

## 2 SEMI-ANNUAL REPORT

In accordance with Title V Permit Standard Condition 1.F, BAAQMD Regulation 8-34-411, 40 CFR §60.757(f) in the NSPS, and 17 CCR §95470(b)(3), this report is a Combined Semi-Annual Title V Report, Partial 8-34, and Partial Methane Control Annual Report that is required to be submitted for the Central Disposal Site. 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 following table lists the rules and regulations that are required to be included in this Combined Report.

**Table 2-1: Semi-Annual Report Requirements**

RULE	REQUIREMENT	LOCATION IN REPORT
8-34-501.1 §60.757(f)(4), §95470(a)(1)(A)	All collection system downtime, including individual well shutdown times and the reason for the shutdown.	Section 2.1, Appendices B & C
8-34-501.2 §60.757(f)(3), §95470(a)(1)(B)	All emission control system downtime and the reason for the shutdown.	Section 2.1 & 2.2, Appendices B, C, D & E
8-34-501.3, 8-34-507, §60.757(f)(1), §95470(a)(1)(K)	Continuous temperature for all operating flares and any enclosed combustor.	Section 2.3, Appendices F & T
8-34-501.5	Monthly landfill gas flow rates and well concentration readings for facilities that operate under less than continuous operation.	Section 2.5
8-34-501.6, 8-34-503, 8-34-506, §60.757(f)(5), §95470(a)(1)(D)	For operations subject to component leak testing and surface emission monitoring, records of all monitoring dates, leaks in excess of the limits that are discovered by the operator, including the location of the leak, leak concentration in ppmv, date of discovery, wind speed, 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, §95470(a)(1)(F)	Annual waste acceptance rate and current amount of waste in-place.	Section 2.10, Appendix L
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 Collection and Control Design Plan.	Section 2.11
8-34-501.9, 8-34-505, §60.757(f)(1), §95470(a)(1)(E)	For operations subject to wellhead monitoring, records of all monitoring dates and any excesses of the limits 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 2.12, 2.12.1, Appendices N & O

RULE	REQUIREMENT	LOCATION IN REPORT
8-34-501.10, 8-34-508, §60.757(f)(1), §95470(b)(3)(B), §95470(b)(3)(D)	Continuous gas flow rate records and heat input records.	Section 2.13, Appendices P & T
8-34-501.11, 8-34-509, §95470(a)(1)(K)	Records of key emission control system-operating parameters.	Section 2.2.2, Appendix U
8-34-501.12, §95470(a)(1)	The records required shall be made available and retained for a period of five years.	Section 1.2
8-34-510	The surface shall be monitored for cover integrity on a monthly basis.	Section 2.4, Appendix G
§60.757(f)(2), §95470(b)(3)(G)	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. Type and amount of supplemental fuels burned in each device.	Section 2.2.1
§60.757(f)(6), §95470(b)(3)(E)	The date of installation and the location of each well or collection system expansion added.	Section 2.14, Appendices A & C
§95470(b)(3)(H)	Total volume of landfill gas shipped off-site, the composition of the landfill gas collected, and the recipient of the gas.	Section 2.16
§60.752(b)(2)(ii), §95470(a)(1)(C),	Expected gas generation flow rate.	Section 2.17, Appendix V
§60.10 (d)(5)(i)	Startup, Shutdown, Malfunction Events	Section 4, Appendices C, D & E

## 2.1 COLLECTION SYSTEM OPERATION

The County has consistently installed, upgraded, and operated the GCCS since the system was initially constructed in 1987 with an enclosed flare (A-2). The A-2 flare was dismantled and replaced by a John Zink ZTOF® enclosed ground flare (A-3) in 2010. The current GCCS includes LFG collection devices (vertical extraction wells and horizontal collectors), collection piping, an LFG-to-electrical power generating (LFGTE) facility, an enclosed flare (A-3), and an LFG compression facility (S-15). The LFGTE was constructed in three separate phases. Phase I was constructed in 1993 consisting of Units 1 through 4 (Sources S-4 through S-7). Phase II was constructed in 1996 consisting of Units 5 through 8 (S-9 through S-12). Phase III was constructed in 2004 consisting of Units 9 and 10 (S-13 and S-14). Appendix A contains a current map of Central Disposal Site's existing GCCS.

