2 COMBINED MONITORING REPORT

In accordance with Title V Permit Standard Condition 1.F, BAAQMD Rule 8-34-411 and §60.757(f) in the NSPS, this report is a Combined Semi-Annual Title V Report and Partial 8-34 Annual Report that is required to be submitted by the GRDF. The report contains monitoring data for the operation of the landfill gas collection and control system (GCCS). The operational records have been reviewed and summarized. The timeframe included in this report is October 1, 2011 through March 31, 2012. The following table lists the rules and regulations that are required to be included in this Combined Report.

Table 2-1 Combined Report Requirements

RULE	REQUIREMENT	LOCATION IN REPORT		
	34-501.1 All collection system downtime, including individual well shutdown times and the reason for the shutdown.			
8-34-501.2 \$50.757(f)(3)	All emission control system downtime and the reason for the shutdown.	Section 2.2, Appendices B & E		
8-34-501.3, 8-34-507, §60.757(f)(1)	Continuous temperature for all operating flares and any enclosed combustor subject to Section 8-34-507.	Section 2.3, Appendix F		
8-34-501.4, 8-34-505, 8-34-510	Testing performed to satisfy any of the requirements of this rule.	Section 2.4 & 2.10 Appendices G & K		
8-34-501.5	Monthly landfill gas flow (LFG) rates and well concentration readings for facilities subject to 8-34-404.	Section 2.5, 2.11 Appendix M		
8-34-503. 8-34-506,	For operations subject to Section 8-34-503 and 8-34-506, records of all monitoring dates, leaks in excess of the limits in Section 8-34-301.2 or 8-34-303 that are discovered by the operator, including the location of the leak, leak concentration in parts per million by volume (ppmv), date of discovery, the action taken to repair the leak, date of the repair, date of any required re-monitoring, and the re-monitored concentration in ppmv.	Section 2.6 & 2.7, Appendices H & I		
8-34-501.7	Annual waste acceptance rate and current amount of waste in-place.	Section 2.8 Appendix J		
8-34-501.8	Records of the nature, location, amount, and date of deposition of non- degradable wastes, for any landfill areas excluded from the collection system requirement as documented in the GCCS Design Plan.	Section 2.9		

RULE	RULE REQUIREMENT	
8-34-501.9, 8-34-505,	For operations subject to Section 8-34-505, records of all monitoring dates and any excesses of the timits stated in Section 8-34-305 that are discovered by the operator, including well identification number, the measured excess, the action taken to repair the excess, and the date of repair.	Section 2.10, 2.10.1, Appendices K & L
8-34-501.10, 8-34-508, §60.757(f)(1)	Continuous gas flow rate records for any site subject to Section 8-34- 508.	Section 2.11, Appendices F and M
	For operations subject to Section 8-34-509, records or key emission control system operating parameters.	Section 2.2.2
8-34-501.12	The records required above shall be made available and retained for a period of five years.	Section 1.2
§60.757(f)(2)	Description and duration of all periods when the gas stream is diverted from the control device through a bypass line or the indication of bypass flow as specified under §60.756.	Section 2.2.1
	The date of installation and the location of each well or collection system expansion added pursuant to paragraphs (a)(3), (b), (c)(4) of §60.755.	Section 2.12
§60.10 (d) (5)(i)	Startup, Shutdown, Malfunction Events	Section 4.0, Appendices D & E

2.1 Collection System Operation (BAAQMD 8-34-501.1 & §60.757(f)(4))

Appendix A contains a current map of the GRDF's existing GCCS. Section 2.1.1 includes the GCCS downtime for the reporting period. The information contained in Section 2.1.2 includes the wellfield SSM information.

2.1.1 Collection System Downtime

During the period covered in this report, the GCCS was not shut down for more than five days on any one occasion. The downtime for the reporting period of October 1, 2011 through March 31, 2012 was 1.60 hours. Downtime for the partial 2012 calendar year from January 1, 2012 through March 31, 2012, was 1.60 hours, out of an allowable 240 hours per year.

Appendix B contains the GCCS Downtime Report which lists dates, times, and lengths of shutdowns for the reporting period and year-to-date.

2.1.2 Well Start-Up & Disconnection Log

There were seventeen (17) wellfield SSM events during the reporting period. See Appendix D, Wellfield SSM Log for details of well disconnection and reconnection events.

