

## 2 COMBINED REPORT REQUIREMENTS

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 Keller Canyon. The report contains monitoring data for the operation of the landfill GCCS. The operational records have been reviewed and summarized. The timeframe included in this report is September 1, 2016 through February 28, 2017. The following table lists the rules and regulations that are required to be included in this Combined Report.

Rule	Requirement	Location in Report
8-34-501.1 §60.757(f)(4)	All collection system downtime, including individual well shutdown times and the reason for the shutdown.	Section 3.1 Appendices A and C
8-34-501.2 §60.757(f)(3)	All emission control system downtime and the reason for the shutdown.	Section 3.1 & 3.2 Appendices C and D
8-34-501.3, 8-34-507, §60.757(f)(1)	Continuous temperature monitoring for all operating flares and any enclosed combustor subject to Section 8-34-507.	Section 3.3 Appendix E
8-34-501.4, 8-34-505, 8-34-510	Monitoring and Testing performed to satisfy any of the requirements of this rule.	Section 3.4.1 & 3.4.2 Appendices F and G
8-34-501.5	Monthly LFG flow rates and well concentration readings for facilities subject to 8-34-404.	Section 3.5 Appendix K
8-34-501.6, 8-34-503, 8-34-506, §60.757(f)(5)	For operations subject to Section 8-34-503 and 8-34-506, records of all monitoring dates, leaks in excess of 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 3.6 Appendices H and I
8-34-501.7	Annual waste acceptance rate and current amount of waste-in-place (WIP).	Section 3.7

Rule	Requirement	Location in Report
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 3.8
8-34-501.9, 8-34-505, §60.757(f)(1)	For operations subject to Section 8-34-505, records of all monitoring dates and any excesses of the limits 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.	Sections 3.9 Appendices F and J
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 3.10 Appendix K
8-34-501.11, 8-34-509	For operations subject to 8-34-509, records or key emission control system operating parameters.	Section 3.11
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 3.12
§60.757(f)(6)	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 3.13 Appendices A and B
Permit Condition 17309 (33)	Fugitive Emissions Precursor Organic Compounds (POC)	Section 3.14 Appendix L
Permit Condition 17309 (34), 9-1-302, 2-6-503	Quarterly Hydrogen Sulfide Monitoring	Section 3.15 Appendices M
8-34-413, §60.757(g)	Performance Test Report	Section 4 Appendix N
§63.10 (d)(5)(i)	Startup, Shutdown, Malfunction Events	Section 5 Appendix A and C



### **3 COMBINED MONITORING REPORT**

---

The information included in this section and applicable appendices, satisfies the requirements under BAAQMD Rule 8-34-411 and §60.757(f) in the NSPS for this semi-annual reporting period.

#### **3.1 Collection System Downtime (BAAQMD 8-34-501.1, §60.757(f)(4))**

During the reporting period, the collection system was not shut down for more than five days on any one occasion. The GCCS downtime for the reporting period was 5.38 hours. The total downtime from January 1, 2016 through December 31, 2016 was 4.50 hours, out of an allowable 240 hours per year. The total downtime from January 1, 2017 through February 28, 2017 was 3.02 hours, out of an allowable 240 hours per year.

During the reporting period six wellfield SSM events occurred as six wells were decommissioned. The summary of the wellfield SSM events is detailed in Appendix A. Decommissioning and intent to startup notifications were submitted to the BAAQMD as required. These submittals are provided in Appendix B.

Pursuant to Title V Permit Condition Number 17309 Part 19(c) an additional five wells may be temporarily disconnected from the vacuum system in addition to the allowable well operation exemptions under BAAQMD 8-34-113, 116, 117, and 118. At the end of the reporting period, one well was temporarily disconnected under Permit Condition Number 17309 Part 19(c).

#### **3.2 Emission Control Device Downtime (BAAQMD 8-34-501.2, §60.757(f)(3))**

During the reporting period, the emission control devices (A-1 and A-2 Flares) were not shut down for more than five days on any one occasion. The emission control devices downtime logs for the reporting period are included as Appendix C. The GCCS Downtime Deviation Log and Downtime Summary are included as Appendix D.

