Bay Area Air Quality Management District

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Statement of Basis
for
MAJOR FACILITY REVIEW PERMIT
MINOR REVISION

for

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

Facility Address:
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Half Moon Bay, CA 94019

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Application: 26101

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STATEMENT of BASIS

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

APPLICATION #26101

Major Facility Review Permit: Minor Revision

A. BACKGROUND

Site Description:

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 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 two portable engines that power waste tippers (S-23 and S-24).

As required by District and federal regulations, the Los Trancos Canyon Landfill is equipped with landfill gas collection and control systems that are designed to reduce the emissions of methane, precursor organic compounds, and toxic air contaminants from the landfill. All areas of the landfill that contain decomposable waste include vertical wells or horizontal collectors (perforated piping systems) that are buried in the waste and connected to blowers. The blowers operate continuously to maintain a vacuum within the piping systems, which draws the landfill gas into the piping systems, and then vent this collected landfill gas to the control systems.

The primary control system for this facility is the off-site energy plant, Site # B7040, which is owned and operated by an independent company, Ameresco Half Moon Bay, LLC. The off-site energy plant includes six lean burn internal combustion engines that use treated landfill gas from S-1 as fuel. BFI operates three on-site landfill gas flares (A-7, A-8, and A-9) that operate as back-up devices to the energy plant. The flares have sufficient capacity to handle all of the landfill gas that is currently being collected in the event that the energy plant is unable to operate. In 2015, BFI collected an average of 3440 scfm of landfill gas and about 2% of the collected gas was sent to the on-site flares.

Minor Revision:

Application # 26101 involves Minor Revisions to the Title V Permit for Site # A2266. The District is proposing to incorporate permit condition revisions for the Los Trancos Canyon Landfill that were approved by the District pursuant to NSR Applications # 26100, 23391, and 27710 (see Appendices A, B, and C). These permit condition revisions will revise sulfur content limits and TAC concentration limits for collected landfill gas and will update the current landfill gas collection system descriptions, authorized alterations, and collection system operating procedures.

In addition, the District is proposing to reduce the gasoline throughput limit for S-5 from the current 904,000 gallons per year limit back to the original 1984 limit of 400,000 gallons per year, per the applicant's request. Pursuant to Application # 25612, which was included in Title V Renewal Permit Application # 24335, this facility was required to provide offsets for all post-1991 emission POC and NOx emission increases. The facility received a throughput increase for S-5 in 2003 when S-5 was modified, which resulted in a small amount of POC emission increases. However, the throughput increase was not necessary as S-5 typically uses only about 30,000 gallons/year of gasoline. The facility did not want to provide offsets for this unnecessary throughput increase and requested to revert back to their original throughput limit to avoid the need to provide emission reduction credits for this increase under Application # 25612. This requested reduction in the throughput limit for S-5 was inadvertently omitted from Title V Renewal Permit Application # 24335. This request will be included in this minor revision.

The specific permit revisions are discussed in detail in Section C.

B. EMISSIONS

As explained in detail in the Engineering Evaluation Reports in Appendices A, B, and C the permit revisions approved by the District pursuant to new source review Applications #26100, #23391, and #27710 do not result in any emission increases. The proposed reduction in gasoline throughput rate does not result in emission increases either.

The permit condition change for the flares will reduce the maximum permitted emission rate for carbon monoxide such that site wide emissions will now be less than 100 tons/year of CO.

C. PROPOSED MFR PERMIT MODIFICATIONS

Previously, this facility was 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 was a major facility as defined by BAAQMD Regulation 2-6-212.1. It was a major facility because it had 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 was required to have an MFR permit pursuant to Regulation 2-6-301. With the landfill gas throughput limitation for the flares that was approved pursuant to new source review Application # 26100, site wide maximum permitted CO emissions are now less than 100 tons per year, and this facility is no longer subject to Regulation 2-6-301.

However, this facility is still required to have a Title V permit, because 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^3. Therefore, this facility is required to have an MFR permit 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 March 14, 2014. This application will require a minor revision of the current MFR permit to incorporate the proposed permit condition revisions.

The proposed MFR permit revisions included in this application are described below.

Title Page:

- Change the Responsible Official and update Facility Contact information
- Correct BAAQMD address and contact information

Section I:

- No Changes

Section II:

- Update the description of the landfill gas collection system in Table II-A, as reflected in Condition # 10164, Part 17

Section III:

- No Changes

Section IV:

- In Table IV-A, revise the descriptions of Condition # 10164, Parts 21 and 22
- In Table IV-B, remove Condition # 14098 and add Condition # 26216

Section V:

- No Changes.

