

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  <b>ENGINEERING AND COMPLIANCE DIVISION</b>  <b>PERMIT APPLICATION EVALUATION AND CALCULATIONS</b>	<b>PAGES</b> 20	<b>PAGE</b> 1
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**PERMIT TO CONSTRUCT/OPERATE**  
(Alteration to F37351, A/N 377722)

**APPLICANT:** CHIQUITA CANYON, LLC  
(PREVIOUS NAME: REPUBLIC SERVICES OF CALIFORNIA I, LLC)  
29201 HENRY MAYO DRIVE  
VALENCIA, CA 91355  
ATTN.: MIKE DEAN, GENERAL MANAGER

**EQUIPMENT LOCATION:**  
  
CHIQUITA CANYON LANDFILL  
29201 HENRY MAYO DRIVE  
VALENCIA, CA. 91355

**MAILING ADDRESS:** 'SAME AS ABOVE'

**FACILITY ID NO.:** 119219

**EQUIPMENT DESCRIPTION:**

ALTERATION OF A LANDFILL GAS COLLECTION SYSTEM, PERMIT F37351, CONSISTING OF:

1. ONE HUNDRED FORTY (140) VERTICAL GAS COLLECTION WELLS, OF VARYING DEPTH, EACH BORING APPROXIMATELY 3'-0" DIAMETER, WITH 4" TO 6" DIAMETER PERFORATED PIPES.
2. HEADER, APPROXIMATELY 10" TO 24" DIAMETER CONNECTING TO THE FLARE STATION.
3. HORIZONTAL GAS COLLECTION TRENCHES, APPROXIMATELY NINETY-SEVEN THOUSAND SEVEN HUNDRED (97,700) FEET, EACH APPROXIMATELY 2'-0" W. X 4'-6" D. WITH 4", 6", OR 8" DIAMETER PERFORATED PIPES.

BY THE ADDITION OF;

4. ONE HUNDRED TEN (110) VERTICAL GAS COLLECTION WELLS, OF VARYING DEPTH, EACH BORING APPROXIMATELY 3'-0" DIAMETER, WITH 4" TO 6" DIAMETER PERFORATED PIPES.
5. HORIZONTAL GAS COLLECTION TRENCHES, APPROXIMATELY ONE HUNDRED FIFTY TWO THOUSAND THREE HUNDRED (152,300) FEET, EACH APPROXIMATELY 2'-0" W. X 4'-6" D. WITH 4", 6", OR 8" DIAMETER PERFORATED PIPES.
6. EXISTING SOIL VAPOR EXTRACTION WELLS (OUTSIDE OF LANDFILL WASTE DISPOSAL AREA).

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**Conditions:**

1. CONSTRUCTION AND OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.  
[RULE 204]
2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.  
[RULE 204]
3. THIS EQUIPMENT SHALL BE OPERATED AND MAINTAINED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.  
[RULE 204]
4. CHIQUITA CANYON, LLC (CCL) SHALL MAKE A WRITTEN REQUEST FOR AND OBTAIN AN EXTENSION OF TIME TO CONSTRUCT THIS EQUIPMENT ON AN ANNUAL BASIS UNTIL SUCH TIME CONSTRUCTION (LFG COLLECTION SYSTEM EXPANSION) IS COMPLETED AND IS PUT INTO OPERATION. AT THE TIME OF WRITTEN REQUEST TO CONTINUE MULTI-YEAR CONSTRUCTION, CCL SHALL PROVIDE IN THE WRITTEN REQUEST, VERIFIABLE DATA TO SCAQMD IN ORDER TO SHOW COMPLIANCE WITH THE CONSTRUCTION SCHEDULE AS PROVIDED IN THE APPLICATION UNDER WHICH THIS PERMIT TO CONSTRUCT/OPERATE IS GRANTED. IF THERE ARE CHANGES TO THE INCREMENTS OF PROGRESS AND/OR CONSTRUCTION SCHEDULE, THEY WILL NOT BECOME EFFECTIVE UNTIL CCL RECEIVES WRITTEN CONFIRMATION OF SUCH CHANGES FROM SCAQMD.  
[RULE 204]
5. SOIL VAPOR EXTRACTION WELLS SHALL ONLY BE USED TO REMEDIATE DISCREET POCKETS OF LANDFILL GAS (LFG) THAT EXIST IN THE SUBSURFACE SOIL OUTSIDE OF THE LANDFILL WASTE DISPOSAL MODULES.
6. VERTICAL WELL DEPTHS SHALL NOT EXCEED 85% OF THE TOTAL REFUSE DEPTH AT THE SAME LOCATION AS THE WELL.
7. VERTICAL WELL SLOTTING SHALL NOT BE LESS THAN 20 FEET BELOW THE LANDFILL SURFACE.
8. HORIZONTAL COLLECTION WELLS SHALL NOT BE SPACED MORE THAN 20 FEET APART HORIZONTALLY AND 50 FEET VERTICALLY IN THE EACH CELL.
9. WELL DRILLING, DRIVING, AND/OR TRENCHING SHALL NOT BE CONDUCTED BETWEEN THE HOURS OF 6:00 P.M. AND 7:00 A.M. OR ON SATURDAYS, SUNDAYS OR LEGAL HOLIDAYS, UNLESS OTHERWISE APPROVED BY THE AQMD.  
[RULE 1150]