Pursuant to Title V Permit Condition 17309, Part 20, collected LFG shall be vented to either:

- (a) One on-site flare operating alone, or
- (b) One on-site flare and two off-site engines operating concurrently.

There were no instances during the reporting period where either or both engines were operating without concurrent operation of the flare during shutdowns, outside of collection system installation, maintenance, or repair performed in compliance with Regulation 8-34-113, 116, 117, and 118.

### **3.3 Temperature Monitoring Results (BAAQMD 8-34-501.3, 8-34-507, §60.757(f)(1))**

The combustion zone temperatures of the A-1 and A-2 Flares are monitored with Thermo-Electric thermocouples. Temperatures were recorded in intervals of two minutes with a Yokogawa DX100 digital recorder, and the data is downloaded and archived. Appendix E contains the A-1 and A-2 Flare Temperature Deviation/Inoperative Monitor/Missing Data Reports for September 1, 2016 through February 28, 2017.

### **3.4 Testing Requirements (BAAQMD 8-34-501.4)**

The following testing requirements were completed to satisfy the requirements of 8-34-501.4.

#### **3.4.1 Wellfield Monitoring (BAAQMD 8-34-505, §60.756(a))**

American Environmental Group (AEG) completed monthly wellfield monitoring on behalf of Keller Canyon pursuant to 8-34-505. Wellfield monitoring is conducted for gauge pressure, LFG temperature, and oxygen concentration as required. Wellfield monitoring was performed on the following dates:

- September 6, 12, 13, 16, 19, 20, 21, and 28, 2016;
- October 3, 6, 11, 14, 17, 20, 24, and 31, 2016;
- November 4, 9, 10, 14, 16, 17, 22, and 30, 2016;
- December 1, 6, 12, 16, 22, and 29, 2016;
- January 9, 13, 14, 20, 24, and 27, 2017; and
- February 2, 6, 10, 16, 21, and 24, 2017.

The well readings for the reporting period are included in Appendix F.

#### **3.4.2 Monthly Cover Integrity Monitoring (BAAQMD 8-34-501.10)**

Monthly cover integrity monitoring was performed on the following dates:

- September 30, 2016;
- October 31, 2016;
- November 30, 2016;
- December 22, 2016;

- January 27, 2017; and
- February 25, 2017.

Details regarding these monitoring events are included in the Monthly Cover Integrity Monitoring Logs included in Appendix G.

### **3.5 Monthly LFG Flow (Less than Continuous Operation) (BAAQMD 8-34-501.5)**

BAAQMD Regulation 8-34-404 is applicable to operators seeking to operate the GCCS less than continuously. The Keller Canyon GCCS does not operate less than continuously and therefore is not required to submit monthly LFG flow rates pursuant to 8-34-501.5.

### **3.6 Records of Monitoring Dates, Leaks in Excess of Limits (BAAQMD 8-34-501.6)**

The following monitoring and reporting was conducted during the reporting period pursuant to 8-34-501.6. Keller Canyon is subject to Sections 8-34-503 and 8-34-506.

#### **3.6.1 Component and LFG Well Leak Monitoring (BAAQMD 8-34-503)**

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

- Fourth Quarter 2016 - October 7 and November 17, 2016.

No exceedances were detected during the above quarterly component leak monitoring events. Refer to the Quarterly LFG Component Leak Monitoring Reports, located in Appendix H, for detailed results of completed component leak check monitoring during the reporting period.

#### **3.6.2 Surface Emissions Monitoring (BAAQMD 8-34-506, §60.757(f)(5) & California Air Resources Board Assembly Bill 32 Landfill Methane Rule (CARB AB-32 LMR)**

The Third Quarter 2016 Surface Emissions Monitoring (SEM) event was conducted by a third party on August 9, 10, and 19, 2016 and September 8, 2016, in accordance with 40 CFR §60.755(c).

