during this quarter:

- Off-site soil gas probes located beyond the former landfill margin to the west, along Harbor Avenue (SG-302, SG-303, SG-304, and SG-329).
- On-site soil gas probes located beyond the former landfill margin to the north, east, southeast, and south of the former landfill (VP-1, VP-2, VP-3, and VP-4, respectively).
- System sampling ports located at various locations within the gas collection system piping (SP-01 through SP-13).

Monitoring was conducted on a twice-monthly schedule (except for November, when only one monitoring round was conducted) (Attachment 1). Complete monitoring results are tabulated in Attachment 1; findings for methane in on- and off-site soil gas probes are summarized below:

- Methane was not detected in any of the off-site soil gas probes along Harbor Avenue this quarter.

- In general, methane in the on-site soil gas probes was either not detected or was below the action level of 5 percent. Exceptions to this were the 10/22/19 reading of 5.3 percent in VP-2 and the 12/18/19 reading of 36.5 percent in VP-3. All other readings from these probes during the quarter were below the action level.
- Methane levels inside the landfill, as reflected by the system sampling ports in the landfill gas collection piping, ranged from non-detect to well over 50 percent, as would be expected.

Because of the sporadic exceedances of the methane action levels in the two on-site soil-gas probes, we intend to continue twice-monthly monitoring. We will reevaluate the monitoring results and make recommendations as necessary in the next quarterly monitoring report.

Cap Monitoring:

The required annual wet-season cap monitoring was not completed during this quarter due to weather and logistical limitations. Instead, the “2019” wet season cap monitoring will be completed during the first quarter of calendar year 2020 and will be reported in the next quarterly report.

B. Detailed description of any deviations from the required tasks not otherwise documented above or in project plans or amendment requests.

There have been no deviations during the past quarter.

C. Description of all deviations from the schedule during the current quarter and any planned deviations in the upcoming quarter.

There have been no deviations during the past quarter. No deviations are planned in the upcoming quarter.

D. For any deviations in schedule, a plan for recovering lost time and maintaining compliance with the schedule.

No deviations are anticipated.

E. All raw data (including laboratory reports) received by the Port during the past quarter and an identification of the source of the sample.

No raw laboratory data were received during this quarter.

F. A list of deliverables and activities for the upcoming quarter.

The next deliverable will be the first quarter 2020 monitoring report, which will document the ongoing landfill gas monitoring and the annual 2019 cap monitoring (to be conducted in first quarter 2020)

Please contact me at (206) 787-3193 if you have any questions or comments about this report.

Sincerely,

A handwritten signature in black ink, appearing to read 'Brick Spangler', with a stylized, cursive script.

Brick Spangler
Sr. Environmental Program Manager

Attachments:

Attachment 1 – Monitoring Results Memorandum – Fourth Quarter 2019

Attachment 2 – Monitoring Results Tables – Fourth Quarter 2019

cc: Mark Dagel, Hart Crowser
Warren Hansen, Windward Environmental, LLC



ATTACHMENT 1

Terminal 5 Landfill Gas Collection and Treatment System

Monitoring Results Memorandum

Fourth Quarter 2019

MEMORANDUM

DATE: March 22, 2020

TO: Brick Spangler, Port of Seattle

FROM: Mark Dagel

RE: **Terminal 5 Landfill Gas Collection System Monitoring Results**
Fourth Quarter 2019
17627-06

This memorandum summarizes the results of the fourth quarter 2019 monitoring at the Terminal 5 (T-5) Remediation Area 3 landfill. The location of the landfill in relation to nearby features is shown on Figure 1. The landfill gas collections system, soil gas probes, and system monitoring points are shown on Figure 2. A schematic cross-section through the landfill is shown on Figure 3.

Monitoring Conducted

This quarter's report includes twice-monthly gas monitoring from October through December 2019. Gas concentrations were measured in the field using an LMS-40 or Landtec GEM 2000 gas analyzer. The landfill gas collection system is currently operating in passive mode. The system was transitioned to passive operation December 2016, by replumbing the system discharge piping to bypass the blower and shutting the blower off.

The following locations were monitored during this quarter:

- Off-site soil gas probes located beyond the former landfill margin to the west along Harbor Avenue (SG-302, SG-303, SG-304, and SG-329);
- On-site soil gas probes located beyond the former landfill margin to the north, east, southeast, and south of the former landfill (VP-1, VP-2, VP-3, and VP-4, respectively); and
- System sampling ports located at various locations within the gas collection system piping (SP-01 through SP-13).



Results

Complete monitoring results are presented in Attachment 2. A summary of methane concentrations is provided in the following sections.

Off-Site Soil Gas Probes

Methane was not detected in any of the off-site soil gas probes along Harbor Avenue this quarter.

On-Site Soil Gas Probes

In general, methane in the on-site soil gas probes was either not detected or was below the action level of 5 percent. Exceptions to this were the 10/22/19 reading of 5.3 percent in VP-2 and the 12/18/19 reading of 36.5 percent in VP-3. All other readings from these probes during the quarter were below the action level.