The primary emission control devices for the landfill (source S-1) are the ten Caterpillar® 3516 IC engines within the LFGTE (S-4, S-5, S-6, S-7, S-9, S-10, S-11, S-12, S-13 and S-14). The enclosed A-3 backup flare is operated as necessary when one

or more IC engines are shut down and whenever flow of landfill gas exceeds the capacity of the IC engines.

### **2.1.1 Collection System Downtime**

During the period covered in this report, the GCCS was not shut down for more than five consecutive days on any one occasion pursuant to BAAQMD Regulation 8-34-113 and 95470(a)(1)(A).

The total GCCS downtime for the 2012 calendar year (January 1, 2012 through December 31, 2012) is 7.42 hours (out of 240 hours allowed per year pursuant to BAAQMD Regulation 8-34-113). The GCCS Downtime Log is included in Appendix B. The Downtime Log for the backup flare is included in Appendix D. The individual IC Engine Downtime Logs are included in Appendix E.

### **2.1.2 Well Disconnection Log**

Wells that have been disconnected from the LFG collection system during the reporting period and the applicable exemption from BAAQMD Regulation 8-34-305 have been recorded on the well disconnection log. A majority of these wells were shut off and isolated from the GCCS system due to maintenance activities.

Appendix C contains the Well Disconnection Log, including the individual well numbers, the shutdown times, the restart times, and reasons for the shutdowns. This well disconnection log comprises the Startup, Shutdown, Malfunction (SSM) Reports for the current reporting period. No wells were shut down for more than 24 hours, and no more than 5 wells were shut down at any one time.

During the reporting period 49 wellfield SSM events occurred for short durations as allowed by BAAQMD 8-34-117, Limited Exemption, Gas Collection System Components. The time and duration of each event are presented in the Wellfield SSM form contained in Appendix C.

Four (4) wells were decommissioned under Authority To Construct (ATC) No. 24979 during this reporting period. In addition, fourteen (14) new wells were connected to the GCCS under ATC No. 24979 during the same reporting period.

## **2.2 EMISSION CONTROL DEVICE DOWNTIME**

The primary emission control devices for the landfill (source S-1) are the ten IC engines (S-4, S-5, S-6, S-7, S-9, S-10, S-11, S-12, S-13 and S-14). The enclosed A-3 backup flare is operated as necessary when one or more IC engines are shut down and whenever flow of landfill gas exceeds the capacity of the IC engines.

Landfill operations were temporarily suspended for 5 years and were resumed in September 2010, as described in Section 2.10, and the current gas generation projections predict a reduction in the landfill gas generation rate by about 125 standard

cubic feet per minute (scfm) per year. This is evident by the decline of landfill gas flow to the emission control devices. Currently there is not a sufficient flow of landfill gas to operate all 10 IC Engines therefore Engines No. 9 and 10 (S-13 and S-14) were put in long-term storage pursuant to BAAQMD Application No. 22513. Additionally, one or more engines maybe placed in standby mode and alternated into service based on maintenance cycles and GCCS demands.

The information contained in Appendix D includes the A-3 backup flare downtimes and the reason for each shutdown. Appendix E contains all downtimes and the reasons for the shutdowns for the IC engines.

The total downtime for each device during the reporting period is as follows:

**Table 2-2: Control Device Downtime**

Emission Control Device	Total Downtime (Hours)
A-3 (Backup flare)	4,345
S-4 (IC Engine 1)	831
S-5 (IC Engine 2)	910
S-6 (IC Engine 3)	832
S-7 (IC Engine 4)	1,093
S-9 (IC Engine 5)	869
S-10 (IC Engine 6)	1,703
S-11 (IC Engine 7)	556
S-12 (IC Engine 8)	2,550
S-13 (IC Engine 9)	4,416
S-14 (IC Engine 10)	4,416

### 2.2.1 LFG Bypass Operations and Supplemental Fuel

LFG cannot be diverted from the control equipment because no by-pass lines are installed at Central Disposal Site. Landfill gas is the only fuel burned in the IC Engines; no supplemental fuel is used. A small amount of propane is used to startup the backup flare.

