

**Bay Area Air Quality Management District**

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**Permit Evaluation  
and  
Statement of Basis  
for  
RENEWAL of**

**MAJOR FACILITY REVIEW PERMIT**

**for  
Browning-Ferris Industries of CA, Inc.  
Facility #A2266**

**Facility Address:**

12310 San Mateo Road  
Half Moon Bay, CA 94019

**Mailing Address:**

12310 San Mateo Road  
Half Moon Bay, CA 94019

Application Engineer: Nimrat Sandhu  
Site Engineer: Nimrat Sandhu

Renewal Application: 29530  
Revision Applications: 26101, 28883, 29761, 30549

March 2021

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## TITLE V STATEMENT OF BASIS

Browning-Ferris Industries of CA, Inc.; PLANT # A2266

APPLICATION # 29530

### A. BACKGROUND

This facility is subject to the Operating Permit requirements of Title V of the federal Clean Air Act, Part 70 of Title 40 of the Code of Federal Regulations (CFR), and BAAQMD Regulation 2, Rule 6, Major Facility Review, because it is a major facility as defined by BAAQMD Regulation 2-6-212.1. It is a major facility because it has the “potential to emit,” as defined by BAAQMD Regulation 2-6-218, of more than 100 tons per year of a regulated air pollutant (in this case, carbon monoxide). Therefore, this facility is required to have an MFR permit pursuant to Regulation 2-6-301.

In addition, it is a designated facility as defined by BAAQMD Regulation 2-6-204. The Standards of Performance for Municipal Solid Waste Landfills (40 CFR Part 60, Subpart WWW) require the owner or operator of a landfill that is subject to this part and that has a design capacity of greater than or equal to 2.5 million megagrams and 2.5 million cubic meters to obtain an operating permit pursuant to Part 70. This facility is subject to this NSPS because it commenced construction after May 30, 1991 and has design capacities that are larger than 2.5 million Mg and larger than 2.5 million m<sup>3</sup>. Therefore, this facility is required to have an MFR permit pursuant to Regulation 2-6-304.

Major Facility Operating permits (Title V permits) must meet specifications contained in 40 CFR Part 70 as contained in BAAQMD Regulation 2, Rule 6. The permits must contain all applicable requirements (as defined in BAAQMD Regulation 2-6-202), monitoring requirements, recordkeeping requirements, and reporting requirements. The permit holders must submit reports of all monitoring at least every six months and compliance certifications at least every year.

In the Bay Area, state and District requirements are also applicable requirements and are included in the permit. These requirements can be federally enforceable or non-federally enforceable. All applicable requirements are contained in Sections I through VI of the permit.

Each facility in the Bay Area is assigned a facility identifier that consists of a letter and a 4-digit number. This identifier is also considered to be the identifier for the permit. The identifier for this facility is A2266.

This facility received its initial Title V permit on October 1, 2001. The permit was renewed on October 1, 2007. After this renewal, the permit was last renewed on March 14, 2014. The permit was revised several times; on October 20, 2009, May 18, 2010, March 26, 2012, September 22, 2016, and June 29, 2020.

Application#29530 is for a permit renewal and also incorporates the minor revisions and administrative amendments of the permit. Although the current permit expired on March 13, 2019, it continues in force until the District takes final action on the permit renewal. The standard sections of the permit have been upgraded to include new standard language used in all Title V permits. The proposed renewal permit clearly shows all proposed changes to the permit in strikeout/underline format.

District Permit Applications Included in This Proposed Permit:

In addition to this Title V permit renewal, Browning-Ferris Industries of CA (BFI) has submitted several Title V permit revision applications. The Title V revision applications listed in the table below will be included with this proposed Title V permit renewal.

Table 1. Summary of Title V Revision Applications Included with this Permit Renewal

Title V Application #	Type of Revision Requested	District NSR Application #	Project Description
26101	Minor	26100	Increase in TAC and sulfur limits
		27710	Update the well actions
28883	Minor	28882	Correcting the waste design capacity and cumulative waste-in-place limits
		28826	Eight new vertical landfill gas (LFG) wells
29761	Minor	29760	Alternative Wellhead Standards
30549	Administrative		Change of Responsible Official

BFI has submitted the following permit applications that are still undergoing District review: NSR Application #29239, NSR Application #29350, NSR Application # 30253, NSR Application # 30889. NSR Application # 29239 is to install a hydrogen sulfide treatment system. NSR Application #29350 is for a change of permit conditions to remove flare A-8 and update the throughputs for flares A-7 and A-9. NSR Application # 30253 is for a portable diesel engine for landfill truck tipper. This engine was granted an Authority to Construct but is awaiting a Permit to Operate pending source test. NSR Application # 30889 is for new well actions. All applications are under evaluation. Following the completion of each application, the revisions will be incorporated into the Title V permit pursuant to the application number noted above and in accordance with the Title V permit revision procedures in Regulation 2, Rule 6.

**B. FACILITY DESCRIPTION**

BFI operates the Los Trancos Canyon Landfill Facility located on Ox Mountain in Half Moon Bay, CA. This facility includes an active landfill (S-1, S-21, and S-22), three landfill gas flares (A-7, A-8, and A-9), a non-retail gasoline dispensing facility (S-5), stockpiles of green waste (S-12), and one portable engine that powers a truck tipper (S-23).

The Los Trancos Canyon Landfill (S-1) has two distinct fill areas. The upper canyon area has reached full capacity and has been inactive since 1995, while the lower canyon area is actively accepting waste (about 900,000 tons/year). The two fill areas combined contain about 26.5 million tons of decomposable refuse (about 80% of maximum capacity). Each fill area is equipped with a landfill gas collection system.

Most of this collected landfill gas (about 86% of the total gas collected in 2018) is delivered to an on-site but independently owned energy company (Ameresco Half Moon Bay, LLC, Site # B7040) that uses the landfill gas as fuel for its IC engines. Ameresco Half Moon Bay is also subject to Title V permitting requirements, but the Title V permit for this independent company is being evaluated under a separate permit application (# 21226). The proposed permit for this application is currently undergoing the public and EPA comment period.

The remainder of the collected landfill gas is vented to one or more of BFI's three enclosed flares (A-7, A-8, and A-9) for abatement. The three flares combined are limited to an annual average landfill gas flow rate of 7,244 scfm of landfill gas at 50% methane, which is equivalent to a combined annual firing rate limit of 1,892,160 MM BTU/year. However, the flares only burned an average of 498 scfm of landfill gas in 2018 (about 14% of the total gas collected).

The Ox Mountain property is a 2,786-acre site, with 191 acres permitted as a Class III disposal site accepting MSW, construction and demolition (C&D) debris, industrial waste, green materials, and contaminated soil (soil containing more than 50 parts per million by weight (ppmw) of volatile organic compounds (VOCs), but does not accept any hazardous wastes. The Ox Mountain Landfill began accepting waste in 1976 and has a current expected closure date of 2034. The maximum design capacity for this landfill is approximately 49 million cubic yards. The landfill is currently permitted to accept a maximum of 3,598 tons/day of refuse. As of December 31, 2018, Ox Mountain reported that the landfill contained 26.66 million tons of decomposable waste (about 100.6% of total capacity). The landfill later revised this number during the 2019 annual update and stated that the initial submittal was an error. Nonetheless, the facility submitted Application # 28882 to request additional capacity. This application was approved on November 25, 2020. In addition to MSW, this site is allowed to accept designated wastes including petroleum-contaminated soils. From January 1 to December 31, 2018, Ox Mountain reported that 1,280,208 tons of contaminated soil were accepted at this site.

The S-5 Non-Retail Gasoline Dispensing Facility (GDF # 8524) located at Site # A2266 includes one 1,000-gallon capacity above-ground gasoline tank equipped with one 10 gpm gasoline nozzle. This facility also has two diesel fuel storage tanks (with capacities of 1,000 gallons and 10,000 gallons) and two diesel fuel nozzles (8 gpm and 35.3 gpm) that are exempt from District permit requirements. These diesel fuel tanks and nozzles are not significant sources of emissions.

The BFI facility has Stockpiles of Green Waste (S-12) that are permitted to accept up to 70,000 tons/year of waste material for recycling. For 2018, BFI reported that S-12 accepted 0 tons/year of materials.

Two sources, S-21 and S-22, represent various particulate emitting activities at the landfill. S-21 is for waste and cover material dumping. BFI used 1.24 million tons of cover material in 2018. S-22 is for bulldozing, compacting, and excavating activities. BFI typically uses 1 excavator, 4 bulldozers, 2 compactors, and 1 scraper for waste disposal activities.

The BFI facility also has one permitted landfill truck tipper which is used power the hydraulic lift to tip the waste hauling trucks onto the working face of the landfill. S-23 is a portable GM/KEM equipment, 166 bhp, propane-fired engine.

Emission Changes for Site # A2266:

As per NSR Application # 26101, the maximum throughput to the flares A-7, A-8, and A-9 was decreased to 2,155 scfm from 3807.6 scfm. This caused a reduction in maximum permitted emissions.

The current maximum permitted emission levels for Site # A2266 are presented in Table 2.

Table 2. Maximum Permitted Emissions for Site # A2266

Device Number and Description	Emissions (tons/year)				
	CO	PM <sub>10</sub>	NO <sub>x</sub>	POC	SO <sub>2</sub>
S-1 Los Trancos Canyon Landfill – Waste Decomposition Process				34.7	
S-5 Non-Retail GDF				0.7	
S-12 Stockpiles of Green Waste		0.1			
S-21 Los Trancos Canyon Landfill – Waste and Cover Material Dumping		70.8			
S-22 Los Trancos Canyon Landfill – Bulldozing, Compacting, and Excavating Activities					
A-7 Landfill Gas Flare	80.3	9.2	27.8	7.5	47.3
A-8 Landfill Gas Flare					
A-9 Landfill Gas Flare					
Facility Wide Permitted Emissions	80.3	80.1	27.8	42.9	47.3

The changes in actual emissions from this facility since the permit was last renewed are presented in Table 3. The on-site landfill gas combustion rate almost doubled from 256 million scf/year in 2014 to 519 million scf/year in 2012. Fugitive POC emissions from the landfill increased by about 12% due to the increase in the total amount of waste disposed of in the landfill. The cumulative amount of waste in place in the landfill increased from 24.2 million tons in 2014 to 26.7 million tons in 2018.

Table 3. Changes in Actual Emissions for Site # A2266 Since Last Renewal

Facility Wide Actual Emissions	Emissions (tons/year)				
	CO	PM <sub>10</sub>	NO <sub>x</sub>	POC	SO <sub>2</sub>
as of December 31, 2014	11.6	82.5	7.8	54.3	0.5
as of December 31, 2018	20.6	73.7	7.3	60.8	1.0
Actual Emission Changes	+ 9.0	- 8.8	- 0.5	+ 6.5	+ 0.5

**C. PERMIT CONTENT**

The legal and factual basis for the permit follows. The permit sections are described in the order that they are presented in the permit. Routine changes to the standard permit text in Sections I “Standard Conditions”, III “Generally Applicable Requirements”, and X “Glossary” are not considered part of the Title V permit renewal process but may be made at the discretion of the District during the term of this permit.

**I. Standard Conditions**

This section contains administrative requirements and conditions that apply to all facilities. If the Title IV (Acid Rain) requirements for certain fossil-fuel fired electrical generating facilities or the accidental release (40 CFR § 68) programs apply, the section will contain a standard condition pertaining to these programs. This permit does not include Title IV or accidental release provisions.

Many of these conditions derive from 40 CFR § 70.6, Permit Content, which dictates certain standard conditions that must be placed in the permit. The language that the District has developed for many of these requirements has been adopted into the BAAQMD Manual of Procedures, Volume II, Part 3, Section 4, and therefore must appear in the permit.

The standard conditions also contain references to BAAQMD Regulation 1 and Regulation 2. These are the District’s General Provisions and Permitting rules.

Changes to Permit, Title Page and Section I:

- The District is updating the phone number for the Bay Area Air Quality Management District.
- The District is changing the Engineering Division Contact from Stanley Tom to Nimrat Sandhu.
- In Section I.A., the District is updating the amended and approved dates for the BAAQMD and SIP Regulations 2 Rule 1, BAAQMD and SIP Regulation 2 Rule 2, BAAQMD and SIP Regulation 2 Rule 4, BAAQMD Regulation 2 Rule 5, and BAAQMD Regulation 2 Rule 6.
- The District is updating the permit issuance date, expiration data, and renewal application due dates in Standard Condition I.B.1.

## **II. Equipment**

This section of the permit lists all permitted or significant sources. Each source is identified by an S and a number (e.g., S24).

Permitted sources are those sources that require a BAAQMD operating permit pursuant to BAAQMD Rule 2-1-302.

Significant sources are those sources that have a potential to emit of more than 2 tons of a “regulated air pollutant,” as defined in BAAQMD Rule 2-6-222, per year or 400 pounds of a “hazardous air pollutant,” as defined in BAAQMD Rule 2-6-210, per year. This facility has no unpermitted significant sources.

All abatement (control) devices that control permitted or significant sources are listed. Each abatement device whose primary function is to reduce emissions is identified by an A and a number (e.g., A-24). If a source is also an abatement device, such as when an engine controls VOC emissions, it will be listed in the abatement device table but will have an “S” number. An abatement device may also be a source (such as a thermal oxidizer that burns fuel) of secondary emissions. If the primary function of a device is to control emissions, it is considered an abatement (or “A”) device. If the primary function of a device is a non-control function, the device is considered to be a source (or “S”).

The equipment section is considered to be part of the facility description. It contains information that is necessary for applicability determinations, such as fuel types, contents or sizes of tanks, etc. This information is part of the factual basis of the permit.

Each of the permitted sources has previously been issued a permit to operate pursuant to the requirements of BAAQMD Regulation 2, Permits. These permits are issued in accordance with state law and the District’s regulations. The capacities in the permitted sources table are the maximum allowable capacities for each source, pursuant to Standard Condition I.J and Regulation 2-1-403.

Between the date that the Title V permit was last renewed (March 14, 2014) and the permit proposal date, there have been some changes to the permitted source list and the abatement device list. Flare A-8 has been out of operation since 2018 but its decommissioning and the updated throughputs for flares A-7 and A-9 are being reviewed under AN 29350. As such, the flare will remain on the list as it is an open application. The landfill exceeded its maximum waste design capacity limit and applied for a correction, explaining that the maximum waste design capacity and the cumulative waste-in-place limits for this landfill did not match the CalRecycle-issued solid waste management facility permitted values. As such, the maximum waste design capacity and the cumulative waste-in-place limits were revised as part of AN 28882.

### Changes to Permit, Section II:

- In Table II-A, maximum waste design capacity and the maximum cumulative waste-in-place are being updated as a result of NSR Application #28882.

- The gas collection system description for S-1 is being updated in Table II-A. A number of gas collection system alterations were previously authorized by the District pursuant to NSR Application # 26100, 27710, and 28826. The collection system description is being updated to reflect all gas collection system alterations that have been completed to date.
- The District updated Table II-D to identify equipment that is specifically exempt from Title V permitting requirements. This facility uses a portable non-road propane engine to power a portable truck tipper (S-23). Since this engine is a non-road engine, it is exempt from Title V permit requirements pursuant to BAAQMD Regulation 2-6-114. The PERP registered diesel engine to power a portable green waste grinder was removed from the list as this source is no longer in operation. Similarly, a portable diesel engine powering Tipper # 982957 (S-24) has been removed from this list as this source has been archived. A new portable engine (S-26) has been issued an Authority to Construct for powering the Tipper # 982957, pending a source test for issuing the permit to operate. As such, it will be included in the next renewal cycle or per a revision application.

### III. Generally Applicable Requirements

This section of the permit lists requirements that generally apply to all sources at a facility including insignificant sources and portable equipment that may not require a District permit. If a generally applicable requirement applies specifically to a source that is permitted or significant, the standard will also appear in Section IV and the monitoring for that requirement will appear in Sections IV and VII of the permit. Parts of this section apply to all facilities (e.g., particulate, architectural coating, odorous substance, and sandblasting standards). In addition, standards that apply to insignificant or unpermitted sources at a facility (e.g., refrigeration units that use more than 50 pounds of an ozone-depleting compound) are placed in this section.

Unpermitted sources are exempt from normal District permits pursuant to an exemption in BAAQMD Regulation 2, Rule 1. They may, however, be specifically described in a Title V permit if they are considered *significant sources* pursuant to the definition in BAAQMD Rule 2-6-239. This facility has no unpermitted significant sources.

On May 30, 2017, California Air Resources Board submitted the State of California's Section 111(d) Plan for Existing Municipal Solid Waste Landfills, including 17 CCR 95460-95476 (collectively, subarticle 6 entitled "Methane Emissions from Municipal Solid Waste Landfills," also called Landfill Methane Regulation (LMR)) to US EPA to implement 40 CFR Part 60, Subpart Cf. This plan was partially approved by the US EPA on February 10, 2020 and is now a federally enforceable plan. However, this plan does not include federal provisions relating to 40 CFR 60.34f(c) (wellhead temperature limit), 60.36f(a)(5) (operating parameter for temperature), 60.37f(a)(2) (oxygen or nitrogen monitoring) and (3) (temperature monitoring), 60.38f(k) (corrective action and corresponding timeline), and 60.39f(e)(2) (temperature monitoring records) and (5) (records of corrective action). Once finalized, a federal plan will additionally apply the missing requirements to affected landfills. Until then, the Air District's Regulation 8-34 has provisions for the above missing provisions and thus will continue to be in compliance with 40 CFR Part 60, Subpart Cf. As Keller Canyon Landfill is an existing MSW landfill for which construction, reconstruction, or modification was commenced on or before July 17, 2014, this plan

is applicable to this landfill as per 40 CFR 60.31f(a) The sections of this Rule applicable to Keller Canyon Landfill have been included.

#### Changes to Permit, Section III:

- The District is updating the EPA website address for the SIP standards.
- The District is adding the CARB website address for the Landfill Methane Regulation (LMR) standards.
- For Table III, the District is amending the dates of adoption or approval of rule, correcting the “federal enforceability” status for these rules, and adding or deleting rules and standard to confirm to current practices. The rules that are amended, added or removed are listed below:
  - BAAMD Regulation 2, Rule 1 – Permits – General Requirements
  - SIP Regulation 2, Rule 1 – Permits – General Requirements
  - BAAQMD Regulation 2, Rule 5 – Permits – New Source Review of Toxic Air Contaminants
  - SIP Regulation 4 – Air Pollution Episode Plan
  - SIP Regulation 4, Table 1 – Air Pollution Episode Plan, Episode Stage Criteria
  - BAAQMD Regulation 5 – Open Burning
  - BAAQMD Regulation 6, Rule 1 – Particulate Matter – General Requirements
  - BAAQMD Regulation 6, Rule 6 – Particulate Matter – Prohibition of Trackout
  - BAAQMD Regulation 11, Rule 18 – Reduction of Risk from Air Toxic Emissions at Existing Facilities
  - BAAQMD Regulation 14, Rule 1 – Mobile Sources Emission Reduction Methods – Bay Area Commuter Benefits Program
  - District is adding CARB’s LMR requirements.

#### **IV. Source-Specific Applicable Requirements**

This section of the permit lists the applicable requirements that apply to permitted or significant sources. These applicable requirements are contained in tables that pertain to one or more sources that have the same requirements. The order of the requirements is:

- District Rules
- SIP Rules (if any) are listed following the corresponding District rules. SIP rules are District rules that have been approved by EPA for inclusion in the California State Implementation Plan. SIP rules are “federally enforceable” and a “Y” (yes) indication will appear in the “Federally Enforceable” column. If the SIP rule is the current District rule, separate citation of the SIP rule is not necessary and the “Federally Enforceable” column will have a “Y” for “yes”. If the SIP rule is not the current District rule, the SIP rule or the necessary portion of the SIP rule is cited separately after the District rule. The SIP portion will be federally enforceable; the non-SIP version will not be federally enforceable, unless EPA has approved it through another program.
- Other District requirements, such as the Manual of Procedures, as appropriate.
- Federal requirements (other than SIP provisions)
- CARB LMR requirements
- BAAQMD permit conditions. The text of BAAQMD permit conditions is found in Section VI of the permit.

- Federal permit conditions. The text of Federal permit conditions, if any, is found in Section VI of the permit.

Section IV of the permit contains citations to all of the applicable requirements. The text of the requirements is found in the regulations, which are readily available on the District's or EPA's websites, or in the permit conditions, which are found in Section VI of the permit. All monitoring requirements are cited in Section IV. Section VII is a cross-reference between the limits and monitoring requirements. A discussion of monitoring is included in Section C.VII of this permit evaluation/statement of basis.

Complex Applicability Determinations:

S-1 Los Trancos Canyon Landfill – Waste Decomposition Process

The landfill at this site is subject to BAAQMD Regulation 8, Rule 34, because the Los Trancos Canyon Landfill has accepted waste within the last 30 years and contains more than 1,000,000 tons of decomposable refuse. The landfill is also subject to the NSPS for MSW Landfills (40 CFR, Part 60, Subpart WWW) and the NESHAP for MSW Landfills (40 CFR, Part 63, Subpart AAAA), because (1) it commenced construction on a landfill expansion after May 30, 1991, (2) it has accepted waste after November 8, 1987, (3) it has a design capacity of greater than 2.5 million cubic meters and greater than 2.5 million megagrams, and (4) the uncontrolled NMOC generation rate from the landfill exceeds 50 Mg/year. There have been no significant changes to the applicable requirements since the Title V permit was last renewed. The District is updating amendment dates for several applicable requirements.

S-5 Non-Retail Gasoline Dispensing Facility - G # 8524

Gasoline dispensing facilities include both the gasoline dispensing nozzles as well as the associated gasoline storage tank. BAAQMD Regulation 8, Rule 7 contains requirements for both the dispensing equipment and the associated storage tanks. Prior to October 18, 2006, above ground gasoline storage tanks were also subject to requirements in BAAQMD Regulation 8, Rule 5. In the October 18, 2006 amendment of Regulation 8, Rule 5, an exemption was added to Section 8-5-110 for above ground gasoline storage tanks to indicate that these tanks were exempt from BAAQMD Regulation 8 Rule 5 and subject only to the requirements in BAAQMD Regulation 8 Rule 7. However, this regulatory change has not been adopted into the District's SIP yet. Thus, the storage tank for S-5 must continue to comply with requirements in both SIP Regulation 8, Rule 5 and BAAQMD/SIP Regulation 8, Rule 7.

Changes to Permit, Section IV:

- The District is updating the EPA website address for the SIP standards.
- The District is adding the CARB website address for the LMR standards.
- In Table IV-A:
  - District is adding BAAQMD Regulation 1-301 "Public Nuisance".
  - District is updating the amendment date for BAAQMD Regulation 6, Rule 1.
  - District is adding BAAQMD Regulation 6, Rule 6 "Particulate Matter - Prohibition of Trackout".
  - District is adding BAAQMD Regulation 11, Rule 2 "Hazardous Pollutants – Asbestos Demolition, Renovation and Manufacturing".

- District is adding the 40 CFR Part 60, Subpart WWW 60.756 (b)(2)(ii) requirement.
- District is adding the requirements of the CARB LMR.
- District added subpart (a) to BAAQMD Condition # 10164, Part 2 as a result of NSR Application # 28882.
- District added subparts (a)-(d) to BAAQMD Condition # 10164, Part 8 for the recently adopted Regulation 6, Rule 6.
- District added a new Part 21 for total suspended particulate (TSP) emissions from A-7 and A-9.
- District updated the numbering system of the BAAQMD Condition # 10164 beginning at Part 21.
- In Table IV-B:
  - District is adding the requirements of CARB Executive Order G-70-52-AM for “Certification of Components for Red Jacket, Hirt, and Balance Phase II Vapor Recovery Systems”
  - District is adding the requirement of monthly record-keeping under BAAQMD Permit Condition # 26216.
- In Table IV-C:
  - District is adding BAAQMD Regulation 1-301 “Public Nuisance”.
  - District is updating the amendment date for BAAQMD Regulation 6, Rule 1 and adding Section 6-1-311.1.
  - District is adding Section 6-1-311 for the SIP Regulation 6.
  - District is adding BAAQMD Regulation 6, Rule 6 and its subparts 6-6-301, 302 and 501.
  - District is adding BAAQMD Regulation 8-2-301 “Organic Compounds - Miscellaneous Operations”.

## V. Schedule of Compliance

A schedule of compliance is required in all Title V permits pursuant to BAAQMD Regulation 2-6-409.10 which provides that a major facility review permit shall contain the following information and provisions:

“409.10 A schedule of compliance containing the following elements:

- 10.1 A statement that the facility shall continue to comply with all applicable requirements with which it is currently in compliance;
- 10.2 A statement that the facility shall meet all applicable requirements on a timely basis as requirements become effective during the permit term; and
- 10.3 If the facility is out of compliance with an applicable requirement at the time of issuance, revision, or reopening, the schedule of compliance shall contain a plan by which the facility will achieve compliance. The plan shall contain deadlines for each item in the plan. The schedule of compliance shall also contain a requirement for submission of progress reports by the facility at least every six months. The progress reports shall contain the dates by which each item in the plan was achieved and an explanation of why any dates in the schedule of compliance were not or will not be met, and any preventive or corrective measures adopted.”

Since the District has not determined that the facility is out of compliance with an applicable requirement, the schedule of compliance for this permit contains only sections 2-6-409.10.1 and 2-6-409.10.2.

#### Changes to Permit, Section V:

- None

#### **VI. Permit Conditions**

During the Title V permit development, the District has reviewed the existing permit conditions, deleted the obsolete conditions, and, as appropriate, revised the conditions for clarity and enforceability. Each permit condition is identified with a unique numerical identifier, up to five digits.

When necessary to meet Title V requirements, additional monitoring, recordkeeping, or reporting has been added to the permit.

All changes to existing permit conditions are clearly shown in “strike-out/underline” format in the proposed permit. When the permit is issued, all ‘strike-out’ language will be deleted and all “underline” language will be retained, subject to consideration of comments received.

The existing permit conditions are derived from previously issued District Authorities to Construct (A/C) or Permits to Operate (P/O). Permit conditions may also be imposed or revised as part of the annual review of the facility by the District pursuant to California Health and Safety Code (H&SC) § 42301(e), through a variance pursuant to H&SC § 42350 *et seq.*, an order of abatement pursuant to H&SC § 42450 *et seq.*, or as an administrative revision initiated by District staff. After issuance of the Title V permit, permit conditions are revised using the procedures in Regulation 2, Rule 6, Major Facility Review.

Conditions that are obsolete or that have no regulatory basis have been deleted from the permit.

The regulatory basis is listed following each condition. The regulatory basis may be a rule or regulation. The District is also using the following terms for regulatory basis:

- BACT: This term is used for a condition imposed by the Air Pollution Control Officer (APCO) to ensure compliance with the Best Available Control Technology in Regulation 2-2-301.
- Cumulative Increase: This term is used for a condition imposed by the APCO which limits a source’s operation to the operation described in the permit application pursuant to BAAQMD Regulation 2-1-403.
- Offsets: This term is used for a condition imposed by the APCO to ensure compliance with the use of offsets for the permitting of a source or with the banking of emissions from a source pursuant to Regulation 2, Rules 2 and 4.
- PSD: This term is used for a condition imposed by the APCO to ensure compliance with a Prevention of Significant Deterioration permit issued pursuant to Regulation 2, Rule 2.
- TRMP: This term is used for a condition imposed by the APCO to ensure compliance with limits that arose from the District’s Toxic Risk Management Policy and that were imposed prior to adoption of Regulation 2, Rule 5 NSR for Toxic Air Contaminants.

Under previous Title V permit applications, parameter monitoring was added for each abatement device. Additional monitoring was added, where appropriate, to assure compliance with the applicable requirements.

As part of NSR Application # 26100, the District revised the sulfur and TAC limits and the gasoline throughput in Condition # 26216 was updated. The landfill gas limits in Parts 20, 21, and 22 were also revised. In Application # 27710, District authorized twelve wells operating less than continuously and their criteria for operation in Part 18d and revised the gas collection system alterations and well actions.

In NSR Application # 28826, District revised the well actions and authorized eight vertical wells to operate less than continuously. In NSR Application # 29760, District authorized alternate wellhead standards for some wells. In NSR Application # 30549, an administrative amendment to the permit was made to update the responsible official.

The proposed permit changes are explained in more detail below.

#### Changes to Permit, Section VI:

- Condition # 10164, Part 2: The District is updating the maximum waste design capacity and the maximum cumulative waste-in-place limits for the landfill pursuant to NSR AN 28882. The District is also adding subpart (a) to require the facility submit a permit application for change of permit conditions no later than 12/31/2024 to increase the LFG generation limit, TAC limits, fugitive LFG emission limit and add organic compounds to S-1.
- Condition # 10164, Part 8: The District is adding subparts (a) through (d) to this part to include the requirements of the recently adopted BAAQMD Regulation 6, Rule 6, Prohibition of Trackout.
- Condition # 10164, Part 17: The District is revising the gas collection system description in Part 17a by incorporating recently completed collection system alterations identified in notification letters submitted to the District by the facility. In subpart 17b(i), the District is updating the list of authorized collection system alterations to date.
- Condition # 10164, Part 18: District is revising the wells subject to alternate well head standards in Part 18b(i). In addition, the District is adding Part 18b subparts viii to xii for conditions for alternate wellhead temperature.
- Condition # 10164, Part 18d: District is updating the list of wells which operate less than continuously.
- Condition 10164, Part 18: District is adding a subpart 18e requiring a detailed gas collection system plan and component list.
- Condition # 10164, Part 20: District is revising the maximum amount of landfill gas flow rate to all the three flares, authorized as per Application # 26100.
- Condition # 10164, Part 21: District is adding TSP limits for A-7 and A-9 flares.
- Condition # 10164, Parts 22 through 34: District is revising the condition parts numbers as a result of adding a new Part 21.
- Condition # 10164, Part 22: District is revising the TAC limits pursuant to Application # 26100. In Condition # 26216, District is adding a Part 2 for record-keeping of the gasoline throughput at the facility.