Section VI:

- Condition # 10164, Part 17: update landfill gas collection system description and remaining authorized alterations

- Condition #10164, Part 18: update list of wells subject to alternative wellhead limits and add less than continuous operating requirements for specified wells
- Condition # 10164, Part 20: revise landfill gas flow rate limit for flares
- Condition #10164, Part 21: revise landfill gas sulfur content limit and add monthly sulfur content monitoring procedures
- Condition #10164, Part 22: clarify applicability of TAC limits and monitoring procedures, update TAC concentration limits, and add equivalent TAC emission rate limits
- Condition #10164, Part 30: remove unnecessary language
- For S-5, replace Condition #14098 with Condition #26216

Section VII:

- In Table VII-A, update landfill gas flow rate limit to flares, landfill gas sulfur content limit, and landfill gas TAC limits and citations for alternative wellhead standards as described in Condition #10164, Parts 18 and 20-22
- In Table VII-B, revise gasoline throughput limit and permit condition citation

Section VIII:

- No Changes

Section IX:

- No Changes

Section X:

- Add this minor revision

Section XI:

- No Changes

D. SUMMARY OF PROPOSED ACTIONS

The District recommends approval of a minor revision of the MFR Permit for Site # A2266.

APPENDIX A

ENGINEERING EVALUATION REPORT

FOR

APPLICATION # 26100

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

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 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).

B. 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_2S). 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_2S) combined with the Condition # 10164, Part 20 landfill gas throughput limit for these three flares (3807.6 milion scf/year to the 3 flares combined) limits the annual average sulfur dioxide emissions from the three flares, as shown below:

(3807.6 E6 ft^3 LFG/yr)*(150 ft^3 H_2S/1 E6 ft^3 LFG)/(387.006 ft^3 H_2S/1 lbmol H_2S)*
(1 lbmol SO_2/1 lbmol H_2S)*(64.059 lbs SO_2/1 lbmol SO_2)/(2000 lbs SO_2/ton) =
47.269 tons/year of SO_2 from A-7, A-8, and A-9 combined

In addition, the current landfill gas sulfur content limit (average of 150 ppv of TRS expressed as H_2S) 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 ft^3 LFG/min)*(60 min/hr)*(24 hrs/day)*(365 days/yr)*(150 ft^3 H_2S/1 E6 ft^3 LFG)/
(387.006 ft^3 H_2S/1 lbmol H_2S)*(34.076 lbs H_2S/1 lbmol H_2S) = 16,660 pounds/year H_2S

Initial Proposed Emission Limits:

Increasing the landfill gas sulfur content limit to 300 ppmv of TRS, would have resulted in the following SO_2 and H_2S emission rates:

(3807.6 E6 ft^3 LFG/yr)*(300 ft^3 H_2S/1 E6 ft^3 LFG)/(387.006 ft^3 H_2S/1 lbmol H_2S)*
(1 lbmol SO_2/1 lbmol H_2S)*(64.059 lbs SO_2/1 lbmol SO_2)/(2000 lbs SO_2/ton) =
94.538 tons/year of SO_2 from A-7, A-8, and A-9 combined

(2400 ft^3 LFG/min)*(60 min/hr)*(24 hrs/day)*(365 days/yr)*(300 ft^3 H_2S/1 E6 ft^3 LFG)/
(387.006 ft^3 H_2S/1 lbmol H_2S)*(34.076 lbs H_2S/1 lbmol H_2S) = 33,321 pounds/year H_2S

The emission increases would have been: 47.3 tons/year of SO_2 and 16,661 lbs/year of H_2S. This hydrogen sulfide emission increase triggered a health risk assessment pursuant to Regulation 2, Rule 5. The preliminary HRSA results found that the proposed H2S emission level would result in an acute hazard index > 1. In addition, the district found that carcinogenic TAC emissions would results 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 SO2 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_2. This throughput change will also reduce the maximum permitted emission levels for NOx, CO, POC, and PM10.

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.