2.2 Emission Control Devide Downtime (BAAQMD 8-34-501.2 & §60.757(f)(3))

The emission control system consists of four internal combustion (IC) engines owned and operated by Fortistar, previously known as Gas Recovery Systems (GRS), under a separate BAAQMD permit (Facility Number B1669) and the GRDF back-up flare (A-9), which began operation in August 2003. The control system was not bypassed at any time during the reporting period. Raw LFG was not emitted during the reporting period. The SSM log for the A-9 Flare is located in Appendix E. As indicated in Section 2.1.1, the total GCCS downtime for the reporting period of October 1, 2011 through March 31, 2012 was 1.60 hours out of an allowable 240 hours per year. The GCCS Downtime Log for the reporting period is included in Appendix B.

2.2.1 LFG Bypass Operations (§60.757(f)(2))

Title 40 CFR §60.757(f)(2) is not applicable at the GRDF because a by-pass line has not been installed. LFG cannot be diverted from the control equipment.

2.2.2 Key Emission Control Operating Parameters (BAAQMD 8-34-501.11 & 8-34-509)

BAAQMD Regulation 8-34-501.11 and 8-34-509 are not applicable to the A-9 Flare because the A-9 Flare is subject to continuous temperature monitoring as required in BAAQMD Regulation 8-34-507 and §60.757(f)(1).

2.3 Temperature Monitoring Results (BAAQMD 8-34-501.3, 8-34-507, & §60.757(f)(1))

The combustion zone temperature of the ffare is monitored with Thermo-Electric Thermocouples. The temperature is displayed with a Yokogawa UT37 and recorded every two minutes with a Yokogawa DX106 digital recorder. The temperature readings are downloaded and archived each working day. There were no temperature deviations during the reporting period. Appendix F contains the Flare Temperature Deviation/Inoperative Monitor/Missing Data Report for October 1, 2011 through March 31, 2012. There was no missing data during the reporting period, there was data recorded at least once every fifteen minutes.

2.4 Monthly Cover Integrity Monitoring (BAAQMD 8-34-501.4)

The cover integrity monitoring was performed on the following dates:

October 5 and 6, 2011

- November 7 and 8, 2011
- December 1 and 2, 2011.
- January 6 and 9, 2012
- February 8 and 10, 2012.
- March 8 and 9, 2012.

No cover integrity monitoring issues occurred during the reporting period. The Monthly Cover Integrity Monitoring reports are included in Appendix G.

2.5 Less Than Continuous Operation (BAAQMD 8-34-501.5)

The GRDF does not operate under BAAQMD Regulation 8-34-404 (Less Than Continuous Operation) and, therefore, is not required to submit monthly LFG flow rates.

2.6 Surface Emissions Monitoring (BAAQMD 8-34-501.6, 8-34-506, & §60.757(f)(5))

Quarterly Surface Emissions Monitoring (SEM), pursuant to BAAQMD Regulation 8-34-506 occurred during the reporting period on the following dates:

- Fourth Quarter 2011 October 27, 2011, November 3 and 21, 2011.
- First Quarter 2012 January 31, 2012, February 9 and 27, 2012

A Photovac Micro Flame Ionization Detector (FID) was used to monitor the path along the landfill surface according to the Landfill Surface Emissions Monitoring Plan map. Any areas suspected of having emissions problems based on visible observations were also monitored. Prior to both monitoring events, the Photovac FID instrument was zeroed and calibrated using zero air and a 500 parts per million by volume (ppmv) methane calibration gas.

The Initial Fourth Quarter 2011 SEM was conducted by Roberts Environmental Services (RES) personnel on October 27 and 28, 2011. Ten (10) exceedances were detected during the initial monitoring event. The 10-day re-monitoring and 30-day follow-up monitoring events were conducted on November 3 and 21, 2011, respectively, and no exceedances were detected at either event. Detailed monitoring results are available in the Fourth Quarter 2011 SEM Report, included in Appendix H.

The Initial First Quarter 2012 SEM was conducted by RES personnel on January 31, 2012. Seven (7) exceedances were detected during the initial monitoring event. The 10-day re-monitoring and 30-day follow-up monitoring events were conducted on February 9 and 27, 2012, respectively, and no exceedances were detected at either event. Detailed monitoring results are available in the First Quarter 2012 SEM Report, included in Appendix H.