**VII. Applicable Limits and Compliance Monitoring Requirements**

This section of the permit is a summary of numerical limits and related monitoring requirements for each source. The summary includes a citation for each monitoring requirement, frequency of monitoring, and type of monitoring. The applicable requirements for monitoring are completely contained in Sections IV, Source-Specific Applicable Requirements, and VI, Permit Conditions, of the permit.

The District has reviewed all monitoring and has determined that the existing monitoring is adequate. The tables below contain only the federally enforceable limits for which there is no monitoring in the applicable requirements. The District has examined the monitoring for other limits and has determined that monitoring is adequate to provide a reasonable assurance of compliance. Calculations for potential to emit will be provided in the discussion when no monitoring is proposed due to the size of a source.

Monitoring decisions are typically the result of a balancing of several different factors including: 1) the likelihood of a violation given the characteristics of normal operation, 2) degree of variability in the operation and in the control device, if there is one, 3) the potential severity of impact of an undetected violation, 4) the technical feasibility and probative value of indicator monitoring, 5) the economic feasibility of indicator monitoring, and 6) whether there is some other factor, such as a different regulatory restriction applicable to the same operation, that also provides some assurance of compliance with the limit in question.

These factors are the same as those historically applied by the District in developing monitoring for applicable requirements. It follows that, although Title V calls for a re-examination of all monitoring, there is a presumption that these factors have been appropriately balanced and incorporated in the District’s prior rule development and/or permit issuance. It is possible that, where a rule or permit requirement has historically had no monitoring associated with it, no monitoring may still be appropriate in the Title V permit if, for instance, there is little likelihood of a violation. Compliance behavior and associated costs of compliance are determined in part by the frequency and nature of associated monitoring requirements. As a result, the District will generally revise the nature or frequency of monitoring only when it can support a conclusion that existing monitoring is inadequate.

**SO<sub>2</sub> Sources**

<b>S# &amp; Description</b>	<b>Emission Limit Citation</b>	<b>Federally Enforceable Emission Limit</b>	<b>Monitoring</b>
A-7 Landfill Gas Flare, A-8 Landfill Gas Flare, and A-9 Landfill Gas Flare	BAAQMD 9-1-301	Property Line Ground Level Limits: ≤ 0.5 ppm for 3 minutes, AND ≤ 0.25 ppm for 60 minutes, AND ≤ 0.05 ppm for 24 hours	None

**SO<sub>2</sub> Discussion:**

Potential to Emit Calculations for the A-7, A-8, and A-9 Landfill Gas Flares:

Maximum potential SO<sub>2</sub> emissions are based on the maximum permitted total reduced sulfur compound concentration of 265 ppmv as H<sub>2</sub>S from BAAQMD Condition # 10164, Part 21 and the maximum permitted landfill gas usage limits in BAAQMD Condition # 10164, Part 20 (2155 MM scf/year). All calculations assume that the landfill gas contains 50% methane with an HHV of 497 BTU/scf LFG and that the standard volume of gas at 70 °F is 387 scf/lbmol. The calculation equations are shown below for the three flares combined.

A-7, A-8, and A-9 Landfill Gas Flares:

$$(2155 \text{ E6 scf/yr}) * (265 \text{ scf H}_2\text{S/1 E6 scf LFG}) / (387.006 \text{ scf H}_2\text{S/1 lbmol H}_2\text{S}) * (1 \text{ lbmol SO}_2/1 \text{ lbmol H}_2\text{S}) * (64.059 \text{ lbs SO}_2/1 \text{ lbmol SO}_2) / (2000 \text{ lbs SO}_2/\text{ton}) = 47.263 \text{ tons/year of SO}_2 \text{ from A-7, A-8, and A-9 combined}$$

Based on the theoretical flue gas generation rate of 4.785 scf of flue gas per scf of landfill gas containing 50% methane and the landfill gas H<sub>2</sub>S limit above, the maximum SO<sub>2</sub> concentration in the exhaust gases from the flares will be: 31 ppmv of SO<sub>2</sub> at 0% oxygen. At typical exhaust gas oxygen concentrations of 10% or higher, the outlet SO<sub>2</sub> concentration will be less than 17 ppmv.

BAAQMD Regulation 9-1-301: This facility is subject to federally enforceable limits that will ensure compliance with the Regulation 9-1-302 gas stream emission limit of 300 ppmv of SO<sub>2</sub> in the exhaust from each flare. Based on modeling analyses conducted at another landfill site, sources complying with the Regulation 9-1-302 limit are not expected to result in an excess of the ground level concentration limits listed in Regulation 9-1-301. As shown above, the flares are subject to limits that will result in SO<sub>2</sub> outlet concentrations that are no more than 10% of this 9-1-302 limit. Therefore, the SO<sub>2</sub> emissions from these flares are expected to result in ground level SO<sub>2</sub> concentrations that are far below the Regulation 9-1-301 ground level SO<sub>2</sub> limits. Monitoring for ground level SO<sub>2</sub> concentrations in addition to the existing quarterly landfill gas sulfur content monitoring, annual source testing, and record keeping requirements would not be appropriate.

**PM Sources**

<b>S# &amp; Description</b>	<b>Emission Limit Citation</b>	<b>Federally Enforceable Emission Limit</b>	<b>Monitoring</b>
A-7 Landfill Gas Flare, A-8 Landfill Gas Flare, and A-9 Landfill Gas Flare	BAAQMD 6-1-301 and SIP 6-301	≤ Ringelmann No. 1 for 3 minutes in any hour	None
A-7 Landfill Gas Flare, A-8 Landfill Gas Flare, and A-9 Landfill Gas Flare	BAAQMD 6-1-310 and SIP 6-310	≤ 0.15 grains/dscf	None

**PM Discussion:**

Potential to Emit Calculations for the A-7, A-8, and A-9 Landfill Gas Flares:

Maximum permitted PM emissions for A-7, A-8, and A-9 were based on the AP-42 emission factor for landfill gas fired flares (17 lbs PM<sub>10</sub>/MM dscf of methane). Maximum potential PM emissions were determined using this factor and the maximum permitted landfill gas flow rate. This factor has also been converted to units of lbs/MM BTU and grains/dscf of exhaust as shown below. All calculations assume that the landfill gas contains 50% methane with an HHV of 497 BTU/scf LFG and that this landfill gas produces 4.773 scf of exhaust at 0% oxygen per scf of landfill gas burned.

$$(2155 \text{ MM scf LFG/year}) * (0.50 \text{ MM scf CH}_4/\text{MM scf LFG}) * \\ (17 \text{ lbs PM}_{10}/\text{MM dscf CH}_4) / (2000 \text{ pounds PM}_{10}/\text{ton PM}_{10}) \\ = 9.16 \text{ tons PM}_{10}/\text{year}$$

$$(17 \text{ lbs PM}_{10}/\text{MM dscf CH}_4) / (1\text{E}6 \text{ scf CH}_4/\text{MM dscf CH}_4) * (0.50 \text{ scf CH}_4/\text{scf LFG}) / \\ (497 \text{ BTU}/\text{scf LFG}) * (1\text{E}6 \text{ BTU}/\text{MM BTU}) = 0.0171 \text{ lbs PM}_{10}/\text{MM BTU}$$

$$(0.0171 \text{ lbs PM}_{10}/\text{MM BTU}) * (7000 \text{ grains PM}/\text{lb PM}) / (1\text{E}6 \text{ BTU}/\text{MM BTU}) * \\ (497 \text{ BTU}/\text{scf LFG}) / (4.773 \text{ scf exhaust}/\text{scf LFG}) = 0.0125 \text{ grains}/\text{dscf exhaust at } 0\% \text{ O}_2$$

BAAQMD 6-1-301 and SIP 6-301: Visible particulate emissions are not normally associated with combustion of gaseous fuels, such as natural gas, propane, or landfill gas. Since particulate emissions from these flares are not substantial (9.16 tons/year total from all three flares combined), and it is highly unlikely that violations of the Ringelmann 1.0 limit would occur, periodic monitoring for the Ringelmann 1.0 limit is not justified.

BAAQMD Regulation 6-1-310 and SIP 6-310: Regulations 6-1-310 and 6-310 limit filterable particulate (FP) emissions from any source to 0.15 grains per dry standard cubic foot (gr/dscf) of exhaust volume. As shown above in the potential to emit calculations for these devices, the flares will emit less than 0.02 gr/dscf of exhaust at 0% oxygen. The actual flare exhaust will contain at least 10% O<sub>2</sub>. The ratio of exhaust volumes for 10% O<sub>2</sub> versus 0% O<sub>2</sub> is 1.913:1. Therefore, the grain loading in the actual flare exhaust will be: (0.0125/1.913) < 0.007 gr/dscf for exhaust at 10% oxygen. The compliance ratio (limit/emissions or 0.15/0.007) for the landfill gas flares is more than 20 to 1. Since the Regulation 6-1-310 and 6-310 grain loading limits are far above any expected PM emissions and total potential PM emissions from the flares are fairly low, it would not be appropriate to add periodic monitoring for this standard.

**POC Sources**

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S-1 Los Trancos Canyon Landfill	BAAQMD 8-40-117	Soil Contaminated by Accidental Spillage of ≤ 5 gallons of Liquid Organic Compounds	None

**POC Discussion:**

Potential to Emit Calculations for S-1: During the aeration of soil, all organic compounds are assumed to be emitted into the atmosphere. For a maximum spill volume of five gallons and an

average density for organic liquids of 7.0 pounds/gallon, the maximum potential to emit per aeration event is:

$$(5 \text{ gals/event}) * (7.0 \text{ pounds POC/gal}) / (2000 \text{ pounds POC/ton POC}) = 0.018 \text{ tons of POC/event}$$

The aeration of soil contaminated by small spills is expected to be a rare occurrence (no more than once per year). Therefore, the annual potential to emit associated with BAAQMD 8-40-117 is 0.02 tons/year of POC.

BAAQMD 8-40-117: If this facility plans to employ the Regulation 8-40-117 exemption to allow the aeration of soil that has been contaminated by a spill, the spill volume cannot exceed five gallons. For such rare and unpredictable aeration events, it may be difficult to obtain accurate records of spill volumes and maintaining such records would be burdensome. In addition, the maximum potential emissions from such an event are very small (0.02 tons/year of POC). Since the likelihood of non-compliance is low and the consequences of non-compliance are insignificant, it would not be appropriate to add periodic monitoring for this spill volume limit.

#### Changes to Permit, Section VII:

- In Table VII-A:
  - District is adding the CARB LMR requirements and citations.
  - District is adding the TSP limits for flares A-7 and A-9 per Condition # 10164, Part 21 and also adding the source test requirement for PM.
  - District is revising the maximum waste design capacity and the maximum cumulative waste-in-place limits.
  - District is revising the alternate well head temperature limits for wells identified in Condition # 10164, Part 18b(viii).
  - District is revising the total reduced sulfur content limit, landfill gas flow rate to the flares, and the TAC limits.
  - District is adding the prohibition of trackout and visible emissions from trackout requirements.
- In Table VII-B, the District is correcting the gasoline throughput limit and adding monthly records requirements.

### **VIII. Test Methods**

This section of the permit lists test methods that are associated with standards in District or other rules. It is included only for reference. In most cases, the test methods in the rules are source test methods that can be used to determine compliance but are not required on an ongoing basis. They are not applicable requirements.

If a rule or permit condition requires ongoing testing, the requirement will also appear in Section IV of the permit.

#### Changes to Permit, Section VIII:

District is adding the acceptable test methods for CARB LMR requirements.

## **IX. Permit Shield:**

The District rules allow two types of permit shields. The permit shield types are defined as follows: (1) A provision in a major facility review permit explaining that specific federally enforceable regulations and standards do not apply to a source or group of sources, or (2) A provision in a major facility review permit explaining that specific federally enforceable applicable requirements for monitoring, recordkeeping and/or reporting are subsumed because other applicable requirements for monitoring, recordkeeping, and reporting in the permit will assure compliance with all emission limits.

The second type of permit shield is allowed by EPA's White Paper 2 for Improved Implementation of the Part 70 Operating Permits Program. The District uses the second type of permit shield for all streamlining of monitoring, recordkeeping, and reporting requirements in Title V permits. The District's program does not allow other types of streamlining in Title V permits.

This facility has no permit shields. This permit has no streamlining.

### Changes to Permit, Section IX:

- None

## **X. Revision History**

This section of the permit summarizes each revision to the permit.

### Changes to Permit, Section X:

- The District is adding the permit revisions associated with Minor Revision Application Nos. 29761 and 28882.
- The District is adding the permit revisions associated with this MFR Renewal Permit (Application # 29530) to Section X.

## **XI. Glossary**

This section of the permit defines and explains acronyms, abbreviations, and other terms that are used in this permit.

There are no changes to this section.

## **D. ALTERNATIVE OPERATING SCENARIOS**

No alternate operating scenarios have been requested for this facility.

## **E. COMPLIANCE STATUS**

A [enter date] office memorandum from the Director of Compliance and Enforcement, to the Director of Permit Services, presents a review of the compliance record of Browning-Ferris Industries of CA, Inc. (Site # A2266). The Compliance and Enforcement Division staff has

reviewed the records for Browning-Ferris Industries of CA, Inc. for the period between [enter date] through [enter date]. This review was initiated as part of the District evaluation of an application by renewal of a Title V permit. During the period subject to review, activities known to the District include:

- The District issued [enter number, if any] Notice of Violation on [enter date] for [enter explanation of violation, if any]. The violation was [discuss final status].
- The District did not receive any alleged complaints [or discuss complaints if any were received].
- The facility is not operating under a Variance or an Order of Abatement from the District Board.
- There were no monitor excesses or equipment breakdowns reported or documented by District staff [or discuss monitor excesses if noted in compliance report].

The owner certified that all equipment was operating in compliance on [enter most recent certification date, must be within last 12 months].

The Compliance and Enforcement Division has determined that for the five-year period reviewed (from [enter date] to [enter date]), BFI was in [continuous/intermittent] compliance. [However, there is no evidence of on-going non-compliance and no recurring pattern of violations that would warrant consideration of a Title V permit compliance schedule or discuss schedule of compliance if needed.]

## **F. DIFFERENCES BETWEEN THE APPLICATION AND THE PROPOSED PERMIT**

The Title V permit application for renewal was originally submitted on September 12, 2018. This version is the basis for constructing the proposed Title V permit.

The major difference is the change of permit conditions for the maximum waste design capacity and the maximum cumulative waste-in-place limit. The CARB LMR was also partially approved by the EPA and its requirements are now added to the permit. The applicant also applied for alternate wellhead standards and less than continuous operation for various wells. Since May 2011, the applicant has completed upgrades to the landfill gas collection system, which the District has incorporated into this draft proposed renewal permit. Also, the applicant submitted one portable diesel fueled engine application that require District permits and is in the process of conducting a source test for this equipment. Since the District has not issued a Permit to Operate for this portable diesel engine yet, this engine is not included in this draft proposed Title V renewal permit. However, this portable engine is also exempt from Title V permitting requirements pursuant to Regulation 2-6-114.

The District is proposing changes to several standard language sections, updates of regulatory amendment dates, inclusions of new generally applicable regulatory requirements, revisions to equipment descriptions, inclusions of new or missing source specific requirements, modifications of permit conditions, removal of non-applicable requirements, and clarifications of numerous limit descriptions. These revisions were not identified by the applicant.

H:\Engineering\TITLE V Permit Appls\1 ALL T5 Application Files here\A2266\Renewal -  
29530\1.0 Working Docs\A2266-29530\_renewal SOB

APPENDIX A  
BAAQMD COMPLIANCE REPORT

APPENDIX B  
GLOSSARY

**ACT**

Federal Clean Air Act

**APCO**

Air Pollution Control Officer: Head of Bay Area Air Quality Management District

**API**

American Petroleum Institute

**ARB**

Air Resources Board (same as CARB)

**ASTM**

American Society for Testing and Materials

**ATC**

Authority to Construct

**ATCM**

Airborne Toxic Control Measure

**BAAQMD**

Bay Area Air Quality Management District

**BACT**

Best Available Control Technology

**BARCT**

Best Available Retrofit Control Technology

**Basis**

The underlying authority that allows the District to impose requirements.

**BFI**

Browning-Ferris Industries

**C1**

An organic chemical compound with one carbon atom, for example: methane

**C3**

An organic chemical compound with three carbon atoms, for example: propane

**C5**

An Organic chemical compound with five carbon atoms

**C6**

An Organic chemical compound with six carbon atoms

**CAA**

The federal Clean Air Act

**CAAQS**

California Ambient Air Quality Standards

**CAPCOA**

California Air Pollution Control Officers Association

**CARB**

California Air Resources Board (same as ARB)

**CCR**

California Code of Regulations

**CEC**

California Energy Commission

**CEQA**

California Environmental Quality Act

**CEM**

A "continuous emission monitor" is a monitoring device that provides a continuous direct measurement of some pollutant (e.g. NO<sub>x</sub> concentration) in an exhaust stream.

**CFR**

The Code of Federal Regulations. 40 CFR contains the implementing regulations for federal environmental statutes such as the Clean Air Act. Parts 50-99 of 40 CFR contain the requirements for air pollution programs.

**CH<sub>4</sub> or CH<sub>4</sub>**

Methane

**CO**

Carbon Monoxide

**CO<sub>2</sub> or CO<sub>2</sub>**

Carbon Dioxide

**CT**

Combustion Zone Temperature

**Cumulative Increase**

The sum of permitted emissions from each new or modified source since a specified date pursuant to BAAQMD Rule 2-1-403, Permit Conditions (as amended by the District Board on 7/17/91) and SIP Rule 2-1-403, Permit Conditions (as approved by EPA on 6/23/95). Used to determine whether threshold-based requirements are triggered.

**District**

The Bay Area Air Quality Management District

**E 6, E 9, E 12**

Very large or very small number values are commonly expressed in a form called scientific notation, which consists of a decimal part multiplied by 10 raised to some power. For example, 4.53 E 6 equals  $(4.53) \times (10^6) = (4.53) \times (10 \times 10 \times 10 \times 10 \times 10 \times 10) = 4,530,000$ . Scientific notation is used to express large or small numbers without writing out long strings of zeros.

**EG**

Emission Guidelines

**EO**

Executive Order

**EPA**

The federal Environmental Protection Agency.

**ETP**

Effluent Treatment Plant

**Excluded**

Not subject to any District Regulations.

**Federally Enforceable, FE**

All limitations and conditions which are enforceable by the Administrator of the EPA including those requirements developed pursuant to 40 CFR Part 51, subpart I (NSR), Part 52.21 (PSD), Part 60, (NSPS), Part 61, (NESHAPs), Part 63 (HAP), and Part 72 (Permits Regulation, Acid Rain), and also including limitations and conditions contained in operating permits issued under an EPA-approved program that has been incorporated into the SIP.

**FP**

Filterable Particulate as measured by BAAQMD Method ST-15, Particulate.

**FR**

Federal Register

**GDF**

Gasoline Dispensing Facility

**GLM**

Ground Level Monitor

**grains**

1/7000 of a pound

**H<sub>2</sub>S or H<sub>2</sub>S**

Hydrogen Sulfide

**H<sub>2</sub>SO<sub>4</sub>**

Sulfuric Acid

**H&SC**

Health and Safety Code

**HAP**

Hazardous Air Pollutant. Any pollutant listed pursuant to Section 112(b) of the Act. Also refers to the program mandated by Title I, Section 112, of the Act and implemented by both 40 CFR Part 63, and District Regulation 2, Rule 5.

**Hg**

Mercury

**HHV**

Higher Heating Value. The quantity of heat evolved as determined by a calorimeter where the combustion products are cooled to 60F and all water vapor is condensed to liquid.

**LFG**

Landfill gas

**LHV**

Lower Heating Value. Similar to the higher heating value (see HHV) except that the water produced by the combustion is not condensed but retained as vapor at 60F.

**Long ton**

2200 pounds

**Major Facility**

A facility with potential emissions of: (1) at least 100 tons per year of any regulated air pollutant, (2) at least 10 tons per year of any single hazardous air pollutant, and/or (3) at least 25 tons per year of any combination of hazardous air pollutants, or such lesser quantity of hazardous air pollutants as determined by the EPA administrator.

**MAX or Max.**

Maximum

**MFR**

Major Facility Review. The District's term for the federal operating permit program mandated by Title V of the Act and implemented by District Regulation 2, Rule 6.

**MIN or Min.**

Minimum

**MOP**

The District's Manual of Procedures.

**MSDS**

Material Safety Data Sheet

**MSW**

Municipal solid waste

**MTBE**

methyl tertiary-butyl ether

**MW**

Molecular weight

**N2 or N<sub>2</sub>**

Nitrogen

**NA**

Not Applicable

**NAAQS**

National Ambient Air Quality Standards

**NESHAPs**

National Emission Standards for Hazardous Air Pollutants. Contained in 40 CFR Part 61.

**NMHC**

Non-methane Hydrocarbons (same as NMOC).

**NMOC**

Non-methane Organic Compounds (same as NMHC).

**NO<sub>x</sub> or NO<sub>x</sub>**

Oxides of nitrogen.

**NSPS**

Standards of Performance for New Stationary Sources. Federal standards for emissions from new stationary sources. Mandated by Title I, Section 111 of the Act, and implemented by both 40 CFR Part 60 and District Regulation 10.

**NSR**

New Source Review. A federal program for pre-construction review and permitting of new and modified sources of air pollutants for which the District is classified "non-attainment". Mandated by Title I of the Clean Air Act and implemented by 40 CFR Parts 51 and 52 as well as District Regulation 2, Rule 2. (Note: There are additional NSR requirements mandated by the California Clean Air Act.)

**O2 or O<sub>2</sub>**

Oxygen

**Offset Requirement**

A New Source Review requirement to provide federally enforceable emission offsets at a specified ratio for the emissions from a new or modified source and any pre-existing cumulative increase minus any onsite contemporaneous emission reduction credits. Applies to emissions of POC, NO<sub>x</sub>, PM<sub>10</sub>, and SO<sub>2</sub>.

**Phase II Acid Rain Facility**

A facility that generates electricity for sale through fossil-fuel combustion and by virtue of certain other characteristics (defined in Regulation 2, Rule 6) is subject to Titles IV and V of the Clean Air Act.

**POC**

Precursor Organic Compounds

**PM**

Total Particulate Matter

**PM10 or PM<sub>10</sub>**

Particulate matter with aerodynamic equivalent diameter of less than or equal to 10 microns

**PSD**

Prevention of Significant Deterioration. A federal program for permitting new and modified sources of air pollutants for which the District is classified "attainment" of the National Air Ambient Quality Standards. Mandated by Title I of the Act and implemented by both 40 CFR Part 52 and District Regulation 2, Rule 2.

**PV or P/V Valve**

Pressure/Vacuum Valve

**Regulated Organic Liquid**

"Regulated organic liquids" are those liquids which require permits, or which are subject to some regulation, when processed at a liquid-handling operation. For example, for refinery marine terminals, regulated organic liquids are defined as "organic liquids" in Regulation 8, Rule 44.

**RMP**

Risk Management Plan

**S**

Sulfur

**SCR**

A "selective catalytic reduction" unit is an abatement device that reduces NO<sub>x</sub> concentrations in the exhaust stream of a combustion device. SCRs utilize a catalyst, which operates at a specific temperature range, and injected ammonia to promote the conversion of NO<sub>x</sub> compounds to nitrogen gas.

**SIP**

State Implementation Plan. State and District programs and regulations approved by EPA and developed in order to attain the National Air Ambient Quality Standards. Mandated by Title I of the Act.

**SO<sub>2</sub> or SO<sub>2</sub>**

Sulfur dioxide

**SO<sub>3</sub> or SO<sub>3</sub>**

Sulfur trioxide

**SSM**

Startup, Shutdown, or Malfunction

**SSM Plan**

A plan, which states the procedures that will be followed during a startup, shutdown, or malfunction, that is prepared in accordance with the general NESHAP provisions (40 CFR Part 63, Subpart A) and maintained on site at the facility.

**TAC**

Toxic Air Contaminant (as identified by CARB)

**THC**

Total Hydrocarbons includes all NMHC plus methane (same as TOC).

**therm**

100,000 British Thermal Unit

**Title V**

Title V of the federal Clean Air Act. Requires a federally enforceable operating permit program for major and certain other facilities.

**TOC**

Total Organic Compounds includes all NMOC plus methane (same as THC).

**TPH**

Total Petroleum Hydrocarbons

**TRMP**

Toxic Risk Management Policy

**TRS**

Total Reduced Sulfur, which is a measure of the amount of sulfur-containing compounds in a gas stream, typically a fuel gas stream, including, but not limited to, hydrogen sulfide. The TRS content of a fuel gas determines the concentration of SO<sub>2</sub> that will be present in the combusted fuel gas, since sulfur compounds are converted to SO<sub>2</sub> by the combustion process.

**TSP**

Total Suspended Particulate

**TVP**

True Vapor Pressure

**VMT**

Vehicle Miles Traveled

**VOC**

Volatile Organic Compounds

**Symbols:**

<	=	less than
>	=	greater than
≤	=	less than or equal to
≥	=	greater than or equal to

**Units of Measure:**

atm	=	atmospheres
bbl	=	barrel of liquid (42 gallons)
bhp	=	brake-horsepower
btu	=	British Thermal Unit
BTU	=	British Thermal Unit
°C	=	degrees Centigrade
cfm	=	cubic feet per minute
dscf	=	dry standard cubic feet
°F	=	degrees Fahrenheit
ft <sup>3</sup>	=	cubic feet
g	=	grams
gal	=	gallon
gpm	=	gallons per minute
gr	=	grains
hp	=	horsepower
hr	=	hour
in=		inches
kW	=	kilowatts
lb=		pound

lbmol	=	pound-mole
in	=	inches
m <sup>2</sup>	=	square meters
m <sup>3</sup>	=	cubic meters
Mg	=	mega grams
min	=	minute
mm	=	millimeter
mm Hg	=	millimeters of mercury (pressure)
MM	=	million
MM BTU	=	million BTU
M cf	=	one thousand cubic feet
MM cf	=	million cubic feet
MW	=	megawatts
ppb	=	parts per billion
ppbv	=	parts per billion, by volume
ppm	=	parts per million
ppmv	=	parts per million, by volume
ppmw	=	parts per million, by weight
psia	=	pounds per square inch, absolute
psig	=	pounds per square inch, gauge
scf	=	standard cubic feet
scfm	=	standard cubic feet per minute
sdcf	=	standard dry cubic feet
sdcfm	=	standard dry cubic feet per minute
yd	=	yard
yd <sup>3</sup>	=	cubic yards
yr	=	year

APPENDIX C  
ENGINEERING EVALUATIONS

**Engineering Evaluation**  
**for**  
**Increase in Landfill Gas Sulfur Content Limit**  
**at S-1 Los Trancos Canyon Landfill and**  
**A-7, A-8. and A-9 Landfill Gas Flares**

Browning Ferris Industries of CA, Inc.; PLANT # 2266

APPLICATION # 26100

**I. BACKGROUND**

Browning-Ferris Industries of CA, Inc. (BFI) operates the Los Trancos Canyon Landfill Facility located on Ox Mountain in Half Moon Bay, CA. This facility is now operated by Republic Services. This facility includes an active MSW landfill, three landfill gas flares, a non-retail gasoline dispensing facility (GDF), a stockpile for green waste, a portable propane-fired waste tipper engine and a portable diesel-fired waste tipper engine.

The Los Trancos Canyon Landfill (S-1) has two distinct fill areas. The upper canyon area has reached full capacity and has been inactive since 1995, while the lower canyon area is actively accepting up to 835,000 tons/year of decomposable materials. The two fill areas combined currently contain 24.2 million tons of decomposable materials as of 12-31-2014 (about 91% of maximum capacity). As the final filling stages progress, the two fill areas will join into a single contiguous landfill. Each fill area is equipped with an active landfill gas collection system. These collection systems may also be joined together in the future if necessary for optimization of gas collection rates.

The collected landfill gas is vented to either:

- (a) the Ameresco Half Moon Bay landfill gas energy plant (Plant # 17040, which includes six landfill gas fired IC engines and one landfill gas/waste gas fired flare), or
- (b) one or more of the three on-site landfill gas flares (A-7, A-8, or A-9).