C. 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_2S, the current maximum permitted sulfur dioxide emission rate for the flares is:

(3807.6 E6 ft^3 LFG/yr)*(150 ft^3 H_2S/1 E6 ft^3 LFG)/(387.006 ft^3 H_2S/1 lbmol H_2S)*
(1 lbmol SO_2/1 lbmol H_2S)*(64.059 lbs SO_2/1 lbmol SO_2)/(2000 lbs SO_2/ton) =
47.269 tons/year of SO_2 from A-7, A-8, and A-9 combined

Proposed SO_2 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 E6 ft^3 LFG/yr)*(265 ft^3 H_2S/1 E6 ft^3 LFG)/(387.006 ft^3 H_2S/1 lbmol H_2S)*
(1 lbmol SO_2/1 lbmol H_2S)*(64.059 lbs SO_2/1 lbmol SO_2)/(2000 lbs SO_2/ton) =
47.263 tons/year of SO_2 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_0) of 100 m^3/Mg and the conventional methane generation rate (k) of 0.04 year^-1 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_2S emissions will be:

(1650 ft^3 LFG/min)*(60 min/hr)*(24 hrs/day)*(365 days/yr)*(265 ft^3 H_2S/1 E6 ft^3 LFG)/
(387.006 ft^3 H_2S/1 lbmol H_2S)*(34.076 lbs H_2S/1 lbmol H_2S) = 20,235 pounds/year H_2S

The increase in permitted fugitive H_2S emissions will be: (20,235 – 16,660) = 3575 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_2S). Using this data, baseline H_2S emissions were 1412 pounds/year. The total post-1987 H_2S emission increases for this modified landfill are: (20,235 – 1,412) = 18,823 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_2S 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_2S. This increase exceeds the Table 2-5-1 risk screen trigger level of 390 lbs/yr for H_2S. 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_2S. 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	lbs/year
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 dichlrobenzene	900	3.38E-02	296.48

TACs	New LFG Limit	Fugitive Emissions	
	ppbv	lbs/hour	lbs/year
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

D. 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_2S). 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_2 emission limit for the three flares combined does not exceed the current SO_2 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_2S 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_2S emission rate for the landfill. The project emission increase will be: 19,829 pounds/year increase in H_2S 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 sites 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 AAAA). 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.

E. 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 Part13b(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^2. 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^2.
   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 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 ~~3807.6~~2155 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:

a. 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),

b. 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,

c. 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

d. 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 150~~265 ppmv of TRS, expressed as H_2S, 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)

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 H2S 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 H2S.

*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)

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 ot 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 ~~Concentration~~ (ppbv)	Fugitive Emissions pounds/year
Acrylonitrile	100~~500~~	12
Benzene	3000~~10,000~~	525
Carbon Tetrachloride	50~~100~~	17
Chloroform	50~~100~~	13
1,4 Dichlorobenzene	900~~500~~	296
Ethylbenzene	7000	1665
Ethylene Dibromide	50~~100~~	21
Ethylene Dichloride	400~~500~~	89
Ethylidene Dichloride	50~~10,000~~	11
Methylene Chloride	1000~~30,000~~	190
Perchloroethylene	600~~10,000~~	223
1,1,2,2 Tetrachloroethane	50~~500~~	19
Trichloroethylene	400~~5,000~~	118
Vinyl Chloride	300~~5,000~~	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

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.

a. 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.

b. 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.
c. 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_x) emissions from Flares A-7, A-8, or A-9 shall not exceed 0.052 pounds of NO_x (calculated as NO_2) 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_x, corrected to 3% oxygen, dry basis. An exhaust concentration measurement of more than 39 ppmv of NO_x shall not be deemed a violation of this part, if the Permit Holder can demonstrate that NO_x 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_2), nitrogen (N_2), oxygen (O_2), methane (CH_4), and total non-methane hydrocarbons (NMOC) in the landfill gas;
    c. landfill gas flow rate (sdcfm) 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_x, CO, CH_4, NMOC, and O_2 in the flare stack gas;
f. emission rate per heat input (pounds/MM BTU) for NO_x 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	Organic Compounds
acrylonitrile	hexane
benzene	isopropyl alcohol
carbon tetrachloride	methyl ethyl ketone
chlorobenzene	methylene chloride
chloroethane	perchloroethylene
chloroform	toluene
1,1 dichloroethane	1,1,1 trichloroethane
1,1 dichloroethene	1,1,2,2 tetrachloroethane
1,2 dichloroethane	trichloroethylene
1,4 dichlorobenzene	vinyl chloride
ethylbenzene	xylenes
ethylene dibromide	

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))

F. 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 Date
Supervising Air Quality Engineer

APPENDIX B

UPDATED ENGINEERING EVALUATION REPORT

FOR

APPLICATION # 23391

Updated Engineering Evaluation Report

for

Landfill Gas Collections System Alterations at S-1 Los Trancos Canyon Landfill

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

APPLICATION # 23391

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), stockpiles for green waste, and two portable waste tipper engines.

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 waste. The two fill areas combined contain 24.2 million tons of decomposable materials as of 12-31-2014 (about 91% of maximum capacity: 26.5 million tons). 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 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 to one or more of the three on-site landfill gas flares (A-7, A-8, or A-9).