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10. WELL DRILLING, DRIVING, AND/OR TRENCHING SHALL NOT BE CONDUCTED ON DAYS WHEN THE AQMD FORECASTS SECOND OR THIRD STAGE EPISODES FOR AREA NO. 13, OR WHEN THE AQMD REQUIRES COMPANIES IN AREA NO. 13 TO IMPLEMENT THEIR SECOND OR THIRD STAGE EPISODE PLANS. EPISODE FORECASTS FOR THE FOLLOWING DAY CAN BE OBTAINED BY CALLING (800) 288-7664.  
[RULE 1150]
11. DURING TRENCHING, CONTINUOUS MONITORING AND RECORDING OF THE WIND SPEED AND DIRECTION SHALL BE CONDUCTED AT THE WORKING FACE AND AT THE PROPERTY LINE DIRECTLY DOWNWIND OF THE EXCAVATION.  
[RULE 1150]
12. WELL DRILLING, DRIVING, AND/OR TRENCHING SHALL NOT BE CONDUCTED ON DAYS WHEN THE WIND SPEED IS GREATER THAN 15 M.P.H. AVERAGE (OVER 15 MINUTES) OR THE WIND SPEED INSTANTANEOUSLY EXCEEDS 25 M.P.H.  
[RULE 1150]
13. CONSTRUCTION SPOILS AND ALL WORKING AREAS ACTIVELY USED FOR TRUCK AND CONSTRUCTION EQUIPMENT TRAFFICKING SHALL BE MAINTAINED IN A MOIST CONDITION TO MINIMIZE DUST AND EMISSIONS.  
[RULE 1150]
14. THE CONSTRUCTION OF ANY PIPING OR WELL TRENCH WHICH EXPOSES LANDFILL TRASH TO THE ATMOSPHERE SHALL BE STAGED SUCH THAT NO MORE THAN ONE HUNDRED (100) LINEAR FEET OF TRENCH PER EXCAVATION SITE IS EXPOSED AT ANY TIME PRIOR TO BACKFILLING. THE NUMBER OF EXCAVATION SITES SHALL NOT EXCEED TWO, UNLESS OTHERWISE APPROVED BY THE AQMD.  
[RULE 1150, 402]
15. FOR PURPOSES OF THIS PERMIT, CONSTRUCTION SPOILS ARE LANDFILL TRASH, MATERIAL THAT IS MIXED WITH OR IN CONTACT WITH LANDFILL TRASH, OR ODOROUS MATERIAL THAT IS REMOVED FROM WELL HOLES OR TRENCHES. THERE SHALL BE NO CONSTRUCTION SPOILS LEFT ON THE LANDFILL SURFACE. ALL CONSTRUCTION SPOILS SHALL BE DEPOSITED AT THE ACTIVE DISPOSAL AREA OR OTHER APPROPRIATE SITE WITHIN ONE HOUR OF GENERATION OR DEEMED NECESSARY BY AQMD PERSONNEL.  
[RULE 1150]
16. WHEN LOADING IS COMPLETED AND DURING TRANSPORT OF THE CONSTRUCTION SPOILS, NO MATERIAL SHALL EXTEND ABOVE THE SIDES OR REAR OF THE VEHICLE HAULING THE MATERIAL.  
[RULE 1150]

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17. THE EXTERIOR OF ALL VEHICLES (INCLUDING THE TIRES) HAULING THE CONSTRUCTION SPOILS SHALL BE CLEANED OFF PRIOR TO LEAVING THE WORK SITE.  
[RULE 1150]
18. WELL HOLES, TRENCHES AND EXPOSED LANDFILL TRASH SHALL BE COMPLETELY COVERED TO PREVENT ANY EMISSION OF LANDFILL GAS TO THE ATMOSPHERE WHENEVER WORK IS NOT ACTIVELY IN PROGRESS. THE COVER SHALL INCLUDE, BUT MAY NOT BE LIMITED TO, A MINIMUM OF 6 INCHES OF CLEAN DIRT, APPROVED FOAM, OR HEAVY DUTY PLASTIC SHEETING. FOAM BY ITSELF SHALL NOT BE USED AS A NIGHT COVER IF IT IS RAINING OR IF RAIN IS PREDICTED BY THE NATIONAL WEATHER SERVICE PRIOR TO THE NEXT SCHEDULED WORKING DAY.  
[RULE 1150, 1150.1]
19. A SHUT-OFF VALVE AND A SAMPLING PORT SHALL BE INSTALLED AT EACH VERTICAL AND HORIZONTAL WELL CONNECTION TO THE HEADER.  
[RULE 1150, 1150.1]
20. UNTIL CONNECTED TO THE OPERATIONAL LANDFILL GAS COLLECTION SYSTEM, ALL VAPOR EXTRACTION PIPES SHALL BE CAPPED AND THEIR GAS CONTROL VALVES CLOSED TO AVOID VENTING LANDFILL GAS TO THE ATMOSPHERE.  
[RULE 1150]
21. EACH WELL SHALL BE SECURELY SEALED TO PREVENT ANY EMISSIONS OF LANDFILL GAS FROM AROUND THE WELL CASING.  
[RULE 1150, 1150.1]
22. EACH GAS COLLECTION WELL SHALL BE CONNECTED TO AN OPERATING LANDFILL GAS HEADER OR THE ENDS OF THE WELL SHALL BE SEALED WITH BLIND FLANGES OR OTHER TYPES OF SEALS APPROVED BY THE AQMD AS SOON AS THE WELL IS INSTALLED.  
[RULE 1150, 1150.1]
23. WITHIN 30 DAYS AFTER CONSTRUCTION OF A GROUP OF WELLS AND THEIR ASSOCIATED PIPING IS COMPLETE, AS-BUILT DRAWINGS SHALL BE SUBMITTED TO THE AQMD (TOXICS AND WASTE MANAGEMENT).  
[RULE 1150]
24. ALL GASES COLLECTED BY THIS SYSTEM SHALL BE VENTED TO A COMBUSTION OR PROCESSING FACILITY WHICH CAN ADEQUATELY PROCESS THE VOLUME OF GAS COLLECTED, AND HAS BEEN ISSUED A VALID PERMIT TO CONSTRUCT OR OPERATE BY THE AQMD.  
[RULE 1150.1, 1303(a) (1)-BACT]

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25. IF THE ORGANIC VAPOR ANALYZER (OVA) OR OTHER APPROVED ORGANIC MONITOR SHOWS A SUSTAINED (GREATER THAN 3 MINUTES) READING OF 500

PPMV (ABOVE BACKGROUND) OR GREATER AT THE PROPERTY LINE, THE AQMD SHALL BE NOTIFIED, ALL EXCAVATION SHALL CEASE, AND ALL EXPOSED TRENCHES SHALL BE BACKFILLED WITH CLEAN SOIL.