**II. PROJECT DESCRIPTION**

BAAQMD Condition # 10164, Part 21 limits the flow-weighted average concentration of total reduced sulfur compounds (TRS) in the landfill gas delivered to the three on-site flares to 150 ppmv of TRS, expressed as hydrogen sulfide (H<sub>2</sub>S). An October 1, 2013 source test found over 190 ppmv of TRS in the landfill gas, and this high sulfur content level persisted based on subsequent tests. The District issued Violation Notice # 52298 for this permit condition excess. Republic Services submitted this application in March 2014 to request to increase this landfill gas sulfur content limit to 300 ppmv of TRS.

Current Emission Limits:

The Condition # 10164, Part 21 landfill gas sulfur content limit (flow-weighted average of 150 ppmv of TRS, expressed as H<sub>2</sub>S) combined with the Condition # 10164, Part 20 landfill gas throughput limit for these three flares (3807.6 million scf/year to the 3 flares combined) limits the annual average sulfur dioxide emissions from the three flares, as shown below:

$$\begin{aligned} & (3807.6 \text{ E6 ft}^3 \text{ LFG/yr}) * (150 \text{ ft}^3 \text{ H}_2\text{S} / 1 \text{ E6 ft}^3 \text{ LFG}) / (387.006 \text{ ft}^3 \text{ H}_2\text{S} / 1 \text{ lbmol H}_2\text{S}) * \\ & (1 \text{ lbmol SO}_2 / 1 \text{ lbmol H}_2\text{S}) * (64.059 \text{ lbs SO}_2 / 1 \text{ lbmol SO}_2) / (2000 \text{ lbs SO}_2 / \text{ton}) = \\ & 47.269 \text{ tons/year of SO}_2 \text{ from A-7, A-8, and A-9 combined} \end{aligned}$$

In addition, the current landfill gas sulfur content limit (average of 150 ppv of TRS expressed as H<sub>2</sub>S) combined with the maximum permitted fugitive landfill gas flow rate for the landfill results in an implied limit on the fugitive hydrogen sulfide emission rate for the landfill. From Application # 18429, the District calculated a maximum potential landfill gas generation rate of 9600 scfm (annual average) for the current landfill with a maximum fugitive landfill gas emission rate of 25% or 2400 scfm. The resulting hydrogen sulfide emission limit is:

$$(2400 \text{ ft}^3 \text{ LFG/min}) * (60 \text{ min/hr}) * (24 \text{ hrs/day}) * (365 \text{ days/yr}) * (150 \text{ ft}^3 \text{ H}_2\text{S/1 E6 ft}^3 \text{ LFG}) / (387.006 \text{ ft}^3 \text{ H}_2\text{S/1 lbmol H}_2\text{S}) * (34.076 \text{ lbs H}_2\text{S/1 lbmol H}_2\text{S}) = 16,660 \text{ pounds/year H}_2\text{S}$$

Initial Proposed Emission Limits:

Increasing the landfill gas sulfur content limit to 300 ppmv of TRS, would have resulted in the following SO<sub>2</sub> and H<sub>2</sub>S emission rates:

$$(3807.6 \text{ E6 ft}^3 \text{ LFG/yr}) * (300 \text{ ft}^3 \text{ H}_2\text{S/1 E6 ft}^3 \text{ LFG}) / (387.006 \text{ ft}^3 \text{ H}_2\text{S/1 lbmol H}_2\text{S}) * (1 \text{ lbmol SO}_2/1 \text{ lbmol H}_2\text{S}) * (64.059 \text{ lbs SO}_2/1 \text{ lbmol SO}_2) / (2000 \text{ lbs SO}_2/\text{ton}) = 94.538 \text{ tons/year of SO}_2 \text{ from A-7, A-8, and A-9 combined}$$

$$(2400 \text{ ft}^3 \text{ LFG/min}) * (60 \text{ min/hr}) * (24 \text{ hrs/day}) * (365 \text{ days/yr}) * (300 \text{ ft}^3 \text{ H}_2\text{S/1 E6 ft}^3 \text{ LFG}) / (387.006 \text{ ft}^3 \text{ H}_2\text{S/1 lbmol H}_2\text{S}) * (34.076 \text{ lbs H}_2\text{S/1 lbmol H}_2\text{S}) = 33,321 \text{ pounds/year H}_2\text{S}$$

The emission increases would have been: 47.3 tons/year of SO<sub>2</sub> and 16,661 lbs/year of H<sub>2</sub>S. This hydrogen sulfide emission increase triggered a health risk assessment pursuant to Regulation 2, Rule 5. The preliminary HRSA results found that the proposed H<sub>2</sub>S emission level would result in an acute hazard index > 1. In addition, the district found that carcinogenic TAC emissions would result in a side-wide cancer risk of more than 10 in a million, which would trigger public noticing pursuant to the AB2588 Air Toxics Hot Spots Act.

Revised Proposed Emission Limits:

As a result of these HRSA findings regarding the initial proposed landfill emission rates and to prevent triggering a public notice due to proposed SO<sub>2</sub> emission increases, the applicant has agreed to:

- change the requested landfill gas sulfur content limit to 265 ppmv,
- change the landfill gas generation rate assumptions,
- reduce the TAC concentration limits, and
- reduce the combined throughput limit to the flares to 2155 million scf/year.

The revised throughput limit for the flares will ensure that sulfur dioxide emissions for the flares do not increase above the current maximum permitted emission level of 47.269 tons/year of SO<sub>2</sub>. This throughput change will also reduce the maximum permitted emission levels for NO<sub>x</sub>, CO, POC, and PM<sub>10</sub>.

Under Application # 25612, the Applicant was required to reimburse the District for offsets provided on behalf of this facility in the past by the District from the small facility banking account. The proposed reduction in landfill gas throughput to the flares will reduce the amount of offsets that need to be reimbursed under Application # 25612. The detailed emission reduction credit changes are discussed in the Statement of Compliance Section of this report.

### III. EMISSIONS

Criteria Pollutants:

At the current throughput limit of 3807.6 million scf/year of landfill gas and the current landfill gas sulfur content limit of 150 ppmv expressed as H<sub>2</sub>S, the current maximum permitted sulfur dioxide emission rate for the flares is:

$$(3807.6 \text{ E6 ft}^3 \text{ LFG/yr}) * (150 \text{ ft}^3 \text{ H}_2\text{S/1 E6 ft}^3 \text{ LFG}) / (387.006 \text{ ft}^3 \text{ H}_2\text{S/1 lbmol H}_2\text{S}) *$$

$(1 \text{ lbmol SO}_2/1 \text{ lbmol H}_2\text{S}) * (64.059 \text{ lbs SO}_2/1 \text{ lbmol SO}_2) / (2000 \text{ lbs SO}_2/\text{ton}) = 47.269 \text{ tons/year of SO}_2 \text{ from A-7, A-8, and A-9 combined}$

Proposed SO<sub>2</sub> emissions are based on the proposed flare throughput limit and the new proposed sulfur content limit of 265 ppmv of TRS in the landfill gas:

$(2155 \text{ E6 ft}^3 \text{ LFG/yr}) * (265 \text{ ft}^3 \text{ H}_2\text{S}/1 \text{ E6 ft}^3 \text{ LFG}) / (387.006 \text{ ft}^3 \text{ H}_2\text{S}/1 \text{ lbmol H}_2\text{S}) * (1 \text{ lbmol SO}_2/1 \text{ lbmol H}_2\text{S}) * (64.059 \text{ lbs SO}_2/1 \text{ lbmol SO}_2) / (2000 \text{ lbs SO}_2/\text{ton}) = 47.263 \text{ tons/year of SO}_2 \text{ from A-7, A-8, and A-9 combined}$

Since the proposed emission limit does not exceed the current emission limit, the proposed permit condition changes will not result in any sulfur dioxide emission increases. Therefore, this project does not constitute a modification of the flares.

As shown below, reducing the landfill gas throughput limit for the flares will result in reductions in permitted emission levels for the flares.

**Reductions in Maximum Permitted Emission Levels for Flares (A-7, A-8, and A-9)**

	Current Limits tons/year	Proposed Limits tons/year	Emission Limit Reductions tons/year
NOx	49.196	27.846	21.350
CO	141.912	80.325	61.587
POC	13.277	7.486	5.791
PM10	16.182	9.159	7.023

Toxic Air Contaminants (TAC):

For all fugitive TAC emissions, the District will use the new fugitive landfill gas flow rate determined below:

The District uses the EPA LANDGEM program to estimate landfill gas generation rates for landfills for new source review purposes. For this landfill, the District used actual decomposable material disposal history to date and the maximum permitted disposal of 835,000 tons/year for all future years. The District used the default methane generation capacity (L<sub>0</sub>) of 100 m<sup>3</sup>/Mg and the conventional methane generation rate (k) of 0.04 year<sup>-1</sup> for wet areas (> 25 inches of precipitation per year). Using these inputs, the LANDGEM results show a peak landfill gas generation rate of 6597 scfm in the year 2019 for the Los Trancos Canyon Landfill based on current permitted cumulative disposal capacity. This peak gas generation rate was rounded up to 6600 scfm. At the standard 75% capture efficiency assumption, the fugitive landfill gas flow rate is 1650 scfm.

Fugitive H<sub>2</sub>S emissions will be:

$(1650 \text{ ft}^3 \text{ LFG}/\text{min}) * (60 \text{ min}/\text{hr}) * (24 \text{ hrs}/\text{day}) * (365 \text{ days}/\text{yr}) * (265 \text{ ft}^3 \text{ H}_2\text{S}/1 \text{ E6 ft}^3 \text{ LFG}) / (387.006 \text{ ft}^3 \text{ H}_2\text{S}/1 \text{ lbmol H}_2\text{S}) * (34.076 \text{ lbs H}_2\text{S}/1 \text{ lbmol H}_2\text{S}) = 20,235 \text{ pounds/year H}_2\text{S}$

The increase in permitted fugitive H<sub>2</sub>S emissions will be:  $(20,235 - 16,660) = 3575 \text{ pounds/year}$ .

In accordance with Regulation 2-5-601.3.2, TAC emission increases for a modified source must include all emission increases at that source since 1/1/1987. From Application #8945, the baseline landfill gas generation rate was estimated to be 2579 scfm and the landfill gas sulfur content was estimated to be 35.5 ppmv (as H<sub>2</sub>S). Using this data, baseline H<sub>2</sub>S emissions were 1412 pounds/year. The total post-1987 H<sub>2</sub>S emission increases for this modified landfill are:  $(20,235 - 1,412) = 18,823 \text{ pounds/year}$ .

At the new sulfur content limit of 265 ppmv of TRS and the new landfill gas throughput limit, the flares will emit 1006 pounds/year of residual H<sub>2</sub>S emissions. Since the flares were all permitted after 1/1/1987, all emissions from the flare must be included in the project.

Total project emissions include the fugitive emission increases at the landfill plus the total residual emissions from the flares (18,823 + 1,006) = 19,829 pounds/year of H<sub>2</sub>S. This increase exceeds the Table 2-5-1 risk screen trigger level of 390 lbs/yr for H<sub>2</sub>S. Therefore, a risk assessment is required for this proposal.

For the site-wide health risk assessment, the applicant has agreed to the following TAC concentration limits and fugitive TAC emission rate limits for the landfill. Note that these concentrations represent reductions in permitted emission levels for all compounds except H<sub>2</sub>S. Detailed calculations are attached.

**Proposed Fugitive Emission Limits for S-1 Los Trancos Canyon Landfill**  
(based on 1650 scfm of fugitive landfill gas)

TACs	New LFG Limit	Fugitive Emissions	
		ppbv	lbs/hour
acrylonitrile	100	1.36E-03	11.89
benzene	3000	5.99E-02	525.13
carbon tetrachloride	50	1.97E-03	17.24
chloroform	50	1.53E-03	13.38
1,4 dichlorobenzene	900	3.38E-02	296.48
ethyl benzene	7000	1.90E-01	1665.36
ethylene dibromide (1,2 dibromoethane)	50	2.40E-03	21.05
ethylene dichloride (1,2 dichloroethane)	400	1.01E-02	88.70
ethylidene chloride (1,1 dichloroethane)	50	1.27E-03	11.09
methylene chloride	1000	2.17E-02	190.33
perchloroethylene (tetrachloroethylene)	600	2.55E-02	222.97
1,1,2,2 tetrachloroethane	50	2.15E-03	18.81
trichloroethylene	400	1.34E-02	117.77
vinyl chloride	300	4.80E-03	42.02
carbon disulfide	500	9.74E-03	85.30
chlorobenzene	500	1.44E-02	126.12
chlorodifluoromethane	2000	4.42E-02	387.53
dichlorodifluoromethane	2000	6.19E-02	541.91
dichlorofluoromethane	1000	2.63E-02	230.64
fluorotrichloromethane	500	1.76E-02	153.91
ethyl chloride (chloroethane)	1000	1.65E-02	144.57
hexane	5000	1.10E-01	965.56
hydrogen sulfide	265000	2.31E+00	20235.48
isopropyl alcohol	60000	9.22E-01	8080.08
methyl ethyl ketone	40000	7.38E-01	6463.33
methyl chloroform (1,1,1 trichloroethane)	500	1.71E-02	149.47
toluene	30000	7.07E-01	6194.30
vinylidne chloride (1,1 dichloroethene)	500	1.24E-02	108.62
xylenes	30000	8.15E-01	7137.27

**New Site-Wide Potential to Emit for Plant # 2266**

	PM10	POC	NOx	SO2	CO
S-1 Landfill – Waste Decomposition Emissions		34.734			
S-5 Non-Retail GDF		0.714			
S-12 Stockpile for Green Waste	0.120				
S-21 Landfill – Waste and Cover Material Dumping	1.510	1.504			
S-22 Landfill – Excavating, Bulldozing, and Compacting	2.194				
S-23 Portable Propane Engine	0.017	0.014	0.260	0.005	1.210
S-24 Portable Diesel Engine	0.189	0.252	3.910	0.003	0.820
A-7, A-8, and A-9 Landfill Gas Flares	9.159	7.486	27.846	47.263	80.325
Road Dust Emissions	70.800				
Total for Plant # 2266	83.989	44.704	32.016	47.271	82.355

**IV. STATEMENT OF COMPLIANCE**

Regulation 2, Rule 1:

CEQA:

This application is for a change of permit conditions at the S-1 Los Trancos Canyon Landfill with Gas Collection System that involves no physical alterations of the landfill or flares but that will result in emission increases above the current maximum permitted levels for one pollutant: hydrogen sulfide (H<sub>2</sub>S). Permit condition changes are required to bring the facility into compliance with its permit condition limits. To prevent triggering public noticing pursuant to the AB2588 Air Toxics Hot Spots Act, the applicant is also proposing to reduce the current emission limit for each TAC except hydrogen sulfide. To prevent triggering public notice requirements due to sulfur dioxide emission increases, the Applicant is proposing to accept a lower combined landfill gas throughput limit for the flares such that the new SO<sub>2</sub> emission limit for the three flares combined does not exceed the current SO<sub>2</sub> emission limit. As a result, this project does not result in any criteria pollutant emission increases.

This application is for a proposed modified source, because it will result in H<sub>2</sub>S emission increases. However, this project will comply with the new source review provisions of Regulation 2, Rule 2 and Regulation 2, Rule 5. There is no possibility that these permit condition changes will have any significant environmental impact on any resources other than air quality. In addition, the Engineering Evaluation for this application uses fixed standards and objective measurements and does not involve any element of discretion. Therefore, this project is categorically exempt from CEQA review pursuant to Regulation 2-1-312.11. This project will not result in any increases in maximum permitted criteria pollutant emission levels. It will result in increases of a TAC, hydrogen sulfide, but the emission increases will satisfy the requirements of Section 2-1-312.11.4. Therefore, no further CEQA review is required.

The project is over 1000 feet from the nearest school and is therefore not subject to the public notification requirements of Regulation 2-1-412.

Regulation 2, Rule 2:

Since this project will not result in any increases of maximum permitted criteria pollutant emission rates from the landfill (S-1) or flares (A-7, A-8, or A-9), this project is not subject to New Source Review or the requirements of Regulation 2, Rule 2. No new BACT, Offset or PSD requirements will apply.

As discussed in the Background Section, the applicant is proposing to accept a lower landfill gas throughput limit for the three flares to ensure that this project does not result in any sulfur dioxide emission increases. As a result of this throughput limit change, the site will reduce the maximum permitted emission rates for NOx, CO, POC, and PM10 from the flares. These emission limit reductions will impact the amount of NOx and POC offsets that the site is required to supply pursuant to Application # 25612. Under Application # 25612, the site was required to supply emission reduction credits for past landfill and flare related applications (at a 1.0 to 1.0 ratio) equivalent to 19.704 tons/year of NOx and 28.553 tons/year of POC. Application # 26100 will reduce the permitted emission levels for the flares by 21.350 tons/year of NOx and 5.791 tons/year of POC. Since the reduction in the NOx emission rate (21.350 tons/year) for Application # 26100 exceeds the amount of reimbursement required under Application # 25612 (19.704 tons/year), and the total site-wide NOx emission rate will now be less than 35 tons/year of NOx, the NOx offset reimbursement is no longer required and all credits supplied for this reimbursement should be returned to the site. POC reimbursement is still required because POC emissions will remain above 35 tons/year. Since the new POC limit for the flares will be 5.791 tons/year less, this amount of POC ERCs should also be returned to the site. The total amount of POC ERCs that should be returned to the site are: 19.704 tons/year + 5.791 tons/year = 25.495 tons/year of POC credits.

New Source Review for Toxic Air Contaminants:

As discussed in the Emissions Section, the proposed permit condition changes will result in 3575 pounds/year increase in the maximum permitted H<sub>2</sub>S emission rate for the landfill. The project emission increase will be: 19,829 pounds/year increase in H<sub>2</sub>S emissions since 1987, with 18,823 pounds/year of increases at the landfill and 1,006 pounds/year of increases at the flares. However, the Applicant is also accepting permit condition changes that will result in emission reductions for many other TACs.

The District conducted a Health Risk Assessment for this facility based on the new maximum proposed emission limits for the landfill and flares. For consistency with the previous HRSA for this site, the HRSA was conducted using the ISCST3 air dispersion model using the SCREEN3 meteorological data since there is no applicable site-specific meteorological data for this site. The model was run with rural dispersion coefficients using simple and complex terrain. Terrain elevations were based on USGS Half Moon Bay and Montara Mountain sub areas.

Health risk calculations were conducted in accordance with the current District HRA Guidelines, which include the use of cancer risk adjustment factors for residential receptors. Acute impacts were refined by calculating health impacts for each target organ system.

The health impacts for the landfill and flares at the new permit condition limits are summarized below. The impacts resulting from the flares are negligible compared to the impacts from the landfill.

**Maximum Health Impacts for Landfill and Flares at New Limits**

	Cancer Risk per Million	Chronic Hazard Index	Acute Hazard Index *
Resident	7.5	0.29	0.64
Worker	1.4	0.14	0.98

\* The highest acute impact is for the central nervous system. Hydrogen sulfide is the primary contributor to this impact.

The proposed increase in the maximum permitted hydrogen sulfide emission rate (3575 pounds/year) is equivalent to a 0.03 increase in the chronic hazard index and a 0.12 increase in the acute hazard index for the landfill and flares.

For the purposes of Regulation 2, Rule 5, project emission increases must include all increases at the landfill since 1987. The post-1987 hydrogen sulfide emission increases represent a 0.24 increase in the chronic hazard index and a 0.91 increase in the acute hazard index.

However, for modified sources, the District may take into consideration the impacts of toxic emission reductions. According to the District's February 17, 2015 HRSA, the previous maximum permitted emission levels for the landfill and flares would have resulted in a 58.6 in a million cancer risk, a 0.38 chronic hazard index, and a 0.81 acute hazard index based on the District's current risk calculation procedures.

Taking into consideration the proposed reductions in emissions that will be achieved by limiting the landfill fugitive emission rate and revising the landfill gas TAC concentration limits for TACs other than hydrogen sulfide, this project will result in a net reduction of cancer risk (from 58.6 in a million down to 7.5 in a million) and a net reduction in chronic hazard index (from 0.38 down to 0.29). The project will result in a net increase in the acute hazard index from 0.81 to 0.98. Since the final post-project health impacts for the landfill and flares will be less than 10 in a million cancer risk, less than 1.0 chronic hazard index, and less than 1.0 acute hazard index, this project will satisfy the project risk limits of Regulation 2-5-302. Since the landfill's cancer risk will exceed 1.0 and the chronic hazard index will exceed 0.2, this landfill is required to employ TBACT to reduce landfill emissions. Landfill gas collection and control systems that satisfy the requirements of Regulation 8, Rule 34, the federal NSPS, and the state landfill methane control rule are considered TBACT for this source category. The landfill gas collection and control systems for this facility are operating in compliance with Regulation 8, Rule 34, NSPS, and state requirements. Therefore, this project is also meeting Regulation 2-5-301.

#### Regulation 2, Rule 6:

This facility was previously subject to the Operating Permit requirements of Title V of the federal Clean Air Act (40 CFR, Part 70) and BAAQMD Regulation 2, Rule 6, Major Facility Review (MFR), because it was a major facility for CO emissions and also because it was a designated facility (since it was subject to the NSPS for MSW Landfills). Therefore, this facility has been required to have an MFR permit pursuant to Regulations 2-6-301 and 2-6-304. The proposed permit condition changes for this application will reduce CO emissions to less than 100 tons/year. Therefore, this facility will no longer be subject to Title V pursuant to 2-6-301. However, it will remain subject to Title V pursuant to Regulation 2-6-304.

The initial MFR Permit for this facility was issued on October 1, 2001, was renewed on October 1, 2007, and was renewed again on March 14, 2014. This application will require an administrative amendment of the current MFR permit to incorporate the proposed permit condition revisions. The proposed MFR permit revisions related to NSR Application # 26100 will be discussed in the Statement of Basis for the administrative permit amendment under Application # 26101.

#### Regulation 8, Rule 34:

BFI's Los Trancos Canyon Landfill (S-1) is subject to Regulation 8, Rule 34. Regulation 8-34-301 requires that landfill gas be collected and processed through emission control systems that comply with 8-34-301.1 (continuous operation) and 8-34-301.2 (component leak limit) and either 8-34-301.3 (NMOC emission limits for flares) or 8-34-301.4 (NMOC emission limits for other control devices). The proposed permit condition revisions will not affect compliance with 8-34-301 or 8-34-301.1-4.

The S-1 Los Trancos Canyon Landfill is also subject to Regulation 8-34-303, which limits leaks on the surface of the landfill to less than 500 ppmv as methane. This site has generally been complying with the surface leak requirements. The proposed permit condition changes are not expected to have any impacts on this site's ability to meet this leak limit.

Based on the revised LANDGEM projections for this site, the current landfill has a maximum projected landfill gas generation rate of 6600 scfm of landfill gas with an expected collection rate of 4950 scfm and an expected fugitive emission rate of 1650 scfm. The proposed new landfill gas throughput limit for the flares is 2155 million scf/year, which is equal to an average of 4100 scfm of landfill gas. The off-site energy facility is capable of burning 2130 million scf/year of landfill gas (or 4050 scfm). These two facilities provide a combined control capacity of 8150 scfm,

which exceeds the maximum projected landfill gas generation rate for the site. If the energy plant reduces capacity to less than 1314 million scf/year (less than 4 engines), the landfill site will need to increase the permitted throughput limits for the flares to ensure that this site has sufficient landfill gas control capacity to handle all of the landfill gas that is expected to be generated by this landfill.

### Federal Requirements:

NSPS for MSW Landfills: The S-1 Los Trancos Canyon Landfill is subject to the New Source Performance Standards (NSPS) for Municipal Solid Waste (MSW) Landfills, 40 CFR, Part 60, Subpart WWW. This regulation limits surface leaks to 500 ppmv as methane (40 CFR 60.753(d)). It requires that a gas collection system be installed and operated in each area or cell, where MSW has been in place for two years or longer. The gas collection system must be designed with a sufficient density of collectors to prevent surface leaks. Gas wells and other collectors must be installed and operated in accordance with an approved collection system design plan. Collected gases must be routed to an approved control system meeting the requirements of 40 CFR 60.752(b)(2)(iii)(A, B, or C). The current control systems (three on-site enclosed flares) meet the requirements of 40 CFR 60.752(b)(2)(iii)(B). The proposed condition changes will allow the use of off-site control systems. When the collected landfill gas is routed off-site, BFI will comply with 40 CFR 60.752(b)(2)(iii)(C) by routing the gases to a treatment system that processes the gas for subsequent sale or use.

As discussed above for Regulation 8, Rule 34, the combined control capacity for the landfill gas flares and the off-site energy plant is sufficient for the current projected landfill gas generation rate.

NESHAPs for MSW Landfills: This landfill is also subject to the NESHAPs for MSW Landfills (40 CFR, Part 63, Subpart AAAAA). This NESHAP requires that subject facilities implement startup, shutdown, malfunction plans (SSM Plans) and comply additional reporting requirements. All applicable requirements are contained in the existing MFR permit. This facility is expected to continue to comply with these requirements.

### State Requirements:

CARB adopted a Landfill Methane Control Regulation that became effective in 2011. This regulation includes landfill gas collection and control requirements that are similar to Regulation 8, Rule 34 and NSPS requirements, but the state rule includes an integrated surface leak standard of 25 ppmv as methane, a tighter component leak limit of 500 ppmv as methane, and methane emission limits for flares and engines. BFI's enclosed flares are subject to a 99% methane destruction efficiency limit pursuant to this rule. Recent source testing confirms that the flares are meeting this methane destruction efficiency limit. The landfill has also demonstrated compliance with the instantaneous and integrated surface leak standards and the component leak limits during recent quarterly monitoring events.

## **V. PERMIT CONDITIONS**

The following permit condition revisions are proposed under this application, as shown in strikeout and underline text below.