The Fourth Quarter 2016 SEM event was conducted by a third party on November 10 and 18, 2016, in accordance with 40 CFR §60.755(c). Refer to Appendix I, for details.

### **3.7 Waste Acceptance Records (BAAQMD 8-34-501.7)**

Keller Canyon is permitted to accept MSW, commercial, industrial, construction, designated, and special wastes (S-1). In addition, yard and green waste is accepted and stockpiled at the facility (S-3). Records of waste acceptance are maintained at Keller Canyon and are available upon request.

#### **3.7.1 MSW**

Keller Canyon's total MSW waste acceptance for the period of September 1, 2016 through February 28, 2017 was 343,041.70 tons. The current WIP as of February 28, 2017 is 19,251,410 tons.

#### **3.7.2 Yard and Green Waste Stockpiles**

During the reporting period, pursuant to Title V Condition Number 16462, Part 1, the total amount of yard and green waste received at Keller Canyon did not exceed 1,000 tons per day (tpd). Keller Canyon's total yard and green waste acceptance for the period of September 1, 2016 through February 28, 2017 was 20,037.33 tons, which is in compliance with the 70,200 ton limit during any consecutive 12-month period.

### **3.8 Non-Degradable Waste Acceptance Records (BAAQMD 8-34-501.8)**

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

### **3.9 Well Head Deviations (BAAQMD 8-34-501.9, 8-34-505 & §60.757(f)(1))**

During the reporting period 80 exceedances of the well limits set forth in BAAQMD Regulation 8-34-305 were recorded. Corrective action for these wells was initiated within the required five-day time period and re-monitoring was completed within 15 days of the exceedance pursuant to BAAQMD Regulation 8-34-414. See Appendix J, Wellfield Deviation Log, for more details.

Pursuant to Title V Permit Condition Number 17309, Part 19(b)(i), the following well is approved to operate at an oxygen higher operating value (HOV) of 15 percent by volume: KCLW27RR. Horizontal Collector KCLEWHC3 (HC-3) and Leachate Collectors KCLEWR1 (LCRS-1) and KCLEWLR2 (LCRS-2) are exempt from NSPS wellfield regulations. Per

Title V Condition Number 17309 Part 18(a)(ii), collectors located outside of waste are not subject to NSPS operating parameters.

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

The A-1 and A-2 Flare LFG flow rates are measured with Thermal Instruments Model Numbers 62-9/926 (A-1 Flare) and 62-9/9500 (A-2 Flare) flow meters. The General Electric data panel displays the LFG flow and the digital Yokogawa data recorder records LFG flow every minute and the data is downloaded and saved to a compact flash drive. The flare flow meters meet the requirements of BAAQMD Regulation 8-34-508 by recording data at least every 15 minutes. The flow meters are maintained and calibrated pursuant to manufacturer's recommendations. The flow data for the flares is available for review at Keller Canyon. Appendix K contains a summary of the monthly and total LFG flow rates for each flare.

No deviations occurred with the flare flow meters and/or digital data recorders during the reporting period.

### **3.11 Records of Key Emission Control System Operating Parameters (BAAQMD 8-34-501.11)**

Keller Canyon is not subject to BAAQMD Regulation 8-34-509 as they do not own and/or operate an emission control system other than an enclosed flare. BAAQMD Regulation 8-34-501.11 is not applicable.

### **3.12 LFG Bypass Operations (§60.757(f)(2))**

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

### **3.13 Compliance with §60.757(f)(6)**

40 CFR §60.757(f)(6) requires "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" be reported in this combined report.

During the reporting period, the GCCS was modified pursuant to Title V Permit Condition Number 17309, Part 18(b). Six wells were decommissioned during the reporting period pursuant to Permit Application Number (A/N) 23460. Decommission Notification Letters were submitted to the BAAQMD and are included in Appendix B.