2.7 Component Leak Testing (BAAQMD 8-34-501.6 & 8-34-503)

Quarterly component leak testing, pursuant to BAAQMD Regulation 8-34-503, occurred during the reporting period on the following dates:

- Fourth Quarter 2011 October 10, 2011
- First Quarter 2012 February 9, 2012.

A TVA FID was used to perform the leak testing. Component leaks were not identified during the Fourth Quarter 2011 or First Quarter 2012 monitoring events. Appendix I contains the Quarterly LFG Component Leak Monitoring Reports.

2.8 Waste Acceptance Records (BAAQMD 8-34-501.7)

The Annual Waste Acceptance Rate was compiled for the timeframe of October 1, 2011 through March 31, 2012. The Current Waste-In-Place figure includes waste placed through March 31, 2012. Below is a summary of the waste acceptance records for the reporting period. A table of monthly totals for the reporting period is provided in Appendix J.

Table 2-2 Waste Acceptance

	Total Waste Landfilled (Excluding Cover)
Waste Acceptance October 1, 2011 through March 31, 2012	74,954 19 Tons
Current Waste in Place as of March 31, 2012	Approximatély 9.6 Million Tons

2.9 Non-degradable waste acceptance records (BAAQMD 8-34-501.8)

The GCCS Design Plan for the GRDF does not indicate non-degradable waste areas that are excluded from the collection system. Therefore, BAAQMD Regulation 8-34-501.8 is not applicable.

2.10 Wellhead Monitoring Data (BAAQMD 8-34-501.4 & 8-34-505)

Wellhead monitoring was performed on a monthly basis pursuant to 8-34-505. The wellreadings for October 1, 2011 through March 31, 2012 are included in Appendix K. Eachwell was monitored in accordance with the following requirements:

- 8-34-305.1 Each wellhead shall operate under a vacuum;
- 8-34-305.2 The LFG temperature in each wellhead shall be less than 55 degrees Celsius (°C) (131 degrees Fahrenheit [°F]); and
- 8-34-305.4 The oxygen concentration in each wellhead shall be less than 5 percent by volume.

The wellhead monitoring was performed on the following dates:

- October 5, 6, 11, 13, 21, and 28, 2011.
- November 1, 7, 8, 10, and 29, 2011.
- December 1, 2, 21, and 22, 2011
- January 4, 6, 9, and 19, 2012.
- February 8, 10, 15, and 27, 2012.
- March 8, 9, 13, and 23, 2012.

2.10.1 Wellhead Deviations (BAAQMD 8-34-501.9 & §60.757(f)(1))

There were twelve (12) deviations at nine (9) wells with readings that exceeded the limits set forth in BAAQMD Regulation 8-34-305 during the reporting period. Corrective action for wells was initiated within the required 5-day time period and re-monitoring was completed within 15 days of the deviation pursuant to BAAQMD Regulation 8-34-414. See Appendix L, Wellfield Deviation Log, for more detail.

2.10.2 Higher Operating Value (HOV) Wells

As of March 31, 2012, the following wells are approved to operate at a temperature HOV of 145°F: Wells 114, 115, 116, 117, 121, 123, 134, 135, 149, 151, 154, 156, 157, 160, 161, and 162. Horizontal Leachate Collectors H11L, H12L, H13, H14, H15, and H16 are approved for less than continuous operation (LTCO), and may operate at up to 15.0 percent oxygen, and 0.5 inches of water column, until June 2013 when Permit to Operate (PTO) 21931 is due for renewal.

2.11 Gas Flow Monitoring Results (BAAQMD 8-34-501.10, 8-34-508, & §60.757(f)(1)

The flare LFG flow rate is measured with a Fluid Components International (FCI) Model ST98 flow meter. The General Electric data panel displays the LFG flow and the digital Yokogawa data recorder records LFG flow every two minutes and is downloaded and saved to a compact flash card. The flare flow meter meets the requirements of BAAQMD Regulation 8-34-508 by recording data at least every 15 minutes. The flow meter is maintained and calibrated pursuant to manufacturer's recommendations. The flow data for the flare is available for review at the GRDF. Appendix M contains a summary of the monthly LFG flow rates for the flare. No deviations of the flare flow were identified during the monitoring period. There was no missing data during the reporting period, there was data recorded at least once every fifteen minutes. Table 2-3 below is a summary of the total LFG flow for the reporting period of October 1, 2011 through March 31, 2012.