### **Condition # 10164**

For: S-1 LOS TRANCOS CANYON LANDFILL – WASTE DECOMPOSITION PROCESS; ABATED BY: A-7 LANDFILL GAS FLARE, A-8 LANDFILL GAS FLARE, AND A-9 LANDFILL GAS FLARE; S-21 LOS TRANCOS CANYON LANDFILL – WASTE AND COVER MATERIAL DUMPING; AND S-22 LOS TRANCOS CANYON LANDFILL – EXCAVATING, BULLDOZING, AND COMPACTING ACTIVITIES:

- \*1. Landfill operations at the Los Trancos Canyon (Ox Mountain) Landfill (S-1), including the acceptance and placement of waste, earthmoving, and construction activities, shall be restricted to six days per week, Monday through Saturday. (Basis: CEQA)

2. Total waste accepted and placed at the Los Trancos Canyon Landfill (S-1) shall not exceed 835,000 tons during any consecutive twelve-month period; nor 3,598 tons during any one day. The total cumulative amount of all wastes placed in the landfill shall not exceed 26,500,000 tons. The maximum design capacity of S-1 (total volume of all wastes and cover materials placed in the landfill, excluding final cover) shall not exceed 49,000,000 cubic yards. To confirm compliance with this part, the Permit Holder of S-1 shall maintain daily records, summarized on a monthly basis, of the amount of waste accepted and placed in each area of the landfill. (Basis: Cumulative Increase)
- \*3. All waste shall be covered with compacted materials meeting the requirements of the State of California. The cover frequency shall be increased as necessary to control odors and litter. (Basis: Regulation 1-301)
4. All on-site parking and maintenance areas for vehicles and mobile equipment shall be either paved, or provided with a gravel surface and maintained as necessary to prevent dust emissions. (Basis: Regulation 6-1-301)
5. All on-site roadways shall be paved, except for a segment of road from the end of the paved haul road to the working face. This unpaved segment shall not exceed 1200 feet in length. Limited use access roads may also remain unpaved. Limited use access roads include fire roads and other on-site roads that are traveled infrequently for the purpose of site patrol, maintenance, or monitoring of the landfill cover, landfill gas collections system, and landfill gas control system. (Basis: Cumulative Increase)
6. The speed of vehicles on unpaved roads shall not exceed 10 mph. (Basis: Cumulative Increase)
7. All unpaved roads (excluding limited use access roads) shall be treated with 10% (wt) magnesium chloride dust suppressant solution at a rate of at least 0.5 gallons per square yard. This dust suppressant solution shall be applied at least once per calendar month, during May through October. During November through April, dust suppressant shall be applied after any dry period consisting of 30 consecutive days with less than 0.09 inches of rain per day. In addition, water shall be applied to all unpaved roads at least four times per working day. This watering schedule may be reduced during periods when there is sufficient precipitation to minimize dust emissions. (Basis: Cumulative Increase)
8. The Permit Holder of S-1 shall sweep and wash down all paved roadways at least twice per week or as necessary to maintain a clean road surface. (Basis: Cumulative Increase)
9. On-site vehicle traffic volume shall not exceed the number of round trips described below during any one day:
 

a. Transfer Trucks	- 178 round trips per day
b. Packer Trucks	- 52 round trips per day
c. Water Trucks	- 36 round trips per day
d. Soil Trucks	- 200 round trips per day
e. Misc. Heavy Equipment	- 60 round trips per day
f. Light Duty Vehicles	- 250 round trips per day

The Permit Holder shall apply to the District for a modification of S-1 to add any other vehicles or to increase the number of daily round trips. The Permit Holder shall maintain daily traffic records to confirm compliance with this part, except that the Permit Holder may omit the employee light duty vehicle trips from these recordkeeping requirements. (Basis: Cumulative Increase)
10. Except for the vehicles listed below, the on-site one way distance traveled by any heavy-duty vehicle (on paved roads only) shall not exceed 8,000 feet. This limitation does not apply to the following vehicle traffic, which may travel up to a maximum of 11,700 feet (one-way distance) on paved roads.
 

a. Water Trucks	- 36 round trips per day
b. Fuel Trucks	- 2 round trips per day
c. Employee Light-Duty Vehicles	- 20 round trips per day

(Basis: Cumulative Increase)

- \*11. All completed landfill phases shall be revegetated in accordance with the final EIR. (Basis: CEQA)
12. The Permit Holder shall maintain appropriate records (including but not limited to: operating times, refuse acceptance rates, water and/or chemical dust suppressant application times, traffic volumes, site maps showing all paved and unpaved road lengths, etc.) to verify compliance with parts 1-11. These records shall be kept on site for at least 5 years from the date of entry and shall be made available to District personnel upon request. (Basis: Cumulative Increase)
13. The Permit Holder of the S-1 Active Landfill shall not handle soil containing volatile organic compounds (VOCs) or use soil containing VOCs as cover material, unless the following provisions are met.
- a. The Permit Holder satisfies all requirements of Part 14 below, for VOC contaminated soil; or  
(Basis: Regulation 8-40-301)
  - b. The Permit Holder can demonstrate with appropriate documentation that the soil is VOC-laden soil (soil containing VOCs that is not "Contaminated Soil" as defined in Regulation 8-40-205. In addition, the Permit Holder shall either comply with the VOC-laden soil acceptance limits in Part 13b(i) below or shall demonstrate through the records and District approved calculation procedures specified in Parts 13b(iii-vi) that emissions due to VOC-laden soil receipt, storage, handling, re-use, and disposal activities do not exceed the emission limits in Part 13b(ii) below. The limits below do not apply if the Permit Holder has no documentation to prove that the soil is not contaminated or contains no VOCs but the source of the soil is known and there is no reason to suspect that the soil might contain VOC.
    - i. The acceptance of VOC-laden soil shall not exceed 118.75 tons per day and shall not exceed 31,800 tons per year, unless the Permit Holder demonstrates compliance with the emission limits in Part 13b(ii).
    - ii. The emissions due to receipt, storage, handling, re-use, and disposal of VOC-laden soil shall not exceed 11.9 pounds of VOC per day and shall not exceed 3,180 pounds of VOC per year.
    - iii. Maintain in a District approved log book: daily records of the amount and VOC content for each lot of VOC-laden soil received at the landfill, the amount and VOC content of VOC-laden soil that is transferred to a storage area, the amount and VOC content of VOC-laden soil that is used as cover material, and the amount and VOC content of any VOC-laden soil that is disposed of in the landfill.
    - iv. Calculate and record on a daily basis the VOC emission rate (E) for each soil lot received using the following equation:  

$$E = Q * C / 1E6$$
 where E is the maximum VOC emissions for each soil lot  
 Q is the amount of VOC-laden soil received per lot  
 C is the concentration of VOC (ppmw) in the soil lot
    - vi. Summarize the daily VOC emission rate for all soil lots received per day and summarize the annual VOC emission rate for all soil lots received per calendar year.  
(Basis: Cumulative Increase and Regulation 8-2-301)
14. Handling Procedures for Soil Containing Volatile Organic Compounds
- a. The procedures listed below in subparts b-l do not apply if the following criteria are satisfied. However, the record keeping requirements in subpart m below are applicable.
    - i. The Permit Holder has appropriate documentation demonstrating that either the organic content of the soil or the organic concentration above the soil is below the "contaminated" level (as defined in Regulation 8, Rule 40, Sections 205, 207, and 211). The handling of soil containing VOCs in concentrations below the "contaminated" level is subject to Part 13 above.

- ii. The Permit Holder has no documentation to prove that soil is not contaminated, but source of the soil is known and there is no reason to suspect that the soil might contain organic compounds.
- b. The Permit Holder shall provide notification to the Compliance and Enforcement Division of the Permit Holder's intention to accept contaminated soil at the facility at least 24 hours in advance of receiving the contaminated soil. The Permit Holder shall provide an estimate of the amount of contaminated soil to be received, the degree of contamination (range and average VOC Content), and the type or source of contamination.
- c. Any soil received at the facility that is known or suspected to contain volatile organic compounds (VOCs) shall be handled as if the soil were contaminated, unless the Permit Holder receives test results proving that the soil is not contaminated. To prove that the soil is not contaminated, the Permit Holder shall collect soil samples in accordance with Regulation 8-40-601 within 24 hours of receipt of the soil by the facility. The organic content of the collected soil samples shall be determined in accordance with Regulation 8-40-602.
  - i. If these test results indicate that the soil is still contaminated or if the soil was not sampled within 24 hours of receipt by the facility, the Permit Holder must continue to handle the soil in accordance with the procedures subparts d-l below, until the soil has completed treatment or has been placed in a final disposal location and adequately covered. Storing soil in a temporary stockpile or pit is not considered treatment. Co-mingling, blending, or mixing of soil lots is not considered treatment.
  - ii. If these test results indicate that the soil – as received at the facility – has an organic content of 50 ppmw or less, then the soil may be considered to be not contaminated and need not be handled in accordance with the procedures listed in subparts d-l below, but shall be handled in accordance with Part 13 above.
- d. Any contaminated soil received at the facility shall be clearly identified as contaminated soil, shall be handled in accordance with subparts e-l below, and shall be segregated from non-contaminated soil. Contaminated soil lots may not be co-mingled, blended, or otherwise mixed with non-contaminated soil lots prior to treatment, reuse, or disposal. Mixing soil lots in an attempt to reduce the overall concentration of the contaminated soil or to circumvent any requirements or limits is strictly prohibited.
- e. On-site handling of contaminated soil shall be limited to no more than two on-site transfers per soil lot. For instance, unloading soil from off-site transport vehicles into a temporary storage pile is considered one transfer. Moving soil from a temporary storage to a staging area is considered one transfer. Moving soil from a temporary storage pile to a final disposal site is considered one transfer. Moving soil from a staging area to a final disposal site is considered one transfer. Therefore, unloading soil from off-site transport into a temporary storage pile and then moving the soil from that temporary storage pile to the final disposal site is allowed. Unloading soil from off-site transport into a staging area and then moving the soil from that staging area to the final disposal site is allowed. However, unloading soil from off-site transport to a temporary storage pile, moving this soil to a staging area, and then moving the soil again to a final disposal site is three on-site transfers and is not allowed.
- f. If the contaminated soil has an organic content of less than 500 ppmw, the contaminated soil shall either be treated or deposited in a final disposal site or transported off-site for treatment, within 90 days of receipt at the facility.
- g. If the contaminated soil has an organic content 500 ppmw or more, the contaminated soil shall either be treated or deposited in a final disposal site or transported off-site for treatment, within 45 days of receipt at the facility.
- h. All active storage piles shall meet the requirements of Regulation 8-40-304 by using water sprays, vapor suppressants or approved coverings to minimize emissions. The exposed surface area of any active storage pile (including the active face at a landfill) shall be limited to 6000 ft<sup>2</sup>. The types of storage piles that may become subject to these provisions include (but are not limited to) truck unloading areas, staging areas, temporary stockpiles, soil on

- conveyors, bulldozers or trucks, the active face of a landfill, or other permanent storage pile at the final disposal location.
- i. All inactive storage piles shall meet the requirements of Regulation 8-40-305 including the requirement to cover contaminated soil during periods of inactivity longer than one hour. The types of storage piles that may become subject to these provisions include (but are not limited to) soil on trucks or other on-site equipment, staging areas, temporary stockpiles, and the permanent storage pile at the final disposal location. District approved coverings for inactive storage piles include continuous heavy-duty plastic sheeting (in good condition, joined at the seams, and securely anchored) or encapsulating vapor suppressants (with re-treatment as necessary to prevent emissions).
  - j. The Permit Holder must:
    - i. Keep contaminated soil covered with continuous heavy-duty plastic sheeting (in good condition, joined at the seams, and securely anchored) whenever soil is to be stored in temporary stockpiles or during on-site transport in trucks. Soil in trucks shall not be left uncovered for more than 1 hour.
    - ii. Establish a tipping area for contaminated soils near the active face that is isolated from the tipping area for other wastes.
    - iii. Spray contaminated soil with water or vapor suppressant immediately after dumping the soil from a truck at the tipping area.
    - iv. Ensure that all contaminated soil is transferred from the tipping area to the active face immediately after spraying with water or vapor suppressant.
    - v. Ensure that contaminated soil in the tipping area is not disturbed by subsequent trucks. Trucks shall not drive over contaminated soil in the tipping area or track contaminated soil out of the tipping area on their wheels.
    - vi. Spray contaminated soil on the active face with water or vapor suppressant (to keep the soil visibly moist) until the soil can be covered with an approved covering.
    - vii. Limit the area of exposed soil on the active face to no more than 6000 ft<sup>2</sup>.
    - viii. Ensure that contaminated soil spread on the active face is completely covered on all sides with one of the following approved coverings: at least 6 inches of clean compacted soil, at least 12 inches of compacted garbage, or at least 12 inches of compacted green waste.
    - ix. Ensure that covering of soil on the active face is completed within one hour of the time that the soil was first dumped from a truck at the tipping area.
  - k. Contaminated soil shall not be used as daily, intermediate, or final cover material for landfill waste operations unless the requirements of Regulation 8, Rule 40, Sections 116 or 117 have been satisfied.
  - l. Contaminated soil is considered to be a decomposable solid waste pursuant to Regulation 8, Rule 34. All contaminated soil disposed of at a site shall be included in any calculations of the amount of decomposable waste in place for annual reporting requirements or for purposes of 8-34-111 or 8-34-304.
  - m. The Permit Holder shall keep the following records for each lot of soil received, in order to demonstrate on-going compliance with the applicable provisions of Regulation 8, Rule 40.
    - i. For all soil received by the facility (including soil with no known contamination), record the arrival date at the facility, the soil lot number, the amount of soil in the lot, the organic content or organic concentration of the lot (if known), the type of contamination (if any), and keep copies of any test data or other information that documents whether the soil is contaminated (as defined in 8-40-205) or not contaminated, with what, and by how much.
    - ii. If the soil is tested for organic content after receipt by the facility, a report with the sampling date, test results, and the date results were received.
    - iii. For all on-site handling of contaminated soil, use a checklist or other approved method to demonstrate that appropriate procedures were followed during all on-site handling activities. One checklist shall be completed for each day and for each soil lot (if multiple lots are handled per day).

- iv. For soil aerated in accordance with 8-40-116 or 117 record the soil lot number, the amount of soil in the lot, the organic content, the final placement date, the final placement location, and describe how the soil was handled or used on-site.
- v. For final disposal at a landfill, record on a daily basis the soil lot number, the amount of soil placed in the landfill, the disposal date, and the disposal location.

All records shall be retained for at least 5 years from the date of entry and shall be made available for District inspection upon request.

(Basis: Regulations 8-40-301, 8-40-304 and 8-40-305)

15. In order to demonstrate compliance with Regulation 8, Rule 34, Section 304, the Permit Holder shall maintain the following records for each area or cell that is not controlled by a landfill gas collection system.

- a. Record the date that waste was initially placed in each uncontrolled area or cell.
- b. Record the cumulative amount of waste placed in each uncontrolled area or cell on a monthly basis.
- c. For any areas or cells that are excluded from the collection system requirements, record the types and amounts of all non-decomposable waste placed in the area and the percentage (if any) of decomposable waste placed in the area.
- d. Record the initial operation date for each new landfill gas well and collector.
- e. Maintain an accurate map of the landfill, which indicates the locations of all refuse boundaries and the locations of all wells and collectors using unique identifiers. Any areas containing only non-decomposable waste shall be clearly identified. This map shall be updated at least every six months to indicate changes in refuse boundaries and to include any newly installed wells and collectors.

These records shall be kept on site for at least 5 years from the date of entry and shall be made available to District personnel upon request. (Basis: Regulation 8-34-304)

16. [deleted and combined with Part 17]

17. The Permit Holder of S-1 shall have a properly operated and properly maintained landfill gas collection system in both the Lower and Upper Canyon Fill Areas. (Basis: Regulations 2-1-301, 8-34-301.1, 8-34-305, and NSPS: 40 CFR 60.752(b)(2)(ii), 60.755(a) and 60.759)

- a. The authorized number of landfill gas collection system components is the baseline count listed below plus any components installed and minus any components decommissioned pursuant to subpart 17b, as evidenced by start-up and decommissioning notification letters submitted to the District.
  - 169 vertical wells
  - 9 horizontal collectors
  - 2 leachate cleanout risers
- b. The Permit Holder has been authorized to perform the landfill gas collection system alterations listed below pursuant to Permit Application #23391 (as of 8/1/13). All collection system alterations shall comply with subparts 17b(i-vii) below. Wells installed pursuant to Part 17b shall be added to Part 17a in accordance with the procedures identified in Regulations 2-6-414 or 2-6-415.
  - i. The authorized collection system alterations are:
    - Install up to 26 vertical gas collection wells.
    - Permanently decommission up to 41 vertical wells
    - Install up to 18 horizontal collectors
    - Permanently decommission up to 9 horizontal collectors
  - ii. The Permit Holder shall apply for and receive a Change of Conditions from the District before implementing any changes to the landfill gas collection system described in subpart 17a other than those allowed pursuant to subpart 17b(i). Installing, decommissioning, and relocating vertical wells and horizontal collectors are alterations that are subject to this requirement, unless this change constitutes a replacement as defined in subpart 17b(iii) below.

- iii. Replacement of landfill gas collection system components with identical or functionally equivalent components will not be deemed an alteration and will not be subject to the Authority to Construct requirement under the following circumstances. If a well or collector will be shut down and replaced by a new well or collector in essentially the same location as the old component and this decommission/installation will be accomplished in accordance with Regulations 8-34-117 and 8-34-118, then this activity shall be considered a component replacement that is not subject to the Authority to Construct requirement. For each individual well or collector replacement, this subpart authorizes a maximum vacuum disconnection time of five consecutive days for compliance with Regulation 8-34-117.5. The disconnected component and the new component shall not be counted toward the subpart 17b(i) limits; the numbers of replacement wells and replacement collectors are not limited. Alterations, repairs, or replacements of non-perforated piping sections (such as risers, laterals, or header pipes), piping connectors, or valves are not subject to the Authority to Construct requirement.
- iv. At least three days prior to initiating operation of a well or collector installed pursuant to subpart 17b, the Permit Holder shall submit a start-up notice to the District that contains the component ID number for each new well or collector and the anticipated initial start-up date for each new component.
- v. For each well or collector that is permanently decommissioned after June 19, 2007, the Permit Holder shall submit a decommissioning notice to the District within no later than three working days after the component was disconnected from vacuum system. This decommissioning notice shall contain the component ID for each well or collector that was decommissioned, the date and time that each component was disconnected from the vacuum system, and the reason the component was decommissioned.
- vi. Within six months of installing a new component or permanently decommissioning an existing component, the Permit Holder shall prepare an updated map of the landfill gas collection system that identifies the ID numbers and locations of all operable wells and collectors. On this map or in accompanying documentation, the Permit Holder shall summarize all component changes that were made since the last map was prepared. The previous collection system map, the updated collection system map, and the component change summary shall be provided to District staff upon request.
- vii. If the Permit Holder has a net reduction (number of decommissioned components minus the number of installed components) of more than five components within a 120-day period, the Permit Holder shall submit a more comprehensive decommissioning notice to the District. In addition to the information required by subpart 17b(v), this comprehensive decommissioning notice shall include the maps and documentation required by subpart 17b(vi), shall identify all component changes that have occurred but that are not included on the most recently updated map, shall identify any components that are temporarily disconnected from vacuum pursuant to subpart 18c, shall provide estimated vacuum reconnection dates for these components, shall include a list of all well installations that are expected to occur within the next 120 days, and shall discuss the reasons why this reduction in gas collection components is not expected to result in surface emission leaks. Upon request, the Permit Holder shall provide wellhead monitoring data, surface leak monitoring data, records of repair attempts made to date, and other information to support the need for a net collection component reduction of more than five wells. The District may require additional surface monitoring to verify that this net component reduction is not causing landfill surface leaks. The District will notify the Permit Holder in writing of any additional surface monitoring that is required pursuant to this subpart.

18. Operating Requirements for Landfill Gas Collection Systems and Collection System Components:

- a. The landfill gas collection systems described in Part 17a shall be operated continuously, unless the Permit Holder complies with all applicable provisions of Regulation 8, Rule 34, Section 113. Individual wells shall not be disconnected or removed, nor isolation valves shut completely off, unless the Permit Holder complies with all applicable requirements of Regulation 8, Rule 34, Sections 113, 116, and 117 or with Part 18c below. (Basis: Regulations 8-34-301.1 and 8-34-404)
- b. Each landfill gas collection system component listed in Part 17a shall be operated in compliance with the wellhead limits of Regulation 8-34-305, unless an alternative wellhead limit has been approved for that component, as identified in subpart b(i), and the Permit Holder complies with all of the additional requirements for that component, as identified in subparts b(ii-vii). (Basis: Regulations 8-34-303, 8-34-304, 8-34-305, 40 CFR 60.755(a) and 60.759)

- i. The nitrogen and oxygen concentration limits in Regulation 8-34-305.3 and 8-34-305.4 shall not apply to the landfill gas collection wells listed below, provided that the oxygen concentration in each of the following wells does not exceed 15% by volume.

OXMEW-W04	and HC-F06
OXMEW-W10	
OXMEW-W17	

- ii. The Permit Holder shall demonstrate compliance with the alternative wellhead oxygen limit in subpart b(i) by monitoring each wellhead for oxygen on a monthly basis, in accordance with the provisions of Regulations 8-34-505 and 8-34-604.
- iii. All test dates, wellhead oxygen concentration data, any deviations from the subpart b(i) limit, repair actions, repair dates, re-monitoring dates and results, and compliance restoration dates shall be recorded in a District approved log and made available to District staff upon request in accordance with Regulations 8-34-34-501.4, 8-34-501.9, and 8-34-414.
- iv. To demonstrate that the alternative wellhead oxygen limit in subpart b(i) will not cause surface emission leaks, the Permit Holder shall conduct additional surface emission monitoring in the vicinity of each component listed in subpart b(i). For each component in subpart b(i), the Permit Holder shall maintain a map showing the location of the buried collection component and identifying the approximate radius of influence for the component. For each component in subpart b(i), the Permit Holder shall monitor for landfill surface emissions – in accordance with Regulations 8-34-506 and 8-34-607 – at three representative points on the landfill surface that are within the radius of influence of the component and that are not more than 15 meters from the surface location of the component. This additional surface emission monitoring shall be conducted on a monthly basis for a period of at least six consecutive months.
- v. If no excesses of the Regulation 8-34-303 surface emission limit are detected in the vicinity of a component for six consecutive months, the Permit Holder may discontinue the additional monthly surface emission monitoring in the vicinity of that component and shall continue with the routine quarterly surface emission monitoring requirements in the vicinity of that component.
- vi. If one or more excesses of the Regulation 8-34-303 surface emission limit are detected in the vicinity of a component during a six consecutive month period, the Permit Holder shall follow all applicable requirements for recording and reporting the excess and shall follow the Regulation 8-34-415 repair schedule for landfill surface leak excesses. The additional monthly surface emission monitoring in the vicinity of that component shall continue until either the no surface excess requirements of subpart b(v) have been achieved or the repair and compliance restoration requirements of subpart b(vii) have been satisfied.
- vii. If excesses of the Regulation 8-34-303 surface emission limit are detected in the vicinity of a component for three or more monitoring events during a six consecutive month period, the subpart b(i) alternative wellhead oxygen limit shall

be revoked for that component. The Permit Holder shall conduct all necessary repairs to the landfill gas collection well, to any piping associated with the well or the remote wellhead monitoring system, to valves, flanges, or other connectors, and to any test ports or other openings that are necessary to eliminate air intrusion into the well or the monitoring point, to prevent impairment of vacuum application or vacuum adjustment at the collection well, and to restore the collection well and associated monitoring point to proper function. The Permit Holder shall complete all of the above repairs and any necessary landfill surface repairs and shall restore compliance with the Regulation 8-34-303 surface emission limit (in the vicinity of that component) and the Regulation 8-34-305.4 wellhead oxygen concentration limit by the earlier of the following dates: (a) within 120 days of the date that the first excess was discovered if the three excess events are discovered within a single quarterly period pursuant to the re-monitoring requirements of 8-34-415 or (b) within 60 days of detection of the third excess.

- c. The Permit Holder may temporarily disconnect individual wells or collectors from the vacuum system, provided that all requirements of this subpart are satisfied. (Basis: Regulation 8-34-404)
  - i. No more than five (5) landfill gas collection system components (wells or collectors) may be temporarily disconnected from the vacuum system at any one time pursuant to subpart 18c.
  - ii. For each individual well or collector that is disconnected from the vacuum system pursuant to subpart 18c, the total vacuum system disconnection time shall not exceed 120 days during any 12-month period.
  - iii. Collection system components that are disconnected from the vacuum system are not subject to wellhead limits (Regulation 8-34-305 or subpart 18b above) or to monthly wellhead monitoring requirements (Regulation 8-34-505) during this vacuum disconnection time.
  - iv. Wells or collectors that are temporarily disconnected from the vacuum system continue to be subject to the component leak limit (Regulation 8-34-301.2) and the quarterly leak testing requirement (Regulation 8-34-503) at all times. In addition, the Permit Holder shall conduct the following component leak monitoring at each component that has been disconnected from the vacuum system pursuant to subpart 18c: test for component leaks using the procedures identified in Regulation 8-34-602 within 10 calendar days of disconnection from vacuum and again within 1 month of disconnection from vacuum. If a component leak is detected at the well, the Permit Holder shall take all steps necessary to reduce the leak below the applicable limit, including reconnecting the well to the vacuum system, if no other corrective action measures are successful within the time frames allowed by Rule 34.
  - v. For each well disconnection event, the Permit Holder shall record each affected well ID number, all well disconnection dates and times, all well reconnection dates and times, all related monitoring dates and monitoring results in a District approved log. This log shall also include an explanation of why the temporary well shut down was necessary and shall describe all adjustments or repairs that were made in order to allow this well to operate continuously, to reduce leaks, or to achieve compliance with an applicable limit. All records shall be retained for a minimum of five years and shall be made available to District staff upon request.

- 19. All collected landfill gas shall be abated by the on-site Landfill Gas Flares (A-7, A-8, or A-9) or shall be vented off-site to the Ameresco Half Moon Bay LLC facility (Site #B7040). Landfill gas may be vented to any combination of the approved control devices (the three on-site flares, the off-site flare, and the six off-site IC engines), provided that a sufficient amount of landfill gas is collected at all times to prevent violation of the applicable landfill surface leak limits. Raw landfill gas shall not be vented to the atmosphere, except for unavoidable landfill gas emissions that occur during collection system installation, maintenance, or repair performed in compliance with Regulation 8, Rule 34, Sections 113, 116, 117, or 118 and for inadvertent component or surface leaks that do not exceed the

limits specified in 8-34-301.2 or 8-34-303. (Basis: Regulations 8-34-301 and 8-34-303 and 40 CFR Parts 60.752(b)(2)(ii-iii) and 60.753(d-f))

20. The combined landfill gas flow rate to all the Flares (A-7, A-8, and A-9) shall not exceed 3807.62155 million standard cubic feet during any consecutive 12-month period. For comparison to this limit, the landfill gas flow rate shall be corrected to 50% methane (dry basis), 70 degrees F, and 1 atmosphere. In order to demonstrate compliance with this part, the Permit Holder shall:
- determine and record, on a monthly basis, the methane content (dry basis) of the landfill gas in each landfill gas collection system header (upper canyon header and lower canyon header),
  - calculate and record, on a monthly basis, the total landfill gas flow rate (expressed as 50% methane, dry basis, at 70 degrees F and 1 atmosphere) for each landfill gas collection system,
  - calculate and record, on a monthly basis, the total landfill gas flow rate to all flares (expressed as 50% methane, dry basis, at 70 degrees F and 1 atmosphere), and
  - maintain records of all calculation procedures and measured values that were used to determine the total corrected landfill gas flow rate to the flares.

All records shall be maintained on site in an APCO approved logbook or shall be made readily available to District staff upon request for a period of at least 5 years from the date of entry. These record keeping requirements do not replace the record keeping requirements contained in any applicable rules or regulations. (Basis: Offsets and Cumulative Increase)

21. The concentration of total reduced sulfur compounds in the collected landfill gas shall not exceed an average of 150265 ppmv of TRS, expressed as H<sub>2</sub>S, averaged over any consecutive rolling 12-month period. Total reduced sulfur compounds in the collected landfill gas shall be monitored, in accordance with the procedures below, to demonstrate compliance with this part and as a surrogate for monitoring sulfur dioxide in control systems exhaust.—Total reduced sulfur compounds in the landfill gas shall be determined on an annual basis pursuant to Part 31. (Basis: Cumulative Increase and Regulations 2-5-302 and 2-6-503, and AB2588 Air Toxics Hot Spots Act)

- On a monthly basis, the owner/operate shall analyze the landfill gas at the header to each flare for total reduced sulfur compounds by either using (1) laboratory methods that analyze for the sulfur compounds listed in Part 31 or (2) Draeger tubes that measure for hydrogen sulfide concentration and multiplying this measured H<sub>2</sub>S concentration by 1.05 to calculate TRS concentration. The Part 31 annual gas characterization analysis may be used as the monthly analysis for the month in which the samples are collected.
- The owner/operator shall record the measured concentrations for each month, shall calculate and record the average monthly TRS concentration for the three flares, and shall calculate and record the annual average TRS concentration for each consecutive rolling 12-month period. Until 12 months of data are available, the owner/operator shall compare the flow weighted average sulfur content measured pursuant to Part 31 to a limit of 265 ppmv of TRS expressed as H<sub>2</sub>S.

- \*22. The Permit Holder shall submit a permit application for a Change of Permit Conditions, if any site-specific landfill gas characterization test indicates that the average measured concentration for any one of the toxic air contaminants (TACs) listed below is greater than the concentration limit listed below. The Permit Application shall be submitted to the District, within 45 days of receipt of test results indicating a concentration above the levels listed below. The owner/operator shall ensure that fugitive toxic air contaminant (TAC) emissions from S-1 do not exceed any of the emission rate limits listed below. In addition, the landfill gas generation rate for this landfill shall not exceed an annual average of 6600 scfm and the fugitive landfill gas emission rate shall not exceed an annual average of 1650 scfm. The owner/operator shall demonstrate compliance with these limits using the following procedures.

(Basis: Regulation 2-5-302 and AB2588 Air Toxics Hot Spots Act)

- The owner/operator shall compare the concentration measured for each TAC, pursuant to the Part 31 annual landfill gas characterization analysis, to the concentration limit listed below. If this annual testing is conducted on more than one flare, the owner/operator shall calculate

a flow weighted average concentration for each TAC, and shall compare this average TAC concentration to the limits below. Compliance with the TAC concentration limits shall demonstrate compliance with the associated fugitive TAC emission rate limit.

b. If the concentration of a TAC exceeds the concentration limit listed below, this excess shall be deemed to be a violation of this permit condition, unless the owner/operator satisfies the following requirement. The owner/operator shall, within 30 days of receiving test results showing an excess of a TAC concentration limit below, submit documentation to the District that demonstrates – to the District’s satisfaction – that the higher measured concentration level has not resulted in an excess of the associated annual fugitive emission rate limit using District-approved calculation procedures consistent with the LANDGEM inputs and calculation procedures used to establish these limits pursuant to Application # 26100.

Compound	Concentration (ppbv)	Fugitive Emissions (pounds/year)
Acrylonitrile	100	500
Benzene	3000	10,000
Carbon Tetrachloride	50	100
Chloroform	50	100
1,4 Dichlorobenzene	900	500
Ethylbenzene	7000	1665
Ethylene Dibromide	50	100
Ethylene Dichloride	400	500
Ethylidene Dichloride	50	10,000
Methylene Chloride	1000	30,000
Perchloroethylene	600	10,000
1,1,2,2 Tetrachloroethane	50	500
Trichloroethylene	400	5,000
Vinyl Chloride	300	5,000
Carbon disulfide	500	85
Chlorobenzene	500	126
Ethyl chloride	1000	145
Hexane	5000	966
Hydrogen sulfide	26	5000
Isopropyl alcohol	60000	8080
Methyl ethyl ketone	40000	6463
1,1,1 Trichloroethane	500	149
Toluene	30000	6194
Vinylidene chloride	500	109
Xylenes	30000	7137

23. Each Flare (A-7, A-8, and A-9) shall operate at the minimum combustion zone temperature indicated in subparts a-c below. If a source test demonstrates compliance with all applicable requirements at a different temperature, the APCO may revise the minimum combustion zone temperature limit in accordance with the procedures identified in Regulations 2-6-414 or 2-6-415 and the following criteria. The minimum combustion zone temperature for a flare shall be equal to the average combustion zone temperature determined during the most recent complying source test minus 50 degrees F, provided that the minimum combustion zone temperature is not less than 1400 degrees F.
- The A-7 Landfill Gas Flare shall operate at a minimum combustion zone temperature of at least 1400 degrees F, averaged over any 3-hour period.
  - The A-8 Landfill Gas Flare shall operate at a minimum combustion zone temperature of at least 1400 degrees F, averaged over any 3-hour period.
  - The A-9 Landfill Gas Flare shall operate at a minimum combustion zone temperature of at least 1400 degrees F, averaged over any 3-hour period.