As of August 1, 2013, the gas collection systems for the Los Trancos Canyon Landfill consisted of 169 vertical wells, 9 horizontal collectors, and 2 leachate cleanout risers. Pursuant to Title V renewal Application #24335, the remaining gas collection system alterations were: install up to 26 new vertical wells and 18 new horizontal collectors and decommission up to 41 vertical wells and 9 horizontal collectors.

Since August 1, 2013, the applicant submitted eight landfill gas collection system component start-up/shut-down notifications, which are summarized in Table 1.

Table 1. Landfill Gas Collection System Start-up/Shut Down Notifications

Received Between 8/1/13 and 1/31/16

Date	Shut Down & Decommission	Install & Start-Up
April 9, 2014	- 3 vertical wells	
April 21, 2015	- 1 vertical well	+ 3 vertical wells
July 6, 2015	- 1 vertical well	
July 28, 2015	- 1 vertical well	
August 7, 2015	- 2 vertical wells	
November 3, 2015 *		+ 12 vertical wells
December 15, 2015	- 1 vertical well	
January 20, 2016	- 1 vertical well	
Net Changes	-10 vertical wells	+ 15 vertical wells

(*) BFI installed these 12 wells in a shallow leachate interception trench and has requested to operate these wells on a less than continuous basis with higher than normal wellhead operating values. The permit condition changes associated with the less than continuous operation and HOV requests are being handled pursuant to Application # 27710.

After including all of the gas collection system component changes identified above, the gas collection systems for the Los Trancos Canyon Landfill now consists of 174 vertical wells, 9 horizontal collectors, and 2 leachate cleanout risers. The remaining gas collection system alterations are: install up to 11 new vertical wells and 18 new horizontal collectors and decommission up to 31 vertical wells and 9 horizontal collectors.

The District is proposing to issue a Change of Conditions to identify the collection system alterations that have been completed to date. The well changes for the main gas collection system are shown in Tables 2a and 2b.

Table 2a. Vertical Landfill Gas Collection Wells Operating as of January 31, 2016					
Vertical Wells	Vertical Wells	Vertical Wells	Vertical Wells	Vertical Wells	Vertical Wells
EW-W02	EW-101	EW-158	EW-199	OXMEW300	OXME302D
EW-W03	EW-103	EW-159	EW-200	OXMEW301	OXME305D
EW-W05	EW-104	EW-161	EW-201	OXMEW302	OXME306D
EW-W06	EW-105	EW-162	EW-202	OXMEW303	OXME308D
EW-W08	EW-107	EW-163	EW-203	OXMEW304	OXME312D
EW-W15	EW-113	EW-164	EW-204	OXMEW305	OXME316D
EW-W16	EW-115	EW-166	EW-205	OXMEW306	OXME317D
EW-W17	EW-116	EW-170	EW-206	OXMEW307	
EW-W18	EW-117	EW-172	EW-207	OXMEW308	
EW-W24	EW-119	EW-173	~~EW-208~~	OXMEW309	
EW-W25	EW-120	EW-174	EW-209	OXMEW310	
EW-W26	EW-121	EW-175	EW-210	OXMEW311	
EW-W31	EW-122	EW-176		OXMEW312	
EW-W32	EW-123	EW-177		OXMEW313	
EW-W33	EW-126	EW-178	EW-1B	OXMEW314	
EW-W35	EW-131	EW-179	EW-1C	OXMEW315	LTS-1
EW-W36	EW-133A	EW-180	EW-1D	OXMEW316	LTS-2
EW-W42	EW-133B	EW-181	EW-30A	OXMEW317	LTS-3
EW-W44	EW-134A	EW-182	EW-PEW30	OXMEW318	LTS-4
~~EW-W45~~	EW-134B	EW-183	~~OXMPEW45~~	OXMEW319	LTS-5
EW-W46	EW-136	EW-184		OXMEW320	LTS-6
EW-W49	EW-137A	EW-185	EW-W-1-F	OXMEW321	LTS-7
EW-W50	EW-137B	EW-186	EW-W-1-G	OXMEW322	LTS-8
EW-57	EW-138	EW-187	EW-W-1-H	OXMEW323	LTS-9
EW-58	~~EW-139A~~	EW-188	EW-W-1-I	OXMEW324	LTS-10
EW-59	~~EW-139B~~	EW-189	EW-W-1-J	OXMEW325	LTS-11
EW-60	EW-140B	EW-190	EW-W-1-K	~~OXMEW326~~	LTS-12
EW-61	EW-141	EW-191	EW-W-1-M	OXMEW327	
EW-62	~~EW-142~~	EW-192	~~EW-W-1-O~~	OXMEW328	
EW-63	EW-144B	EW-193	EW-W-1-P		
EW-72	EW-145	EW-194	~~EW-W-1-Q~~		
EW-73	~~EW-147B~~	EW-195	~~EW-W-1-R~~		
EW-83	EW-153	EW-196	EW-W-1-S		
EW-96	EW-154	EW-197	EW-W-1-T		
EW-99	EW-157	EW-198	EW-W-1-U		

* Decommissioned components are shown in strikeout format and are highlighted in yellow.
New components are shown in underline format. New components highlighted in green will operate continuously. new components highlighted in blue will operate less than continuously.