[RULE 1150, 1150.1]

26. IF READINGS OF THE OVA OR OTHER APPROVED ORGANIC MONITOR EXCEED THE FOLLOWING ORGANIC CONCENTRATIONS AT THE WORKING FACE FOR A PERIOD OF 3 MINUTES OR MORE, THE INDICATED ACTIONS SHALL BE IMPLEMENTED:

PPMV	REQUIRED ACTION
1000	NOTIFY THE AQMD REDUCE THE LENGTH OF EXPOSED TRENCH TO 50 FEET.
2000	CEASE EXCAVATION ACTIVITIES BACKFILL THE TRENCH NOTIFY THE AQMD RESUME EXCAVATION ACTIVITIES WHEN AIR LEVELS RETURN TO BACKGROUND.

[RULE 402, 1150, 1150.1]

27. DURING CONSTRUCTION, IF A CONSIDERABLE NUMBER OF ODOR COMPLAINTS ARE RECEIVED, ALL WORK SHALL CEASE AND THE APPROVED MITIGATION MEASURES SHALL BE IMPLEMENTED IMMEDIATELY. WORK SHALL NOT RESUME UNTIL THE EMISSIONS CAUSING THE COMPLAINTS ARE MITIGATED AND THE APPROVAL TO RESUME WORK IS RECEIVED FROM THE AQMD.

[RULE 402, 1150]

28. IF A DISTINCT ODOR LEVEL (LEVEL III OR GREATER) RESULTING FROM THE CONSTRUCTION OR BIOREMEDIATION IS DETECTED AT OR BEYOND THE PROPERTY LINE, ALL WORK SHALL CEASE UNTIL THE ODOR SOURCES ARE DETERMINED AND ELIMINATED. ODOR LEVELS SHALL BE DETERMINED BY AQMD PERSONNEL OR AN ON-SITE SAFETY COORDINATOR IN THE ABSENCE OF THE AQMD PERSONNEL.

[RULE 402, 1150]

29. MITIGATION MEASURES, OTHER THAN THOSE INDICATED IN THESE CONDITIONS, WHICH ARE DEEMED APPROPRIATE BY AQMD PERSONNEL AS NECESSARY TO PROTECT THE COMFORT, REPOSE, HEALTH, OR SAFETY OF THE PUBLIC SHALL BE IMPLEMENTED UPON REQUEST.

[RULE 1150]

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30. ALL RECORDS SHALL BE MAINTAINED AND KEPT FOR AT LEAST TWO YEARS IN A FORM APPROVED BY THE AQMD AND MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.  
[RULE 3004(a) (4)]

Emissions and Requirements:

31. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:  
[GASEOUS EMISSIONS: RULE 1150.1, 40CFR60 SUBPART WWW, 40CFR63 SUBPART AAAA]

**Background**

The Chiquita Canyon Landfill is operated by the Chiquita Canyon, LLC (previous name - Republic Services of California, LLC). The site is a Class III municipal solid waste active landfill facility located at Valencia, and is a Title V Facility.

On October 9, 2008, A/N 491445 was submitted as administrative change to the existing PO F37351, A/N 377722, to change the number of vertical wells and length of horizontal wells, which would allow future expansion of the LFG collection system. This was based on several email correspondences from AQMD staff with SCS Engineers and applicant. (See letter dated February 6, 2008 from applicant regarding proposed changes).

The permit evaluation is for alteration of the existing permit by addition of vertical wells and horizontal trenches. All LFG collected to be sent to the gas header for combustion in flares or to the Chiquita Canyon Energy, LLC's LFG to energy facility for power generation.

In addition, exemption request for an alternative to landfill gas wellhead oxygen level standards of New Source Performance Standards (NSPS) for Municipal Solid Waste Landfills (40 CFR Part 60, subpart WWW) is addressed under this evaluation, for which, information was submitted under A/N 459262.

On April 22, 2011, SCS Engineers, on behalf of applicant, sent addendum to include additional six (6) LFG extraction wells (CV-90, H-39, CV-57D, CV-84D, CV-84S and CV-85D) for exemption demonstrating Higher Operating Values (HOV), as allowed under NSPS-40CFR Part 60, Subpart WWW, Section 60.753 ( c ). These wells had exceeded default value of 131 degrees Fahrenheit in the past. Field monitoring data for the above wells from March 2010 to March 2011 are submitted by the SCS to demonstrate that elevated temperature is not causing or contributing to a landfill fire or significantly inhibiting anaerobic decomposition by killing methogens (HOV data submitted for: CO ppmv, % CH4, % CO2, % O2, Balance (% N2) and initial temperature).

Note: Facility wide condition # 5 E allows requested variance to high temperature (up to 145 deg F) with other parameters monitoring requirements.

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A/N 459262 (8/02/06 submittal): Is evaluated as a de minimis significant permit revision. The revision will incorporate above mentioned alteration, PC-PO, for the LFG collection system and exemption for wellhead oxygen level standards.

Most recent Title V Revision (A/N 491446) was issued on March 12, 2013.

**Process Description:**

This is a LFG collection system consisting of vertical and horizontal wells and a header. The collected LFG is sent to the existing flares to control emissions and comply with applicable rules. The proposed administrative change is to increase number of vertical gas collection wells from 140 to 250 and horizontal gas collection trenches length from 97,700 ft. to 250,000 ft. This is considered an alteration to the existing LFG collection system.

On 6/13/13, SCS Engineers, on behalf of the applicant, submitted the LFG collection and control system design plan to comply with NSPS and Rule 1150.1 requirements.

As per LFG collection and control design plan submittal (Exhibit-1 Table);

Year	Est'd LFG Recovery, scfm
2013	4,474
2034 (Est'd LF closing)	5,831

Review of current flares' permitted limit (Chiquita Canyon LF) = Total 8,000 scfm (2 flares)  
= 240 MMBTU/HR, total

Ameresco Chiquita Energy, LLC, (ID 140373), located at the Chiquita Canyon LF, Facility wide total permitted heat input rate (LFG) limit (2 gas turbines and a flare, per Title V Facility Permit),  
= 118.4 MMBTU/HR

This shows that any surplus LFG, in excess of 118.4 MMBTU/HR, can be combusted in the existing permitted flares at the Chiquita Canyon, LLC (ID 119219), that have more than needed capacity (122 MMBTU/HR).

