Bay Area Air Quality Management District

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March 19 2007

Permit Evaluation and Statement of Basis for MAJOR FACILITY REVIEW PERMIT Minor Revision

for

Sonoma County Central Landfill
Facility #A2254

Facility Address:
500 Mecham Road
Petaluma, CA 94952

Mailing Address:
2300 County Center Drive, Suite B-100
Santa Rosa, CA 95403

BAAQMD Facility Engineer: Ted Hull

Application 13631

Title V – Minor Revision

A. BACKGROUND

This facility is subject to the Operating Permit requirements of Title V of the federal Clean Air Act, Part 70 of Title 40 of the Code of Federal Regulations (CFR), and BAAQMD Regulation 2, Rule 6, Major Facility Review because it is a major facility as defined by BAAQMD Regulation 2-6-212. It is a major facility because it has the "potential to emit" more than 100 tons per year of a regulated air pollutant.

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

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

The Sonoma County Central Landfill (Site #A2254) was issued a Major Facility Operating Permit (Title V Permit) on February 27, 2001. The Title V permit has since undergone two Significant Revisions and one Minor Revision and was reissued on March 29, 2004, October 3, 2005, and May 18, 2006. The District received an Application for a Renewal Title V permit on July 29, 2005, which is currently under review.

This application is for a Minor Permit Revision to replace the existing Landfill Gas Flare A-2 with a new, higher capacity flare (A-3).

B. SUMMARY OF PROPOSED ACTION

The Sonoma County Central Landfill, Facility #A2254 was issued an Authority to Construct the following equipment under BAAQMD Permit Application #13632: (see attached Engineering Evaluation Report)

A-3: Enclosed Landfill Gas Flare; John Zinc or Perennial, 2,740 SCFM maximum capacity, 83.3 MMBTU/hr

This flare is intended to replace the existing Landfill Gas Flare A-2, which was installed in 1988. The proposed Flare A-3 has a higher capacity maximum capacity than the existing Flare A-2, but is not intended to flare more gas. The Sonoma County Landfill uses flaring only as a backup to the (10) landfill gas fired IC Engine/Generator Sets operating at the facility. The increased capacity of the new flare will allow for more flexibility for IC engines to be temporarily taken out of service.

The purpose of this Minor Permit Revision is to incorporate this source and its applicable requirements into the Title V permit.

C. EMISSIONS DISCUSSION

The BAAQMD in conjunction with the Landfill Gas to Energy (LFGTE) industry coalition recently formulated the following policy regarding the permitting of landfill gas flares:

> "In accordance with California Health and Safety Code (H&SC) Section 42301.2 and District Regulation 1-240, no offsets will be required for landfill gas flares, provided that there is no increase of capacity at the associated landfill. If the flare is being permitted to handle an increase in capacity at the landfill, then offsets are required only for the emissions associated with the landfill capacity increase. Offsets will not be required for a flare that replaces one of equal or lesser capacity. If the replacement control device has a higher permitted capacity than the existing unit, emissions offsets for secondary pollutants are required only for the increased capacity. New landfills require offsets in accordance with Regulations 2-2-302 and 2-2-303 for all permitted emissions". (Ref. District Responses to Issues Raised by the LFGTE Industry Coalition, agreement reached 11/29/06)

The Sonoma County Central Landfill has been modified since H&SC Section 42301.2 was adopted (Landfill Expansion, Application #19313, A/C issued 03/22/99). Therefore, offsets are required, but only for emissions associated with the increased capacity of the new flare. However, rather than providing offsets for the flare, Sonoma County can choose to accept limits on emission rates and the annual throughput, so that there will no net increase of emissions to be offset. The landfill gas throughput limit for the new flare A-3 will be based on the available contemporaneous emission reduction credits from the shutdown of the existing Flare A-2 as discussed below.

Contemporaneous Emission Reduction Credits (NOx):
Under the new policy, existing landfill gas flares are assumed to be fully offset (because offsets are no longer required). Therefore, a contemporaneous shutdown credit up to the full permitted capacity of the unit is available to apply to the permitting of a replacement flare. In accordance with Regulation 2-2-605, the emission reduction credit available from the shutdown of a source is equal to the adjusted baseline emission rate times the baseline throughput. The existing Landfill Gas Flare A-2 does not have a permitted NOx emission rate. Therefore, the adjusted baseline emission rate for A-2 is equal to the RACT emission rate (0.06 lb/MMBTU). The Flare A-2 currently has a permitted throughput of 456,396 million BTU per year (Ref. Permit Condition #4044, part 20). This is the baseline throughput.