### 2.2.2 Key Emission Control Operating Parameters

The IC engines (S-4, S-5, S-6, S-7, S-9, S-10, S-11, and S-12) are subject to key emission control system operating parameters. Pursuant to Permit to Operate (PTO) Condition 19933 Part 11, Central Disposal Site must operate each IC Engine at the fuel-to-air ratio established during the most recent complying source test. In addition, the exhaust oxygen concentration for each engine must be maintained within a range of 6.4 to 8.3 percent as established in Permit Application No. 9277. In order to demonstrate compliance with this requirement, the exhaust gas oxygen concentration for each

engine is to be measured and recorded in a District approved log on at least a monthly basis.

Exhaust oxygen concentrations for all IC engines were in compliance with PTO Condition No. 19933 Part 11. The Monthly Exhaust Oxygen Content Log is included in Appendix U.

### **2.3 BACKUP FLARE TEMPERATURE MONITORING RESULTS**

The A-3 flare combustion zone temperature while the flare is in operation must not drop below 1,400 degrees Fahrenheit (F) or 50 degrees F below the average combustion temperature during the most recent source test. Compliance with temperature limitations is determined on the basis of the 3-hour rolling average temperature.

The combustion zone temperature of the A-3 backup flare is continuously monitored during operation. The temperature is recorded by a Yokogawa data logger. Summaries of the backup flare temperature records review are noted in the Monthly Backup Flare Temperature Deviation Logs in Appendix F. The electronic files of backup flare temperature records are saved on a CD included in Appendix T of this report.

During the reporting period, the A-3 backup flare temperature was maintained within compliance.

### **2.4 MONTHLY COVER INTEGRITY MONITORING**

The Cover Integrity Monitoring was performed on a monthly basis during the reporting period. The Monthly Cover Integrity Monitoring reports are included in Appendix G. The cover integrity monitoring was performed on the following dates:

- August 19, 2012;
- September 16, 2012;
- October 21, 2012;
- November 18, 2012;
- December 16, 2012; and
- January 20, 2013

Leachate seeps were discovered in both December and January coming from the interim cover of LF2 after the heavy precipitation events of December. As a result an additional 9,800 cubic yards of soil were placed on LF2 from mid to late January.

### **2.5 LESS THAN CONTINUOUS OPERATION**

Central Disposal Site does not operate under "Less Than Continuous Operation."

## **2.6 SURFACE EMISSIONS MONITORING**

A surface emissions monitoring plan (SEMP) was submitted as part of a Revised GCCS Design Plan, dated June 15, 2011, in accordance with the requirements of the NSPS, BAAQMD, and CARB. Monitoring methods include both Instantaneous and Integrated Surface Emissions Monitoring.

Surface emissions will be monitored quarterly or annually, as required by the regulations and as described in the SEMP. But in either case, both instantaneous and integrated monitoring were conducted concurrently. CARB approved the GCCS Design Plan (and subsequent SEMP) in a letter dated August 30, 2011. A copy of the CARB approval letter is included in Appendix Q. Monitoring events conducted during the reporting period occurred on the following dates:

- Third quarter, August 28 to September 12, 2012; and
- Fourth quarter, December 3, 2012 to January 23, 2013.

Surface emission monitoring reports for both the instantaneous and integrated surface emission monitoring are included in Appendix H.

### **2.6.1 INSTANTANEOUS SURFACE EMISSION MONITORING**

For instantaneous surface monitoring, the average methane level must be less than 500 ppmv at any location on the landfill surface as required in 8-34-303 and §95465(a)(1). A Surface Emission Monitor (SEM-500) manufactured by CES-Landtec is used to monitor the path along the landfill surface for the total organic compound concentrations according to the Landfill SEMP map. Immediately prior to monitoring events, the SEM-500 instrument was zeroed and calibrated in accordance with the manufactures' recommendations. Grids with instantaneous point sources greater than 200 ppmv have been identified and are listed in Appendix H.

There were two exceedances of the 500 ppm surface concentration standard identified during the third quarter surface monitoring event. In each case, corrective actions were completed, and no methane concentrations greater than 500 ppmv were detected during the 10-day and 30-day re-monitoring events.

There were six exceedances of the 500 ppm surface concentration standard identified during the fourth quarter surface monitoring event. In each case, corrective actions were completed, and no methane concentrations greater than 500 ppmv were detected during the 10-day and 30-day re-monitoring events.