**Rule 1150.1 Evaluation**

**40 CFR Part 60 Subpart WWW- Standards of Performance of Municipal Solid Waste Landfills**

60.750- Applicability. The site began operating in 1972. The permitted landfill disposal footprint totals 257 acres (currently, 231 acres have been used for disposal). The LFG collection and control system (GCCS) was originally installed in 1989 (Primary canyon

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and canyon B) and subsequently upgraded over the years. The most recent GCCS upgrades were completed in 2009. The maximum permitted throughput is 560 tons MSW per operating day and design capacity is 63.9 million cubic yards, with estimated closure date in 2019.

60.752(b) (1)-Comply with paragraph (b) (2) or calculate NMOC emission rate per 60.754, and recalculated annually, except if annual report to indicates < 50 Mg/year in each of the next 5 consecutive years, then may submit 5-year NMOC emission rate estimate instead.

The GCCS Design Plan for the facility satisfies the requirements for GCCS Design Plan and can comply with existing and future GCCS with the required active gas collection system specifications. The information is provided in the GCCS Design Plan (Section 5) submitted on June 13, 2013 and certified by Professional engineer.

60.752(b) (2) - NMOC emission rate  $\geq$  50Mg/year. GCCS design plan is submitted.

60.752(b)(2)(i)- Submit a collection/control system design plan prepared by a PE within 1 year, which shall: (A)- meet (b)(2)(ii); (B)- include alternatives to operational standards, test methods, procedures, compliance measures, monitoring, recordkeeping or reporting provisions of 60.753-60.758; (C)- have a design plan per 60.759 active specifications or include a demonstration to Administrator's satisfaction of the alternatives; (D)- have submitted information for Administrator for approval.

60.752(b)(2)(ii)- Install a LFG collection/control system within 30 months after the first annual report with emissions  $\geq$  50 Mg/year, unless Tier 2 or Tier 3 sampling demonstrates emission rates < 50 Mg/year per 60.757(c)(1) or (2).

(A) Active collection shall: (1)- Be designed to handle maximum expected gas flow rate from entire area that is for a gas control/treatment system; (2)(i)-Collect gas from each area, which the initial solid waste has been placed for 5 or more years; (3)- Collect gas at sufficient extraction rate; (4)- Be designed to minimize off-site migration.

60.752(b) (2) (iii) (B) (2)-Route all collected gas to control system to reduce NMOC by 98% by weight or reduce outlet NMOC concentration < 20 ppmv, dry as hexane @3%O<sub>2</sub>. Reduction efficiency or ppmv shall be established by an initial performance test to be completed no later than 180 days after initial startup per test methods in 60.754(d). Control device shall be operated

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within parameter ranges established during initial or most recent performance test and monitored per 60.756.

60.752(b) (2) (iv) - Collection/control device shall comply with 60.753, 60.755, and 60.756.

60.752(b)(2)(v)- Collection/control system may be capped or removed if: (A) LF is closed (see 60.751 definition) with closure report per 60.757(d); (B) Collection/control system operated at least 15 years; and (C) The calculated NMOC < 50 Mg/year on 3 successive test dates, within 90-180 days apart, per 60.754(b).

60.753(a) - Operate collection system from areas in which solid waste has been in place for  $\geq 5$  years (active).

60.753(b) - Operate collection system with negative pressure at each wellhead except for:

- (1) A fire or increased well temperature. Record instance of positive pressure.
- (2) Use a geomembrane or synthetic cover. Develop acceptable pressure limits.
- (3)- A decommissioned well.

60.753(c) - Operate each interior wellhead in collection system with LFG temperature < 55°C and with either N<sub>2</sub> level <20% or O<sub>2</sub> level < 5%. Higher operating value (HOV) demonstration shall show supporting data that elevated parameters do not result in fire, or significantly inhibit anaerobic decomposition.

60.753(d) - Methane concentration < 500 ppm above background at the LF surface. Shall conduct surface testing around perimeter of collection area and along pattern that traverses LF at 30meter intervals and where visual observations indicate elevated concentration of LFG (cracks, seeps, distressed vegetation). Alternative traversing pattern acceptable. A surface monitoring design plan shall be developed that include a topographical map with monitoring route and rationale for deviations. Areas with steep slopes or other dangerous areas may be excluded from surface testing.

60.753(e) - All collected gases shall be vented to a control system per 60.752(b) (2) (iii). If collection/control system inoperable, blowers, valves, etc. shall be closed within 1 hour.

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60.753(g) - If monitoring demonstrates that operational requirements are not met, corrective actions shall be taken per 60.755(a) (3) through (5) or 60.755(c).

60.754(a)-(1) Calculate NMOC emission rate per 60.754(a)(1)(i) or (ii); (2)-Tier 1; (3)-Tier 2; (4)-Tier 3; (5)-May used other methods if approved by Administrator.

60.754(b) - When in compliance with 60.755, calculate NMOC emission rate to determine when system can be removed per 60.752(b) (2) (v) equation.

60.754(c) - Calculate emissions for PSD major source and significant levels per 51.166 or 52.21 using AP-42 or other approved methods.

60.755(a) (3) - To demonstrate compliance with sufficient LFG collection flow rate per 60.752(b) (2) (ii) (A) (3), measure gauge pressure in gas collection header at each individual well, monthly. If positive pressure, initiate action within 5 calendar days, except for 60.753(b). If can't achieve negative pressure without excess air within 15 calendar days of first measurement, expand gas collection system within 120 days of initial positive pressure measurement.

60.755(a) (4) - Expansion of gas collection system is not required during the first 180 days after gas collection system startup.

60.755(a) (5) - Monitor each well monthly for temperature and N<sub>2</sub> or O<sub>2</sub> per 60.753(c) for excess air infiltration determination. If exceedance occurs, action shall be initiated to correct exceedance within 120 days of initial exceedance.

60.755(b) - Place each well and design component in the approved design plan. Install each well no later than 60 days after the date on which the initial solid waste has been in place for 5 years or more.

60.755(c)(1)- Monitor surface concentrations of methane along entire perimeter of the collection area and along a pattern that traverses the LF at 30meter intervals (or site-specific spacing) for each collection area on a quarterly basis using an OVA, FID, or other portable monitoring per specs in (d).

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60.755(c) (2) - Determine background concentration by moving probe inlet upwind and downwind outside the LF boundary at least 30meters from perimeter wells.