Applying the RACT adjusted NOx emissions factor of 0.06 lb/MMBTU to the baseline throughput, the available contemporaneous emission reduction credit (CERC) is as follows:

CERC= (0.06 lb/MMMBTU)(456,396 MMBTU/yr)
= 27,384 lb/yr
= 13.692 tons/yr

In order to maintain "no net increase" of NOx emissions (so that offsets are not required), the new Flare A-3 must have NOx emissions equal to or below the CERC. A-3 will have a permitted NOx emission limit of 0.05 lb/MMBTU. Therefore, the throughput (THPT) for the new flare must be limited as follows:

THPT = (27,384 lb/yr)/(0.05 lb/MMBTU)
= **547,680 MMBTU/yr**

Emission Factors (Secondary Pollutants):

NOx, CO
Sonoma County has supplied the following highest expected emission factors for secondary NOx and CO emissions from the flare:

- NOx: 0.05 lb/MMBTU
- CO: 0.20 lb/MMBTU

SO_2
Since the Sulfur Dioxide (SO_2) emissions will vary directly with the amount of Sulfur compounds present in the fuel, a mass balance calculation can be performed to determine SO_2 emissions based on the total concentration of sulfur compounds in the landfill gas. Based on periodic sampling, Sonoma County has determined that the annual average total sulfur concentration of the landfill gas is 296 ppmv (as H_2S)

Based on this limit, the SO_2 emission factor will be:

SO_2 = (296 X 10^{-6} lb-mole H_2S/lb-mole gas)(lb-mole SO_2/lb-mole H_2S)(64 lb SO_2/lb-mole SO_2)(lb-mole gas/385 scf)/(506.5 BTU/scf)
= 9.7 x 10^{-8} lb SO_2/BTU
= 0.097 lb/MMBTU

PM
AP-42 Table 2.4-5 "Emission Rates for Secondary Compounds Exiting Control Devices" provides a PM emission factor of 17 lb/10^6 dscf Methane. The applicant has stated that the landfill gas at the facility has an average methane content of 50%. At standard conditions (60 ^oF, 1 atm), a 50% methane landfill gas will have a higher heating value (HHV) of 506.5 BTU/scf. Therefore, the AP-42 PM emission factor can be converted to lb/MMBTU as follows:

PM = (17 lb/10^6 dscf Methane)(0.5 10^6 dscf Methane/10^6 scf LFG)(10^6 scf LFG/506.5 MMBTU)
= 0.017 lb/MMBTU

NMOC (POC) Emissions:
Non-methane organic compound (i.e. POC) emissions from landfill gas occur as either fugitive emissions from uncollected gas or as the small fraction of POC that passes through the control device unabated. For permitting purposes, these emissions are assigned to the landfill source and are based on the amount of decomposable refuse that the landfill receives. In this application, the

landfill itself is not being modified so there are no new POC emissions associated with this application.

E. PERMIT CONDITIONS

Changes will be made to the permit conditions for the landfill to account for the flare replacement. A summary of changes to permit conditions is given below. Please refer to the proposed permit for a strikeout/underline version of the changes.

Condition #4044

- Replace all references to the existing Flare A-2 with A-3.
- Add a NOx emission limit of 0.05 lb/MMBTU for A-3 (Part 11).
- Add a CO emission limit of 0.20 lb/MMBTU for A-3 (Part 12).
- Add an annual landfill gas throughput limit of 547,680 MMBTU/yr for A-3 (Part 13).
- Add annual source test requirement for NOx and CO from the Flare A-3. (Part 17.e.).
- Delete the previous landfill gas throughput limits for the Flare A-2 (previously Part 20).
- Renumber conditions to account for the proposed changes.

Condition #19933

- Replace all references to the existing Flare A-2 with A-3.

F. MONITORING ANALYSIS

The applicable requirements for the proposed Landfill Gas Flare A-3 include new limits on NOx and CO emissions and a new annual landfill gas throughput limit. In order to demonstrate compliance with the applicable NOx and CO emissions limits, the permit holder will be required by permit conditions to perform annual source testing. The throughput (heat input) to the flare will be calculated and recorded on a monthly basis.