### **2.6.2 INTEGRATED SURFACE EMISSION MONITORING**

For integrated surface monitoring, the average methane level must be less than 25 ppmv for each grid as required in §95465(a)(2). When methane levels of 500 ppmv or greater were encountered, integrated monitoring was suspended and instantaneous monitoring was conducted to determine the areal extent and maximum concentration of

the exceedance. Grids with an integrated sampling average greater than 25 ppmv were remediated and re-monitored within 10 calendar days of the initial exceedance.

None of the grids exceeded the 25 ppm integrated standard during the third quarter surface monitoring event.

Thirteen (13) grids exceeded the 25 ppm integrated standard during the fourth quarter surface monitoring event that began on December 10, 2012 and ended on January 3, 2013. Corrective action for each of the grids was completed within 10 days of the first remonitoring event and the results indicated that seven (7) of the original 13 grids still indicated exceedances of greater than 25 ppmv. Corrective action was again initiated to correct the problems on those grids and the second remonitoring event was then conducted. The results of the second remonitoring event indicated that of the seven grids that did not pass the first remonitoring event four (4) did not pass the second remonitoring event. Therefore, in accordance with §95469(a)(2)(B)2 the County has 120 days from the third exceedance to install new wells on those grids. Due to the extent of the rainy season (October 1 through May 31 annually), and issues that are likely to be raised by the North Coast Regional Water Quality Control Board, the County has requested for an extension from the BAAQMD through the end of June 2013 to complete the expansion of the well field in Landfill 2. In the interim, however, the County will continue to monitor the GCCS to minimize the possibility of surface emissions from Landfill 2.

## **2.7 COMPONENT LEAK TESTING**

Pursuant to Section 8-34-301 of BAAQMD's Regulation 8, Rule 34, the regulatory limit for methane concentration at LFG components and connections is 1,000 parts per million by volume (ppmv). However, pursuant to requirements effective July 1, 2011, §95464(b)(1)(B) of CCR Title 17 establishes the regulatory limit at 500 ppmv methane for components and connections leaks at municipal landfills. The quarterly component leak monitoring data are presented in Appendix I. Pacific GeoScience performed component leak monitoring on the following dates:

- Fourth quarter, 2012 – October 24 and 25, 2012; and
- First quarter, 2013 – January 28 and 29, 2013;

There were no component leaks exceeding 500 ppmv methane identified during the fourth and first quarter component monitoring events.

## **2.8 SULFUR MONITORING RECORDS**

The concentration of total reduced sulfur compounds in the LFG must not exceed 1,300 ppmv pursuant to Permit Condition 4044 Part 7. Total sulfur content in LFG was analyzed during the annual gas characterization tests, pursuant to Condition 4044 Part 18. The concentration of total reduced sulfur compounds in the LFG did not exceed 1,300 ppmv during the reporting period.

**Table 2-3: Sulfur Monitoring Records**

	Date	Readings (ppmv)
Total Sulfur as H <sub>2</sub> S	11/08/12	132.0

## 2.9 DUST SUPPRESSION RECORDS

Water was used as a dust suppressant pursuant to Permit Condition 4044 Part 19n. Dust Suppression Records Monthly dust suppression records are presented in Appendix K.

## 2.10 WASTE ACCEPTANCE RECORDS

Pursuant to Condition 4044 Part 1, the total amount of solid waste received at the S-1 landfill must not exceed 2,500 tons per day (tpd), or 897,500 tons per year (tpy).

Monthly waste tonnage acceptance records are provided in Appendix L. Table 2-4 summarizes the monthly waste acceptance rate during the report period. The County temporarily suspended landfill operations on September 30, 2005, however, operation of the landfill resumed on September 8, 2010.

**Table 2-4: Waste Disposal Records Summary**

Month	Quantity (tons)	Daily Avg. (tons)
August 2012	13,345	494
September 2012	10,618	442
October 2012	13,562	502
November 2012	12,906	516
December 2012	12,966	519
January 2013	14,018	539
<b>Semi-Annual Total</b>	<b>77,415</b>	

Pursuant to Condition 4044 Part 1, the total cumulative amount of all wastes and cover materials placed in the landfill shall not exceed 19.59 million tons, daily waste acceptance shall not exceed 2,500 tons, and annual waste acceptance shall not exceed 897,500 tons. The total waste in place is 14.0 million tons.

Pursuant to Condition 4044 Part 17c, the 12-month waste acceptance total for the preceding 12-month period (February 1, 2012 through January 31, 2013) was 150,880 tons. Daily waste acceptance did not exceed 2,500 tons as required by Condition 4044 Part 1.