60.755(c) (3) Surface monitoring shall be performed per 4.3.1 of Method 21 of Appendix A of this subpart, with probe inlet within 5 to 10 centimeters of ground.

60.755(c) (4) - Any reading  $\geq$  500 ppm above background shall be a recorded exceedance.

(i)- Location of exceedance marked and recorded.

(ii)- Cover maintenance or adjustments to vacuum of adjacent wells to increase gas collection in vicinity of each exceedance and re-monitored within 10 calendar days.

(iii)- If re-monitoring shows a second exceedance, additional corrective action shall be taken and monitored again within 10 days of second exceedance. If a third exceedance for same location, then proceed with (c) (4) (v).

(iv)- Any location with an initial exceedance but has a methane concentration < 500ppm methane above background at the 10-day re-monitoring shall be re-monitored 1 month from initial exceedance. If the 1-month remonitoring shows < 500 ppm above background, no further monitoring is required at that location until next quarterly period. If 1-month re-monitoring shows exceedance, proceed with (c) (4) (iii) or (v).

(v)- Any location where monitored methane concentration  $\geq$  500 ppm above background 3 times within a quarterly period, a new well or other collection device shall be installed within 120 calendar days of initial exceedance. Alternative remedies (upgrading blower, header pipes, or control device and timeline for installation may be submitted to Administrator for approval.

60.755(c)(5)- Implement a program to monitoring for cover integrity and implement cover repairs as necessary on a monthly basis.

60.755(d) - Follow instrument specs and procedures for surface emission monitoring.

60.755(e) - Provisions of this subpart apply at all times, except during start-up, shutdown, or malfunction, which shall not exceed 5 days for collection systems and 1 hour for treatment or control devices.

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60.756(a) - Install sampling port and temperature measuring device at each wellhead. Measure gauge pressure, N2 or O2, and temperature of LFG monthly.

60.756(b)- Calibrate, maintain, and operate enclosed combustor per manufacturer's specifications: (1) A temperature monitoring device with a continuous recorder with at least +/-1% accuracy or +/- 0.5°C, whichever is greater. (2) A device that records flow at least every 15 minutes to or secure bypass line valve in the closed position with a car-seal or lock and key configuration of the control device. Inspect valve visually monthly.

60.757- Submit amended design capacity report to Administrator within 90 days of increase of maximum design capacity; NMOC emission rate report annually or submit 5-year estimates; collection and control system design plan; exceedance report, initial performance test report, including diagrams, data, and documentation of equipment, materials, and gas flow rates.

60.758- Keep records  $\geq$  5 years and keep an up-to-date accessible plot map of the system.

The facility has an active gas collection system and routes the gas to a control system (flares) with minimum 98% NMOC destruction efficiency and/or a treatment system (engine pretreatment) that processes the gas prior to use in the LFG fired engines.

Compliance with this regulation is expected.

**40 CFR Part 63 Subpart AAAA- National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Facilities**

63.1935- This subpart is applicable. The facility is subject to this subpart and complies through compliance with 40 CFR 60, Subpart WWW.

Compliance with all applicable rules and regulations is expected for the proposed equipment description change, with no impact on emissions.

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**Recommendations:**

Permit to construct/operate is recommended with changes in number of vertical wells and horizontal wells linear feet under equipment description.

Upon completion of 45-day review by EPA, and approval for PC-PO for 494145, PO shall be added to Title V Section D. This new PO will supersede existing PO F37351, A/N 377722.

**A/N 459262: TITLE V PERMIT REVISION**

(De Minimis Significant Permit Revision-Title V Facility wide conditions)

**REQUEST FOR ALTERNATIVE WELLHEAD OXYGEN LEVEL STANDARDS**

**BACKGROUND:**

On August 2, 2006, Republic Services of California I LLC (new name is Chiquita Canyon, LLC) submitted this application for revision to Title V facility. The proposed revision is for Title V permit, change of condition (Included under Facility wide condition) requesting exemption for landfill gas collection wellhead oxygen level standards from New Source Performance Standards (NSPS) under 40 CFR Part 60, Subpart WWW. Section 60.753 (c) allows the owner or operator to establish a higher operating parameter (temperature, nitrogen or oxygen value) at a particular well. The staff have considered this application as a De minimis Significant Revision to the Title V permit and will not violate NSPS requirement under 40 CFR Part 60. Chiquita Canyon Landfill is an active municipal solid waste landfill.

The most recent Title V minor revision was issued on March 12, 2013.

**DISCUSSION:**

This Title V Revision is considered a de-minimis significant revision.

On July 16, 2006, SCS Engineers, the consultant for the Republic Services of California submitted original proposal for the alternative monitoring standards for LFG wellheads for control of LFG migration and to control VOC contamination into groundwater. Up on review of the information submitted, and subsequent discussions with SCS staff, AQMD informed SCS to provide additional data to further identify specific wells that may have impact on LFG migration or groundwater VOC contamination. As a result, on August 28, 2007, SCS Engineers submitted revised alternative monitoring standards for specific wells located in primary canyon, canyon B, C and D areas. The revised proposal is based on historical monitoring data from January 2004 through November 2006 showing overall range for % methane, % O<sub>2</sub>, avg. % O<sub>2</sub> temperature range (Deg. F) and proposed % O<sub>2</sub> limit for selected wells. Total of 12 wells (canyon B,C, D and primary canyon) are proposed for alternate monitoring with greater than 5% O<sub>2</sub> and 15 wells (canyon B, D and primary canyon) for migration of impacted groundwater wells (DW-3, DW-20 and DW-1 & DW-16).

The intent of the NSPS is to reduce surface emissions of LFG. NSPS also requires that a vacuum, O<sub>2</sub> content less than 5% by volume, and a temperature of less than 55 deg C

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(131 deg. F) be maintained at all LFG extraction wells while the Gas Collection and Control System (GCCS) is in operation.

It also establishes certain wellhead standards that were designed to prevent subsurface fire (by drawing air into the landfill).