These are in addition to the previous monitoring requirements for the Flare A-2 that will now apply to A-3. The District concludes that the proposed monitoring is adequate to demonstrate compliance with the applicable emission standards and cumulative emissions limits.

G. RECOMMENDATION:

Issue a Minor Permit Revision to the Title V permit for the Sonoma County Landfill as shown in the Proposed Major Facility Review Permit and described in this evaluation.

By:_____

Ted Hull
Senior Air Quality Engineer

ATTACHMENT:

BAAQMD Engineering Evaluation Report

Enclosed Landfill Gas Flare – Flare Replacement

ENGINEERING EVALUATION REPORT
SONOMA COUNTY CENTRAL LANDFILL
APPLICATION NUMBER 013632

BACKGROUND:

The Sonoma County Central Landfill, Facility #A2254 has applied for an Authority to Construct the following:

A-3: Enclosed Landfill Gas Flare; John Zinc or Perennial, 2,740 SCFM maximum capacity, 83.3 MMBTU/hr

This flare is intended to replace the existing Landfill Gas Flare A-2, which was installed in 1988. Although the proposed Flare A-3 has a higher capacity than the existing Flare A-2 (83.3 MMBTU/hr versus 52.1 MMBTU/hr), Sonoma County has requested that the permitting be done in such a way as to eliminate any requirement for the County to provide emissions offsets for this application.

The Landfill Gas to Energy (LFGTE) industry coalition, which includes representatives from Sonoma County, recently met with District staff to raise a number of issues relating to the permitting of resource recovery projects in the Bay Area. One of the issues discussed was the District's current requirement to offset emissions from control devices at landfills. The basis of the LFGTE group's argument was California Health and Safety Code (H&SC) Section 42301.2, which states:

> *"A district shall not require emission offsets for any emission increase at a source that results from the installation, operation, or other implementation of any emission control device or technique used to comply with a district, state, or federal emission control requirement, including, but not limited to, requirements for the use of reasonably available control technology or best available retrofit control technology, unless there is a modification that results in an increase in capacity of the unit being controlled." (AB 2525 Chapter 771, September 23, 1996)*

Their interpretation is that the landfill is the source and that as long as it is not being expanded, offsets are not required for emissions control devices that are required to abate emissions of landfill gas. The District, largely in agreement with their interpretation (although on a narrower scope) formulated the following policy:

> "In accordance with California Health and Safety Code (H&SC) Section 42301.2 and District Regulation 1-240, no offsets will be required for landfill gas flares, provided that there is no increase of capacity at the associated landfill. If the flare is being permitted to handle an increase in capacity at the landfill, then offsets are required only for the emissions associated with the landfill capacity increase. Offsets will not be required for a flare that replaces one of equal or lesser capacity. If the replacement control device has a higher permitted capacity than the existing unit, emissions offsets for secondary pollutants are required only for the increased capacity. New landfills require offsets in accordance with Regulations 2-2-302 and 2-2-303 for all permitted emissions". (Ref. District Responses to Issues Raised by the LFGTE Industry Coalition, agreement reached 11/29/06)

The Sonoma County Central Landfill has been modified since H&SC Section 42301.2 was adopted (Landfill Expansion, Application #19313, A/C issued 03/22/99). Therefore, offsets are required, but only for emissions associated with the increased capacity of the new flare. However, rather than providing offsets for the flare, Sonoma County can accept limits on emission rates and the annual throughput, so that there will no net increase of emissions to be offset.

EMISSIONS DISCUSSION:

Emissions from the new Flare A-3 will be based on a throughput rate determined by the requirement to maintain "no net increase" of NOx emissions. This throughput limit is determined by the available contemporaneous emission reduction credits from the shutdown of the existing Flare A-2 as follows:

Contemporaneous Emission Reduction Credits (NOx):
Under the new policy, existing landfill gas flares are assumed to be fully offset (because offsets are no longer required). Therefore, a contemporaneous shutdown credit up to the full permitted capacity of the unit is available to apply to the permitting of a replacement flare. In accordance with Regulation 2-2-605, the emission reduction credit available from the shutdown of a source is equal to the adjusted baseline emission rate times the baseline throughput. The existing Landfill Gas Flare A-2 does not have a permitted NOx emission rate. Therefore, the adjusted baseline emission rate for A-2 is equal to the RACT emission rate (0.06 lb/MMBTU). The Flare A-2 currently has a permitted throughput of 456,396 million BTU per year (Ref. Permit Condition #4044, part 20). This is the baseline throughput.