### 2.10.1 Low-VOC Content Soil Acceptance Records

Pursuant to Permit Condition 4044 Part 21, the amount of volatile organic compound (VOC) laden soil disposed of in the landfill must be limited so that no more than 15 pounds per day (lbs/day) of total carbon could be emitted to the atmosphere per day. VOC laden soil is soil that contains VOC in concentrations that are less than 50 parts

per million by weight (ppmw) threshold for contaminated soil. The amount and VOC concentrations of all VOC laden soils must be recorded on a daily basis.

VOC laden soil was accepted at the Central Disposal Site during the reporting period. There were no days during the reporting period when potential carbon emissions from the low VOC soil exceeded the 15 lbs/day limit. Records of the amount of low VOC soil are provided in Appendix M.

No VOC contaminated (greater than 50 ppmw) soil was accepted during the reporting period.

## **2.11 NON-DEGRADABLE WASTE ACCEPTANCE RECORDS**

The Collection and Control System Design Plan for Central Disposal Site does not indicate non-degradable waste areas that are excluded from the collection system.

## **2.12 WELLHEAD MONITORING DATA**

Wellhead monitoring was performed on a monthly basis. The Monthly Well Monitoring Records for the reporting period are provided in Appendix N. Each well was monitored for the following:

- Each wellhead shall operate under a vacuum; and
- The landfill gas temperature in each wellhead shall be less than 55°C (131°F); and
- The oxygen concentration in each wellhead shall be less than 5 percent by volume.

The County requested exemption from BAAQMD Rule 8-34 wellhead standards and alternate wellhead monitoring limits for 11 extraction wells. BAAQMD approved the alternate wellhead monitoring limits for these extraction wells, Authority to Construct No. 16582. Permit Condition 4044 Part 5b was added to the Permit to Operate allowing up to 15 percent oxygen in gas extraction wells V-58, V-61, V-62, V-117, EC-9.1, EC-15, EC-19, EC-24, EC-25, EC-26, and EC-26.1. However, wells EC-9.1, EC-25, EC-26, and EC-26.1 failed and were decommissioned in December 2009, pursuant to Authority to Construct Application No. 16497.

### **2.12.1 Wellhead Deviations**

The wells that deviated from BAAQMD Regulation 8-34-305, Permit Condition 4044 Part 5b, and 17 CCR §95469(c) limits were repaired pursuant to the regulations. The Well Deviation Logs for the reporting period are provided in Appendix O. The Well Deviation Log includes the well identification number, parameter exceedance, date of initial exceedance, corrective actions taken, date of follow-up monitoring, compliance status, and summarizes the gas collection wells that exceeded applicable limits. During the October – November monitoring period the County's gas emissions monitoring (GEM) unit was out for calibration in accordance with 40 CFR 60 Appendix A. However, during the end of that period there was a change in personnel at the Central Disposal

Site and it was not discovered until after the December well reads that the County was in a state of non-compliance with Regulation 8, Rule 34, Part 305.4 and 414 for the month of December. Once the omission was discovered the County sent its gas field crew to make repairs and correct all wellhead excesses for O<sub>2</sub>. After corrections were implemented all out-of-compliance wellheads (except those discussed in Section 2.12 above) tested negative for O<sub>2</sub> exceedances.

### 2.13 LFG FLOW MONITORING RESULTS

Continuous IC engine gas flow readings and backup flare combustion temperature and gas flow readings are recorded by a Yokogawa data logger. The total amount of LFG combusted in each control device is provided in Appendix P. The monthly total and daily average LFG flow records and heat input for the A-3 backup flare and the IC engines are provided in Appendix P. The Electronic Files of the Yokogawa IC Engines Flow Records and Backup Flare Temperature and Flow Records are provided in Appendix T.