Collection System Sampling Ports

Methane levels inside the landfill, as reflected by the system sampling ports in the landfill gas collection piping, ranged from non-detect to well over 50 percent, as would be expected. Readings from the flow meter at the system outlet indicated an average exhaust rate of about 0.3 cubic feet per minute.

Conclusions

Because of the sporadic exceedances of the methane action levels in the two on-site soil-gas probes, we intend to continue twice-monthly monitoring. We will reevaluate the monitoring results and make recommendations as necessary in the next quarterly monitoring report (first quarter 2020).

Attachments:

Figure 1 – Vicinity Map Showing Nearby Structures

Figure 2 – Site Plan

Figure 3 – Cap Schematic Cross Section

Figure 4 – Methane Monitoring Results



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend

--- Approximate Geomembrane Limits

0 250 500 1,000
Feet



Port of Seattle, Southwest Harbor Terminal 5
Seattle, Washington

Vicinity Map Showing Nearby Structures

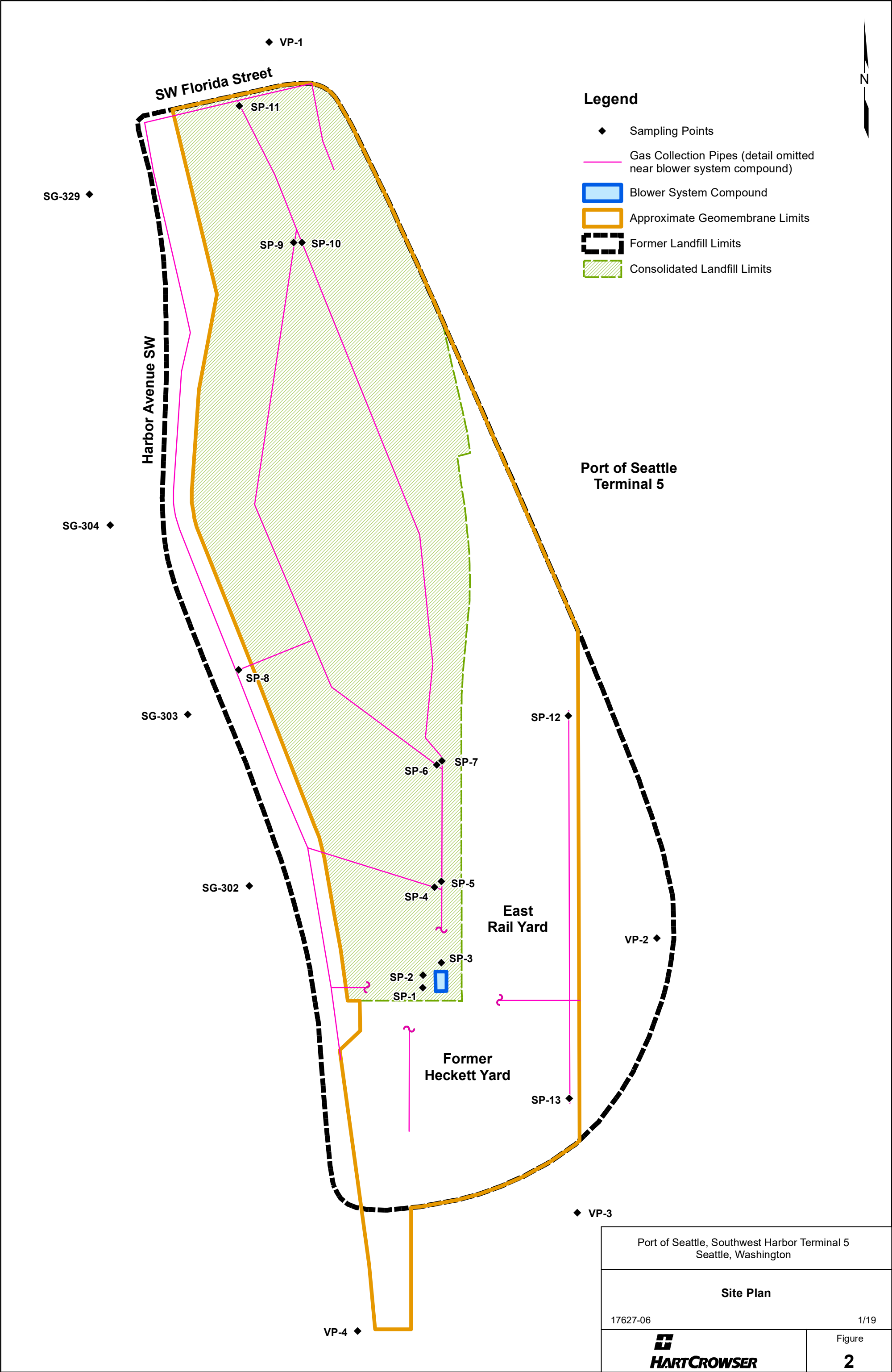
17627-06

1/19

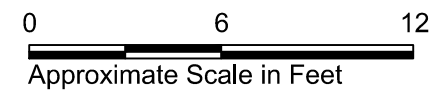
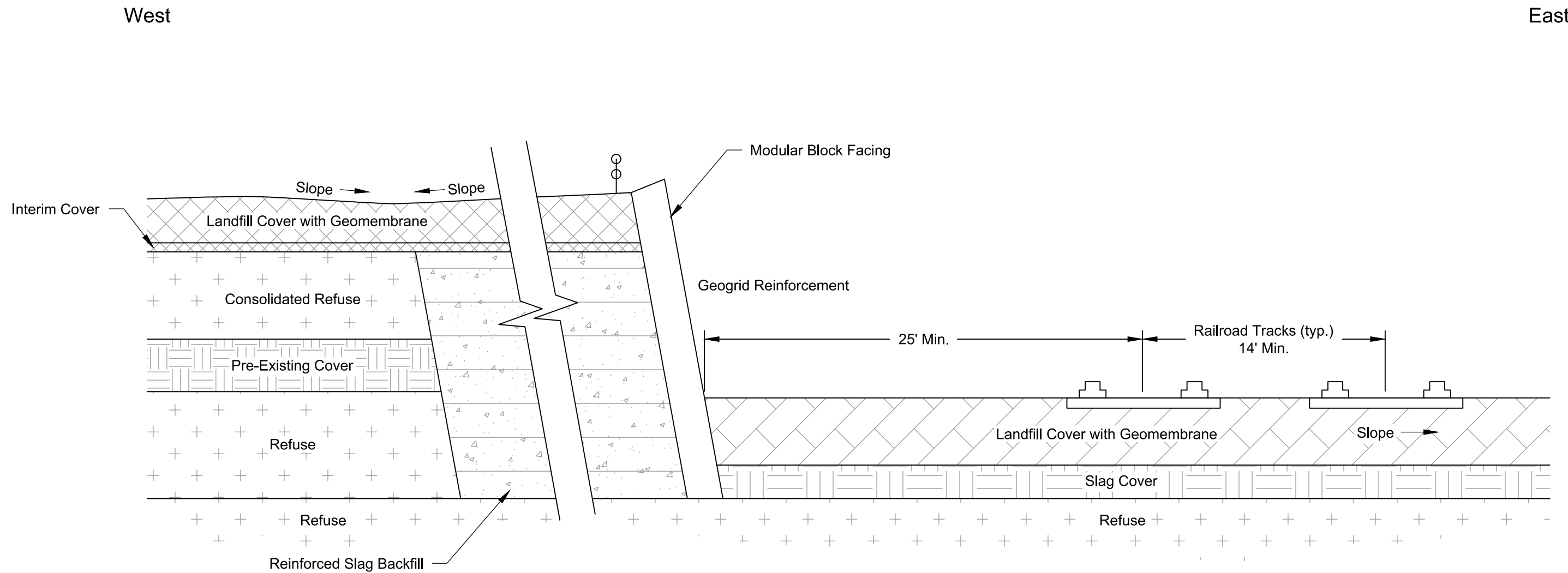