Applying the RACT adjusted NOx emissions factor of 0.06 lb/MMBTU to the baseline throughput, the available contemporaneous emission reduction credit (CERC) is as follows:

CERC = (0.06 lb/MMMBTU)(456,396 MMBTU/yr)
= 27,384 lb/yr
= 13.692 tons/yr

In order to maintain "no net increase" of NOx emissions (so that offsets are not required), the new Flare A-3 must have NOx emissions equal to or below the CERC. A-3 will have a permitted NOx emission limit of 0.05 lb/MMBTU. Therefore, the throughput (THPT) for the new flare must be limited as follows:

THPT = (27,384 lb/yr)/(0.05 lb/MMBTU)
= **547,680 MMBTU/yr**

NMOC (POC) Emissions:
Non-methane organic compound (i.e. POC) emissions from landfill gas occur as either fugitive emissions from uncollected gas or as the small fraction of POC that passes through the control device unabated. For permitting purposes, these emissions are assigned to the landfill source and are based on the amount of decomposable refuse that the landfill receives. In this application, the landfill itself is not being modified so there are no new POC emissions associated with this application.

Emission Factors (Secondary Pollutants):

NOx, CO
Sonoma County has supplied the following highest expected emission factors for secondary NOx and CO emissions from the flare:

- NOx: 0.05 lb/MMBTU
- CO: 0.20 lb/MMBTU

SO_2
Since the Sulfur Dioxide (SO_2) emissions will vary directly with the amount of Sulfur compounds present in the fuel, a mass balance calculation can be performed to determine SO_2 emissions based on the total concentration of sulfur compounds in the landfill gas. Based on periodic sampling, Sonoma County has determined that the annual average total sulfur concentration of the landfill gas is 296 ppmv (as H_2S)

Based on this limit, the SO_2 emission factor will be:

SO_2 = (296 X 10^{-6} lb-mole H_2S/lb-mole gas)(lb-mole SO_2/lb-mole H_2S)(64 lb SO_2/lb-mole SO_2)(lb-mole gas/385 scf)/(506.5 BTU/scf)
= 9.7 x 10^{-8} lb SO_2/BTU
= 0.097 lb/MMBTU

PM

AP-42 Table 2.4-5 "Emission Rates for Secondary Compounds Exiting Control Devices" provides a PM emission factor of 17 lb/10^6 dscf Methane. The applicant has stated that the landfill gas at the facility has an average methane content of 50%. At standard conditions (60 ^oF, 1 atm), a 50% methane landfill gas will have a higher heating value (HHV) of 506.5 BTU/scf. Therefore, the AP-42 PM emission factor can be converted to lb/MMBTU as follows:

PM = (17 lb/10^6 dscf Methane)(0.5 10^6 dscf Methane/10^6 scf LFG)(10^6 scf LFG/506.5 MMBTU)
= 0.017 lb/MMBTU

CUMULATIVE EMISSIONS INCREASE:

Since the Landfill Gas Flare A-3 is new, all emissions must be added to the Cumulative Increase for the facility. Based on a throughput limit of 547,680 MMBTU/yr and the above emission factors the highest estimated emissions of secondary air pollutants from the Enclosed Landfill Gas Flare A-3 will be:

NOx = (0.05 lb/MMMBTU)(547,680 MMBTU/yr)
= 27,384 lb/yr
= 13.692 tons/yr

CO = (0.20 lb/MMMBTU)(547,680 MMBTU/yr)
= 109,536 lb/yr
= 54.768 tons/yr

SO_2 = (0.097 lb/MMMBTU)(547,680 MMBTU/yr)
= 53,125 lb/yr
= 26.562 tons/yr

PM = (0.017 lb/MMMBTU)(547,680 MMBTU/yr)
= 9,311 lb/yr
= 4.655 tons/yr

TOXIC RISK ASSESSMENT:

There are no new increases of toxic air contaminants associated with this application. No risk screen is required.