(Basis: Regulations 2-5-301 and 8-34-301.3 and NSPS: 40 CFR 60.752(b)(2)(iii)(B) and 60.758(c)(1)(i))

24. Each Flare (A-7, A-8, and A-9) shall be equipped with a temperature monitor with readout display and a continuous temperature recorder. One or more thermocouples shall be placed in the primary combustion zone of the flare and shall accurately indicate flare combustion zone temperature at all times. (Basis: Regulations 8-34-501.3 and 8-34-507, and NSPS: 40 CFR 60.756(b)(1))
25. Each Flare (A-7, A-8, and A-9) shall be equipped with automatic combustion air controls. (Basis: Regulation 8-34-301.3 and RACT for CO)
26. Each Flare (A-7, A-8, and A-9) shall be equipped with a properly maintained and properly calibrated flow meter to measure gas flow into each flare. Gas flow shall be recorded at least every 15 minutes. (Basis: Regulations 8-34-501.10 and 8-34-508, and NSPS: 40 CFR 60.756(b)(2)(i))
27. Each Flare (A-7, A-8, and A-9) shall be equipped with an automatic gas shutoff valve, local and remote alarms, and an automatic restart system. (Basis: Regulation 8-34-301)
28. Nitrogen Oxide (NO<sub>x</sub>) emissions from Flares A-7, A-8, or A-9 shall not exceed 0.052 pounds of NO<sub>x</sub> (calculated as NO<sub>2</sub>) per million BTU. The Permit Holder may demonstrate compliance with this emission rate limit by having a nitrogen oxide concentration in the flare exhaust of no more than 39 ppmv of NO<sub>x</sub>, corrected to 3% oxygen, dry basis. An exhaust concentration measurement of more than 39 ppmv of NO<sub>x</sub> shall not be deemed a violation of this part, if the Permit Holder can demonstrate that NO<sub>x</sub> emissions did not exceed 0.052 lbs/MM BTU during the test period. (Basis: RACT and Offsets)
29. Carbon Monoxide (CO) emissions from Flares A-7, A-8, or A-9 shall not exceed 0.15 pounds of CO per million BTU. The Permit Holder may demonstrate compliance with this emission rate limit by having a carbon monoxide concentration in the flare exhaust of no more than 184 ppmv of CO, corrected to 3% oxygen, dry basis. An exhaust concentration measurement of more than 184 ppmv of CO shall not be deemed a violation of this part, if the Permit Holder can demonstrate that CO emissions did not exceed 0.15 lbs/MM BTU during the test period. (Basis: RACT, Cumulative Increase, and avoidance of Regulation 2-2-305.2)
30. In order to demonstrate compliance with Parts 28 and 29 above, Regulation 8, Rule 34, Section 301.3 and 40 CFR 60.752(b)(2)(iii)(B), the Permit Holder shall ensure that a District approved source test is conducted annually on each Landfill Gas Flare (A-7, A-8, and A-9). The source tests shall be conducted ~~no sooner than 9 months and~~ no later than 12 months after the previous source test. Each annual source test shall determine the following:
  - a. landfill gas flow rate to the flare (dry basis);
  - b. concentrations (dry basis) of carbon dioxide (CO<sub>2</sub>), nitrogen (N<sub>2</sub>), oxygen (O<sub>2</sub>), methane (CH<sub>4</sub>), and total non-methane hydrocarbons (NMOC) in the landfill gas;
  - c. landfill gas flow rate (scfm) and heat input rate (MM BTU/hour) to the flare;
  - d. stack gas flow rate from the flare (dry basis);
  - e. concentrations (dry basis) of NO<sub>x</sub>, CO, CH<sub>4</sub>, NMOC, and O<sub>2</sub> in the flare stack gas;
  - f. emission rate per heat input (pounds/MM BTU) for NO<sub>x</sub> and CO
  - g. NMOC destruction efficiency achieved by the flare; and
  - h. average combustion zone temperature in the flare during the test period.

The Source Test Section of the District shall be contacted to obtain approval of the source test procedures at least 14 days in advance of each source test. The Source Test Section shall be notified of the scheduled test date at least 7 days in advance of each source test. The source test report shall be submitted to the Compliance and Enforcement Division and the Source Test Section within 45 days of the test date. (Basis: Regulations 2-6-503, 8-34-301.3, 8-34-412, and 40 CFR 60.752(b)(2)(iii)(B))
31. The Permit Holder shall conduct a characterization of the landfill gas at the site on an annual basis. The landfill gas samples shall be drawn from the main landfill gas header for each flare concurrent with the annual source test required by Part 30 above. In addition to the compounds listed in Part 30b, the landfill gas shall be analyzed for the organic and sulfur compounds listed below. All

concentrations shall be reported on a dry basis. For comparison to the limits in Parts 21 and 22, the Permit Holder shall calculate the flow weighted average TRS concentration and the flow weighted average concentration for each TAC listed in Part 22 using the measured TRS and TAC concentrations in landfill gas at the inlet to each flare and the landfill gas flow rate to each flare during the test. The test report shall be submitted to the Compliance and Enforcement Division and the Source Test Section within 45 days of the test date. (Basis: Cumulative Increase and Regulations 2-5-302, 8-34-412, and 9-1-302)

Sulfur Compounds

carbon disulfide  
carbonyl sulfide  
dimethyl sulfide  
ethyl mercaptan  
hydrogen sulfide  
methyl mercaptan

Organic Compounds

acrylonitrile  
benzene  
carbon tetrachloride  
chlorobenzene  
chloroethane  
chloroform  
1,1 dichloroethane  
1,1 dichloroethene  
1,2 dichloroethane  
1,4 dichlorobenzene  
ethylbenzene  
ethylene dibromide

Organic Compounds

hexane  
isopropyl alcohol  
methyl ethyl ketone  
methylene chloride  
perchloroethylene  
toluene  
1,1,1 trichloroethane  
1,1,2,2 tetrachloroethane  
trichloroethylene  
vinyl chloride  
xylenes

- 32. The Permit Holder shall retain all records related to compliance with parts 18-31 for a minimum of 5 years. Such records include source test reports, continuous temperature records, gas flow rate records, and start-up and shut-down dates and times. All records shall be kept on site and made available to District staff upon request. (Basis: Regulations 8-34-501 and 2-6-501)
  
- 33. The annual report required by BAAQMD Regulation 8-34-411 shall be submitted in two semi-annual increments. The reporting periods and report submittal due dates for the Regulation 8-34-411 report shall be synchronized with the reporting periods and report submittal due dates for the semi-annual MFR Permit monitoring reports that are required by Section I.F. of the MFR Permit for this site. (Basis: Regulation 8-34-411 and 40 CFR Part 63.1980(a))

**VI. RECOMMENDATION**

Issue a Change of Permit Conditions for the landfill described below subject to the revised Condition # 10164.

**S-1 Los Trancos Canyon Landfill with Gas Collection System; abated by A-7, A-8, and A-9 Landfill Gas Flares.**

By: \_\_\_\_\_  
Carol S. Allen  
Supervising Air Quality Engineer

\_\_\_\_\_  
Date

**ENGINEERING EVALUATION REPORT**

**FOR**

**APPLICATION # 27710**

**Engineering Evaluation**  
**for**  
**Landfill Gas Collections System Alterations and Alternative Wellhead Limits at**  
**S-1 Los Trancos Canyon Landfill**

Browning Ferris Industries of CA, Inc.; PLANT # 2266  
APPLICATION # 27710

**A. BACKGROUND**

Browning-Ferris Industries of CA, Inc. (BFI) operates the Los Trancos Canyon Landfill Facility located on Ox Mountain in Half Moon Bay, CA. This facility includes an active MSW landfill, three landfill gas flares, a non-retail gasoline dispensing facility (GDF), and stockpiles of green waste.

As of January 31, 2016, the gas collection systems for the Los Trancos Canyon Landfill consisted of 174 vertical wells, 9 horizontal collectors, and 2 leachate cleanout risers. Pursuant to Application #23391, the remaining gas collection system alterations were: install up to 11 new vertical wells and 18 new horizontal collectors and decommission up to 31 vertical wells and 9 horizontal collectors.

On November 3, 2015, the applicant requested to install 12 vertical wells in a shallow leachate interception trench to collect any landfill gas that may potentially migrate into this area of the leachate collection and removal system and to prevent landfill gas surface leaks that may result from gas accumulating in this trench. The applicant requested to be allowed to operate these leachate trench wells (LTS-1 through LTS-12) on a less than continuous basis, and requested that these wells be allowed to operate at higher oxygen (up to 15% O<sub>2</sub>) and pressure values (up to 0.5 inches of water column) than normal gas collection wells. In accordance with Regulation 8-34-305, the District may grant alternative wellhead requirements through permit conditions. However, CCR Title 17, Section 95464(c) requires that wellheads be maintained under negative pressure except for wells with synthetic covers, during well raising, or during repair of the well or gas collection system. Therefore, these wells must be re-connected to vacuum upon detection of any pressure.

On January 11, 2016, the applicant requested to modify the permit conditions to allow the installation of 100 vertical wells and 20 horizontal collectors and to allow the decommissioning of 150 vertical wells and 15 horizontal collectors.

These two permit condition change requests were combined into Application # 27710. Since these permit condition changes do not result in any emission increases, these actions qualified for accelerated permitting, pursuant to Regulation 2-1-106 as of the completeness date (February 17, 2016).

After the District completed permit condition changes pursuant to Application 23391 (February 9, 2016), the District received eight well decommissioning/startup notices. The well changes in these notification letters are summarized in the tables below.

Table 1. Summary of Notifications Received from 2/10/2016 through 5/6/2106

Date	Decommission	Install & Start-Up
March 8, 2016		+ 2 vertical wells
March 30, 2016	- 3 vertical wells	
April 7, 2016	- 1 vertical well	+5 vertical wells
April 14, 2016		+8 vertical wells
April 22, 2016	- 1 vertical well	
April 28, 2016		+6 vertical wells
May 4, 2016	-4 vertical wells	
May 5, 2016	-6 vertical wells	

To date, the applicant has decommissioned 15 vertical wells and installed 21 vertical wells pursuant to Application # 27710 for a net change of: +6 vertical wells. The gas collection system for the S-1 Los Trancos Canyon Landfill now contains 180 vertical wells, 9 horizontal collectors, 2 leachate cleanout risers. The current lists of gas collection system components are presented in Tables 2a-c.

Table 2a. Vertical Landfill Gas Collection Wells Operating as of May 5, 2016					
Vertical Wells	Vertical Wells	Vertical Wells	Vertical Wells	Vertical Wells	Vertical Wells
EW-W02	EW-103	EW-164	EW-204	OXMEW300	OXME302D
EW-W03	EW-104	EW-166	EW-205	OXMEW301	OXME305D
EW-W05	EW-105	EW-170	EW-206	OXMEW302	OXME306D
EW-W06	EW-107	EW-172	EW-207	OXMEW303	OXME308D
EW-W08	EW-113	EW-173	EW-209	<del>OXMEW304</del>	OXME312D
EW-W15	<del>EW-115</del>	EW-174	EW-210	OXMEW305	OXME316D
EW-W16	EW-116	EW-175		OXMEW306	OXME317D
EW-W17	EW-117	EW-176	EW-1B	OXMEW307	
EW-W18	EW-119	EW-177	EW-1C	OXMEW308	<u>OXEW1601</u>
EW-W24	<del>EW-120</del>	<del>EW-178</del>	EW-1D	OXMEW309	<u>OXEW1602</u>
EW-W25	EW-121	<del>EW-179</del>	EW-30A	OXMEW310	<u>OXEW1603</u>
EW-W26	EW-122	<del>EW-180</del>		OXMEW311	<u>OXEW1604</u>
EW-W31	<del>EW-123</del>	EW-181	EW-PEW30	OXMEW312	<u>OXEW1605</u>
EW-W32	EW-126	EW-182		OXMEW313	<u>OXEW1606</u>
EW-W33	EW-131	EW-183	EW-W-1-F	OXMEW314	
EW-W35	EW-133A	EW-184	EW-W-1-G	OXMEW315	<u>OXEW1608</u>
EW-W36	EW-133B	EW-185	EW-W-1-H	OXMEW316	<u>OXEW1609</u>
EW-W42	EW-134A	EW-186	EW-W-1-I	OXMEW317	<u>OXEW1610</u>
EW-W44	EW-134B	EW-187	EW-W-1-J	OXMEW318	<u>OXEW1611</u>
EW-W46	EW-136	EW-188	EW-W-1-K	OXMEW319	<u>OXEW1612</u>
EW-W49	EW-137A	EW-189	EW-W-1-M	OXMEW320	<u>OXEW1613</u>
EW-W50	EW-137B	EW-190	EW-W-1-P	OXMEW321	<u>OXEW1614</u>
EW-57	EW-138	EW-191	EW-W-1-S	OXMEW322	<u>OXEW1615</u>
<del>EW-58</del>	EW-140B	EW-192	EW-W-1-T	OXMEW323	<u>OXEW1616</u>
EW-59	EW-141	<del>EW-193</del>	EW-W-1-U	<del>OXMEW324</del>	<u>OXEW1617</u>
EW-60	EW-144B	EW-194		OXMEW325	<u>OXEW1618</u>
EW-61	EW-145	<del>EW-195</del>		OXMEW327	<u>OXEW1619</u>
<del>EW-62</del>	EW-153	EW-196		OXMEW328	<u>OXEW1620</u>
EW-63	EW-154	<del>EW-197</del>			<u>OXEW1621</u>
EW-72	EW-157	<del>EW-198</del>			<u>OXEW1622</u>
EW-73	EW-158	EW-199			
EW-83	EW-159	EW-200			
<del>EW-96</del>	EW-161	EW-201			
EW-99	EW-162	EW-202			
EW-101	EW-163	EW-203			

\* Decommissioned components are shown in strikeout format and are highlighted in yellow. New components are shown in underline format and highlighted in green. All components in this table operate continuously.

Table 2b. Horizontal Landfill Gas Collectors Operating as of May 5, 2016

Horizontal Collectors
HC-650-1
HC-650-2
HC-650-3
HC-650-4
HC-650-5
HC-650-6
HC-F01
HC-F06
OXMEWHCA
Total = 9

Table 2c. Wells installed as of May 5, 2016 That Operate Less Than Continuously

LTCO Vertical Wells
LTS-1
LTS-2
LTS-3
LTS-4
LTS-5
LTS-6
LTS-7
LTS-8
LTS-9
LTS-10
LTS-11
LTS-12
Total = 12

The District is proposing to issue a Change of Conditions to identify the collection system alterations that have been completed to date and to authorize additional collection system alterations for the next several years. The additional authorized gas collection alterations are: install up to 89 vertical wells and 20 horizontal collectors and decommission up to 145 vertical wells and 15 horizontal collectors. These gas collection system alterations will have no expiration date.

The District is also proposing to authorize less than continuous operation and an alternative oxygen content limit for the 12 leachate trench wells identified in Table 2.c.

- **STATEMENT OF COMPLIANCE**

Regulation 8, Rule 34

The Los Trancos Canyon Landfill's Active Landfill with Gas Collection System (S-1) is expected to comply with Regulation 8 Rule 34 Section 301 by:

- (a) continuously operating the gas collection system (174 vertical wells and 9 horizontal collectors),
- (b) having no leaks (exceeding 1000 ppmv) from the gas collection system, and
- (c) and continuously venting all of the collected gases to either on-site or off-site control devices.

A comparison of the 2015 landfill gas collection rate (3444 scfm of landfill gas at about 48% methane) to the 2015 projected landfill generation rate (6541 scfm of landfill gas at 50% methane) indicates that BFI is collecting about 51% of the methane that the landfill is expected to be generating. Although this gas collection system (GCS) capture efficiency is lower than the target GCS gas capture efficiency of 75%, it appears to be adequate since no prevalent surface emission leaks have been observed. The LANDGEM program may be overestimating the gas generation potential for this site, since the annual average rainfall in Half Moon Bay is 29 inches (just over the non-arid threshold of 25 inches per year) and the area has been in a drought. If the arid area methane generation rate constant ( $k=0.02$ ) is used instead of  $k=0.04$  (for areas with more than 25 inches/year of rainfall), the projected gas generation rate for 2015 drops to 4325 scfm and the capture rate increases to 76%.

The S-1 Los Trancos Canyon Landfill is also subject to 8-34-303, which limits leaks on the surface of the landfill to less than 500 ppmv as methane. The collection system alterations completed pursuant to this application are intended to prevent surface emission leaks greater than this standard. BFI has not found any wide spread or non-repairable surface emission leaks above this standard in the last few years.

Since the measured gas collection rate is adequate and surface leaks have not been detected, the gas collection system appears to be functioning properly.

• **PERMIT CONDITIONS**

The following permit condition revisions are necessary to reflect the landfill gas collection system alterations that have been completed to date and to add the less than continuous operation criteria for the leachate trench wells.

**Condition # 10164**

For: S-1 LOS TRANCOS CANYON LANDFILL – WASTE DECOMPOSITION PROCESS; ABATED BY: A-7 LANDFILL GAS FLARE, A-8 LANDFILL GAS FLARE, AND A-9 LANDFILL GAS FLARE; S-21 LOS TRANCOS CANYON LANDFILL – WASTE AND COVER MATERIAL DUMPING; AND S-22 LOS TRANCOS CANYON LANDFILL – EXCAVATING, BULLDOZING, AND COMPACTING ACTIVITIES:

*No Changes to Parts 1-16*

- 17. The Permit Holder of S-1 shall have a properly operated and properly maintained landfill gas collection system in both the Lower and Upper Canyon Fill Areas. (Basis: Regulations 2-1-301, 8-34-301.1, 8-34-305, and NSPS: 40 CFR 60.752(b)(2)(ii), 60.755(a) and 60.759)
  - a. The authorized number of landfill gas collection system components is the baseline count listed below plus any components installed and minus any components decommissioned pursuant to subpart 17b, as evidenced by start-up and decommissioning notification letters submitted to the District.
    - i. Components That Operate Continuously
      - 168 vertical wells
      - 9 horizontal collectors
      - 2 leachate cleanout risers
    - ii. Components That Operate Less Than Continuously
      - 12 vertical wells
  - b. The Permit Holder has been authorized to perform the landfill gas collection system alterations listed below pursuant to Permit Application #27710 (as of 5/6/2016). All collection system alterations shall comply with subparts 17b(i-vii) below. Wells installed

pursuant to Part 17b shall be added to Part 17a in accordance with the procedures identified in Regulations 2-6-414 or 2-6-415.

- i. The authorized collection system alterations are:
  - Install up to 89 vertical gas collection wells.
  - Permanently decommission up to 139 vertical wells
  - Install up to 20 horizontal collectors
  - Permanently decommission up to 15 horizontal collectors
- ii. The Permit Holder shall apply for and receive a Change of Conditions from the District before implementing any changes to the landfill gas collection system described in subpart 17a other than those allowed pursuant to subpart 17b(i). Installing, decommissioning, and relocating vertical wells and horizontal collectors are alterations that are subject to this requirement, unless this change constitutes a replacement as defined in subpart 17b(iii) below.
- iii. Replacement of landfill gas collection system components with identical or functionally equivalent components will not be deemed an alteration and will not be subject to the Authority to Construct requirement under the following circumstances. If a well or collector will be shut down and replaced by a new well or collector in essentially the same location as the old component and this decommission/installation will be accomplished in accordance with Regulations 8-34-117 and 8-34-118, then this activity shall be considered a component replacement that is not subject to the Authority to Construct requirement. For each individual well or collector replacement, this subpart authorizes a maximum vacuum disconnection time of five consecutive days for compliance with Regulation 8-34-117.5. The disconnected component and the new component shall not be counted toward the subpart 17b(i) limits; the numbers of replacement wells and replacement collectors are not limited. Alterations, repairs, or replacements of non-perforated piping sections (such as risers, laterals, or header pipes), piping connectors, or valves are not subject to the Authority to Construct requirement.
- iv. At least three days prior to initiating operation of a well or collector installed pursuant to subpart 17b, the Permit Holder shall submit a start-up notice to the District that contains the component ID number for each new well or collector and the anticipated initial start-up date for each new component.
- v. For each well or collector that is permanently decommissioned after June 19, 2007, the Permit Holder shall submit a decommissioning notice to the District within no later than three working days after the component was disconnected from vacuum system. This decommissioning notice shall contain the component ID for each well or collector that was decommissioned, the date and time that each component was disconnected from the vacuum system, and the reason the component was decommissioned.
- vi. Within six months of installing a new component or permanently decommissioning an existing component, the Permit Holder shall prepare an updated map of the landfill gas collection system that identifies the ID numbers and locations of all operable wells and collectors. On this map or in accompanying documentation, the Permit Holder shall summarize all component changes that were made since the last map was prepared. The previous collection system map, the updated collection system map, and the component change summary shall be provided to District staff upon request.
- vii. If the Permit Holder has a net reduction (number of decommissioned components minus the number of installed components) of more than five components within a 120-day period, the Permit Holder shall submit a more comprehensive decommissioning notice to the District. In addition to the information required by subpart 17b(v), this comprehensive decommissioning notice shall include the maps and documentation required by subpart 17b(vi), shall identify all component changes that have occurred but that are not included on the most recently updated map, shall identify any components that are temporarily disconnected from vacuum pursuant to subpart 18c, shall provide estimated vacuum reconnection dates for

these components, shall include a list of all well installations that are expected to occur within the next 120 days, and shall discuss the reasons why this reduction in gas collection components is not expected to result in surface emission leaks. Upon request, the Permit Holder shall provide wellhead monitoring data, surface leak monitoring data, records of repair attempts made to date, and other information to support the need for a net collection component reduction of more than five wells. The District may require additional surface monitoring to verify that this net component reduction is not causing landfill surface leaks. The District will notify the Permit Holder in writing of any additional surface monitoring that is required pursuant to this subpart.

18. Operating Requirements for Landfill Gas Collection Systems and Collection System Components:

a. The landfill gas collection systems described in Part 17a(i) shall be operated continuously, unless the Permit Holder complies with all applicable provisions of Regulation 8, Rule 34, Section 113. Individual wells shall not be disconnected or removed, nor isolation valves shut completely off, unless the Permit Holder complies with all applicable requirements of Regulation 8, Rule 34, Sections 113, 116, and 117 or with Part 18c below. (Basis: Regulations 8-34-301.1 and 8-34-404)

b. Each landfill gas collection system component listed in Part 17a(i) shall be operated in compliance with the wellhead limits of Regulation 8-34-305, unless an alternative wellhead limit has been approved for that component, as identified in subpart b(i), and the Permit Holder complies with all of the additional requirements for that component, as identified in subparts b(ii-vii). (Basis: Regulations 8-34-303, 8-34-304, 8-34-305, 40 CFR 60.755(a) and 60.759)

i. The nitrogen and oxygen concentration limits in Regulation 8-34-305.3 and 8-34-305.4 shall not apply to the landfill gas collection wells listed below, provided that the oxygen concentration in each of the following wells does not exceed 15% by volume.

OXMEW-W17	and HC-F06
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ii. The Permit Holder shall demonstrate compliance with the alternative wellhead oxygen limit in subpart b(i) by monitoring each wellhead for oxygen on a monthly basis, in accordance with the provisions of Regulations 8-34-505 and 8-34-604.

iii. All test dates, wellhead oxygen concentration data, any deviations from the subpart b(i) limit, repair actions, repair dates, re-monitoring dates and results, and compliance restoration dates shall be recorded in a District approved log and made available to District staff upon request in accordance with Regulations 8-34-34-501.4, 8-34-501.9, and 8-34-414.

iv. To demonstrate that the alternative wellhead oxygen limit in subpart b(i) will not cause surface emission leaks, the Permit Holder shall conduct additional surface emission monitoring in the vicinity of each component listed in subpart b(i). For each component in subpart b(i), the Permit Holder shall maintain a map showing the location of the buried collection component and identifying the approximate radius of influence for the component. For each component in subpart b(i), the Permit Holder shall monitor for landfill surface emissions – in accordance with Regulations 8-34-506 and 8-34-607 – at three representative points on the landfill surface that are within the radius of influence of the component and that are not more than 15 meters from the surface location of the component. This additional surface emission monitoring shall be conducted on a monthly basis for a period of at least six consecutive months.

v. If no excesses of the Regulation 8-34-303 surface emission limit are detected in the vicinity of a component for six consecutive months, the Permit Holder may discontinue the additional monthly surface emission monitoring in the vicinity of that component and shall continue with the routine quarterly surface emission monitoring requirements in the vicinity of that component.

- vi. If one or more excesses of the Regulation 8-34-303 surface emission limit are detected in the vicinity of a component during a six consecutive month period, the Permit Holder shall follow all applicable requirements for recording and reporting the excess and shall follow the Regulation 8-34-415 repair schedule for landfill surface leak excesses. The additional monthly surface emission monitoring in the vicinity of that component shall continue until either the no surface excess requirements of subpart b(v) have been achieved or the repair and compliance restoration requirements of subpart b(vii) have been satisfied.
- vii. If excesses of the Regulation 8-34-303 surface emission limit are detected in the vicinity of a component for three or more monitoring events during a six consecutive month period, the subpart b(i) alternative wellhead oxygen limit shall be revoked for that component. The Permit Holder shall conduct all necessary repairs to the landfill gas collection well, to any piping associated with the well or the remote wellhead monitoring system, to valves, flanges, or other connectors, and to any test ports or other openings that are necessary to eliminate air intrusion into the well or the monitoring point, to prevent impairment of vacuum application or vacuum adjustment at the collection well, and to restore the collection well and associated monitoring point to proper function. The Permit Holder shall complete all of the above repairs and any necessary landfill surface repairs and shall restore compliance with the Regulation 8-34-303 surface emission limit (in the vicinity of that component) and the Regulation 8-34-305.4 wellhead oxygen concentration limit by the earlier of the following dates: (a) within 120 days of the date that the first excess was discovered if the three excess events are discovered within a single quarterly period pursuant to the re-monitoring requirements of 8-34-415 or (b) within 60 days of detection of the third excess.
- c. The Permit Holder may temporarily disconnect individual wells or collectors from the vacuum system, provided that all requirements of this subpart are satisfied. (Basis: Regulation 8-34-404)
  - i. No more than five (5) landfill gas collection system components (wells or collectors) may be temporarily disconnected from the vacuum system at any one time pursuant to subpart 18c.
  - ii. For each individual well or collector that is disconnected from the vacuum system pursuant to subpart 18c, the total vacuum system disconnection time shall not exceed 120 days during any 12-month period.
  - iii. Collection system components that are disconnected from the vacuum system are not subject to wellhead limits (Regulation 8-34-305 or subpart 18b above) or to monthly wellhead monitoring requirements (Regulation 8-34-505) during this vacuum disconnection time.
  - iv. Wells or collectors that are temporarily disconnected from the vacuum system continue to be subject to the component leak limit (Regulation 8-34-301.2) and the quarterly leak testing requirement (Regulation 8-34-503) at all times. In addition, the Permit Holder shall conduct the following component leak monitoring at each component that has been disconnected from the vacuum system pursuant to subpart 18c: test for component leaks using the procedures identified in Regulation 8-34-602 within 10 calendar days of disconnection from vacuum and again within 1 month of disconnection from vacuum. If a component leak is detected at the well, the Permit Holder shall take all steps necessary to reduce the leak below the applicable limit, including reconnecting the well to the vacuum system, if no other corrective action measures are successful within the time frames allowed by Rule 34.
  - v. For each well disconnection event, the Permit Holder shall record each affected well ID number, all well disconnection dates and times, all well reconnection dates and times, all related monitoring dates and monitoring results in a District approved log. This log shall also include an explanation of why the temporary well shut down was necessary and shall describe all adjustments or repairs that were made in order to allow this well to operate continuously, to reduce leaks, or to achieve

compliance with an applicable limit. All records shall be retained for a minimum of five years and shall be made available to District staff upon request.

- d. The Permit Holder may operate the components identified in Part 17a(ii) on a less than continuous basis subject to the following operating and monitoring criteria. (Basis: Regulation 8-34-404)
  - i. This subpart applies to the following components: LTS-1, LTS-2, LTS-3, LTS-4, LTS-5, LTS-6, LTS-7, LTS-8, LTS-9, LTS-10, LTS-11, and LTS-12.
  - ii. The owner/operator shall monitor the components in subpart d(i) on a monthly basis for gauge pressure, oxygen content, and temperature, including times when the component is disconnected from vacuum.
  - iii. Components that are connected to the vacuum system may be disconnected from the vacuum system if the oxygen content is equal to or greater than 15% by volume or if the temperature is equal to or greater than 131 degrees F.
  - iv. Components that are disconnected from the vacuum system shall be connected to the vacuum system upon detection of positive gauge pressure (greater than 0.0 inches of water column) at the component.
  - v. Components that are temporarily disconnected from the vacuum system pursuant to this subpart continue to be subject to the component leak limit (Regulation 8-34-301.2) and the quarterly leak testing requirement (Regulation 8-34-503) at all times.
  - vi. For each well disconnection event, the Permit Holder shall record each affected well ID number, all well disconnection dates and times, all well reconnection dates and times, all related monitoring dates and monitoring results in a District approved log.