Figure

1

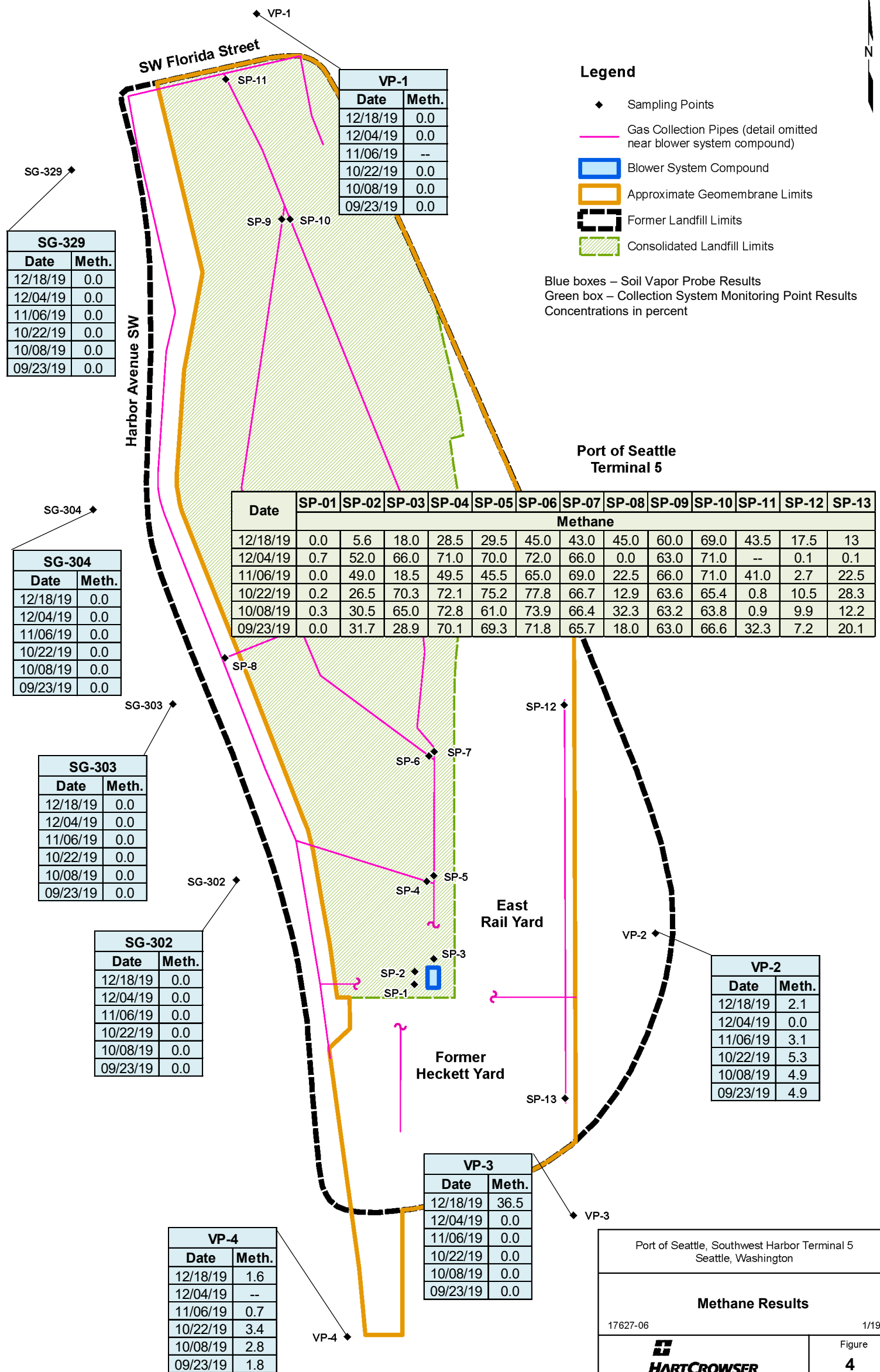
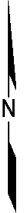


File: L:\Notebooks\1762706_Env_Services_Harbor_Island_and_T-5\CAD\1762706-001 (XSec).dwg Layout: 11x17 - H Date: 01-04-2019 Author: ericindquist



Sources: Figure prepared from PDF "Cross Section - Final Landfill Cover System," created by Woodward-Clyde Consultants, dated 2/21/95.

Port of Seattle, Southwest Harbor Terminal 5 Seattle, Washington	
Cap Schematic Cross Section	
17627-06	1/19
	Figure 3





ATTACHMENT 2

Terminal 5 Landfill Gas Collection and Treatment System

Monthly Monitoring Results Tables

Fourth Quarter 2019

Terminal 5 / RA-3 Landfill Gas Monitoring

Parameter: METHANE

(LMS-40 or GEM 2000 instrument field measurement - percent by volume.)