Table 2b. Horizontal Landfill Gas Collectors Operating as of October 12, 2010

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

BFI has requested authorization for additional component alterations pursuant to Application # 27710.

In addition, BFI has requested permit condition changes that will allow the 12 wells installed in November 2015 (LTS-1 through LTS-12) to be operated on a less than continuous basis with alternative wellhead standards. Occasionally, landfill gas will inadvertently migrate into other piping systems (such as the leachate collection and removal system), into casings for monitoring probes, or into other cap protrusions that are located in or near the waste area. To prevent landfill gas from escaping into the atmosphere via these potential gas migration locations, the applicant may connect leachate risers, probe casings, and other protrusions to the gas collection vacuum system. In such cases, the vacuum connection does not need to be operated continuously. The requested condition changes to allow less than continuous operation of LTS wells will be considered under Application # 27710.

B. 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 (188 vertical wells and 15 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.

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.

C. PERMIT CONDITIONS

The following permit condition revisions are necessary to reflect the landfill gas collection system alterations that have been completed to date.

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 19-33

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~~ 174 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~~2/9/2016). 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 ~~26~~11 vertical gas collection wells.

- Permanently decommission up to ~~41~~31 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 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.

No Changes to Parts 19-33

D. 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: 174 vertical wells, 9 horizontal collectors, and 2 leachate cleanout risers.

By: Carol S. Allen
Supervising Air Quality Engineer

Date

APPENDIX C

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_2) 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	~~OXMEW304~~	OXME312D
EW-W15	~~EW-115~~	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	OXEW1601
EW-W24	~~EW-120~~	~~EW-178~~	EW-1D	OXMEW309	OXEW1602
EW-W25	EW-121	~~EW-179~~	EW-30A	OXMEW310	OXEW1603
EW-W26	EW-122	~~EW-180~~		OXMEW311	OXEW1604
EW-W31	~~EW-123~~	EW-181	EW-PEW30	OXMEW312	OXEW1605
EW-W32	EW-126	EW-182		OXMEW313	OXEW1606
EW-W33	EW-131	EW-183	EW-W-1-F	OXMEW314	
EW-W35	EW-133A	EW-184	EW-W-1-G	OXMEW315	OXEW1608
EW-W36	EW-133B	EW-185	EW-W-1-H	OXMEW316	OXEW1609
EW-W42	EW-134A	EW-186	EW-W-1-I	OXMEW317	OXEW1610
EW-W44	EW-134B	EW-187	EW-W-1-J	OXMEW318	OXEW1611
EW-W46	EW-136	EW-188	EW-W-1-K	OXMEW319	OXEW1612
EW-W49	EW-137A	EW-189	EW-W-1-M	OXMEW320	OXEW1613
EW-W50	EW-137B	EW-190	EW-W-1-P	OXMEW321	OXEW1614
EW-57	EW-138	EW-191	EW-W-1-S	OXMEW322	OXEW1615
~~EW-58~~	EW-140B	EW-192	EW-W-1-T	OXMEW323	OXEW1616
EW-59	EW-141	~~EW-193~~	EW-W-1-U	~~OXMEW324~~	OXEW1617
EW-60	EW-144B	EW-194		OXMEW325	OXEW1618
EW-61	EW-145	~~EW-195~~		OXMEW327	OXEW1619
~~EW-62~~	EW-153	EW-196		OXMEW328	OXEW1620
EW-63	EW-154	~~EW-197~~			OXEW1621
EW-72	EW-157	~~EW-198~~			OXEW1622
EW-73	EW-158	EW-199			
EW-83	EW-159	EW-200			
~~EW-96~~	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.

B. 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.

C. 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
            - ~~174~~ 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 #~~23391~~27710 (as

of ~~2~~5/~~9~~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 ~~11~~89 vertical gas collection wells.
   - Permanently decommission up to ~~31~~139 vertical wells
   - Install up to ~~18~~20 horizontal collectors
   - Permanently decommission up to ~~9~~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 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

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

D. 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 Date
Supervising Air Quality Engineer