A/N 26269 still allows for the installation of up to 60 new vertical LFG wells, the decommissioning of up to 21 vertical LFG wells, the installation of up to 20 horizontal LFG collectors, and the decommissioning of up to ten horizontal LFG collectors.

As of the submittal of this report, the GCCS consists of 126 vertical wells, two horizontal collectors, and two LCRS. Pursuant to Title V Permit Condition Number 17309, Part 18(b)(ii), HC-3, LCRS-1 and LCRS-2 were installed to prevent or control LFG migration and are not part of the GCCS, and are therefore exempt from NSPS requirements.

### **3.14 Fugitive Emissions Precursor Organic Compounds (POC)**

Pursuant to Title V Permit Condition 17309, Part 33, the fugitive emissions of POC are required to be calculated at least once every five years or whenever the capacity of the LFG emission control system, A-1 and A-2 Flares, is expanded, whichever is sooner. The Fugitive emissions of POC shall not exceed 40.059 tons per year (tpy) (expressed as methane). The Annual 2016 results were within the POC limit.

Completed emission calculations are included in Appendix L.

### **3.15 Quarterly Hydrogen Sulfide (H<sub>2</sub>S) Monitoring (BAAQMD 9-1-302 and 2-6-503)**

Pursuant to BAAQMD Regulation 2-6-503 Keller Canyon conducts quarterly H<sub>2</sub>S monitoring. During the reporting period monitoring was conducted on the following dates:

- Third Quarter 2016 - September 28, 2016
- Fourth Quarter 2016 - December 22, 2016

Pursuant to Title V Permit Condition 17309, Part 34, the H<sub>2</sub>S testing is required on a quarterly basis using the Draeger tube method. The Total Reduced Sulfur (TRS) content shall not exceed 300 ppmv (dry). The Third and Fourth Quarter 2016 results were within the permitted TRS limit. Refer to the Quarterly H<sub>2</sub>S Monitoring Log, located in Appendix M, for detailed results for Quarterly H<sub>2</sub>S monitoring.



## 4 PERFORMANCE TEST REPORT

In accordance with BAAQMD Rule 8-34-413 and 40 CFR §60.757(g) a Performance Test Report is required to be submitted from facilities containing performance and monitored data for the operation of the GCCS. Keller Canyon is an affected facility per BAAQMD Rule 8-34-412 and is required to perform an annual compliance demonstration test.

Rule	Requirement	Location in Report
8-34-412, §60.8, §60.725(b)(2)(iii)(B), §60.754(d)	Compliance Demonstration Test	Section 4.1 Appendix N
§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 4.2 Appendix O
§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 4.3
§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.	Section 4.4
§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 4.5
§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 4.6
§60.757(g)(6)	The provisions for the control of off-site migration.	Section 4.7 Appendix P

#### 4.1 Flare (A-1 and A-2) Compliance Demonstration Tests (BAAQMD 8-34-412)

A Compliance Demonstration Test (Performance Test) was conducted on the A-2 Flare by Blue Sky Environmental, Inc. (Blue Sky) on March 8, 2016, pursuant to BAAQMD Regulation 8-34-412, §60.8, §60.725(b)(2)(iii)(B), and §60.754(d). A copy of this Performance Test Report was included in Appendix N of the March 1, 2016 through August 31, 2016 SAR.

A Performance Test was conducted on the A-1 Flare by Blue Sky on September 21, 2016, pursuant to BAAQMD Regulation 8-34-412, §60.8, §60.725(b)(2)(iii)(B), and §60.754(d). A copy of this Performance Test Report is included in Appendix N of this report.

The compliance demonstration tests confirmed the two flares are operating in compliance with the requirements of Title V Condition 17309, Part 30 and 8-34-301.3.