% O<sub>2</sub> Level greater than 5%: (Application Addendum information, Attachment 1, 2 and Table 1 Data)

Review of the historical data presented in Table 1 indicated that number of wells used for NSPS compliance that have consistently shown oxygen content above the 5% limit at Chiquita Canyon Landfill (CCL). CCL application states that in some situations, while under constant vacuum the quality of the LFG extracted can be negatively affected by certain site-specific conditions, such as wells placed in older waste material with no liner, wells in areas containing large quantities of inert wastes. This condition may attribute to partial anaerobic and partial aerobic conditions producing low methane LFG.

Historical data for twelve (12) wells located in canyon B, C, D, and primary canyon have indicated that despite the higher % oxygen levels, % methane level and corresponding temperature are acceptable. 40 CFR 60.753 ( c ) states that the owner or operator may establish a higher operating temperature, nitrogen or oxygen value at particular well. A higher operating value demonstration shall show supporting data that the elevated parameter does not cause fire or significantly inhibit anaerobic decomposition by killing pathogens. The regulation also allows design changes relative to the negative pressure standard if approved by the Administrator. Therefore, CCL's proposed alternative for higher oxygen content in wells, as identified in Table 1 (addendum submittal of 8/28/07)

shall be approved based on actual operating data presented (See revised Condition No. 5C & 5 D (new)- to be included in Title V Facility wide condition revision),

- Acceptable % methane range for wells indicating anaerobic condition and presence of active methanogens.
- Temperature range for the wells is below NSPS limit of 131deg. F indicating no subsurface fire despite higher % oxygen.

This alternative for higher % oxygen level shall be subject to close monitoring of well parameters on a monthly basis. Records shall be maintained for well vacuum, % methane, % O<sub>2</sub>, and temperature readings. Periodic inspection shall include that there is no physical evidence of fire, observation that there is no charred material present on the inside of the pipes in the gas collection system. Periodic CO measurement (ppmv) is recommended to determine absence of potential fire.

LFG Migration and Protection from Groundwater Contamination: (Application Addendum information, Attachment 1, & 2, Fig. 1 through 5, and Table 2 Data)

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Chiquita Canyon Landfill operations is governed by California Integrated Waste Management Board (CIWMB) regulations for the health and safety aspects of LFG migration control and the Los Angeles Regional Water Quality Control Board (LARWQCB) for Waste Discharge Requirements that govern groundwater quality. The landfill is operating under Corrective Action Plan (CAP) submitted to LARWQCB for control of VOCs detected in groundwater. The site is unable to meet the goals of CAP because of the 5% oxygen limit restricts how much LFG can be pulled from wells. Groundwater monitoring data (Attachment 2, Fig. 1 through 5) show VOC contamination for monitoring wells DW-1 & DW-2 (from 1986 through 2006) and wells DW-16 & DW-20 (2003 through 2006). These wells are located in canyon B, D and primary canyon areas. Typical VOC contamination include 1, 1, DCA, 1, 4 Dichlorobenzene, cis-1, 2-Dichloroethene, PCE, TCE, CFC 12, generally with increased trend for concentrations for DW-3, DW-16 and DW-20.

Based on review of these data it is concluded that despite low % oxygen level and temperature below 131 deg F, increased vacuum may improve control of LFG migration thereby reducing VOC contamination for groundwater. This action can cause intrusion of additional air thereby resulting in higher % oxygen level, requiring close monitoring for other parameters. Therefore, proposed alternative monitoring for wells identified in Table-2 shall be granted to allow higher % O<sub>2</sub> level under the same monitoring conditions stated above (under % O<sub>2</sub> Level greater than 5%).

**Addendum:** Letter dated April 22, 2011 from SCS Engineers

Request to approve higher operating temperature for the six (6) wells at Chiquita Canyon Landfill. Supporting data submitted to demonstrate that Higher Operating Values (HOVs) show that elevated parameter does not cause fire or significantly inhibit anaerobic decomposition by killing methanogens.

On April 22, 2011, SCS Engineers, on behalf of applicant, sent addendum to include additional six (6) LFG extraction wells (CV-90, H-39, CV-57D, CV-84D, CV-84S and CV-85D) and demonstrating Higher Operating Values (HOV), as allowed under NSPS-40CFR Part 60, Subpart WWW, Section 60.753 ( c ). These wells had exceeded default value of 131 degrees Fahrenheit in the past. Field monitoring data for the above wells from March 2010 to March 2011 are submitted by the SCS to demonstrate that elevated temperature is not causing or contributing to a landfill fire or significantly inhibiting anaerobic decomposition by killing methogens (HOV data submitted for: CO ppmv, % CH<sub>4</sub>, % CO<sub>2</sub>, % O<sub>2</sub>, Balance (% N<sub>2</sub>) and initial temperature).

Note: Facility wide condition # 5 E allows requested variance to high temperature (up to 145 deg F) with other parameters monitoring requirements.

**RULES:**

Compliance with applicable Rules and Regulations is expected.

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**RECOMMENDATION:**

Operation of specified wells in Table 1 & Table 2 (Application addendum submittal of 8/28/07) shall be approved allowing higher % oxygen level up to 15% with close monitoring of other parameters to prevent from subsurface fire.

Also approve HOV for the six (6) wells identified to allow well operating temperature up to 145 deg. F. The Title V facility wide condition is revised accordingly for this Revision [See facility wide condition No. 5 C (revised) and new conditions 5 D and 5E].

Upon completion of EPA 45-day review, revised Title V shall be issued under most recent TV Revision A/N 459262 that is also grouped with other A/Ns

**FACILITY WIDE CONDITION (S)**

**Condition(s):**

1. EXCEPT FOR OPEN ABRASIVE BLASTING OPERATIONS, THE OPERATOR SHALL NOT DISCHARGE INTO THE ATMOSPHERE FROM ANY SINGLE SOURCE OF EMISSIONS WHATSOEVER ANY AIR CONTAMINANT FOR A PERIOD OR PERIODS AGGREGATING MORE THAN THREE MINUTES IN ANY ONE HOUR WHICH IS:
  - A. AS DARK OR DARKER IN SHADE AS THAT DESIGNATED NO. 1 ON THE RINGLEMANN CHART, AS PUBLISHED BY THE UNITED STATES BUREAU OF MINES; OR
  - B. OF SUCH OPACITY AS TO OBSCURE AN OBSERVER'S VIEW TO A DEGREE EQUAL TO OR GREATER THAN DOES SMOKE DESCRIBED IN SUBPARAGRAPH (a) OF THIS CONDITION.  
[RULE 401]
  