*No Changes to Parts 19-33*

• **RECOMMENDATION**

Issue a Change of Permit Conditions for the gas collection system described below subject to the revised Condition # 10164.

**S-1 Los Trancos Canyon Landfill with Gas Collection System including: 168 vertical wells, 9 horizontal collectors, 2 leachate cleanout risers, and 12 LTCO leachate trench collectors.**

By: \_\_\_\_\_  
Carol S. Allen  
Supervising Air Quality Engineer

\_\_\_\_\_ Date

**Engineering Evaluation  
Change of Permit Conditions  
at S-1 Los Trancos Canyon Landfill**

Browning-Ferris Industries of CA, Inc.; SITE # A2266  
APPLICATION # 28826

**BACKGROUND**

Republic Service, Inc (Republic) operates the Sonoma County Central Landfill (Sonoma) in Petaluma, CA. This site includes an active landfill (S-1, S-22, S-23), a LFG to energy electrical generation facility consisting of 10 internal combustion (IC) engines, and one enclosed landfill gas flare (A-3).

As described in the District's September 22, 2016 Major Facility Review Permit for Facility Number A2266, Condition # 10164, Part 17(a), the landfill gas collection system for the S-1 Los Trancos Canyon Landfill consists of 180 vertical wells (12 wells operate less than continuously), 9 horizontal collectors, and 2 leachate/clean out risers connected to the GCCS at Ox Mountain. As described in Application # 27710 issued on May 24, 2016, the authorized collection system alterations were:

- Install up to 89 new vertical gas collection wells,
- Install up to 20 horizontal collectors,
- Decommission up to 139 vertical wells,
- Decommission up to 15 horizontal collectors.

Since the approval of Application Number 27710, 12 vertical wells were installed, 7 vertical wells and 3 horizontal collectors were decommissioned. The remaining gas collection system alterations pursuant to Application #27710:

- Install up to 77 new vertical gas collection wells,
- Install up to 20 horizontal collectors,
- Decommission up to 132 vertical wells,
- Decommission up to 12 horizontal collectors.

Eight vertical wells (LTS-13 through LTS-20) were started in 6/18/2017. These eight vertical wells were installed in a shallow gravel filled leachate interception trench. BFI requests these 8 vertical wells to be operated less than continuously. Due to the shallow leachate interception trench design, oxygen concentrations at the eight vertical wells have the potential to increase. The eight vertical wells will have difficulty consistently complying with the 5% oxygen concentration limits specified in Regulation 8-34-305.4. BFI requests that these 8 wells be allowed to operate at higher oxygen (up to 15% O<sub>2</sub>) than normal gas collection wells.

Since these permit condition changes do not result in any emission increases, these actions qualified for accelerated permitting, pursuant to Regulation 2-1-106 as of the completeness date (December 14, 2017).

The current lists of gas collection system components are presented in Tables 1a-d.

Table 1a. Vertical Landfill Gas Collection Wells Operating as of June 18, 2017.  
(Total =165)

| Vertical Wells |
|----------------|----------------|----------------|----------------|----------------|
| EW-W05         | EW16-13        | EW17-15        | EW-161         | EW-210         |
| EW-W06         | EW16-4         | EW17-16        | EW-162         | EW-300         |
| EW-W08         | EW16-6         | EW17-17        | EW-164         | EW-301         |
| EW-W15         | EW16-12        | EW-101         | EW-170         | EW-302         |
| EW-W16         | EW16-14        | EW-103         | EW-172         | EW-302D        |
| EW-W17         | EW16-15        | EW-104         | EW-173         | EW-303         |
| EW-W18         | EW16-16        | EW-105         | EW-174         | EW-305         |
| EW-W-1-F       | EW16-17        | EW-107         | EW-175         | EW-305D        |
| EW-W-1-G       | EW16-18        | EW-59          | EW-176         | EW-306         |
| EW-W-1-I       | EW16-8         | EW-72          | EW-181         | EW-306D        |
| EW-W-1-J       | EW16-9         | EW-73          | EW-182         | EW-307         |
| EW-W-1-K       | EW16-10        | EW-83          | EW-183         | EW-308         |
| EW-W-1-S       | EW16-11        | EW-99          | EW-184         | EW-308D        |
| EW-W-24        | EW16-19        | EW16-21        | EW-185         | EW-309         |
| EW-W26         | EW16-20        | EW16-22        | EW-186         | EW-310         |
| EW-1C          | EW16-23        | EW-113         | EW-187         | EW-311         |
| EW-1D          | EW16-24        | EW-116         | EW-188         | EW-312         |
| EW-PEW30       | EW16-25        | EW-122         | EW-189         | EW-312D        |
| EW-W31         | EW16-26        | EW-126         | EW-190         | EW-313         |
| EW-W32         | EW17-1         | EW-133B        | EW-191         | EW-314         |
| EW-W33         | EW17-2         | EW-134A        | EW-192         | EW-315         |
| EW-W35         | EW17-3         | EW-134B        | EW-194         | EW-316         |
| EW-W36         | EW17-4         | EW-137B        | EW-196         | EW-316D        |
| EW-W42         | EW17-5         | EW-138         | EW-199         | EW-317         |
| EW-W44         | EW17-6         | EW-140B        | EW-200         | EW-317D        |
| EW-W46         | EW17-7         | EW-144B        | EW-201         | EW-318         |
| EW-W50         | EW17-8         | EW-145         | EW-202         | EW-319         |
| EW30A          | EW17-9         | EW-153         | EW-203         | EW-320         |
| EW-326A        | EW17-10        | EW-154         | EW-204         | EW-321         |
| EW16-1         | EW17-11        | EW-156         | EW-205         | EW-322         |
| EW16-2         | EW17-12        | EW-157         | EW-206         | EW-323         |
| EW16-3         | EW17-13        | EW-158         | EW-207         | EW-325         |
| EW16-5         | EW17-14        | EW-159         | EW-209         | EW-328         |

Table 1b. Wells installed as of June 18, 2017 That Operate Less Than Continuously

LTS-1
LTS-2
LTS-3
LTS-4
LTS-5
LTS-6
LTS-7
LTS-8
LTS-9
LTS-10
LTS-11
LTS-12
LTS-13
LTS-14
LTS-15
LTS-16
LTS-17
LTS-18
LTS-19
LTS-20
Total = 20

Table 1c. Horizontal Landfill Gas Collectors Operating as of June 18, 2017

HC-650-1
HC-650-6
HC-A
HC-F03
HC-F04
HC-F06
Total = 6

Table 1d. Leachate cleanout risers as of June 18, 2017

LCRS-1
TBTC1

## STATEMENT OF COMPLIANCE

### Regulation 8, Rule 34:

The Los Trancos Canyon Landfill's Active Landfill with Gas Collection System (S-1) is expected to comply with Regulation 8 Rule 34 Section 301 by:

- (a) continuously operating the gas collection system (185 vertical wells and 6 horizontal collectors),
- (b) having no leaks (exceeding 1000 ppmv) from the gas collection system, and
- (c) and continuously venting all of the collected gases to either on-site or off-site control devices.

A comparison of the 2016 landfill gas collection rate (3462 scfm of landfill gas at about 48% methane) to the 2016 projected landfill generation rate (5914, scfm of landfill gas at 50% methane) indicates that BFI is collecting about 58% of the methane that the landfill is expected to be generating. Although this gas collection system (GCS) capture efficiency is lower than the target GCS gas capture efficiency of 75%, it appears to be adequate since no prevalent surface emission leaks have been observed. The LANDGEM program may be overestimating the gas generation potential for this site, since the annual average rainfall in Half Moon Bay is 29 inches (just over the non-arid threshold of 25 inches per year) and the area has been in a drought. If the arid area methane generation rate constant ( $k=0.02$ ) is used instead of  $k=0.04$  (for areas with more than 25 inches/year of rainfall), the projected gas generation rate for 2016 drops to 3979 cfm and the capture rate increases to 87%.

The S-1 Los Trancos Canyon Landfill is also subject to 8-34-303, which limits leaks on the surface of the landfill to less than 500 ppmv as methane. The collection system alterations completed pursuant to this application are intended to prevent surface emission leaks greater than this standard. BFI has not found any wide spread or nonrepairable surface emission leaks above this standard in the last few years. Since the measured gas collection rate is adequate and surface leaks have not been detected, the gas collection system appears to be functioning properly.

### Permit Condition Revisions

The following permit condition revisions are necessary to reflect the landfill gas collection system alterations that have been completed to date and to add the less than continuous operation criteria for the leachate trench wells.

#### Condition # 10164

For: S-1 LOS TRANCOS CANYON LANDFILL – WASTE DECOMPOSITION PROCESS; ABATED BY: A-7 LANDFILL GAS FLARE, A-8 LANDFILL GAS FLARE, AND A-9 LANDFILL GAS FLARE; S-21 LOS TRANCOS CANYON LANDFILL – WASTE AND COVER MATERIAL DUMPING; AND S-22 LOS TRANCOS CANYON LANDFILL – EXCAVATING, BULLDOZING, AND COMPACTING ACTIVITIES:

*(no changes to Parts 1-16 or Parts 19-37)*

17. The Permit Holder of S-1 shall have a properly operated and properly maintained landfill gas collection system in both the Lower and Upper Canyon Fill Areas. (Basis: Regulations 2-1-301, 8-34-301.1, 8-34-305, and NSPS: 40 CFR 60.752(b)(2)(ii), 60.755(a) and 60.759)

- a. The authorized number of landfill gas collection system components is the baseline count listed below plus any components installed and minus any components decommissioned pursuant to subpart 17b, as evidenced by start-up and decommissioning notification letters submitted to the District through May 17, 2016.
  - i. Components That Operate Continuously
    - 165 vertical wells
    - 6 horizontal collectors
    - 2 leachate cleanout risers
  - ii. Components That Operate Less Than Continuously
    - 20 vertical wells
  
- b. The Permit Holder has been authorized to perform the landfill gas collection system alterations listed below pursuant to Permit Application #27710 (as of 5/17/2016). All collection system alterations shall comply with subparts 17b(i-vii) below. Wells installed pursuant to Part 17b shall be added to Part 17a in accordance with the procedures identified in Regulations 2-6-414 or 2-6-415.
  - i. The authorized collection system alterations are:
    - Install up to 77 vertical gas collection wells.
    - Permanently decommission up to 132 vertical wells
    - Install up to 20 horizontal collectors
    - Permanently decommission up to 12 horizontal collectors
  - ii. The Permit Holder shall apply for and receive a Change of Conditions from the District before implementing any changes to the landfill gas collection system described in subpart 17a other than those allowed pursuant to subpart 17b(i). Installing, decommissioning, and relocating vertical wells and horizontal collectors are alterations that are subject to this requirement, unless this change constitutes a replacement as defined in subpart 17b(iii) below.
  - iii. Replacement of landfill gas collection system components with identical or functionally equivalent components will not be deemed an alteration and will not subject to the Authority to Construct requirement under the following circumstances. If a well or collector will be shut down and replaced by a new well or collector in essentially the same location as the old component and this decommission/installation will be accomplished in accordance with Regulations 8-34-117 and 8-34-118, then this activity shall be considered a component replacement that is not subject to the Authority to Construct requirement. For each individual well or collector replacement, this subpart authorizes a maximum vacuum disconnection time of five consecutive days for compliance with Regulation 8-34-117.5. The disconnected component and the new component shall not be counted toward the subpart 17b(i) limits; the numbers of replacement wells and replacement collectors are not limited. Alterations, repairs, or replacements of non-perforated

- piping sections (such as risers, laterals, or header pipes), piping connectors, or valves are not subject to the Authority to Construct requirement.
- iv. At least three days prior to initiating operation of a well or collector installed pursuant to subpart 17b, the Permit Holder shall submit a start-up notice to the District that contains the component ID number for each new well or collector and the anticipated initial start-up date for each new component.
  - v. For each well or collector that is permanently decommissioned after June 19, 2007, the Permit Holder shall submit a decommissioning notice to the District within no later than three working days after the component was disconnected from vacuum system. This decommissioning notice shall contain the component ID for each well or collector that was decommissioned, the date and time that each component was disconnected from the vacuum system, and the reason the component was decommissioned.
  - vi. Within six months of installing a new component or permanently decommissioning an existing component, the Permit Holder shall prepare an updated map of the landfill gas collection system that identifies the ID numbers and locations of all operable wells and collectors. On this map or in accompanying documentation, the Permit Holder shall summarize all component changes that were made since the last map was prepared. The previous collection system map, the updated collection system map, and the component change summary shall be provided to District staff upon request.
  - vii. If the Permit Holder has a net reduction (number of decommissioned components minus the number of installed components) of more than five components within a 120-day period, the Permit Holder shall submit a more comprehensive decommissioning notice to the District. In addition to the information required by subpart 17b(v), this comprehensive decommissioning notice shall include the maps and documentation required by subpart 17b(vi), shall identify all component changes that have occurred but that are not included on the most recently updated map, shall identify any components that are temporarily disconnected from vacuum pursuant to subpart 18c, shall provide estimated vacuum reconnection dates for these components, shall include a list of all well installations that are expected to occur within the next 120 days, and shall discuss the reasons why this reduction in gas collection components is not expected to result in surface emission leaks. Upon request, the Permit Holder shall provide wellhead monitoring data, surface leak monitoring data, records of repair attempts made to date, and other information to support the need for a net collection component reduction of more than five wells. The District may require additional surface monitoring to verify that this net component reduction is not causing landfill surface leaks. The District will

notify the Permit Holder in writing of any additional surface monitoring that is required pursuant to this subpart.

18. Operating Requirements for Landfill Gas Collection Systems and Collection System Components:

- a. The landfill gas collection systems described in Part 17a(i) shall be operated continuously, unless the Permit Holder complies with all applicable provisions of Regulation 8, Rule 34, Section 113. Individual wells shall not be disconnected or removed, nor isolation valves shut completely off, unless the Permit Holder complies with all applicable requirements of Regulation 8, Rule 34, Sections 113, 116, and 117 or with Part 18c below. (Basis: Regulations 8-34-301.1 and 8-34-404)
- b. Each landfill gas collection system component listed in Part 17a(i) shall be operated in compliance with the wellhead limits of Regulation 8-34-305, unless an alternative wellhead limit has been approved for that component, as identified in subpart b(i), and the Permit Holder complies with all of the additional requirements for that component, as identified in subparts b(ii-vii). (Basis: Regulations 8-34-303, 8-34-304, 8-34-305, 40 CFR 60.755(a) and 60.759)
  - i. The nitrogen and oxygen concentration limits in Regulation 8-34-305.3 and 8-34-305.4 shall not apply to the landfill gas collection wells listed below, provided that the oxygen concentration in each of the following wells does not exceed 15% by volume.

OXMEW-W17	HC-F06
LTS-13	LTS-14
LTS-15	LTS-16
LTS-17	LTS-18
LTS-19	LTS-20

- ii. The Permit Holder shall demonstrate compliance with the alternative wellhead oxygen limit in subpart b(i) by monitoring each wellhead for oxygen on a monthly basis, in accordance with the provisions of Regulations 8-34-505 and 8-34-604.
- iii. All test dates, wellhead oxygen concentration data, any deviations from the subpart b(i) limit, repair actions, repair dates, re-monitoring dates and results, and compliance restoration dates shall be recorded in a District approved log and made available to District staff upon request in accordance with Regulations 8-34-34-501.4, 8-34-501.9, and 8-34-414.
- iv. To demonstrate that the alternative wellhead oxygen limit in subpart b(i) will not cause surface emission leaks, the Permit Holder shall conduct additional surface emission monitoring in the vicinity of each component listed in subpart b(i). For each component in subpart b(i), the Permit Holder shall maintain a map showing the location of the buried collection component and identifying the approximate radius of influence for the component. For each component in

subpart b(i), the Permit Holder shall monitor for landfill surface emissions – in accordance with Regulations 8-34-506 and 8-34-607 – at three representative points on the landfill surface that are within the radius of influence of the component and that are not more than 15 meters from the surface location of the component. This additional surface emission monitoring shall be conducted on a monthly basis for a period of at least six consecutive months.

- v. If no excesses of the Regulation 8-34-303 surface emission limit are detected in the vicinity of a component for six consecutive months, the Permit Holder may discontinue the additional monthly surface emission monitoring in the vicinity of that component and shall continue with the routine quarterly surface emission monitoring requirements in the vicinity of that component.
- vi. If one or more excesses of the Regulation 8-34-303 surface emission limit are detected in the vicinity of a component during a six consecutive month period, the Permit Holder shall follow all applicable requirements for recording and reporting the excess and shall follow the Regulation 8-34-415 repair schedule for landfill surface leak excesses. The additional monthly surface emission monitoring in the vicinity of that component shall continue until either the no surface excess requirements of subpart b(v) have been achieved or the repair and compliance restoration requirements of subpart b(vii) have been satisfied.
- vii. If excesses of the Regulation 8-34-303 surface emission limit are detected in the vicinity of a component for three or more monitoring events during a six consecutive month period, the subpart b(i) alternative wellhead oxygen limit shall be revoked for that component. The Permit Holder shall conduct all necessary repairs to the landfill gas collection well, to any piping associated with the well or the remote wellhead monitoring system, to valves, flanges, or other connectors, and to any test ports or other openings that are necessary to eliminate air intrusion into the well or the monitoring point, to prevent impairment of vacuum application or vacuum adjustment at the collection well, and to restore the collection well and associated monitoring point to proper function. The Permit Holder shall complete all of the above repairs and any necessary landfill surface repairs and shall restore compliance with the Regulation 8-34-303 surface emission limit (in the vicinity of that component) and the Regulation 8-34-305.4 wellhead oxygen concentration limit by the earlier of the following dates: (a) within 120 days of the date that the first excess was discovered if the three excess events are discovered within a single quarterly period pursuant to the re-monitoring requirements of 8-34-415 or (b) within 60 days of detection of the third excess.

- c. The Permit Holder may temporarily disconnect individual wells or collectors from the vacuum system, provided that all requirements of this subpart are satisfied. (Basis: Regulation 8-34-404)
  - i. No more than five (5) landfill gas collection system components (wells or collectors) may be temporarily disconnected from the vacuum system at any one time pursuant to subpart 18c.
  - ii. For each individual well or collector that is disconnected from the vacuum system pursuant to subpart 18c, the total vacuum system disconnection time shall not exceed 120 days during any 12-month period.
  - iii. Collection system components that are disconnected from the vacuum system are not subject to wellhead limits (Regulation 8-34-305 or subpart 18b above) or to monthly wellhead monitoring requirements (Regulation 8-34-505) during this vacuum disconnection time.
  - iv. Wells or collectors that are temporarily disconnected from the vacuum system continue to be subject to the component leak limit (Regulation 8-34-301.2) and the quarterly leak testing requirement (Regulation 8-34-503) at all times. In addition, the Permit Holder shall conduct the following component leak monitoring at each component that has been disconnected from the vacuum system pursuant to subpart 18c: test for component leaks using the procedures identified in Regulation 8-34-602 within 10 calendar days of disconnection from vacuum and again within 1 month of disconnection from vacuum. If a component leak is detected at the well, the Permit Holder shall take all steps necessary to reduce the leak below the applicable limit, including reconnecting the well to the vacuum system, if no other corrective action measures are successful within the time frames allowed by Rule 34.
  - v. For each well disconnection event, the Permit Holder shall record each affected well ID number, all well disconnection dates and times, all well reconnection dates and times, all related monitoring dates and monitoring results in a District approved log. This log shall also include an explanation of why the temporary well shut down was necessary and shall describe all adjustments or repairs that were made in order to allow this well to operate continuously, to reduce leaks, or to achieve compliance with an applicable limit. All records shall be retained for a minimum of five years and shall be made available to District staff upon request.
- d. The Permit Holder may operate the components identified in Part 17a(ii) on a less than continuous basis subject to the following operating and monitoring criteria. (Basis: Regulation 8-34-404)
  - i. This subpart applies to the following components: LTS-1, LTS-2, LTS-3, LTS-4, LTS-5, LTS-6, LTS-7, LTS-8, LTS-9, LTS-10, LTS-

- 11, LTS-12, LTS-13, LTS-14, LTS-15, LTS-16, LTS-17, LTS-18, LTS-19, and LTS-20.
- ii. The owner/operator shall monitor the components in subpart d(i) on a monthly basis for gauge pressure, oxygen content, and temperature, including times when the component is disconnected from vacuum.
  - iii. Components that are connected to the vacuum system may be disconnected from the vacuum system if the oxygen content is equal to or greater than 15% by volume or if the temperature is equal to or greater than 131 degrees F.
  - iv. Components that are disconnected from the vacuum system shall be connected to the vacuum system upon detection of positive gauge pressure (greater than 0.0 inches of water column) at the component.
  - v. Components that are temporarily disconnected from the vacuum system pursuant to this subpart continue to be subject to the component leak limit (Regulation 8-34-301.2) and the quarterly leak testing requirement (Regulation 8-34-503) at all times.
  - vi. For each well disconnection event, the Permit Holder shall record each affected well ID number, all well disconnection dates and times, all well reconnection dates and times, all related monitoring dates and monitoring results in a District approved log.

**RECOMMENDATION**

Issue an administrative Change of Permit Conditions for the following equipment, subject to Condition # 10164:

**S-1 Los Trancos Canyon Landfill – Waste Decomposition Process; Abated by: A-7 Landfill Gas Flare, A-8 Landfill Gas Flare, and A-9 Landfill Gas Flare;**

By:

\_\_\_\_\_  
 Davis Zhu  
 Air Quality Engineer

\_\_\_\_\_  
 Date

**Engineering Evaluation Report**  
**Application # 28882**  
Browning-Ferris Industries of CA, Inc.; SITE # A2266  
Plant address: 12310 San Mateo Road, Half Moon Bay, CA 94019

## **BACKGROUND**

Browning-Ferris Industries of CA, Inc. (BFI), a subsidiary of Republic Services, Inc., operates the Los Trancos Canyon Landfill Facility located on Ox Mountain in Half Moon Bay, CA. This facility includes an active landfill (S-1, S-21, and S-22), two landfill gas flares (A-7 and A-9)<sup>1</sup>, a non-retail gasoline dispensing facility (S-5), stockpiles of green waste (S-12), and a tipper engine (S-23).

The Los Trancos Canyon Landfill (S-1) has two distinct fill areas. The upper canyon area has reached full capacity and has been inactive since 1995, while the lower canyon area is actively accepting waste. In December 2013 (Application #26545), the District approved a permit condition change for this landfill that increased the limit on the cumulative waste in place from 22.74 million tons to 26.5 million tons. In September 2015, the District approved a permit condition change for this landfill in Application #26100 that increased the total reduced sulfur (TRS), expressed as H<sub>2</sub>S averaged over a 12-month period, limit in the landfill gas (LFG) to 265 ppmv. The change also set the maximum permitted LFG generation rate to 6,600 scfm, the maximum fugitive LFG emission rate to 1,650 scfm, and provided toxic air contaminant (TAC) limits for the LFG in Permit Condition #10164, Part 21 and Part 22.

On June 6, 2017, a revised Ox Mountain Solid Waste Facility Permit (SWFP) #41-AA-0002 was issued by the San Mateo County Environmental Health Services Division (SMCEHSD), correcting the stated maximum design capacity of Ox Mountain Solid Waste Facility of 49 million cubic yards (CY) to 60.5 million CY. In the Technical Addendum to the 1999 Negative Declaration (ND), BFI explains that the design capacity listed in the 1999 ND of 49 million CY (and the 2001 SWFP) erroneously left out the volume of waste already in place in the landfill. The actual maximum design capacity of 60.5 million CY accounts for a total waste-in-place limit of approximately 44.1 million tons. This is based on a conversion rate of 0.5 tons per cubic yard for tonnages accepted from 1976 through 2011 and 0.75 tons per cubic yard for tonnages accepted from 2012 through 2045.

BFI submitted this application to obtain a Change of Permit Conditions that would make the BAAQMD permit consistent with the new volume limit in the 2017 SWFP. Consequently, this change will update the waste-in-place limit to 44.1 million tons. As discussed below, this condition change request constitutes an alteration of the S-1 Los Trancos Canyon Landfill because it will not immediately result in an increase of criteria pollutants and TACs from S-1. The increase in criteria pollutants and toxic air contaminants will be addressed in a future new source review (NSR) application.

## **EMISSION LIMITS**

The design capacity limit, cumulative waste in place limit, daily waste acceptance limit, and gas generation rate limit for the landfill and landfill gas constituents are used to determine the applicability of NSR requirements such as BACT and Offsets (Regulation 2, Rule 2) and toxic NSR requirements (Regulation 2,

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<sup>1</sup> A-8 was dismantled in 2017, see Application # 28963. The Air District cancelled this application because we determined that the permit condition change to remove A-8 from the conditions could be handled under other open applications. The facility's request to archive A-8 was forwarded to Permit Operations but apparently did not get processed. Another request to archive A-8 will be submitted with this application.

Rule 5). Therefore, an increase in the design capacity limit triggers an evaluation of NSR requirements. As previously stated, the proposed increase in the design capacity limit and the cumulative waste in place limit will result in an increase of the maximum potential LFG generation rate. This will in turn result in an increase in precursor organic compound (POC) and TAC emissions. Due to the anticipated increase in emissions, the design capacity and cumulative waste in place limit changes would normally constitute a modification of S-1, Los Trancos Canyon Landfill. However, the facility has requested to delay the increase to the permitted landfill gas generation rate limit to give them time to prepare for this more extensive application. It will also allow the facility to obtain the POC emission reduction credits that will be necessary to offset POC emission increases and to reimburse the Air District for POC emission reduction credits provided in the past.

The facility submitted a 2017 LandGEM model which demonstrates that the LFG generation rate is not expected to exceed the current 6,600 scfm limit until 2027. Therefore, POC and TAC emissions are also not expected to increase until 2027. Since emissions are not expected to approach the existing limit for several more years, the Air District has agreed to allow this facility to address the POC and TAC emission increases associated with this project in a future NSR application. The facility has agreed to submit a permit application for a Change of Permit Conditions by no later than December 31, 2024 . This permit application will be to increase the 6,600 scfm LFG generation limit, the 1,650 scfm fugitive LFG emission limit, and the TAC limits listed in Permit Condition #10164, Part 21 and Part 22. Table 1 below lists the current TAC limits from Permit Condition #10164, Part 22. The requirement for the facility to submit a NSR application by 2024 will be added to Permit Condition #10164.

Since the POC and TAC emission increases will be addressed in a separate future application, this application is to simply increase capacity limits and is considered an alteration per Regulation 2-1-233. The landfill is expected to close in 2045 with the proposed 44.1 million tons waste-in-place limit and a projected peak LFG generation rate of 8,099 scfm in 2046. However, as noted above, this landfill is remaining at the current permitted LFG generation rate limit of 6,600 scfm until 2027. Therefore, no increase in emissions is expected at this time.

Based on source test results from the last five years (2015 to 2019) for the facility, TAC concentrations in the LFG have not exceeded emission limits set in Permit Condition #10164, Part 22, except one exceedance of the H<sub>2</sub>S 265 ppmv limit. The facility submitted an application (Application #29239) to install a LFG TRS treatment system to address the issue.

**Table 1. Fugitive Emission Limits for S-1 Los Trancos Canyon Landfill**  
(based on 1650 scfm of fugitive landfill gas)

TAC	Concentration (ppbv)	Fugitive Emissions lb/yr
Acrylonitrile	100	12
Benzene	3000	525
Carbon Tetrachloride	50	17
Chloroform	50	13
1,4 Dichlorobenzene	900	296
Ethylbenzene	7000	1665
Ethylene	50	21

Dibromide		
Ethylene Dichloride	400	89
Ethylidene Dichloride	50	11
Methylene Chloride	1000	190
Perchloroethylene	600	223
1,1,2,2 Tetrachloroethane	50	19
Trichloroethylene	400	118
Vinyl Chloride	300	42
Carbon disulfide	500	85
Chlorobenzene	500	126
Ethyl chloride	1000	145
Hexane	5000	966
Hydrogen sulfide	265000	20235
Isopropyl alcohol	60000	8080
Methyl ethyl ketone	40000	6463
1,1,1 Trichloroethane	500	149
Toluene	30000	6194
Vinylidene chloride	500	109
Xylenes	30000	7137

**PLANT CUMULATIVE INCREASE**

The cumulative emissions at Plant #2266 will not change because there is no increase in emissions in this evaluation.

**TOXIC RISK SCREEINGING**

A health risk screening analysis is not required since no new toxic emissions are evaluated in this report.

**BEST AVAILABLE CONTROL TECHNOLOGY (BACT)**

BACT is not triggered since there is no increase in emissions in this evaluation.

**OFFSETS**

Offsets are not required for this application because this project does not result in any cumulative emission increases.

## **STATEMENT OF COMPLIANCE**

### Regulation 1: General Provisions and Definitions

Regulation 1, Section 301 prohibits all sources from causing a public nuisance. All sources must be maintained and operated in accordance with the manufacturer's recommendations, and the permit conditions that it is subject to. Compliance with Regulation 1-301 will be verified by the District's Compliance & Enforcement (C&E) staff.