**Table 2-5: Total Flow**

Month	A-3 Backup Flare (total scf)	Phase I (S-4, S-5, S-6 and S-7) (total scf)	Phase II (S-9, S-10, S-11 and S-12) (total scf)	Phase III (S-13 and S-14) (total scf)	All (total scf)
August 2012		37,331,444	35,582,184	0	72,913,628
September 2012	348,093	39,865,378	28,537,976	0	68,751,447
October 2012	1,632,143	34,810,026	31,621,307	0	68,063,476
November 2012	931,664	33,135,150	26,189,135	0	60,255,949
December 2012	0	38,897,554	24,205,519	0	63,103,073
January 2013	8,004,323	31,726,519	33,565,747	0	73,296,589
<b>Period Total:</b>	<b>10,916,223</b>	<b>215,766,071</b>	<b>179,701,868</b>	<b>0</b>	<b>406,384,162</b>

**Table 2-6: Total Heat Input**

Month	A-3 Backup flare (MMBtu)	Phase I (S-4, S-5, S-6 and S-7) (total MMBtu per unit)	Phase II (S-9, S-10, S-11 and S-12) (total MMBtu per unit)	Phase III (S-13 and S-14) (total MMBtu per unit)	All (total MMBtu)
August 2011	0	6,454	6,152	0	37,152
September 2011	177	5,993	5,921	0	35,032
October 2011	847	6,018	5,857	0	34,681
November 2011	506	5,729	4,851	0	30,703
December 2011	0	6,725	4,484	0	32,153
January 2012	4,346	5,742	6,509	0	34,176
<b>Period Total:</b>	<b>5,877</b>	<b>36,661</b>	<b>33,773</b>	<b>0</b>	<b>207,069</b>

Permit Condition 4044 Part 13 applies to the A-3 backup flare, the heat input to the A-3 flare shall not exceed 547,680 million BTU per year (MMBtu/yr) and shall be

summarized monthly. For the reporting period, the A-3 backup flare remained in compliance and did not exceed the annual heat input limit set by Permit conditions.

Pursuant to Permit Condition 19933 Part 10, the heat input to each IC engine shall not exceed 252.6 MMBtu/day, or 92,199 MMBtu/year, and shall be summarized monthly. Phase I, Phase II, and Phase III LFG daily flow records are divided by the number of engines that operated to calculate heat input per engine per day (MMBtu/unit). During the reporting period none of the IC engines exceeded the daily or annual heat input limits set by Permit Conditions.

#### **2.14 DATE OF INSTALLATION AND LOCATION OF EACH COLLECTOR**

On November 7, 2012, the County notified BAAQMD of the startup of fourteen (14) horizontal collection wells within new waste cells of Landfill 2. Refer to the GCCS Design Plan for the Central Disposal Site, Amended and Restated June 15, 2011, for a complete description of the installation and operation of the GCCS.

#### **2.15 NOTICES OF VIOLATION ISSUED BY THE BAAQMD**

Central Disposal Site received two (2) Notices of Violation (NOVs) during the reporting period. The appropriate 10 and 30-day follow-up letters were submitted to the BAAQMD for the NOVs and are included in correspondences to the District - Appendix Q. The appropriate corrective actions were taken in response to the NOVs to ensure that the Central Disposal Site is in compliance with the applicable regulations. The BAAQMD issued NOVs A52681 and A52682 on September 18, 2012.

NOV #A52681 was identified on August 29, 2012, for violation of Regulation 8, Rule 34, Section 301.2 – specifically for a component leak measuring greater than 1000 ppm. The County repaired the leak by replacing a cracked manifold on Engine #1.

NOV #A52682 was identified on August 29, 2012, for violation of Regulation 8, Rule 34, Section 303 – specifically for a surface leak greater than 500 ppm. The County repaired the leak by removing the soil cover, adding bentonite, hydrating, and compacting. Follow-up monitoring was performed and tested negative for any excesses.

#### **2.16 VOLUME OF LANDFILL GAS CONVERTED IN S-15**

The landfill gas compression plant (S-15) is a pilot scale unit designed to operate as a closed loop system with all waste gases vented to either the flare or IC engines pursuant to Permit Condition 23087. The unit was completed in February 2009. Compressed natural gas (CNG) produced at the Central Disposal Site is currently used to fuel select vehicles in the Sonoma County Transit bus fleet. During the reporting period, 72,970 scf of CNG was produced. The average methane and carbon dioxide concentrations in the landfill gas were 50 and 41 percent by volume, respectively. The methane concentration in the CNG averages about 90 percent by volume.