BACT/RACT REVIEW:

In accordance with Regulation 2-2-112, BACT does not apply to emissions of secondary pollutants that are the direct result of the use of an abatement device that complies with the BACT or BARCT requirements for the control of another pollutant. Since the Enclosed Flare meets the BARCT requirements of Regulation 8-34-301.3 for organic compounds, BACT is not triggered for the emissions of secondary pollutants from the flare. However, Regulation 2-2-112 does require Reasonably Available Control Technology (RACT) for secondary pollutants. The District specifies RACT for Enclosed Landfill Gas Flares as that which will achieve the following emission rates:

- NOx: 0.06 lb/MMBTU
- CO: 0.30 lb/MMBTU

The Enclosed Landfill Gas Flare A-3 meets RACT for NOx and CO.

OFFSET REVIEW:
As discussed above, the shutdown credits available from the Flare A-2 will exactly balance the NOx emissions from the proposed new Flare A-3, given a NOx limit of 0.05 lb/MMBTU and a landfill gas throughput limit of 547,680 MMBTU/yr. Therefore, offsets are not required for this application.

PSD REVIEW
In accordance with Regulation 2-2-304, a PSD review is required for a new major facility, which will emit 100 tons per year or more of a regulated air pollutant, if it is one of the 28 PSD source categories listed in Section 169(1) of the federal Clean Air Act, or 250 tons per year or more for an unlisted category. PSD review is also required for a major modification of a major facility if the cumulative increase, from the PSD Baseline Date, minus the contemporaneous emission reduction credits at the facility are in excess of 40 tons per year of sulfur dioxide or nitrogen oxides, or 15 tons per year of PM10. Similarly, Regulation 2-2-305 requires a PSD review for a major modification of a major facility with an increase of 100 tons per year or more of carbon monoxide.

The Sonoma County Central Landfill is not a PSD Major Facility for any pollutants, because maximum facility-wide emissions will be less than 250 tons/year for each pollutant. Note that landfills and landfill gas combustion equipment are NOT in one of the 28 listed categories that are subject to the lower PSD Major Facility threshold of 100 tons/year. Therefore, PSD review is not triggered for this application.

STATEMENT OF COMPLIANCE:
Public Notification Requirements (Regulation 2, Rule 1):
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.

CEQA Requirements (Regulation 2, Rule 1):
The proposed Landfill Gas Flare A-3 is considered to be an abatement device and is required for compliance with Regulation 8, Rule 34. In accordance with Regulation 2-1-312.2, permit applications involving the installation of abatement equipment are categorically exempt from CEQA review. Since the flare is expressly exempted from CEQA by 2-1-312.2, comparison to the significance thresholds is not required and no further CEQA review is necessary.

Maximum Achievable Control Technology (MACT) Requirement (Regulation 2-2-317):
Total HAP emissions from this facility (including fugitive emissions from the landfill) have been determined to be less than 25 tons/year of all HAPs combined and less than 10 tons/year of any single HAP. Therefore, Regulation 2-2-317 does not apply.

Major Facility Review (Regulation 2, Rule 6):
This facility was initially issued an MFR Permit on on February 27, 2001, with an expiration date of January 31, 2006. A renewal Title V permit is currently being processed. The permit will be revised in conjunction with this application to reflect the proposed change of flares. In accordance with Regulation 2-6-215, the proposed revision to the MFR Permit is a “Minor Revision”, because it is neither a “Significant Revision” as defined by Regulation 2-6-226 nor an “Administrative Permit Amendment” as defined by Regulation 2-6-201.

Landfill Gas Emission Control System Requirements (Regulation 8, Rule 34):
District Regulation 8-34-301.3 requires enclosed ground type flares to reduce the amount of NMOC in the collected gas by at least 98 percent by weight or emit less than 30 ppm (vol) NMOC (expressed as methane @ 3% O_2). Annual source testing and continuous flare temperature monitoring will be required in order to demonstrate compliance with this requirement.

Particulate Matter and Visible Emissions (Regulation 6):
The new Flare A-3 is expected to comply with the Ringelmann 1 limit of Regulation 6-301 and will have no visible emissions. The flare will also comply with Regulation 6-310 (PM $\leq$ 0.15 grains/dscf), because it is expected to emit less than 0.02 grains/dscf (converted AP-42 PM emission factor for Enclosed Landfill Gas Flares).

Sulfur Dioxide (Regulation 9, Rule 1)
Regulation 9-1-302 limits SO_2 emissions from the exhaust stream of any source (other than a ship) to 300 ppm (dry). Based on past source test results for landfill gas combustion equipment at this facility it is anticipated that the Flare A-3 will comply with Regulation 9-1-302.

Federal Requirements:
No new federal requirements are triggered by the proposed A-3 Flare.