2. THE OPERATOR SHALL NOT USE FUEL OIL CONTAINING SULFUR COMPOUNDS IN EXCESS OF 0.05 PERCENT BY WEIGHT. ON OR AFTER JUNE 1, 2004, A PERSON SHALL NOT PURCHASE ANY DIESEL FUEL FOR STATIONARY SOURCE APPLICATION IN THE DISTRICT, UNLESS THE FUEL IS LOW SULFUR DIESEL FOR WHICH THE SULFUR CONTENT SHALL NOT EXCEED 15 PPM BY WEIGHT AS SUPPLIED BY THE SUPPLIER.  
[RULE 431.2]
  
3. THE OPERATOR SHALL NOT USE LANDFILL GAS CONTAINING SULFUR COMPOUNDS IN EXCESS OF 150 PPMV CALCULATED AS HYDROGEN SULFIDE AVERAGED DAILY.  
[RULE 431.1]

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4. THE OWNER/OPERATOR OF A MSW LANDFILL SHALL COMPLY WITH THE FOLLOWING:
- A. INSTALL AND OPERATE A WIND SPEED AND DIRECTION MONITORING SYSTEM WITH A CONTINUOUS RECORDER. FOR WIND SPEED, USE A 3 CUP ASSEMBLY WITH A RANGE OF 0 TO 50 MILES AN HOUR, WITH A THRESHOLD OF 0.75 MILE PER HOUR OR LESS. FOR WIND DIRECTION, USE A VANE WITH A RANGE OF 0 TO 540 DEGREES AZIMUTH, WITH A THRESHOLD OF PLUS-MINUS 2 DEGREES. AN APPROVED ALTERNATIVE MAY BE USED IN LIEU OF THE ABOVE.  
[RULE 1150.1]
  - B. MONITOR AND COLLECT MONTHLY, OR AS PER THE APPROVED 1150.1 ALTERNATIVE, SAMPLES FOR ANALYSIS OF TOC AND TAC FROM THE SUBSURFACE REFUSE BOUNDARY SAMPLING PROBES.  
[RULE 1150.1]
  - C. OPERATE THE COLLECTION SYSTEM TO PREVENT THE CONCENTRATION OF TOC MEASURED AS METHANE FROM EXCEEDING 5% BY VOLUME IN THE SUBSURFACE REFUSE BOUNDARY SAMPLING PROBES.  
[RULE 1150.1]
  - D. COLLECT MONTHLY, OR AS PER THE APPROVED 1150.1 ALTERNATIVE, INTEGRATED SAMPLES FOR ANALYSIS OF TOC AND TAC FROM THE LANDFILL SURFACE.  
[RULE 1150.1]
  - E. OPERATE THE COLLECTION SYSTEM TO PREVENT THE CONCENTRATION OF TOC MEASURED AS METHANE FROM EXCEEDING 50 PPMV AS DETERMINED BY INTEGRATED SAMPLES TAKEN ON NUMBERED 50,000 SQUARE FOOT LANDFILL GRIDS OR AS PER THE APPROVED 1150.1 ALTERNATIVE  
[RULE 1150.1]
  - F. MONITOR QUARTERLY, OR AS PER THE APPROVED 1150.1 ALTERNATIVE, THE LANDFILL SURFACE FOR TOC EACH QUARTER, OR AS APPROVED, FROM THE SURFACE OF THE LANDFILL  
[RULE 1150.1]
  - G. OPERATE THE COLLECTION SYSTEM TO PREVENT THE CONCENTRATION OF TOC MEASURED AS METHANE FROM EXCEEDING 500 PPMV ABOVE BACKGROUND AS DETERMINED BY INSTANTANEOUS MONITORING AT ANY LOCATION ON THE LANDFILL, EXCEPT AT THE OUTLET OF ANY CONTROL DEVICE.  
[RULE 1150.1]

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- H. COLLECT MONTHLY, OR AS PER THE APPROVED 1150.1 ALTERNATIVE, LANDFILL GAS SAMPLES FOR ANALYSIS OF TOC AND TAC FROM THE MAIN GAS COLLECTION HEADER LINE ENTERING THE GAS TREATMENT AND/OR GAS CONTROL SYSTEM.  
[RULE 1150.1]
- I. COLLECT MONTHLY, OR AS PER THE APPROVED 1150.1 ALTERNATIVE, AMBIENT AIR SAMPLES FOR ANALYSIS OF TOC AND TAC FROM THE LANDFILL PROPERTY BOUNDARY.  
[RULE 1150.1]
- J. COLLECT MONTHLY, OR AS PER THE APPROVED 1150.1 ALTERNATIVE, AMBIENT AIR SAMPLES FOR ANALYSIS OF TOC AND TAC FROM THE LANDFILL PROPERTY BOUNDARY.  
[RULE 1150.1]
- K. OPERATE THE GAS COLLECTION AND CONTROL SYSTEM AT ALL TIMES FOR LANDFILLS WITH ACTIVE COLLECTION SYSTEMS.  
[RULE 1150.1]
- L. OPERATE ALL WELLHEADS SO THE GAUGE PRESSURE IS UNDER A CONSTANT VACUUM, EXCEPT DURING WELL HEAD RAISING AND/OR REPAIR AND TEMPORARY SHUTDOWN DUE TO A CATASTROPHIC EVENT.  
[RULE 1150.1]
- 5. THE OWNER/OPERATOR OF A MSW LANDFILL SHALL COMPLY WITH THE FOLLOWING:
  - A. OPERATE THE COLLECTION SYSTEM SUCH THAT THE GAS IS COLLECTED FROM EACH AREA, CELL OR GROUP OF CELLS OF THE LANDFILL IN WHICH THE INITIAL SOLID WASTE HAS BEEN IN PLACE FOR A PERIOD OF;
    - (1) 5 YEARS OR MORE IF ACTIVE; OR
    - (2) 2 YEARS OR MORE IF CLOSED OR AT FINAL GRADE
  - B. OPERATE THE COLLECTION SYSTEM WITH NEGATIVE PRESSURE AT EACH WELL-HEAD EXCEPT UNDER THE FOLLOWING CONDITIONS:
    - (1) DURING A FIRE OR INCREASED WELL TEMPERATURE – THE OWNER/OPERATOR SHALL RECORD THE INSTANCES WHEN POSITIVE PRESSURE OCCURS IN EFFORTS TO PREVENT A FIRE. THIS REPORT SHALL BE SUBMITTED WITH THE ANNUAL REPORTS AS PROVIDED IN §60.757(f) (1).
    - (2) WHENEVER A GEOMEMBRANE OR SYNTHETIC COVER IS IN PLACE- THE OWNER/OPERATOR SHALL DEVELOP ACCEPTABLE PRESSURE LIMITS IN THE DESIGN PLAN.