Date	Off-Site Soil Gas Probes				On-Site Soil Gas Probes				Landfill Gas Collection System Monitoring Points												
	SG-302	SG-303	SG-304	SG-329	VP-1	VP-2	VP-3	VP-4	SP-01	SP-02	SP-03	SP-04	SP-05	SP-06	SP-07	SP-08	SP-09	SP-10	SP-11	SP-12	SP-13
12/18/19	0.00	0.00	0.00	0.00	0.00	2.10	36.50	1.60	0.00	5.60	18.00	28.50	29.50	45.00	43.00	45.00	60.00	69.00	43.50	17.50	13.00
12/04/19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--	0.70	52.00	66.00	71.00	70.00	72.00	66.00	0.00	63.00	71.00	--	0.10	0.10
11/06/19	0.00	0.00	0.00	0.00	--	3.10	0.00	0.70	0.00	49.00	18.50	49.50	45.50	65.00	69.00	22.50	66.00	71.00	41.00	2.70	22.50
10/22/19	0.00	0.00	0.00	0.00	0.00	5.30	0.00	3.40	0.20	26.50	70.30	72.10	75.20	77.80	66.70	12.90	63.60	65.40	0.80	10.50	28.30
10/08/19	0.00	0.00	0.00	0.00	0.00	4.90	0.00	2.80	0.30	30.50	65.00	72.80	61.00	73.90	66.40	32.30	63.20	63.80	0.90	9.90	12.20
09/23/19	0.00	0.00	0.00	0.00	0.00	4.90	0.00	1.80	0.00	31.70	28.90	70.10	69.30	71.80	65.70	18.00	63.00	66.60	32.30	7.20	20.10
09/12/19	0.00	0.00	0.00	0.00	0.00	6.70	0.00	3.00	0.00	40.60	26.70	67.80	68.20	71.40	66.70	18.80	61.00	65.60	36.90	6.40	19.20
08/29/19	0.00	0.00	0.00	0.00	0.00	7.10	0.00	1.90	0.40	16.70	70.90	71.60	75.10	77.10	66.70	19.00	66.90	68.30	31.00	5.20	20.70
08/14/19	0.00	0.00	0.00	0.00	0.00	5.80	0.00	3.40	0.20	8.80	70.20	73.60	75.20	77.90	65.90	11.40	66.30	69.20	32.60	4.80	18.70
07/26/19	-	0.00	0.00	0.00	-	5.90	0.00	-	0.90	33.50	66.00	72.00	62.00	71.90	60.40	34.10	63.80	64.70	0.00	10.80	12.20
07/11/19	0.00	0.00	0.00	0.00	0.00	5.50	0.00	4.40	0.80	49.00	58.00	72.00	72.00	75.00	65.00	12.50	67.00	67.00	41.00	0.60	13.50
06/19/19	0.00	0.00	0.00	0.00	0.00	4.00	0.00	4.20	8.40	51.00	66.00	1.80	74.00	76.00	65.00	15.50	66.00	68.00	39.50	--	--
06/05/19	0.00	0.00	0.00	0.00	0.00	--	--	2.90	51.00	55.00	65.60	67.30	68.50	67.10	59.30	30.70	60.50	63.10	36.30	9.00	9.00
05/23/19	0.00	0.00	0.00	0.00	0.00	4.00	0.00	2.40	49.00	48.00	67.00	70.00	71.00	73.00	62.00	24.00	67.00	68.00	57.00	2.00	13.00
05/07/19	0.00	0.00	0.00	0.00	0.00	2.90	0.00	1.10	0.40	13.50	23.50	38.50	44.50	56.00	54.00	4.90	64.00	67.00	4.40	1.50	10.50
04/23/19	0.00	0.00	0.00	0.00	0.00	1.60	0.00	2.90	22.00	51.00	45.00	58.00	50.00	69.00	68.00	--	64.00	67.00	33.50	4.60	9.70
04/10/19	0.00	0.00	0.00	0.00	--	2.60	0.40	0.50	--	--	--	--	--	--	--	33.50	--	--	--	0.00	10.00
03/26/19	0.00	0.00	0.00	0.00	0.00	2.20	0.00	2.50	11.00	11.50	47.00	65.00	67.00	70.00	60.00	6.90	64.00	69.00	56.00	7.50	9.50
03/18/19	0.00	0.00	0.00	0.00	0.00	0.90	0.00	0.40	32.00	49.00	69.00	72.00	70.00	71.00	61.00	20.00	59.00	70.00	4.30	--	--
03/01/19	0.00	0.00	0.00	0.00	0.00	0.70	0.00	0.00	26.50	38.00	66.00	71.00	68.00	70.00	60.00	17.50	64.00	69.00	42.00	0.70	9.60
02/15/19	0.00	0.00	0.00	0.00	0.00	0.06	0.00	3.20	10.70	12.10	27.10	36.00	38.70	57.90	53.30	0.00	63.60	51.50	0.00	0.00	10.20
01/31/19	0.10	0.00	0.00	0.00	0.00	1.70	0.00	1.10	42.60	43.40	74.20	73.40	74.90	74.40	64.50	42.30	64.70	73.90	45.70	18.80	9.80
01/11/19	--	--	--	11.00	2.30	2.30	0.00	2.60	43.00	18.50	64.00	66.00	64.00	65.00	59.00	--	66.00	67.00	39.00	15.50	14.50

Terminal 5 / RA-3 Landfill Gas Monitoring

Parameter: OXYGEN

(LMS-40 or GEM 2000 instrument field measurement - percent by volume.)