Table 2-3 Total LFG Flow for October 1, 2011 through March 31, 2012

Emission Control Device	Average Flow (scfm)	Average CH ₄ (%)*	Total LFG Volume (scf)	Total CH ₄ Volume (scf)	Heat Input (MMBTU)
A-9 Flare	1,252.1	50.3	325,645,797.5	163,799,836.1	165,929.2

နငန်က = standard cubic feat par minute

ÇM, = melhane

act = standard cubic feet

*Methane content determined from the June 9, 2014 Source Test

MMBTU - miltion British thermal units

2.12 Compliance with §60.757(f)(6)

"The date of installation and the location of each well or collection system expansion added pursuant to (a)(3), (b), (c)(4) of §60 755."

The GCCS was modified pursuant to Title V Permit Condition Number 6188 Part 2 as modified by the Permit to Operate (PTO) Condition Number 21931, during the reporting period.

After accounting for the well actions discussed in Table 2-2, Title V Permit Condition Number 6188 Part 2 as modified by PTO Condition Number 21931, still allows for the replacement of up to 40 vertical wells, installation of up to 70 new vertical wells, installation of up to 20 new horizontal collectors, the decommissioning of up to 40 vertical wells, and the decommissioning of up to 10 horizontal collectors.

As of March 31, 2012, the GRDF has 59 vertical wells and 7 horizontal collectors.

2.13 Compliance with Title V Permit Condition Number 23202 for \$-23

Title V Permit Condition Number 23202 for S-23 is no longer applicable. A Permit Surrender Letter for S-23 was submitted to the BAAQMD on September 15, 2010, which was included in Appendix C of the April 1, 2010 through September 30, 2010 Combined Report.

2.14 Compliance with Title V Permit Cond. No. 6188, Part 20

No contaminated soil containing volatile organic compounds (VOCs) greater than 50 ppmv was received during the reporting period. No Low-VOC soil (containing less than 50 ppm of VOCs) was received during the reporting period. Required records of soil acceptance are available for review at the GRDF.

3 PERFORMANCE TEST REPORT

In accordance with BAAQMD Rule 8-34-413 and 40 CFR §60.757(g) in the NSPS, a Performance Test Report is required to be submitted from subject facilities containing performance and monitoring data for the operation of the GCCS. The operational records listed in Table 3-1 have been reviewed, summarized, and are included in the Performance Test Report section of this report. A copy of the most recent Performance Test conducted on June 9, 2011 can be found in Appendix O of the April 1, 2011 through September 30, 2011 Semi-Annual Combined Report.

Table 3-1 Performance Test Requirements

Rule	Requirement	Location in Report
B-34-412, §60 8, §60.752(b)(2)(ki)(B),	Compliance Demonstration Test	Section 3.1
§60.754(d)		
§60.757(g)(1)	'A diagram of the collection system showing collection system positioning including all wells, horizontal collectors, surface collectors, or other gas extraction devices, including the locations of any areas excluded from collection and the proposed sites for future collection system expansion.	Section 3.2, Appendix A
§60.757(g)(2)	The data upon which the sufficient density of wells, horizontal collectors, surface collectors, or other gas extraction devices and the gas mover equipment sizing are based.	Section 3.3
§80.757(g)(3)	The documentation of the presence of asbestos or non- degradable material for each area from which collection wells have been excluded based on the presence of asbestos or non-degradable material:	Section 3.4
§60.757(g)(4)	The sum of the gas generation flow rates for all areas from which collection wells have been excluded based on non-productivity and the calculations of gas generation flow rate for each excluded area.	Section 3.5
§60.757(g)(5)	The provisions for increasing gas mover equipment capacity with increased gas generation flow rate, if the present gas mover equipment is inadequate to move the maximum flow rate expected over the life of the landfill.	Section 3.5
§80.757(g)(6)	The provisions for the control of aff-site migration.	Section 3.7 Appendix N