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- (3) WHEN A WELL IS DECOMMISSIONED – A WELL MAY EXPERIENCE A STATIC POSITIVE PRESSURE AFTER SHUT DOWN TO ACCOMMODATE FOR DECLINING FLOWS.
- C. OPERATE EACH INTERIOR WELLHEAD IN THE COLLECTION SYSTEM, EXCEPT THE EXEMPT WELLS LISTED UNDER CONDITION NO. 5D, WITH A LANDFILL GAS TEMPERATURE LESS THAN 55 DEGREES C AND WITH EITHER A NITROGEN LEVEL LESS THAN 20% OR AN OXYGEN LEVEL LESS THAN 5% AS DETERMINED BY METHODS DESCRIBED IN §60.753(c).
- D. THE FOLLOWING WELLS ARE ALLOWED TO OPERATE WITH GREATER THAN 5% OXYGEN, AND NOT TO EXCEED CORRESPONDING % OXYGEN LIMIT, FOR THE PURPOSE OF CONTROLLING LFG MIGRATION AND GROUNDWATER CONTAMINATION. EACH WELL IS SUBJECT TO MONTHLY MONITORING AND RECORD KEEPING FOR %METHANE, VACUUM, % OXYGEN, TEMPERATURE AND CO (PPMV). IF THE MONITORING DATA DEMONSTRATES EXCEEDANCE FOR THE OPERATING PARAMETERS, THE OWNER OR OPERATOR SHALL TAKE CORRECTIVE ACTIONS TO BRING INTO COMPLIANCE OF THE OPERATIONAL REQUIREMENTS UNDER THIS SECTION AND PREVENT FROM ANY SUBSURFACE FIRE.

WELLS LOCATED IN CANYON B:

WELL ID:	MAXIMUM % OXYGEN LIMIT
B-7 & B-9	10
B-8	15

WELLS LOCATED IN CANYON B NEAR GROUNDWATER WELL DW-3:

WELL ID:	MAXIMUM % OXYGEN LIMIT
B-10, B-11 & B-13	10

WELLS LOCATED IN CANYON C:

WELL ID:	MAXIMUM % OXYGEN LIMIT
CV-22	15

WELLS LOCATED IN CANYON D:

WELL ID:	MAXIMUM % OXYGEN LIMIT
D-6	10

WELLS LOCATED IN CANYON D NEAR GROUNDWATER WELL DW-20:

WELL ID:	MAXIMUM % OXYGEN LIMIT
D-7, D-8, D-9, D-10 & D-11	10

WELLS LOCATED IN PRIMARY CANYON:

WELL ID:	MAXIMUM % OXYGEN LIMIT
P-1, P-2, P-12	10
P-22, P-23, & P-79	10
P-78	15

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WELLS LOCATED IN PRIMARY CANYON NEAR GROUNDWATER WELLS

DW-1 & DW-16:

WELL ID:	MAXIMUM % OXYGEN LIMIT
P-3, P-4, P-5, P-13,	10
P-14, P-24 & P-56	10

- E. THE FOLLOWING WELLS ARE ALLOWED TO OPERATE AT A HIGHER TEMPERATURE, UP TO 145 DEGREES FAHRENHEIT. WELLS LISTED LISTED BELOW ARE SUBJECT TO MONTHLY MONITORING AND RECORD KEEPING (40 CFR SECTION 60.753) FOR OTHER OPERATING PARAMETERS, SUCH AS % METHANE, VACUUM, % OXYGEN, CO (NOT TO EXCEED 100 PPMV) AND NO CHARRED DEBRIS IN THE GAS COLLECTION SYSTEM. THE OWNER OR OPERATOR SHALL TAKE CORRECTIVE ACTIONS TO PREVENT ANY EXCEEDANCES AND PREVENT FROM ANY SUBSURFACE FIRE.

WELL ID:

CV-90, H-39, CV-57D, CV-84D, CV-84S AND CV-85D.

- F. OPERATE THE COLLECTION SYSTEM SO THAT THE METHANE CONCENTRATION IS LESS THAN 500 PPM ABOVE BACKGROUND AT THE SURFACE OF THE LANDFILL AS DETERMINED IN ACCORDANCE WITH MONITORING PROCEDURES SPECIFIED IN §60.753 AND 60.754.
- G. OPERATE THE COLLECTION SYSTEM SUCH THAT ALL COLLECTED GASES ARE VENTED TO A CONTROL SYSTEM DESIGNED AND OPERATED IN COMPLIANCE WITH §60.752(b)(2)(iii).
- H. OPERATE THE COLLECTION AND CONTROL SYSTEM IN COMPLIANCE WITH TEST METHODS AND PROCEDURES OF §60.754
- I. OPERATE THE COLLECTION AND CONTROL SYSTEM IN COMPLIANCE WITH COMPLIANCE PROVISIONS OF §60.755
- J. OPERATE THE COLLECTION AND CONTROL SYSTEM IN COMPLIANCE WITH MONITORING PROCEDURES OF §60.756
- K. OPERATE THE COLLECTION AND CONTROL SYSTEM IN COMPLIANCE WITH REPORTING REQUIREMENTS OF §60.757
- L. OPERATE THE COLLECTION AND CONTROL SYSTEM IN COMPLIANCE WITH RECORD KEEPING REQUIREMENTS OF §60.758  
[GASEOUS EMISSIONS: 40CFR60 SUBPART WWW]