### Regulation 2, Rule 1: California Environmental Quality Act (CEQA) Requirements

This project is ministerial under the District's CEQA Regulation 2-1-311 because the changes outlined in the sections above are evaluated as an alteration to an existing source. Per Regulation 2-1-310, this project is not subject to CEQA since the changes are not new or modifying any existing source.

### Regulation 2, Rule 1: School Public Notice Requirements

The public notification requirements of Regulation 2-1-412 apply to modifications which result in any increase in toxic air contaminant or hazardous air contaminant emissions at facilities within 1,000 feet of the boundary of a K-12 school. The facility is located more than 1,000 feet from the nearest K-12 school and therefore is not subject to the public notification requirements of Regulation 2-1-412.

### Regulation 6, Rule 1: General Requirements

BAAQMD Regulation 6, Rule 1 was amended on August 1, 2018. BAAQMD Regulation 6-1-310.1 limits Total Suspended Particulate (TSP) emissions from any source to 0.15 grains per dry standard cubic foot (gr/dscf) of exhaust volume. Sources with a potential to emit (PTE) of more than 1,000 kg/year are subject to BAAQMD Regulation 6-1-310.2.

The maximum particulate matter (PM) emissions for the landfill gas flares, A-7 and A-9, were calculated in Application #26110. The PM PTE for A-7 is 2.248 tons/year (2,039 kg/year) and the PM PTE for A-9 is 9.44 tons/year (8,564 kg/year). Since these values are greater than 1,000 kg/year the limits in Section 310.2 apply. Based on 2018 source test results, the exhaust flow rate for A-7 and A-9 are 16,572 dscf/min and 37,554 dscf/min, respectively. Given these exhaust flow rates and the PM emissions per year, the estimated TSP grain loading rates for A-7 and A-9 are 0.004 gr/dscf and 0.007 gr/dscf, respectively. According to Table 6-1-310.2, the applicable limits for the flares are 0.0641 and 0.0425 gr/dscf. Therefore, A-7 and A-9 are expected to comply with the requirements of Regulation 6-1.

Since both flares have a PTE greater than 2,000 kg/year, the testing requirements in Regulation 6-1-504 apply. A-7 will be required to test for TSP once every five years and A-9 will be required to test for TSP once every two years.

### Regulation 6, Rule 6: Prohibition of Trackout

BAAQMD Regulation 6, Rule 6 was adopted in 2018. The purpose of this Rule is to limit the quantity of PM in the atmosphere through control of trackout of solid materials onto paved public roads outside the boundaries of large bulk material sites, large construction sites, and large disturbed surface sites including landfills. Ox Mountain Solid Waste Facility is subject to this new rule. The requirements of the Rule will be enforced through the permit conditions.

### Regulation 8, Rule 34: Solid Waste Disposal Sites

S-1 is subject to BAAQMD Regulation 8, Rule 34. Regulation 8-34-301 requires landfill gas to be collected and processed through emission control systems that comply with 8-34-301.1 (continuous operation), 8-34-

301.2 (component leak limit), and either 8-34-301.3 (Non Methane Organic Compound [NMOC] emission limits for flares) or 8-34-301.4 (NMOC emission limits for other control devices). The facility proposed permit condition revisions will not affect compliance with 8-34-301 or 8-34-301.1-4.

S-1 is also subject to Regulation 8-34-303 which limits leaks on the surface of the landfill to less than 500 ppmv as methane. This site has complied with the surface leak requirements. The proposed permit condition changes are not expected to have any impacts on this site's ability to meet this leak limit.

#### New Federal Standards

Municipal solid waste (MSW) landfills may be subject to federal new source performance standards (NSPS) and national emission standards for hazardous air pollutants (NESHAPs). As identified in the current Title V permit for this facility, this landfill is subject to the NSPS for MSW Landfills (40 CFR Part 60, Subpart WWW) and the NESHAP for MSW Landfills (40 CFR Part 63, Subpart AAAA). However, a new NSPS for MSW Landfills was adopted in 2016 (40 CFR Part 60, Subpart XXX). Subpart XXX applies to landfills that are new, modified or reconstructed after July 17, 2014, where a modification is defined as follows:

*Modification means an increase in the permitted volume design capacity of the landfill by either lateral or vertical expansion based on its permitted design capacity as of July 17, 2014. Modification does not occur until the owner or operator commences construction on the lateral or vertical expansion.*

Given that this design capacity increase is intended to correct an error and is not due to a lateral or vertical expansion of the landfill (the disposal acreage remains the same at 191 acres and height allowances are also not changing), this design capacity increase does not trigger Subpart XXX.

New Emission Guidelines (EG) for existing MSW Landfills were adopted in 2016 (40 CFR Part 60, Subpart Cf). The revised EG applies to landfills that accepted waste after November 8, 1987 and commenced construction, reconstruction, or modification on or before July 17, 2014. BFI accepted waste after 1987 and commenced construction or modification before July 17, 2014. Therefore, BFI is subject to 40 CFR Part 60, Subpart Cf.

40 CFR Part 60, Subpart Cf requires affected landfills to submit a state plan to the EPA that implements the EG contained in this subpart. For approval, a state plan must include provisions for the installation of a gas collection and control system within 30 months after the first annual report in which the NMOC emission rate equals or exceeds 34 megagrams per year. The EPA LandGEM Model (attached) demonstrates that the NMOC emission rate from S-1 exceeds 34 Mg/year. The facility complies with this requirement since it owns and operates an approved gas collection and control system.

On August 26, 2019, the EPA adopted the 40 CFR Part 60, Subpart Ba, which outlines the adoption and submittal procedures of state plans for designated facilities identified under 40 CFR 60, Subpart Cf. The EPA set a compliance date of August 29, 2019 for states to submit state plans.

EPA published a notice on March 12, 2020 which announced a partial approval and partial disapproval of California's state plan. California's plan included CARB's Landfill Methane Control Regulation and referenced existing applicable rules and regulations from 32 air districts including Regulation 8, Rule 34 from BAAQMD that would satisfy the new EG requirements. EPA argued that the referenced district regulations were not part of the plan submittal and that many of these regulations applied to landfills with greater than 50 Mg/year of NMOC emissions rather than the new emission threshold of 34 Mg/year of NMOC. In our experience, the BAAQMD Rule 8-34 threshold of 1 million tons of waste in place and CARB's threshold of 450,000 tons of waste in place would trigger the collection, control, and monitoring requirements in these regulations before the site starts emitting more than 34 Mg/year of NMOC. Therefore,

making CARB's Landfill Methane Control Regulation federally enforceable by including it in the landfill Title V permits should ensure compliance with all EPA requirements in Subpart Cf.

On March 26, 2020, the EPA adopted changes to 40 CFR Part 60, Subpart Cf, which allowed impacted sources to demonstrate compliance with landfill gas control, operational, monitoring, record-keeping, and reporting requirements by following the corresponding requirements in the NESHAP for MSW Landfills (40 CFR Part 63, Subpart AAAA). This landfill is subject to the NESHAPs for MSW Landfills (40 CFR, Part 63, Subpart AAAA) which requires subject facilities to implement startup, shutdown, malfunction plans (SSM Plans) and comply with additional reporting requirements. All applicable requirements are contained in the existing MFR permit. This facility is expected to continue to comply with these requirements.

40 CFR Part 60, Subpart WWW, Standards of Performance for Municipal Solid Waste Landfills, will continue to apply to MSW landfills which commenced construction, reconstruction, or modification after May 30, 1991 and on or before July 17, 2014 until there is an approved state or federal plan that implements the emission guidelines in 40 CFR Part 60, Subpart Cf. This facility is expected to continue to comply with 40 CFR Part 60, Subpart WWW.

### State Requirements

CARB adopted a Landfill Methane Control Regulation that became effective in 2011. This regulation includes landfill gas collection and control requirements that are similar to Regulation 8, Rule 34 and NSPS requirements. However, the state rule includes an integrated surface leak standard of 25 ppmv as methane, a tighter component leak limit of 500 ppmv as methane, and methane emission limits for flares and engines. BFI's enclosed flares are subject to a 99% methane destruction efficiency limit. Recent source test data confirms that the flares are meeting this methane destruction efficiency limit. The landfill has also demonstrated compliance with the instantaneous and integrated surface leak standards and the component leak limits during all quarterly monitoring events.

## **PERMIT CONDITIONS**

The following permit condition revisions are proposed under this application, as shown in strikeout and underline text below:

### **Condition # 10164**

For: S-1 LOS TRANCOS CANYON LANDFILL – WASTE DECOMPOSITION PROCESS; ABATED BY: A-7 LANDFILL GAS FLARE, AND A-9 LANDFILL GAS FLARE; S-21 LOS TRANCOS CANYON LANDFILL – WASTE AND COVER MATERIAL DUMPING; AND S-22 LOS TRANCOS CANYON LANDFILL – EXCAVATING, BULLDOZING, AND COMPACTING ACTIVITIES:

- \*1. Landfill operations at the Los Trancos Canyon (Ox Mountain) Landfill (S-1), including the acceptance and placement of waste, earthmoving, and construction activities, shall be restricted to six days per week, Monday through Saturday. (Basis: CEQA)
2. Total waste accepted and placed at the Los Trancos Canyon Landfill (S-1) shall not exceed 835,000 tons during any consecutive twelve-month period; nor 3,598 tons during any one day. The total cumulative amount of all wastes placed in the landfill shall not exceed

44,100,000 tons. The maximum design capacity of S-1 (total volume of all wastes and cover materials placed in the landfill, excluding final cover) shall not exceed 60,500,000 cubic yards. To confirm compliance with this part, the Permit Holder of S-1 shall maintain daily records, summarized on a monthly basis, of the amount of waste accepted and placed in each area of the landfill.

- a. The owner/operator of S-1 shall submit a permit application to the Air District by no later than December 31, 2024 for a Change of Permit Conditions to increase the landfill gas generation limit, fugitive landfill gas emission limit, TAC limits in Part 23, and to add organic compound emission limits for S-1. Failure to submit a permit application by the above date will be considered a violation of Part 2. (Basis: Cumulative Increase)

No changes from Part 3 to Part 7.

8. The Permit Holder of S-1 shall sweep and wash down all paved roadways at least twice per week or as necessary to maintain a clean road surface. The Permit Holder shall:
  - a. Monitor the extent of the trackout at each active exit from the site onto a paved public road at least twice during each workday, at times when vehicle traffic exiting the site is most likely to create an accumulation of trackout, or as otherwise specified by the APCO;
  - b. Document the active exit locations monitored each workday;
  - c. Document each occasion when the trackout exceeds cumulative 25 linear feet and all trackout control and cleanup actions initiated as a result of monitoring Part a of this condition; and
  - d. Maintain the records required by Part b and Part c of this condition for two years, in electronic, paper hard copy or log book format, and make them available to the APCO upon request.(Basis: Regulation 6-6-501, Cumulative Increase)

No changes from Part 9 to Part 20.

21. TSP emissions from A-7 shall not exceed 0.0641 gr/dscf. TSP emissions from A-9 shall not exceed 0.0425 gr/dscf. To demonstrate compliance with these requirements, the owner/operator shall conduct a source test at least every 5 years for A-7 and at least every 2 years for A-9. (Regulation 6-1-310 and 6-1-504)
22. The concentration of total reduced sulfur compounds in the collected landfill gas shall not exceed 265 ppmv of TRS expressed as H<sub>2</sub>S, averaged over any consecutive rolling 12-month period. Total reduced sulfur compounds in the collected landfill gas shall be monitored, in accordance with the procedures below, to demonstrate compliance with this part and as a surrogate for monitoring sulfur dioxide in control systems exhaust. (Basis: Cumulative Increase and Regulations 2-5-302 and 2-6-503, and AB2588 Air Toxics Hot Spots Act)
  - a. On a monthly basis, the owner/operate shall analyze the landfill gas at the header to each flare for total reduced sulfur compounds by either using (1) laboratory methods that analyze for the sulfur compounds listed in Part 31 or (2) Draeger tubes that measure for hydrogen sulfide concentration and multiplying this measured H<sub>2</sub>S concentration by 1.05 to calculate TRS concentration. The Part 31 annual gas characterization analysis may be used as the monthly analysis for the month in which the samples are collected.

- b. The owner/operator shall record the measured concentrations for each month, shall calculate and record the average monthly TRS concentration for the three flares, and shall calculate and record the annual average TRS concentration for each consecutive rolling 12-month period. Until 12 months of data are available, the owner/operator shall compare the flow weighted average sulfur content measured pursuant to Part 31 to a limit of 265 ppmv of TRS expressed as H<sub>2</sub>S.
- \*23. The owner/operator shall ensure that fugitive toxic air contaminant (TAC) emissions from S-1 do not exceed any of the emission rate limits listed below. In addition, the landfill gas generation rate for this landfill shall not exceed an annual average of 6600 scfm and the fugitive landfill gas emission rate shall not exceed an annual average of 1650 scfm. The owner/operator shall demonstrate compliance with these limits using the following procedures.  
(Basis: Regulation 2-5-302 and AB2588 Air Toxics Hot Spots Act)
- a. The owner/operator shall compare the concentration measured for each TAC, pursuant to the Part 31 annual landfill gas characterization analysis, to the concentration limit listed below. If this annual testing is conducted on more than one flare, the owner/operator shall calculate a flow weighted average concentration for each TAC, and shall compare this average TAC concentration to the limits below. Compliance with the TAC concentration limits shall demonstrate compliance with the associated fugitive TAC emission rate limit.
- b. If the concentration of a TAC exceeds the concentration limit listed below, this excess shall be deemed to be a violation of this permit condition, unless the owner/operator satisfies the following requirement. The owner/operator shall, within 30 days of receiving test results showing an excess of a TAC concentration limit below, submit documentation to the District that demonstrates – to the District’s satisfaction – that the higher measured concentration level has not resulted in an excess of the associated annual fugitive emission rate limit using District-approved calculation procedures consistent with the LANDGEM inputs and calculation procedures used to establish these limits pursuant to Application # 26100.

<u>Compound</u>	<u>Concentration (ppbv)</u>	<u>Emissions pounds/year</u>
Acrylonitrile	100	12
Benzene	3000	525
Carbon Tetrachloride	50	17
Chloroform	50	13
1,4 Dichlorobenzene	900	296
Ethylbenzene	7000	1665
Ethylene Dibromide	50	21
Ethylene Dichloride	400	89
Ethylidene Dichloride	50	11
Methylene Chloride	1000	190
Perchloroethylene	600	223
1,1,2,2 Tetrachloroethane	50	19
Trichloroethylene	400	118
Vinyl Chloride	300	42
Carbon disulfide	500	85
Chlorobenzene	500	126

Ethyl chloride	1000	145
Hexane	5000	966
Hydrogen sulfide	265000	20235
Isopropyl alcohol	60000	8080
Methyl ethyl ketone	40000	6463
1,1,1 Trichloroethane	500	149
Toluene	30000	6194
Vinylidene chloride	500	109
Xylenes	30000	7137

## RECOMMENDATION

I recommend that the District issue a Change of Conditions for the following sources subject to Condition # 10164:

**S-1 Los Trancos Canyon Landfill – waste decomposition process; abated by: A-7 landfill gas flare, and A-9 landfill gas flare;**

**S-21 Los Trancos Canyon Landfill – waste and cover material dumping;**

**S-22 Los Trancos Canyon Landfill – excavating, bulldozing, and compacting activities**

\_\_\_\_\_  
Davis Zhu  
Senior Air Quality Engineer

\_\_\_\_\_  
Date

## Appendix A

### Summary of Title V Permit Changes

The following changes should be made to the Title V permit for Facility # A2266 pursuant to minor revision Application # 28883. The processing of minor revision Application # 28883 will be combined in a single action with the processing of the Title V renewal permit Application # 29530.

- Revise Condition # 10164 in Section VI of the Title V permit for Facility # A2266.
- Revise design capacity and cumulative waste in place limits in Tables II-A and VII-A.
- Add new TSP concentration limits for flares (Regulation 6-1-310) to Tables IV-A and VII-A.
- Add new PM test requirements for flares (Regulation 6-1-504) to Table VII-A.
- Add new PM trackout requirements (Regulation 6-6) to Tables IV-A and VII-A.
- Add CARB Landfill Methane Control Regulation to Tables IV-A and VII-A.
- Add new Emission Guidelines (40 CFR Part 60, Subpart Cf) to Tables IV-A and VII-A.
- Remove oxygen limits at wellhead in Tables IV-A and VII-A, per the new EG (Subpart Cf). Review Condition # 10164 in Section VI to determine if related changes are appropriate.
- Add new state plan requirements (40 CFR Part 60, Subpart Ba) to Table IV-A.

## **Engineering Evaluation Report**

Browning Ferris Industries/Republic Services - Ox Mountain Landfill, P#2266

12310 San Mateo Road, Half Moon Bay

Application #29760

### **Background**

Browning Ferris Industries of California/Republic Services (Applicant) owns and operates the Los Trancos Canyon Landfill, an active municipal solid waste landfill located on Ox Mountain in Half Moon Bay. Browning Ferris Industries of California is the legal entity that owns the landfill and is a subsidiary of Republic Services. Under this application, the Applicant has requested a change of conditions to allow alternate operating parameters for certain landfill gas collection system and leachate collection system components.

District, state, and federal regulations require collection of the generated landfill gas, abatement of the collected landfill gas, and set standard operating levels, as measured at landfill gas collection system components, including landfill gas temperature and oxygen content. However, the regulations allow operators to propose alternate operating limits.

This landfill consists of 2 distinct fill areas, an upper canyon area which is at full capacity and has been inactive since 1995 and a lower canyon area, which is currently being filled. Each fill area is equipped with an independently operating active landfill gas collection system, and there are 3 permitted landfill gas flares. The collected landfill gas is vented to either the landfill gas flares or to the onsite, but separately-owned, landfill gas energy plant, Ameresco Half Moon Bay, Plant #17040.

The Applicant has requested approval of the following alternate operating limits for the leachate collection system:

- 20 leachate trench system wells OMTLTS01 through OMTLTS20: An increase in oxygen content limit from 15% to 20%. A revision to this request was received on 5/7/2019, revising this to 18 leachate trench system wells since 2 wells OMTLTS13 and OMTLTS14 had been decommissioned on November 22, 2017.
- 1 leachate cleanout riser OXLCRS01: A higher oxygen content limit of 20% and less than continuous operation. This request was revised 5/28/2019 to include an additional 5 newly installed leachate cleanout risers, OXLCRS4A, OXLCRS4B, OXLCRS05, OXLCRS06, OXLCRS07.

Leachate is the liquid that accumulates in the landfill, which must be collected and removed. A leachate collection system is intended to collect this liquid through a system of perforated pipes, which are drained to a sump for disposal. Although intended to capture and remove liquids, landfill gas can migrate into the system and accumulate enough pressure to cause the gas to migrate out of the leachate collection system, resulting in emissions of landfill gas. To prevent landfill gas emissions, typically landfill operators will periodically connect the leachate collection system components to the landfill gas collection system to remove accumulated landfill gas.

The Applicant has also requested approval of the following alternate operating limits for the landfill gas collection system:

- 4 vertical landfill gas extraction wells, OXEW1618, OXMEW205, OXMEW209, OXMPEW35: A higher operating temperature of 140 degrees Fahrenheit.
- 2 horizontal landfill gas collectors, OXMEWHC6 and OXMTBTC1: A higher oxygen content limit of 20%.

The proposed change of condition applies to the landfill source:

**S-1 Ox Mountain Landfill – Waste Decomposition Process; equipped with Landfill Gas Collection System and Leachate Collection System, Abated by Landfill Gas Flares A-7, A-8, and A-9**

- **Request for Higher Operating Temperature, Higher Oxygen Content, and Less than Continuous Operation for Specified Landfill Gas and Leachate Collection System Components**

**Emission Calculations**

Decomposition of waste in the landfill generates landfill gas, which includes methane, volatile organic compounds, and toxic air contaminants. The landfill gas generation rate is dependent upon the amount of decomposable waste placed into the landfill, which is limited by the permitted waste capacity of the landfill. The requested change of conditions under this application does not include any increase in the waste capacity of the landfill and therefore does not increase the landfill gas generation rate. Since the proposed project does not increase the landfill gas generation rate, the proposed alternate operating parameters are not considered a “modification” of the landfill source.

**Cumulative Increase**

Since there is no change in landfill gas generation potential associated with the proposed alternate operating parameters and less than continuous operation of certain system components, there will be no change to the cumulative emission increases for this facility as a result of this application.

**Compliance Determination**

**Regulation 1, “General Provisions and Definitions”**

**Regulation 2, Rule 1, “Permits – General Requirements” - Public Notice Requirements**

**Regulation 2, Rule 2, “Permits – New Source Review” - Best Available Control Technology (BACT) Requirements, Emission Offsets and Prevention of Significant Deterioration (PSD)**

**Regulation 2, Rule 5, “Permits – New Source Review of Toxic Air Contaminants” - Health Risk Assessment Requirements**

**Regulation 6, Rule 1, “Particulate Matter – General Requirements”**

**Regulation 9, Rule 2, “Inorganic Gaseous Pollutants – Hydrogen Sulfide”**

*As there is no change in landfill gas generation potential associated with the requested condition changes, the approved changes are not expected to affect the facility’s compliance status with respect to the emission limits and operating requirements in Regulation 1 (public nuisance), Regulation 6, Rule 1 (particulate and visible emissions), nor Regulation 9, Rule 2 (hydrogen sulfide).*

*Since the public notification requirements of Regulation 2, Rule 1, Section 412, BACT, PSD, and emission offset requirements in Regulation 2, Rule 2, as well as the health risk assessment*

*requirements in Regulation 2, Rule 5 are triggered by emission increases, these requirements do not apply.*

### **Regulation 2, Rule 1, California Environmental Quality Act (CEQA) Requirements**

The proposed alternate operating conditions will require a change to the permit conditions for the permitted landfill source, S-1, but are not allowing any increase in waste capacity and therefore are not increasing the landfill gas generation potential from S-1. Therefore, this request is exempt from CEQA review by the express terms of CEQA and District Regulation 2-1-312.1.

### **Regulation 2, Rule 6, “Major Facility Review”**

#### **40 CFR Part 70, State Operating Permit Programs (Title V)**

The Title V federal permitting requirements of 40 CFR Part 70 have been codified and are enforced through District Regulation 2, Rule 6. This facility is a designated facility and is therefore subject to Title V and Regulation 2, Rule 6. As a designated facility, this facility was required to obtain a Title V Federal Operating Permit. The facility was issued the initial Title V permit in 2001, and the permit was renewed in 2007 and 2014. Since then, a minor revision was issued in 2016, and the Applicant submitted the application for renewal of the permit on September 12, 2018, as required.

The proposed alternate operating limits qualify as a minor revision, which will be updated to the Major Facility Review/Title V permit under Application #29761. This permit evaluation will also serve as the Statement of Basis for a minor revision the Title V/Major Facility Review permit. The revision to the tables in the Major Facility Review/Title V permit for the alternate operating conditions are listed in Appendix A.

### **Regulation 3, Fees**

The facility has paid the application fees billed under Invoice 4FF26.

### **Regulation 8, Rule 34, "Organic Compounds – Solid Waste Disposal Sites"**

*Regulation 8, Rule 34 contains operational requirements that apply to landfill gas collection systems, as well as requirements that apply to landfill operations and landfill gas control systems. Section 8-34-301.1 requires the landfill gas collection system to be operated continuously, unless a less than continuous operation request has been made pursuant to Section 8-34-404 and the request has been approved by the District.*

*Section 8-34-305 requires landfill gas collection wells to be operated in compliance with the following limits, unless alternate operating levels have been approved in a permit:*

- *Operate under vacuum (negative pressure);*
- *Gas temperature < 55 degC (131 degF); and*
- *Nitrogen concentration < 20% by volume, or oxygen concentration < 5% by volume.*

*Oxygen content is limited and must be monitored to identify excess air infiltration into the landfill. High levels of oxygen infiltration can result in subsurface fires. Likewise, temperature limits and temperature monitoring are required to identify increased temperatures which can lead to subsurface fires and is also intended to ensure that the operating temperatures remain in a range which does not kill methanogens and thereby impact anaerobic decomposition.*

Leachate Collection System Proposals

Oxygen limits: The existing permit conditions already allow up to 15% oxygen for certain components, compared to the standard limit of 5% in Section 8-34-305. This allowance is not uncommon for leachate collection system components since the construction of these components can allow infiltration of air from the surface. The Applicant has indicated that a higher 20% oxygen content allowance is necessary for 18 leachate trench system (LTS) wells and 6 leachate cleanout risers (LCR).

***Unlike a typical leachate collection system, which is located at the bottom of the landfill, the LTS components are located in a leachate interception trench at this landfill, which is outside perimeter of the southern border of the landfill. It was previously equipped with 20 leachate trench wells/sumps, installed along the length of the trench to pump out the collected leachate. Two have been decommissioned, so there are now 18 wells, each capped with a lid. The Applicant indicated that landfill gas has been preferentially migrating into this trench and that continuous evacuation has been necessary to prevent migration of landfill gas beyond the perimeter of the landfill.***

The Applicant initially stated that shallow trench depth and gravel fill in the trench was the reason a higher oxygen limit is necessary. The Applicant pointed out that the LTS components are not located within the landfill waste mass, so the oxygen evacuated from these components does not contribute to risk of subsurface fires. When asked for additional data about the location and construction details of the LTS components and possible prevention of air infiltration from the surface, the Applicant stated that the 18 LTS collection wells are located in leachate interception trenches, 8 to 22 feet deep, located along the inactive landfill area which has been capped with final cover. The trenches are filled with gravel, topped by fabric, soil, then final cap.

Infiltration of air from the surface through all of these layers is unlikely, so the District asked for further investigation into the source of air infiltration into the LTS wells. The Applicant confirmed on 6/11/2020 that air is not infiltrating the LTS wells through the surface, but possibly through the top of the sump or along the casing into the sump when vacuum is applied to draw out accumulated landfill gas. The District's Compliance and Enforcement inspector discussed the investigation with the Applicant on several occasions. The Applicant indicated that the higher oxygen content limits is a money-savings measure, so that components do not need to be replaced to comply with regulatory limits.

Approval of an oxygen level of 20% is not common, since this would allow almost ambient oxygen levels (21%). Intermittent operation of leachate collection systems is intended to allow connection to the gas collection system only when necessary to evacuate of landfill gas, then disconnection when landfill gas is removed to prevent drawing in excess oxygen. The District feels that allowing ambient oxygen concentrations would mean the landfill gas concentrations would be so low that evacuation of landfill gas should not be necessary.

The District has reviewed all of the information provided by the Applicant and has decided that a higher oxygen allowance is not the best solution for the problems at this landfill. Even though the gas collected at the LTS wells will not be pulled through the waste mass, addition of oxygen to the collected landfill gas stream sent to the flares is also not ideal. The District believes that landfill

gas migrating to the perimeter of the closed edge of the landfill is a sign of a severe under-collection of landfill gas within the active portion of the landfill.

The LTS wells are located at the perimeter of the closed area of the landfill, which has not had any waste placement for 25 years. The waste in that area is well past the age of peak landfill gas production and should not be producing much landfill gas. The source of the landfill gas infiltration into the perimeter LTS system is likely due to migration of landfill gas from the active area of the landfill, as a result of poor collection throughout the landfill. This has been documented by the District's Compliance and Enforcement staff identifying numerous landfill gas leaks throughout the landfill, and the large plumes of landfill gas over the landfill documented through aerial surveys performed as part of greenhouse gas research. In addition, the landfill gas collection data reported by the Applicant shows that the collection rates have been less than the 2013 levels for the past 6 years, and have only increased last year, when additional landfill gas wells were installed. All of this data points to poor overall collection of landfill gas at the site.

Approval of this higher oxygen level is not a solution to this overarching collection deficiency. Rather than introducing excess oxygen into the landfill gas stream, the Applicant should increase landfill capture throughout the landfill by installing additional vertical landfill gas collection wells. If equipment upgrades are necessary to seal leaks at sump covers in the interim until better landfill gas collection is achieved, that investment should be made to correct the situation.

The District is approving alternate operating limits for the LTS and LCR components up to the current 15% oxygen allowance, which is typical for these types of components, but the limit will not be raised to 20%. The Applicant will be informed that upgrades to the landfill gas collection system should be undertaken to improve landfill gas collection efficiency until there is no longer evidence of landfill gas migration to the perimeter of the landfill.

Less than Continuous Operation: Since leachate collection systems are connected to the landfill gas collection systems to evacuate landfill gas, leachate collection systems meets the definition of "gas collection system" in Section 8-34-210 and are subject to the operating limits in Regulation 8, Rule 34, unless separate operating provisions have been approved. Intermittent connection to the gas collection system is referred to as "less than continuous operation" of the leachate collection system. The Applicant has requested approval of less than continuous operation of 6 leachate cleanout risers.

Continuous application of vacuum on leachate system components can result in excess oxygen concentrations. Therefore, as allowed by Regulation 8-34-305, the District typically approves conditions to allow intermittent connection of leachate system components to the gas collection system to evacuate collected landfill gas and prevent surface leaks. Less than continuous operation will be approved for the 6 LCR, as well as the LTS wells. These leachate collection system components must be re-connected to vacuum upon detection of any pressure, signalling landfill gas building up in the system.