	Off-Site Soil Gas Probes				On-Site Soil Gas Probes				Landfill Gas Collection System Monitoring Points												
	SG-302	SG-303	SG-304	SG-329	VP-1	VP-2	VP-3	VP-4	SP-01	SP-02	SP-03	SP-04	SP-05	SP-06	SP-07	SP-08	SP-09	SP-10	SP-11	SP-12	SP-13
12/18/19	15.80	17.20	14.60	17.10	5.80	0.20	7.40	0.40	20.70	15.00	2.50	4.00	3.70	2.90	3.00	0.40	0.00	0.20	0.30	0.10	1.20
12/04/19	19.50	19.40	19.40		20.00	19.50	19.50	--	20.70	0.00	0.10	0.00	0.20	0.00	0.10	19.40	0.00	0.00	--	19.60	19.70
11/06/19	15.30	3.60	0.40	16.00	--	0.00	10.10	10.20	0.00	0.20	1.30	0.00	0.10	0.10	0.00	0.30	0.00	0.00	0.00	0.00	0.10
10/22/19	19.30	15.80	16.30	19.20	7.20	0.80	15.90	1.60	22.10	12.10	0.50	0.40	1.20	0.10	0.20	32.10	0.10	0.20	6.60	0.60	0.10
10/08/19	16.10	18.00	17.40	20.60	7.30	1.00	12.80	2.10	20.10	9.70	1.20	0.80	4.20	0.10	0.20	0.10	0.20	0.10	7.20	0.10	0.20
09/23/19	18.80	17.30	16.60	18.50	7.10	0.50	13.80	0.60	20.10	3.20	2.60	2.00	1.60	1.50	1.20	3.80	1.40	1.20	1.90	2.00	2.30
09/12/19	18.20	16.50	16.60	17.50	7.30	0.50	13.70	1.40	20.90	2.50	1.60	1.90	1.90	1.40	1.30	4.30	1.40	1.40	1.10	2.00	1.20
08/29/19	17.10	16.40	19.50	18.40	21.70	0.00	14.50	0.00	21.40	5.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.50	0.30
08/14/19	18.90	16.60	16.60	18.50	7.30	0.50	14.40	0.60	21.20	13.10	0.70	0.40	0.40	0.20	0.20	31.30	0.20	0.40	0.50	0.60	0.80
07/26/19	-	15.40	18.00	18.20	-	0.20	13.40	-	20.10	8.10	0.60	0.70	3.30	0.20	0.10	0.20	0.10	0.10	7.30	0.20	0.20
07/11/19	17.20	16.70	18.40	18.20	8.20	0.50	13.00	0.50	20.00	1.70	0.60	0.50	0.70	0.70	0.50	3.80	0.50	0.90	0.70	16.80	0.80
06/19/19	17.50	17.50	18.40	18.70	8.60	0.70	12.60	0.60	18.20	0.90	0.50	19.80	0.50	0.00	0.50	2.20	0.50	0.50	0.80	--	--
06/05/19	17.70	17.60	18.50	19.60	9.50	--	--	1.90	2.20	0.50	1.10	0.50	0.50	1.30	0.70	1.60	0.40	0.60	0.40	2.20	1.50
05/23/19	16.60	17.60	18.00	18.90	9.00	0.00	10.40	0.60	3.00	1.00	0.50	0.50	0.00	0.60	0.50	6.00	0.00	0.50	3.20	0.50	0.70
05/07/19	15.50	17.70	17.70	18.40	9.60	0.00	9.30	0.50	19.60	3.40	3.40	1.70	1.40	0.50	0.80	5.60	0.50	0.00	11.50	0.50	0.60
04/23/19	15.10	17.40	19.60	17.70	9.70	0.50	9.40	0.50	11.50	0.50	1.60	0.70	1.30	0.50	0.60	--	0.50	0.50	10.80	0.60	1.20
04/10/19	15.90	18.00	17.40	18.80	--	0.50	9.70	0.50	--	--	--	--	--	--	--	0.90	--	--	--	2.50	0.60
03/26/19	15.90	18.10	7.70	18.70	0.10	0.50	11.00	0.50	1.80	12.00	0.50	0.00	0.50	0.00	0.50	5.60	0.50	0.50	4.00	1.10	1.00
03/18/19	15.60	17.70	17.20	19.10	10.40	0.50	9.50	0.50	0.50	0.50	0.50	0.50	0.50	0.00	0.60	0.60	0.50	0.50	19.60	--	--
03/01/19	17.90	16.70	15.00	18.00	17.00	0.60	8.90	0.60	2.10	0.60	0.50	0.00	0.00	0.50	5.00	1.00	0.50	0.50	0.50	19.60	0.80
02/15/19	19.30	21.80	18.20	20.00	19.50	0.00	8.00	0.00	4.20	4.90	4.30	2.50	2.50	0.00	1.60	21.90	0.00	4.80	21.80	21.40	2.90
01/31/19	14.40	15.00	0.00	16.80	11.00	0.00	8.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01/11/19	--	--	--	15.00	9.90	0.00	8.60	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	--	0.00	0.00	2.60	13.10	13.60

Terminal 5 / RA-3 Landfill Gas Monitoring

Parameter: CARBON DIOXIDE

(LMS-40 or GEM 2000 instrument field measurement - percent by volume.)