3.1 Flare (A-9) Compliance Demonstration Test Results (BAAQMD 8-34-412)

The Compliance Demonstration Test (Performance Test) was performed on the A-9 Flare by Blue Sky Environmental, Inc. on June 9, 2011, pursuant to BAAOMD Regulation 8-34-412. The results of the Performance Test for the A-9 Flare indicate that the flare is in compliance with BAAQMD Regulation 8-34-301.3. As required by BAAQMD Regulation 8-34-301.3, the A-9 Flare meets the non-methane organic compound (NMOC) emission concentration of less than 30 ppmv. Pursuant to Title V Permit Condition Number 6188 Part 9, the A-9 Flare meets the nitrogen oxide (NO_x) emission concentration of less than 16 ppmv. Also, the A-9 Flare meets the carbon monoxide (CO) emission concentration of less than 134 ppmv pursuant to the Title V Permit Condition Number 6188, Part 10. Table 3-2 shows the results of the A-9 Flare Performance Test, averaged from three test runs. A copy of this Performance Test Report can be found in Appendix O of the April 1, 2011 through September 30, 2011 Semi-Annual Combined Report.

Table 3-2 Flare Compliance Demonstration Test Results

Condition	Flare (A-9) Average Results	8-34-301.3 limit	Compliance Status
NMOC (ppmv @ 3% O₂ as Methane)	<5.0	<30 ppmv	In Compliance
NMOC Destruction Efficiency (%)	>99.9%	>98%	In Compliance
NO _x (ppm @ 15% O ₂)	7.9	16	In Compliance
CO(ppm @ 15% O₂)	<3.2	134	In Compliance

3.2 Compliance with §60.757(g)(1)

"A diagram of the collection system showing collection system positioning including wells, horizontal collectors..."

A map of the LFG collection system showing the location of all vertical wells, horizontal collectors, and other LFG extraction devices is included in Appendix A.3.3 Compliance with §60.757(g)(2)

"The data upon which the sufficient density of wells, horizontal collectors, surface collectors, or other gas extraction devices and the gas mover equipment sizing are based."

In general, the sufficient capacities of the GCCS components are based on establishing, maintaining, and documenting that the surface emissions of NMOCs and subsurface LFG migration are controlled within compliance limits. Over the initial monitoring period

covered by this Combined Report, the sufficiency of the GCCS components was based as follows:

 The existing GCCS has historically provided LFG wells and collectors spaced in accordance with standard industry practices. Based on continuous compliance and operational experience the installed collector density appears more than adequate for controlling surface emissions and subsurface LFG migration.

The total capacity of the LFG mover equipment exceeds the current United States Environmental Protection Agency (USEPA) Model AP-42 projections of LFG generation and the historic LFG extraction rates. Sufficient LFG control device and mover capacity is provided such that the A-9 Flare is only required to operate as a stand-by unit when the Fortistar IC engines are down.

The landfill operator will conduct routine monitoring in accordance with NSPS requirements. If the GCCS at the Landfill does not meet the measures of performance set forth in the NSPS, the GCCS will be adjusted or modified as required.

3.3.1 Demonstrating Compliance with §60.757(g)(2)

"The data upon which the sufficient density of wells, horizontal collectors, surface collectors, or other gas extraction devices and the gas mover equipment sizing are based."

Compliance with §60.757(g)(2) is maintained by performing quarterly surface emissions manitoring. Refer to Section 2.6, Surface Emissions Monitoring, for information pertaining to the SEM results. Fortistar LFG-to-energy generation facilities. are currently operated under a gas rights agreement with GRDF, a developer and operator of energy production facilities. Fortistar has a power production and sales agreement with the regional utility, Pacific Gas & Electric (PG&E). Fortistar operations are independent of GRDF operations and are only referenced in this report to demonstrate that sufficient LFG control capacity will be available. The approximate average LFG extraction rate for the past six months is 2,192.63 scfm combined for the A-9 Flare and the Fortistar engines, at an average methane concentration of 50.3 percent (methane content determined from the June 9, 2011 Source Test). The LFG generation flow rates over time can be estimated by various analytical models. The USEPA's LFG generation model was used to estimate current and potential future LFG generation rates. The USEPA equations are provided in §60.755 and the LFG generation and extraction estimates for the Landfill using these equations and an assumed 75 percent recovery efficiency are summarized in Table 3-3. The average actual flow rate of LFG extracted from the faridfill during the reporting period is also presented in Table 3-3.