## 2.17 EXPECTED GAS GENERATION FLOW RATE

The USEPA LandGEM, Version 3.02, generation model was used to estimate the site's maximum LFG generation rate in accordance with 40 CFR Section 60.755(a)(1). Following the method described in 40 CFR 60.755(a)(1), LandGEM calculated a LFG generation estimate for 2012 of approximately 2,857 scfm. Using the USEPA-recognized default GCCS collection efficiency of 75 percent as published in AP-42, the estimated 2012 LFG extraction rate was estimated to be 2,143 scfm. A summary table of the LandGEM gas generation modeling is included in Appendix V along with the model input and results report.

As required in §95471(e), the expected gas generation flow rate was determined as prescribed in the 2006 Intergovernmental Panel on Climate Change (IPCC) Guidelines for National Greenhouse Gas Inventories using a recover rate of 75 percent. The 2012 LFG extraction rate was estimated to be 1,320 scfm. A summary table of the IPCC gas generation modeling is included in Appendix V along with the model inputs and results.

As represented in the summary tables for both the LandGEM and IPCC models in Appendix V, the LFG generation rate peaked in 2005 when the CDS suspended landfilling operations. As a result, LFG generation at the CDS has been in a state of steady decline. The current actual and modeled LFG generation and extraction estimates, as well as the modeled projections for 2020 and 2030 are presented below in Table 2.7.

**Table 2.7: LFG Generation and Extraction Estimates**

Year	USEPA LandGEM Generation at (75% Recovery) (scfm)	2006 IPCC GHG Methodology (75% Recovery) (scfm)	Actual Extraction (scfm)	Existing Capacity (scfm)
2010	2,240	1,440	1,725	4,375
2011	2,175	1,350	1,616	4,375
2012	2,143	1,320	1,525	4,375
2020	1,640	1,065	N/A	-
2030	1,120	580	N/A	-

The total LFG treatment capacity of the LFGTE facility is approximately 2,875 standard cubic feet per minute (scfm). The enclosed flare (A-3) has a design capacity of 1,500 scfm. The flare is a back up device to the LFGTE facility; however it is permitted for continuous operation when sufficient LFG is available. The flare can be operated parallel and simultaneously with all ten engines to sustain a maximum LFG extraction rate of approximately 4,375 scfm.

## **4 STARTUP, SHUTDOWN, MALFUNCTION PLAN REPORT**

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The National Emission Standards for Hazardous Air Pollutants (NESHAPS), contained in 40 CFR Part 63, Subpart AAAA for Municipal Solid Waste (MSW) landfills to control hazardous air pollutants, include regulatory requirements for submittal of a semi-annual report (under 40 CFR §63.10(d)(5) of the general provisions) if an SSMP event occurred during the reporting period. The reports required by 40 CFR §63.1980(a) of the NESHAP and 40 CFR §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 40 CFR §63.10(d)(5)(i) of the General Provisions.

NESHAP 40 CFR Part 63, Subpart AAAA became effective on January 16, 2004. SSM events that occurred between August 1, 2012 and January 31, 2013 are included in this Combined Semi-Annual Report.

- During the reporting period, seven flare SSM events occurred. The backup LFG control device (A-3 flare) was started and shut down during this period to combust LFG when the power plant was off line for PG&E scheduled maintenance and annual source testing of A-3. The time and duration of the events are presented in the A-3 Flare Downtime Log contained in Appendix D.
- During the reporting period 49 Wellfield SSM events occurred for short durations as allowed by BAAQMD 8-34-117, Limited Exemption, Gas Collection System Components. The time and duration of each event are presented in the Wellfield SSM form contained in Appendix C. Four (4) wells were decommissioned and fourteen (14) new wells were connected to the GCCS during the reporting period.
- During the reporting period 28 SSM events occurred for IC Engine S-4, 20 for S-5, 12 for S-6, 14 for S-7, 20 for S-9, 13 for S-10, 18 for S-11, 26 for S-12, 0 for S-13, and 0 for S-14. The time and duration of each SSM event for each of the IC Engines is presented in the IC Engines SSM forms contained in Appendix E. No SSM events occurred for IC Engines S-13 and S-14; these units are placed in long-term storage until further notice due to the lack of landfill gas production.
- Automatic systems and operator actions were consistent with the standard operating procedures contained in the site's SSM Plan.
- No exceedances of any applicable emission limitation in the landfills NESHAP (63.10(d)(5)(i)) occurred.
- Revisions of the SSM Plan to correct deficiencies in the landfill operations or procedures were neither required, nor prepared (§63.6(e)(3)(viii)).