Date	Off-Site Soil Gas Probes				On-Site Soil Gas Probes				Landfill Gas Collection System Monitoring Points												
	SG-302	SG-303	SG-304	SG-329	VP-1	VP-2	VP-3	VP-4	SP-01	SP-02	SP-03	SP-04	SP-05	SP-06	SP-07	SP-08	SP-09	SP-10	SP-11	SP-12	SP-13
12/18/19	2.60	2.30	2.70	1.30	4.20	3.10	0.10	2.20	0.00	2.00	6.30	4.10	4.20	3.60	3.00	6.90	7.50	6.50	7.90	8.40	4.30
12/04/19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--	0.10	18.00	3.40	0.70	4.10	4.60	1.10	0.00	5.90	4.50	--	0.00	0.00
11/06/19	2.70	16.20	20.20	2.30	--	4.00	0.00	2.50	20.50	16.00	7.20	2.70	3.60	3.50	3.90	11.00	6.70	4.90	9.00	9.40	4.90
10/22/19	2.10	3.20	2.50	1.50	7.50	4.10	0.00	2.80	0.20	6.50	4.20	1.80	5.20	5.30	2.50	11.40	4.80	3.20	10.20	11.60	4.90
10/08/19	3.80	2.90	3.10	2.00	7.60	4.20	0.30	3.30	0.10	6.20	3.40	0.20	2.40	3.80	0.80	13.60	3.80	3.20	8.00	10.90	6.70
09/23/19	2.30	3.80	2.40	2.00	6.90	5.10	0.00	2.30	0.00	10.80	5.40	0.50	4.20	4.20	2.50	11.70	4.30	5.00	10.80	8.40	5.90
09/12/19	2.00	3.30	2.20	2.10	7.10	4.60	0.00	2.50	0.00	15.30	7.10	0.40	3.60	4.40	3.10	10.00	4.70	4.10	11.30	10.50	5.90
08/29/19	2.70	4.50	2.00	2.00	0.00	4.80	0.00	3.00	0.10	7.20	5.10	1.70	5.10	4.60	2.70	14.60	5.30	4.80	11.70	12.10	6.20
08/14/19	2.20	3.90	2.50	1.90	7.50	4.00	0.00	2.60	0.10	3.60	3.70	0.80	4.40	5.00	2.50	12.90	5.10	4.50	11.70	11.60	5.80
07/26/19	-	4.30	2.70	2.00	-	3.50	0.00	-	0.20	4.20	2.40	0.30	2.40	4.30	1.30	11.90	3.70	3.20	7.10	11.80	6.30
07/11/19	1.60	2.70	1.80	1.40	4.80	2.30	0.00	2.00	0.10	15.00	2.80	2.20	3.40	3.90	0.90	8.90	3.80	3.20	8.60	1.60	4.60
06/19/19	1.60	1.90	1.60	1.10	4.80	1.70	0.00	1.90	0.40	16.00	2.60	0.10	3.50	3.30	0.90	8.40	3.80	3.30	8.70	--	--
06/05/19	2.30	2.70	2.10	1.40	5.90	--	--	2.30	15.00	17.00	3.20	0.10	3.70	3.40	1.20	10.50	4.10	3.40	10.10	8.90	5.00
05/23/19	2.20	2.10	1.70	1.00	4.50	0.90	0.00	2.00	4.80	15.00	3.20	0.10	3.20	3.70	1.60	5.80	3.80	3.30	3.10	8.60	4.50
05/07/19	2.00	2.10	1.50	1.10	4.50	0.70	0.00	1.90	0.20	5.80	3.50	2.90	2.80	2.20	2.40	9.00	4.90	4.40	1.90	8.20	4.10
04/23/19	1.80	2.10	0.40	1.10	3.80	0.50	0.00	1.50	1.90	15.00	3.80	2.80	3.10	2.90	2.20	--	4.20	4.00	2.10	7.30	4.10
04/10/19	1.60	2.10	1.40	0.90	--	0.40	0.00	1.50	--	--	--	--	--	--	--	7.20	--	--	--	7.40	4.20
03/26/19	1.10	2.00	1.00	0.80	3.40	0.20	0.00	1.20	6.10	2.40	2.80	2.40	4.00	4.60	1.10	6.40	5.00	4.50	3.70	6.30	3.80
03/18/19	1.10	2.20	1.10	0.60	3.10	0.10	0.00	1.30	4.50	15.00	2.60	0.00	2.60	3.30	0.80	5.90	4.50	3.80	0.00	--	--
03/01/19	0.50	2.60	1.90	0.80	0.80	0.00	0.00	1.30	4.00	12.00	2.70	0.00	3.20	3.50	0.80	6.30	4.60	4.20	7.00	0.10	3.80
02/15/19	1.00	0.00	2.10	1.10	1.80	0.02	0.00	1.70	7.30	6.30	4.60	4.30	4.40	5.90	2.60	0.00	8.20	6.00	0.00	0.00	4.60
01/31/19	2.30	4.30	2.20	1.60	4.00	0.20	0.00	0.90	4.10	15.10	3.50	0.00	3.40	3.40	0.80	6.00	5.70	4.80	8.10	8.60	4.80
01/11/19	--	--	--	1.40	2.70	0.00	0.00	0.60	2.80	6.60	4.30	0.00	4.70	4.90	1.20	--	5.80	4.50	4.60	1.90	1.70

Terminal 5 / RA-3 Landfill Gas Monitoring

Parameter: **PRESSURE**

(Gauge - inches of water.)