Year	USEPA LANDGEM with AP-42 Default Lo/k Generation (scfm)	USEPA LANDGEM with AP-42 Default Lo/k Extraction (scfm)	Actual Extraction (scfm)
Current	2.535	1,916	Арргох. 2,250
2017	2,699	2,548	N/A
2024	2,904	2.742	N/A

^{*}Actual extraction is based on an average concentration of 50,3 percent methane from the June 9, 2011 source test.

The existing GCCS conveyance piping and emission control devices have sufficient capacity to handle all current and future LFG flow rates (based on quarterly SEM results and monthly wellhead readings) through at least 2015. Prior to 2015, new emission control devices will be designed and permitted as appropriate for future landfill LFG generation rates.

3.4 Compliance With §60.757(g)(3)

"The documentation of the presence of asbestos or non-degradable material for each area from which collection wells have been excluded based on the presence of asbestos or non-degradable material."

Segregated areas or accumulations of asbestos material were not documented for the site in the GCCS Design Plan. Therefore, §60.757(g)(3) is not applicable.

3.5 Compliance With §60.757(g)(4)

"The sum of the gas generation flow rates for all areas from which collection wells have been excluded based on non-productivity and the calculations of gas generation flow rate for each excluded area."

There are not any non-productive areas that have been excluded from the coverage of the GCCS. Therefore, §60.757(g)(4) is not applicable.

3.6 Compliance With §60.757(g)(5)

"The provisions for increasing gas mover equipment capacity with increased gas generation flow rate, if the present gas mover equipment is inadequate to move the maximum flow rate expected over the life of the landfill."

The existing GCCS conveyance piping and emission control devices have sufficient capacity to handle all current and future LFG flow rates through at least 2015. Prior to

2015, new emission control devices will be designed and permitted as appropriate for future landfill LFG generation rates.

3.7 Compliance with §60.757(g)(6)

"The provisions for the control of off-site migration."

Quarterly LFG migration monitoring, including all on-site buildings, occurred on the following dates:

- Fourth Quarter 2011 December 14, 2011.
- First Quarter 2012 March 23, 2012.

There were no exceedances detected during Fourth Quarter 2011 and First Quarter 2012 monitoring events. The LFG migration monitoring results for both quarterly events are included in Appendix N.

3.7.1 Demonstrating Compliance with §60.757(g)(6)

"The provisions for the control of off-site migration."

The Landfill operator will continue surface and perimeter monitoring in accordance with the approved monitoring plans. If the GCCS at the Landfill does not meet the measures of performance set forth in the NSPS, the GCCS will be adjusted or modified in accordance with the NSPS requirements.

4 STARTUP, SHUTDOWN, MALFUNCTION (SSM) PLAN

SSM Log for the GCCS at the GRDF

The NESHAP contained in 40 CFR Part 63; AAAA for MSW landfills to control hazardous air pollutants include the regulatory requirements for submittal of a semi-annual report (under 40 CFR §63.10(d)(5) of the general provisions) if an SSM event occurred during the reporting period. The reports required by §63.1980(a) of the NESHAP and §60.757(f) of the NSPS summarize the GCCS exceedances. These two semi-annual reports contain similar information and have been combined as allowed by §63.10(d)(5)(i) of the General Provisions.

NESHAP 40 CFR part 63, AAAA became effective on January 16, 2004. Those SSM events that occurred during the NSPS semi-annual reporting period are reported in this section (October 1, 2011 through March 31, 2012). The following information is included as required:

- During the reporting period, fourteen (14) A-9 Flare SSM events occurred. The A-9 Flare (back-up LFG control device) was shut down and restarted during the reporting period due to the reasons noted in Appendix E, Flare SSM Log.
- During the reporting period, seventeen (17) Wellfield SSM events occurred.
 Details are included in Appendix D, Well SSM Log.
- There were thirty-one (31) events in total. In all 31 events, automatic systems
 and operator actions were consistent with the standard operating procedures
 contained in the SSM Plan. There were no deviations from the SSM plan.
- Exceedances were not identified during the reporting period in any applicable emission limitation in the landfills NESHAP (§63.10(d)(5)(i)).
- Revisions of the SSM Plan to correct deficiencies in the landfill operations or procedures were neither required, nor prepared (§63.6(e)(3)(viii)).