MONITORING ANALYSIS:
In order to demonstrate compliance with the applicable NOx and CO emissions limits established in this application, the permit holder of the Landfill Gas Flare A-3 will be required by permit conditions to perform District approved source testing on an annual basis. This is in addition to the previous monitoring requirements for the Flare A-2 that will now apply to A-3. The District concludes that the proposed monitoring is adequate to demonstrate compliance with the applicable emission standards.

PERMIT CONDITIONS:
It is recommended that the permit conditions for the Landfill and Flare be modified as follows to account for the replacement of the existing Flare A-2 with a new Flare A-3.

Condition # 4044
For S-1 Sonoma County Central Landfill, ~~A-2~~A-3 Landfill Gas Flare, and A-8 Water Sprays

1. Except for temporary emergency situations approved by the Local Enforcement Agency, the total amount of municipal solid waste received at the Sonoma County Central Landfill (S-1) shall not exceed 2,500 tons per day nor 897,500 tons per year. The total cumulative amount of all wastes and cover materials (excluding final cover material) placed in the landfill shall not exceed both 32.65 million cubic yards and 19.59 million tons. (basis: Cumulative Increase and 2-1-301)

2. Particulate emissions from any operation of the Landfill (S-1) shall be abated by Water Spray (A-8), if necessary, so that visible dust emissions shall not exceed Ringelmann 0.5 or result in fallout on adjacent property in such quantities as to cause a public nuisance per Regulation 1-301. (basis: BACT and 1-301)

*3. If the plant receives two or more Violation Notices from the District for "Public Nuisance" related to dust emissions in any consecutive 12 month period, the Permit Holder shall submit to the District, within 30 days, an application to modify the Permit to Operate to include the following control measures as applicable or any other measures that the District deems necessary and appropriate. (basis: Regulation 1-301)
   a. The paving of all significant roads associated with landfill operations, or
   b. The use of chemical suppressant to control fugitive dust emissions from roadways associated with this landfill.

4. The Permit Holder shall apply for and receive an Authority to Construct before modifying the landfill gas collection system described in Parts 4.a.-b. below. Increasing or decreasing the number of wells or collectors, or significantly changing the length of collectors, or the locations of wells or collectors are all considered to be modifications that are subject to the Authority to Construct requirement.
   a. The Permit Holder has been issued a Permit to Operate for the landfill gas collection system components listed below. Well and collector locations, depths, and lengths are as described in detail in Permit Applications #002227, #008259, and #009584.

	Required Components
Total Number of Vertical Wells:	115
Total Number of Horizontal Collectors:	18

   b. The Permit Holder has been issued an Authority to Construct for the landfill gas collection system components listed below. These collectors shall be installed in the East Canyon Expansion Area in accordance with the requirements of Regulation 8-34-304. Specific collector locations, depths, and lengths of associated piping are as described in detail in Permit Applications #19313 and #007834.

	Minimum
Total Number of Horizontal Collectors:	5

Wells installed pursuant to Parts 4.b. shall be added to Part 4.a. via an administrative permit amendment.
(basis: Regulations 2-1-301, 8-34-301.1, 8-34-304, 8-34-305).

5. The landfill gas collection system described in Part 4.a. shall be operated continuously. Wells shall not be shut off, disconnected or removed from operation without written authorization from the District, unless the Permit Holder complies with all applicable requirements of Regulation 8, Rule 34, Sections 113, 116, 117, and 118. (basis: Regulation 8-34-301.1)

*6. If the concentrations (dry basis) of toxic air contaminants in the collected landfill gas exceed any of the limits listed below, the Permit Holder shall submit a permit application for a Change of Permit Conditions within 30 days of receiving the test results. (basis: Toxic Risk Management Policy)

Benzene	=	2.5 ppmv
Trichloroethylene	=	3.0 ppmv
Perchloroethylene	=	3.0 ppmv
Methylene Chloride	=	20.0 ppmv
Vinyl Chloride	=	2.5 ppmv

7. Total reduced sulfur compounds in the collected landfill gas shall be monitored as a surrogate for monitoring sulfur dioxide in control systems exhaust. The concentration of total reduced sulfur compounds in the collected landfill gas shall not exceed 1300 ppmv (dry). (basis: Regulation 9-1-302)