#### Landfill Gas Collection System Proposals

Oxygen Limits: The Applicant requested a higher oxygen content limit of 20% for 2 horizontal landfill gas collectors, OXMEWHC6 and OXMTBTC1. The Applicant has stated that these are

shallow collectors that exhibit low concentrations of methane, and that due to the shallow depth of these collectors, a higher oxygen content allowance will not result in drawing higher oxygen levels through the waste mass. The collectors are located on the north and south areas of the landfill, respectively.

As discussed, there are better solutions to the landfill gas leaks and migration of landfill gas to the perimeter of this landfill than approval of higher oxygen limits. The Applicant can add additional cover to these collectors and install additional vertical landfill gas wells which are properly capped to increase collection of landfill gas from within the waste mass so that shallow surface collection is not necessary. The horizontal collectors will be allowed to operate up to the current higher 15% oxygen allowance, to continue to mitigate the problem of poor landfill gas collection, until additional landfill gas wells are being installed to correct the collection deficiency.

***Temperature Limits:*** *The Applicant has requested a higher operating temperature limit of 140 degrees Fahrenheit at 4 vertical landfill gas extraction wells, OXEW1618, OXMEW205, OXMEW209, OXMPEW35. The Applicant submitted temperature, CO, and methane data for the reference wells to show that the proposed higher temperatures at these wells is not inhibiting anaerobic decomposition and that CO concentrations have been low, indicating subsurface oxidation is not occurring. Since the higher temperatures exhibited at these wells is not impacting the decomposition of waste and is not an indication of subsurface fire, approval of the requested higher operating temperature limit of 140 degrees F is recommended for the 4 vertical landfill gas collection wells, along with additional monitoring that has been imposed for other higher operating temperature approvals to ensure there are no related adverse impacts. The specific permit conditions allowing a higher operating temperature for these wells will replace the standard wellhead temperature limit in Regulation 8, Rule 34.*

#### **40 CFR Part 60, Standards of Performance for New Stationary Sources (NSPS):**

**Subpart A, Standards of Performance for New Stationary Sources – General Provisions**

**Subpart WWW, Standards of Performance for New Stationary Sources –Municipal Solid Waste Landfills**

40 CFR Part 60, Subpart WWW, Standards of Performance for Municipal Solid Waste (MSW) Landfills applies to MSW landfills that were constructed, reconstructed, or modified after May 30, 1991 and have accepted waste since November 8, 1987. This landfill is subject to the Subpart WWW, because a landfill expansion was commenced at this facility after May 30, 1991, waste has been accepted after November 8, 1987, it has a design capacity of greater than 2.5 million cubic meters and greater than 2.5 million megagrams, and the uncontrolled NMOC generation rate from the landfill exceeds 50 Mg/year. The proposed alternate operating limits will not change the facility's obligations under this regulation.

#### **40 CFR Part 63, National Emission Standards for Hazardous Air Pollutants for Source Categories/Maximum Achievable Control Technology (MACT) Standards:**

**Subpart A, National Emission Standards for Hazardous Air Pollutants – General Provisions**

**Subpart AAAA, National Emission Standards for Hazardous Air Pollutants – Municipal Solid Waste Landfills**

40 CFR Part 63, Subpart AAAA applies to existing and new municipal solid waste landfills that have accepted waste since November 8, 1987 or have additional capacity to accept waste and that meets any of the following:

- The landfill is a major source as defined in 40 CFR Part 63.2 of Subpart A (has the potential to emit, considering controls, 10 tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants);
- The landfill is co-located with a major source as defined in 40 CFR Part 63.2 of Subpart A; or
- The landfill is area source with a design capacity of 2.5 million megagrams and 2.5 million cubic meters or more and which has estimated uncontrolled non-methane organic compound emissions of 50 megagrams or more, as calculated according to Part 60, Subpart WWW.

This landfill is subject to the Subpart AAAA, because since waste has been accepted after November 8, 1987 and it has a design capacity of greater than 2.5 million cubic meters and greater than 2.5 million megagrams, and the uncontrolled NMOC generation rate from the landfill exceeds 50 Mg/year. This rule requires compliance with the 40 CFR Part 60, Subpart WWW or Subpart Cc and compliance with Section 63.1960 through 63.1985 and the specified general provisions. The alternate operating limits proposed under this application will not affect or change the facility's obligations under this rule.

### **California Health and Safety Code Title 17, Division 3, Chapter 1, Subchapter 10 Climate Change,**

#### **Article 4, Regulations to Achieve Greenhouse Gas Emission Reductions,**

#### **Subarticle 6, Methane Emissions from Municipal Solid Waste Landfills, Sections 95460-95476**

This state regulation was adopted to reduce methane emissions from municipal solid waste landfills and applies to all MSW landfills that received waste after January 1, 1977. This facility is an active landfill and is subject to this regulation.

Although the leachate collectors were never intended to be part of the landfill gas collection system, they can be considered "wellheads" and subject to Section 95464(c) wellhead standards due to the periodic connection to the gas collection system. Section 95468 allows the operator to request alternatives to the compliance measures, monitoring, test methods and procedures in Sections 95464, 95469, and 95471. Section 95468(a)(1) specifically cites activities such as semi-continuous operation of gas collection system due to insufficient gas flows. The District's Compliance and Enforcement Division is handling implementation of the state rule and has indicated that an alternative compliance operation should be pursued if the entire landfill gas collection system must be operated less than continuously. However, intermittent connection and disconnection of the leachate collection system components to the gas collection system does not require approval of alternative compliance provisions. Therefore, an alternate temperature limit and less than continuous operation of leachate system components will not affect or change the facility's obligations under this rule.

#### **Permit Condition**

Part 18 of the existing Condition #10164 will be modified as shown below in strikeout-underline format.

### Condition #10164

#### 18. Operating Requirements for Landfill Gas Collection Systems and Collection System Components:

- a. The landfill gas collection systems described in Part 17a(i) shall be operated continuously, unless the Permit Holder complies with all applicable provisions of Regulation 8, Rule 34, Section 113. Individual wells shall not be disconnected or removed, nor isolation valves shut completely off, unless the Permit Holder complies with all applicable requirements of Regulation 8, Rule 34, Sections 113, 116, and 117 or with Part 18c below. (Basis: Regulations 8-34-301.1 and 8-34-404)
- b. Each landfill gas collection system component listed in Part 17a(i) shall be operated in compliance with the wellhead limits of Regulation 8-34-305, unless an alternative wellhead limit has been approved for that component, as identified in subpart b(i), and the Permit Holder complies with all of the additional requirements for that component, as identified in subparts b(ii-vii) or an alternative temperature limit has been approved for that component, as identified in subpart b(viii), and the Permit Holder complies with all of the additional requirements for that component, as identified in subparts b(ix-xii). (Basis: Regulations 8-34-303, 8-34-304, 8-34-305, 40 CFR 60.755(a) and 60.759)
  - i. The nitrogen and oxygen concentration limits in Regulation 8-34-305.3 and 8-34-305.4 shall not apply to the landfill gas collection wells listed below, provided that the oxygen concentration in each of the following wells does not exceed 15% by volume. OXMEW-W17, HC-F06, LTS-1, LTS-2, LTS-3, LTS-4, LTS-5, LTS-6, LTS-7, LTS-8, LTS-9, LTS-10, LTS-11, LTS-12, LTS-15, LTS-16, LTS-17, LTS-18, LTS-19, LTS-20, OXLCRS01, OXLCRS4A, OXLCRS4B, OXLCRS05, OXLCRS06, OXLCRS07, OXMEWHC6, OXMTBTC1.
  - ii. The Permit Holder shall demonstrate compliance with the alternative wellhead oxygen limit in subpart b(i) by monitoring each wellhead for oxygen on a monthly basis, in accordance with the provisions of Regulations 8-34-505 and 8-34-604.
  - iii. All test dates, wellhead oxygen concentration data, any deviations from the subpart b(i) limit, repair actions, repair dates, re-monitoring dates and results, and compliance restoration dates shall be recorded in a District approved log and made available to District staff upon request in accordance with Regulations 8-34-501.4, 8-34-501.9, and 8-34-414.
  - iv. To demonstrate that the alternative wellhead oxygen limit in subpart b(i) will not cause surface emission leaks, the Permit Holder shall conduct additional surface emission monitoring in the vicinity of each component listed in subpart b(i). For each component in subpart b(i), the Permit Holder shall maintain a map showing the location of the buried collection component and identifying the approximate radius of influence for the component. For each component in subpart b(i), the Permit Holder shall monitor for landfill surface emissions – in accordance with Regulations 8-34-506 and 8-34-607 – at three representative points on the landfill surface that are within the radius of influence of the component and that are not more than 15 meters from the

- surface location of the component. This additional surface emission monitoring shall be conducted on a monthly basis for a period of at least six consecutive months.
- v. If no excesses of the Regulation 8-34-303 surface emission limit are detected in the vicinity of a component for six consecutive months, the Permit Holder may discontinue the additional monthly surface emission monitoring in the vicinity of that component and shall continue with the routine quarterly surface emission monitoring requirements in the vicinity of that component.
  - vi. If one or more excesses of the Regulation 8-34-303 surface emission limit are detected in the vicinity of a component during a six consecutive month period, the Permit Holder shall follow all applicable requirements for recording and reporting the excess and shall follow the Regulation 8-34-415 repair schedule for landfill surface leak excesses. The additional monthly surface emission monitoring in the vicinity of that component shall continue until either the no surface excess requirements of subpart b(v) have been achieved or the repair and compliance restoration requirements of subpart b(vii) have been satisfied.
  - vii. If excesses of the Regulation 8-34-303 surface emission limit are detected in the vicinity of a component for three or more monitoring events during a six consecutive month period, the subpart b(i) alternative wellhead oxygen limit shall be revoked for that component. The Permit Holder shall conduct all necessary repairs to the landfill gas collection well, to any piping associated with the well or the remote wellhead monitoring system, to valves, flanges, or other connectors, and to any test ports or other openings that are necessary to eliminate air intrusion into the well or the monitoring point, to prevent impairment of vacuum application or vacuum adjustment at the collection well, and to restore the collection well and associated monitoring point to proper function. The Permit Holder shall complete all of the above repairs and any necessary landfill surface repairs and shall restore compliance with the Regulation 8-34-303 surface emission limit (in the vicinity of that component) and the Regulation 8-34-305.4 wellhead oxygen concentration limit by the earlier of the following dates: (a) within 120 days of the date that the first excess was discovered if the three excess events are discovered within a single quarterly period pursuant to the re-monitoring requirements of 8-34-415 or (b) within 60 days of detection of the third excess.
  - viii. The landfill gas temperature limit in Regulation 8-34-305.2 shall not apply to the wells listed below, provided that the landfill gas temperature in each of the following wells does not exceed 140 degrees F: OXEW1618, OXMEW205, OXMEW209, OXMPEW35.
  - ix. The owner/operator shall demonstrate compliance with the alternate wellhead temperature limit in b(viii) by monitoring and recording the temperature of the landfill gas in the wellheads on a monthly basis, in accordance with Regulations 8-34 501.4, 8-34-501.9, and 8-34-505.
  - x. All test dates, wellhead landfill gas temperatures, any deviation with the subpart b(viii) limits, repair actions, repair dates, re-monitoring dates and results, and compliance restoration dates shall be recorded in a District-approved log and made available to District staff upon request in accordance with Regulation 8-34-501.4, 501.9, and 505.

- xi. If the temperature of the landfill gas in the wellhead exceeds 140 degrees F, the owner/operator shall investigate the possibility of a subsurface fire at the wellhead by monitoring CO concentration in the wellhead gases and by searching for smoke, smoldering odors, combustion residues, and other fire indicators in the wellhead and in the landfill area near the wellhead. Within 5 days of triggering this fire investigation, the owner/operator shall measure the CO concentration in the landfill gas at the wellhead using a portable CO monitor, CO Draeger tube, or an EPA-approved test method. CO monitoring shall continue according to the frequency specified below:
    - (1) If the CO concentration is greater than 500 ppmv, the owner/operator shall immediately take all steps necessary to prevent or extinguish the subsurface fire, including disconnecting the well from the vacuum system if necessary. If the well is not disconnected from the vacuum system or upon reconnecting the well to the vacuum system, the owner/ operator shall monitor the well for CO concentration, wellhead temperature, and other fire indicators on at least a weekly basis until CO concentration drops to 500 ppmv or less.
    - (2) If the CO concentration is less than or equal to 500 ppmv but great than 100 ppmv, the owner/operator shall monitor CO concentration at least twice per month (not less than once every 15 days) until the CO concentration drops to 100 ppmv or less. Wellhead temperature and other fire indicators shall be evaluated at each of these semi-monthly monitoring events.
    - (3) If the CO concentration is less than or equal to 100 ppmv, the owner/operator shall monitor CO concentration on a monthly basis. CO monitoring may be discontinued if three consecutive CO measurements are 100 ppmv or less and the wellhead temperature during each of these three monitoring events is 140 degrees F or less. If the component has three or more CO measurements of 100 ppmv or less, but the wellhead temperature was greater than 140 degrees F, the owner/ operator must receive written approval from the District before discontinuing the monthly CO monitoring at that component.
  - xii. The owner/operator shall record the dates and results of all monitoring events required by this subpart in a District-approved log. If subpart (b)(xi)(1) applies, the owner/operator shall also record all actions taken to prevent or extinguish the fire.
- c. The Permit Holder may temporarily disconnect individual wells or collectors from the vacuum system, provided that all requirements of this subpart are satisfied. (Basis: Regulation 8-34-404)
- i. No more than five (5) landfill gas collection system components (wells or collectors) may be temporarily disconnected from the vacuum system at any one time pursuant to subpart 18c.
  - ii. For each individual well or collector that is disconnected from the vacuum system pursuant to subpart 18c, the total vacuum system disconnection time shall not exceed 120 days during any 12-month period.
  - iii. Collection system components that are disconnected from the vacuum system are not subject to wellhead limits (Regulation 8-34-305 or subpart 18b above) or to monthly wellhead monitoring requirements (Regulation 8-34-505) during this vacuum disconnection time.

- iv. Wells or collectors that are temporarily disconnected from the vacuum system continue to be subject to the component leak limit (Regulation 8-34-301.2) and the quarterly leak testing requirement (Regulation 8-34-503) at all times. In addition, the Permit Holder shall conduct the following component leak monitoring at each component that has been disconnected from the vacuum system pursuant to subpart 18c: test for component leaks using the procedures identified in Regulation 8-34-602 within 10 calendar days of disconnection from vacuum and again within 1 month of disconnection from vacuum. If a component leak is detected at the well, the Permit Holder shall take all steps necessary to reduce the leak below the applicable limit, including reconnecting the well to the vacuum system, if no other corrective action measures are successful within the time frames allowed by Rule 34.
  - v. For each well disconnection event, the Permit Holder shall record each affected well ID number, all well disconnection dates and times, all well reconnection dates and times, all related monitoring dates and monitoring results in a District approved log. This log shall also include an explanation of why the temporary well shut down was necessary and shall describe all adjustments or repairs that were made in order to allow this well to operate continuously, to reduce leaks, or to achieve compliance with an applicable limit. All records shall be retained for a minimum of five years and shall be made available to District staff upon request.
- d. The Permit Holder may operate the components identified in Part 17a(ii) on a less than continuous basis subject to the following operating and monitoring criteria. (Basis: Regulation 8-34-404)
- i. This subpart applies to the following components: LTS1, LTS2, LTS3, LTS4, LTS5, LTS6, LTS7, LTS8, LTS9, LTS10, LTS11, LTS12, LTS15, LTS16, LTS17, LTS18, LTS19, LTS20, OXLCRS01, OXLCRS4A, OXLCRS4B, OXLCRS05, OXLCRS06, OXLCRS07.
  - ii. The owner/operator shall monitor the components in subpart d(i) on a monthly basis for gauge pressure, oxygen content, and temperature, including times when the component is disconnected from vacuum.
  - iii. Components that are connected to the vacuum system may be disconnected from the vacuum system if the oxygen content is equal to or greater than 15% by volume or if the temperature is equal to or greater than 131 degrees F.
  - iv. Components that are disconnected from the vacuum system shall be connected to the vacuum system upon detection of positive gauge pressure (greater than 0.0 inches of water column) at the component.
  - v. Components that are temporarily disconnected from the vacuum system pursuant to this subpart continue to be subject to the component leak limit (Regulation 8-34-301.2) and the quarterly leak testing requirement (Regulation 8-34-503) at all times.
  - vi. For each well disconnection event, the Permit Holder shall record each affected well ID number, all well disconnection dates and times, all well reconnection dates and times, all related monitoring dates and monitoring results in a District approved log.

**G. Recommendations**

*I recommend approval of higher temperature limits and less than continuous operation for certain landfill gas and leachate system components, and issuing a Change of Conditions to the following source:*

- S-1 Ox Mountain Landfill – Waste Decomposition Process; equipped with Landfill Gas Collection System and Leachate Collection System, Abated by Landfill Gas Flares A-7, A-8, and A-9**
- **Approval of Higher Operating Temperature and Less than Continuous Operation for Specified Landfill Gas and Leachate Collection System Components**

\_\_\_\_\_  
Tamiko Endow  
Senior Air Quality Engineer

\_\_\_\_\_  
Date

## **Appendix A:**

### **Changes to the Major Facility Review/Title V Permit for Application #29761:**

- Update Tables IV-A and VII-A as shown
- Update Part 18 of Condition 10164, as shown in the evaluation

**Table IV – A**  
**Source-Specific Applicable Requirements**  
**S-1 LOS TRANCOS CANYON LANDFILL – WASTE DECOMPOSITION PROCESS, EQUIPPED WITH GAS COLLECTION SYSTEM AND LEACHATE COLLECTION SYSTEM; ABATED BY A-7 LANDFILL GAS FLARE, A-8 LANDFILL GAS FLARE, AND A-9 LANDFILL GAS FLARE ;**  
**S-21 LOS TRANCOS CANYON LANDFILL – WASTE AND COVER MATERIAL DUMPING; AND**  
**S-22 LOS TRANCOS CANYON LANDFILL – EXCAVATING, BULLDOZING, AND COMPACTING ACTIVITIES**

<b>Applicable Requirement</b>	<b>Regulation Title or Description of Requirement</b>	<b>Federally Enforceable (Y/N)</b>	<b>Future Effective Date</b>
<b>BAAQMD Condition # 10164</b>			
Part 1	Limits on Operating Days (CEQA)	N	
Part 2	Waste Acceptance and Design Capacity Limits (Cumulative Increase)	Y	
Part 3	Waste Cover Requirements (Regulation 1-301)	N	
Part 4	Road Surfacing Requirements for Parking and Maintenance Areas (Regulation 6-1-301)	Y	
Part 5	Road Surfacing Requirements for On-Site Roadways (Cumulative Increase)	Y	
Part 6	Vehicle Speed Limit on Unpaved Roads (Cumulative Increase)	Y	
Part 7	Dust Suppressant and Water Application Requirements for Unpaved Roads (Cumulative Increase)	Y	
Part 8	Dust Control Requirements for Paved Roads (Cumulative Increase)	Y	
Part 9	Vehicle Traffic Volume Limits (Cumulative Increase)	Y	
Part 10	Vehicle Trip Length Limits (Cumulative Increase)	Y	
Part 11	Revegetation Requirement (CEQA)	N	
Part 12	Records (Cumulative Increase)	Y	
Part 13	Placement Limits for Soil that Contains VOCs (Regulation 8-40-301, Cumulative Increase and Regulation 8-2-301)	Y	
Part 14	Handling Procedures for Soil Containing Volatile Organic Compounds (Regulations 8-40-301, 8-40-304 and 8-40-305)	Y	
Part 15	Records for Uncontrolled Areas or Cells (Regulation 8-34-304)	Y	
Part 16	[deleted and combined with Part 17]		
Part 17	Collection System Requirements (Regulations 2-1-301, 8-34-301.1, 8-34-305, and 40 CFR 60.752(b)(2)(ii), 60.755(a), and 60.759)	Y	
Part 18	Collection System Operating Requirements including Alternative Wellhead Limits and Associated Monitoring Requirements (Regulations 8-34-301.1, 8-34-303, 8-34-304, 8-34-305, and 8-34-404, and 40 CFR 60.755(a) and 60.759)	Y	

**Table IV – A**  
**Source-Specific Applicable Requirements**  
**S-1 LOS TRANCOS CANYON LANDFILL – WASTE DECOMPOSITION PROCESS, EQUIPPED WITH GAS COLLECTION SYSTEM AND LEACHATE COLLECTION SYSTEM; ABATED BY A-7 LANDFILL GAS FLARE, A-8 LANDFILL GAS FLARE, AND A-9 LANDFILL GAS FLARE ;**  
**S-21 LOS TRANCOS CANYON LANDFILL – WASTE AND COVER MATERIAL DUMPING; AND**  
**S-22 LOS TRANCOS CANYON LANDFILL – EXCAVATING, BULLDOZING, AND COMPACTING ACTIVITIES**

<b>Applicable Requirement</b>	<b>Regulation Title or Description of Requirement</b>	<b>Federally Enforceable (Y/N)</b>	<b>Future Effective Date</b>
Part 19	Requirement to Control Collected Landfill Gas (Regulations 8-34-301 and 8-34-303 and 40 CFR Parts 60.752(b)(2)(ii-iii) and 60.53(d-f))	Y	
Part 20	Landfill Gas Flow Rate Limit (Offsets and Cumulative Increase)	Y	
Part 21	Total Reduced Sulfur Compound Limit and Monitoring Requirement (Cumulative Increase, Regulations 2-5-302 and 2-6-503, and AB2588 Air Toxics Hot Spots Act)	Y	
Part 22	Limits on TAC Concentrations in Landfill Gas (Regulation 2-5-302 and AB2588 Air Toxics Hot Spots Act)	N	
Part 23	Combustion Temperature Limits (Regulations 2-5-302 and 8-34-301 and 40 CFR 60.752(b)(2)(iii)(B) and 60.758(c)(1)(i))	Y	
Part 24	Combustion Temperature Monitoring and Recording Requirements (Regulations 8-34-501.3 and 8-34-507 and 40 CFR 60.756(b)(1))	Y	
Part 25	Combustion Air Controller Requirement (Regulation 8-34-301.3 and RACT for CO)	Y	
Part 26	Gas Flow Monitoring and Recording Requirements (Regulations 8-34-501.10 and 8-34-508, and 40 CFR 60.756(b)(2)(i))	Y	
Part 27	Alarms and Automatic Systems Requirements (Regulation 8-34-301)	Y	
Part 28	Nitrogen Oxide Emission Limits (RACT and Offsets)	Y	
Part 29	Carbon Monoxide Emission Limit (RACT, Cumulative Increase, and avoidance of Regulation 2-2-305.2)	Y	
Part 30	Annual Source Test Requirement (Regulations 2-6-503, 8-34-301.3, 8-34-412, and 40 CFR 60.752(b)(2)(iii)(B))	Y	
Part 31	Annual Gas Characterization Test (Cumulative Increase and Regulations 2-5-302, 8-34-412, and 9-1-302)	Y	
Part 32	Records Retention (Regulations 8-34-501 and 2-6-501)	Y	
Part 33	Reporting periods and report submittal due dates for the Regulation 8, Rule 34 report (Regulation 8-34-411 and 40 CFR 63.1980(a))	Y	

**Table VII – A**  
**Applicable Limits and Compliance Monitoring Requirements**  
**S-1 LOS TRANCOS CANYON LANDFILL – WASTE DECOMPOSITION PROCESS,**  
**EQUIPPED WITH GAS COLLECTION SYSTEM AND LEACHATE COLLECTION SYSTEM;**  
**ABATED BY A-7 LANDFILL GAS FLARE, A-8 LANDFILL GAS FLARE, AND A-9**  
**LANDFILL GAS FLARE ;**  
**S-21 LOS TRANCOS CANYON LANDFILL – WASTE AND COVER MATERIAL**  
**DUMPING; AND**  
**S-22 LOS TRANCOS CANYON LANDFILL – EXCAVATING, BULLDOZING, AND**  
**COMPACTING ACTIVITIES**

Type of Limit	Citation of Limit	FE Y/N	Future Effective Date	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
Gas Flow	BAAQMD 8-34-301 and 301.1 and BAAQMD Condition # 10164, Parts 18 and 19	Y		Landfill gas collection system shall operate continuously and all collected gases shall be vented to a properly operating control system	BAAQMD Condition # 10164, Parts 26 and 27	C	Gas Flow Meter and Recorder, Automatic Shut-Off Valves, and Alarms
Gas Flow	BAAQMD 8-34-301 and 301.1	Y		Landfill gas collection system shall operate continuously and all collected gases shall be vented to a properly operating control system	BAAQMD 8-34-501.10 and 508	C	Gas Flow Meter and Recorder (every 15 minutes)
Gas Flow	40 CFR 60.752 (b)(2)(iii) and 60.753(a) and (e)	Y		Operate a Collection System in each area or cell, vent all collected gases to a properly operating control system, and operate control system at all times when gas is vented to it	40 CFR 60.756(b)(2) (i) and 60.758(c)(2)	C	Gas Flow Meter and Recorder (every 15 minutes)
Temperature of Gas at Wellhead	BAAQMD 8-34-305.2 and BAAQMD Condition 10164, part 18	Y		< 55 oC (Applies to all wells that are connected to the vacuum system, except wells specified in BAAQMD Condition # 10164, Part 18)	BAAQMD 8-34-414, 501.9 and 505.2 and BAAQMD Condition #10164, part 18	P/M, bimonthly, or weekly	Monthly or more frequent Inspection and Records

**Table VII – A**  
**Applicable Limits and Compliance Monitoring Requirements**  
**S-1 LOS TRANCOS CANYON LANDFILL – WASTE DECOMPOSITION PROCESS,**  
**EQUIPPED WITH GAS COLLECTION SYSTEM AND LEACHATE COLLECTION SYSTEM;**  
**ABATED BY A-7 LANDFILL GAS FLARE, A-8 LANDFILL GAS FLARE, AND A-9**  
**LANDFILL GAS FLARE ;**  
**S-21 LOS TRANCOS CANYON LANDFILL – WASTE AND COVER MATERIAL**  
**DUMPING; AND**  
**S-22 LOS TRANCOS CANYON LANDFILL – EXCAVATING, BULLDOZING, AND**  
**COMPACTING ACTIVITIES**

Type of Limit	Citation of Limit	FE Y/N	Future Effective Date	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
Temperature of Gas at Wellhead	40 CFR 60.753(c)	Y		< 55 °C (Applies to all wells that are connected to the vacuum system)	40 CFR 60.755(a)(5), 60.756(a)(3), and 60.758(c) and (e)	P/M	Monthly Inspection and Records
Temperature of Gas at Wellhead	BAAQMD 8-34-305 and BAAQMD Condition 10164, part 18	Y		<140 degrees F (Alternative wellhead temperature limit that applies only to wells specified in BAAQMD Condition #10164, Part 18)	BAAQMD 8-34-414, 501.9, 505.2, and BAAQMD Condition #10164, part 18	P/M, bimonthly, or weekly	Monthly or more frequent Inspection and Records
Gas Concentrations at Wellheads	BAAQMD 8-34-305.3 or 305.4	Y		N <sub>2</sub> < 20% <b>OR</b> O <sub>2</sub> < 5% (Applies to all wells that are connected to the vacuum system, except for wells identified in Condition # 10164, Parts 18b(i) or 18(d)(i))	BAAQMD 8-34-414, 501.9 and 505.3 or 505.4	P/M	Monthly Inspection and Records
Gas Concentrations at Wellheads	40 CFR 60.753(c)	Y		N <sub>2</sub> < 20% <b>OR</b> O <sub>2</sub> < 5% (Applies to all wells that are connected to the vacuum system, except for wells identified in Condition # 10164, Parts 18b(i) or 18(d)(i))	40 CFR 60.755(a)(5), 60.756(a)(2), and 60.758(c) and (e)	P/M	Monthly Inspection and Records

**Table VII – A**  
**Applicable Limits and Compliance Monitoring Requirements**  
**S-1 LOS TRANCOS CANYON LANDFILL – WASTE DECOMPOSITION PROCESS,**  
**EQUIPPED WITH GAS COLLECTION SYSTEM AND LEACHATE COLLECTION SYSTEM;**  
**ABATED BY A-7 LANDFILL GAS FLARE, A-8 LANDFILL GAS FLARE, AND A-9**  
**LANDFILL GAS FLARE ;**  
**S-21 LOS TRANCOS CANYON LANDFILL – WASTE AND COVER MATERIAL**  
**DUMPING; AND**  
**S-22 LOS TRANCOS CANYON LANDFILL – EXCAVATING, BULLDOZING, AND**  
**COMPACTING ACTIVITIES**

Type of Limit	Citation of Limit	FE Y/N	Future Effective Date	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
Gas Concentrations at Wellhead	BAAQMD Condition # 10164, Part 18b(i) and 18d(i)	Y		O <sub>2</sub> ≤ 15% (Applies to wells identified in Condition # 10164, Part 18b(i) and 18d(i) that are connected to the vacuum system)	BAAQMD Condition # 10164, Part 18b(ii and iii)	P/M	Monthly Inspection and Records