Date	Off-Site Soil Gas Probes				On-Site Soil Gas Probes				Landfill Gas Collection System Monitoring Points												
	SG-302	SG-303	SG-304	SG-329	VP-1	VP-2	VP-3	VP-4	SP-01	SP-02	SP-03	SP-04	SP-05	SP-06	SP-07	SP-08	SP-09	SP-10	SP-11	SP-12	SP-13
12/18/19	0.00	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.08	0.00	0.08	0.00	0.04
12/04/19	0.00	0.00	0.02	0.02	0.00	0.00	0.00	--	0.10	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	--	0.00	0.00
11/06/19	0.00	0.00	0.00	0.00	--	0.00	0.00	0.00	0.10	0.00	0.00	0.08	0.00	0.00	0.02	0.04	0.00	0.00	0.08	0.00	0.00
10/22/19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00
10/08/19	0.00	0.00	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00
09/23/19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09/12/19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.02	0.00	0.00	0.06	0.00	0.00	0.10	0.00	0.00	0.00
08/29/19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00
08/14/19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
07/26/19	-	0.00	0.12	0.13	-	0.00	0.00	(0.02)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00
07/11/19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00
06/19/19	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--	--
06/05/19	0.00	0.00	0.00	0.00	0.00	--	--	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00
05/23/19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.06	0.00
05/07/19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.80	0.00	0.00
04/23/19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	0.00	0.06	0.00	0.00
04/10/19	0.00	0.00	0.02	0.00	--	0.00	0.00	0.00	--	--	--	--	--	--	--	0.00	--	--	--	0.02	0.00
03/26/19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03/18/19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--	--
03/01/19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02/15/19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00	0.00	>1	0.00	0.00
01/31/19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01/11/19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.10	0.00	0.60	0.00	0.00

Terminal 5 / RA-3 Landfill Gas Monitoring

Parameter: TEMPERATURE

(IR thermometer, degrees Fahrenheit)

Date	Landfill Gas Collection System Monitoring Points												
	SP-01	SP-02	SP-03	SP-04	SP-05	SP-06	SP-07	SP-08	SP-09	SP-10	SP-11	SP-12	SP-13
12/18/19	46.20	48.20	46.70	50.60	48.70	51.90	50.90	54.60	47.30	51.10	43.00	-	-
12/04/19	51.60	52.50	52.10	56.00	51.40	53.50	52.20	50.90	51.50	52.70	--	51.60	50.60
11/06/19	53.40	56.20	54.30	57.80	52.10	55.10	53.50	59.80	52.90	57.30	52.70	53.60	53.00
10/22/19	63.20	78.10	76.30	68.90	72.10	65.40	66.60	73.40	80.10	70.60	71.60	73.10	78.20
10/08/19	60.30	73.20	70.90	65.30	63.60	78.20	70.90	64.60	78.20	76.60	75.30	72.10	75.50
09/23/19	65.30	72.10	70.50	70.30	64.80	67.70	65.00	69.30	69.90	72.10	72.50	68.50	68.60
09/12/19	65.90	72.10	70.60	69.80	65.90	69.70	66.00	68.70	70.80	73.90	72.50	67.50	68.40
08/29/19	71.90	78.40	73.20	71.60	68.30	72.60	69.20	69.50	73.80	76.60	78.60	72.30	73.20
08/14/19	74.90	80.50	75.90	71.60	69.10	72.10	68.60	67.40	78.00	83.20	81.00	81.10	77.50
07/26/19	75.20	82.40	76.20	70.70	69.50	84.80	74.50	64.80	82.00	80.40	-	72.30	76.60
07/11/19	72.00	74.20	70.70	68.80	68.00	69.00	68.00	64.70	73.00	75.10	75.90	69.40	69.40
06/19/19	72.00	74.20	70.70	68.80	68.00	69.00	68.10	64.70	73.00	75.10	75.90	69.40	69.40
06/05/19	73.90	77.70	70.90	65.60	66.90	64.60	65.00	60.00	71.70	73.10	76.40	67.20	72.20
05/23/19	66.20	70.50	66.30	63.40	63.50	62.30	63.50	58.40	68.20	68.90	68.80	64.40	65.70
05/07/19	64.00	71.60	65.40	62.00	61.10	60.80	59.80	54.90	66.70	68.00	71.00	61.30	62.00
04/23/19	56.80	60.80	58.00	57.50	56.40	57.30	56.50	--	58.20	60.30	60.50	57.50	58.30
04/10/19	--	--	--	--	--	--	--	54.00	--	--	--	52.00	52.00
03/26/19	50.00	55.00	51.00	53.00	50.00	52.00	51.00	51.00	52.00	56.00	55.00	51.00	50.00
03/18/19	47.00	52.00	50.00	51.00	50.00	50.00	51.00	51.00	51.00	53.00	52.00	--	--
03/01/19	42.60	51.80	48.90	52.00	65.00	46.00	48.90	51.00	54.00	48.00	43.50	51.00	50.00
02/15/19	43.00	43.00	44.00	46.20	50.00	44.00	46.10	50.00	47.00	44.00	46.30	43.10	43.60
01/31/19	50.00	52.10	49.90	52.30	56.30	51.60	50.30	53.00	54.10	50.30	52.80	48.70	50.90
01/11/19	49.60	51.60	50.00	54.10	51.60	51.80	51.60	--	50.10	50.90	51.30	50.70	48.70