A summary of the September 2016 A-1 Flare compliance demonstration test is as follows:

##### A-1 FLARE

Condition	Average Results	Limit
NOx (ppm @ 15% O <sub>2</sub> )	12.1	15
CO (ppm @ 15% O <sub>2</sub> )	0.5	114
NMOC (ppmv @ 3% O <sub>2</sub> )	<3.81	30
NMOC Destruction Efficiency (%)	>99.99%	>98%
TRS in LFG (ppmv as H <sub>2</sub> S)	97.3	300

#### 4.2 Compliance with §60.757(g)(1)

40 CFR §60.757(g)(1) requires "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 O.

### **4.3 Compliance with §60.757(g)(2)**

40 CFR §60.757(g)(2) requires “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.”

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 landfill operator conducts routine monitoring in accordance with NSPS requirements. Should the GCCS not meet the measures of performance set forth in the NSPS, the GCCS will be adjusted or modified as required.

The existing GCCS conveyance piping and emission control devices have sufficient capacity to handle the current and projected future LFG flow rates (based on quarterly surface emissions monitoring results and monthly wellhead readings). New emission control devices will be designed and permitted as appropriate for future LFG generation rates when required.

### **4.4 Compliance with §60.757(g)(3)**

40 CFR §60.757(g)(3) requires “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.

### **4.5 Compliance with §60.757(g)(4)**

40 CFR §60.757(g)(4) requires “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.”

All areas of this facility that have received waste material are considered productive areas for LFG generation. There are no non-productive areas that have been excluded from the coverage of the GCCS. Therefore, §60.757(g)(4) is not applicable.

#### **4.6 Compliance with §60.757(g)(5)**

40 CFR §60.757(g)(5) requires “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. New emission control devices will be designed and permitted as required for future increase in LFG generation rates.

#### **4.7 Compliance with §60.757(g)(6)**

40 CFR §60.757(g)(6) requires “The provisions for the control of off-site migration.”

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

- Fourth Quarter 2016 - October 7, 2016

The LFG Probe and In-Structure Monitoring Report is included in Appendix P.

Keller Canyon continues to conduct surface and perimeter monitoring in accordance with the approved monitoring plans. Should the GCCS at the landfill not meet the measures of performance set forth in the NSPS, the GCCS will be adjusted or modified as required.



## 5 SSM PLAN EVENTS

---

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. The SSM events that occurred during the NSPS semi-annual reporting period are reported in this section (September 1, 2016 through February 28, 2017). The following information is included as required:

- During the reporting period, 41 A-1 Flare SSM events occurred and 36 A-2 Flare SSM events occurred. The A-1 and A-2 Flares were shut down and restarted during the reporting period due to the reasons noted in Appendix D, Flare SSM Log.
- During the reporting period, six Wellfield SSM events occurred. Details are included in Appendix C, Wellfield SSM Log.
- There were 83 events in total. In all 83 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)).

## LIMITATIONS

---

The work product included in the attached was undertaken in full conformity with generally accepted professional consulting principles and practices and to the fullest extent as allowed by law we expressly disclaim all warranties, express or implied, including warranties of merchantability or fitness for a particular purpose. The work product was completed in full conformity with the contract with our client and this document is solely for the use and reliance of our client (unless previously agreed upon that a third party could rely on the work product) and any reliance on this work product by an unapproved outside party is at such party's risk.

The work product herein (including opinions, conclusions, suggestions, etc.) was prepared based on the situations and circumstances as found at the time, location, scope and goal of our performance and thus should be relied upon and used by our client recognizing these considerations and limitations. Cornerstone shall not be liable for the consequences of any change in environmental standards, practices, or regulations following the completion of our work and there is no warrant to the veracity of information provided by third parties, or the partial utilization of this work product.



**REPUBLIC  
SERVICES**

Keller Canyon Landfill 901 Bailey Road Pittsburg, CA 94565  
o 925.232.2999 f 925.458 9891 republicservices.com

*I certify the following:*

*Based on information and belief formed after reasonable inquiry, information on the startup, shutdown, malfunction forms, all accompanying reports, and other required certifications are true, accurate, and complete.*

  
\_\_\_\_\_  
Signature of Responsible Official

3-31-17  
Date

Rick King  
Name of Responsible Official