8. All collected landfill gas shall be vented to properly operating abatement equipment including the Internal Combustion Engines (S-4, S-5, S-6, S-7, S-9, S-10, S-11, S-12, S-13, and S-14) and/or the Landfill Gas Flare (~~A-2~~A-3). Under no circumstances shall raw landfill gas be vented to the atmosphere. This limitation does not apply to unavoidable landfill gas emissions that occur during collection system installation, maintenance, or repair that is performed in compliance with Regulation 8, Rule 34, Sections 113, 116, 117, or 118 or to inadvertent component or surface leaks that do not exceed the limits specified in 8-34-301.2 or 8-34-303. (basis: Regulation 8-34-301)

9. The ~~A-2~~A-3 Landfill Gas Flare shall be operated as necessary to combust excess gas whenever the flow of landfill gas exceeds the capacity of the Internal Combustion Engines in service. (basis: Regulation 8-34-301)

10. The combustion temperature of the ~~A-2~~A-3 Landfill Gas Flare shall be maintained at a minimum of 1400 degrees Fahrenheit, averaged over any 3-hour period. (basis: 8-34-301, Toxic Risk Management Policy)

11. Emissions of Nitrogen Oxides (NOx) from the Flare A-3 shall not exceed 0.05 pounds per million BTU (calculated as NO_2). (basis: RACT and Offsets)

12. Emissions of Carbon Monoxide (CO) from the Flare A-3 shall not exceed 0.20 pounds per million BTU. (basis: RACT and Offsets).

13. The Heat Input to the A-3 Landfill Gas Flare shall not exceed 547,680 million BTU per year. In order to demonstrate compliance with this part, the Permit Holder shall calculate and record on a monthly basis the total monthly heat input to the flare based on the landfill gas flow rate recorded pursuant to part 11, the average methane concentration in the landfill gas based on the most recent source test, and a high heating value for methane of 1013 BTU/scf. The records shall be retained for five years and shall be available to the District staff upon request. (basis: Cumulative Increase, Regulation 2-1-301)

~~11~~14. A flow meter to measure gas flow into the ~~A-2~~A-3 Landfill Gas Flare shall be installed and maintained in good working condition. (basis: Regulation 8-34-301)

~~12~~15. The ~~A-2~~A-3 Landfill Gas Flare shall be equipped with both local and remote alarm systems, which shall be enabled whenever the flare is required to be operated under the requirements of Part 9 above. (basis: Regulation 8-34-301.~~4~~)

~~13~~16. The ~~A-2~~A-3 Landfill Gas Flare shall be equipped with a combustion temperature readout monitor and continuous recorder. (basis: Regulation 8-34-507 and Toxic Risk Management Policy)

~~14~~17. In order to demonstrate compliance with Regulation 8, Rule 34, Section 301.3, parts 11 and 12 above, and 40 CFR 60 .752(b)(2)(iii)(B), the Permit Holder shall ensure that a District approved source test is conducted annually on the Landfill Gas Flare (~~A-2~~A-3). As a minimum, the 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), total non-methane organic compounds (NMOC), and total hydrocarbons (THC) in the landfill gas;
c. stack gas flow rate from the flare (dry basis);
d. concentrations (dry basis) of CH_4, NMOC, THC, and O_2 in the flare stack gas;
e. emission rates (lb/MMBTU) of nitrogen oxides (NOx) and carbon monoxide (CO)
~~e~~f. the CH_4, NMOC, and THC destruction efficiencies achieved by the flare; and
~~f~~g. the average combustion temperature in the flare during the test period.

Annual source tests shall be conducted no sooner than 9 months and no later than 12 months after the previous source test. The Source Test Section of the District shall be contacted to obtain their approval of the source test procedures at least 14 days in advance of each source test. They 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 within 60 days of the test date. (Basis: Cumulative Increase, Regulations 8-34-301.3 and 8-34-412 and 40 CFR 60.752(b)(2)(iii)(B))

*~~15~~18. In order to demonstrate compliance with Part 6 above, the Permit Holder shall conduct a characterization of the landfill gas at least once per year. The landfill gas sample shall be drawn from the main landfill gas header. The landfill gas shall be analyzed for methane (CH_4), carbon dioxide (CO_2), nitrogen (N_2), oxygen (O_2), total sulfur, and all compounds listed in the most recent version of EPA's AP-42 Table 2.4-1, excluding acetone, carbon monoxide, and mercury. All concentrations shall be reported on a dry basis. The test report shall be submitted to the Compliance and Enforcement Division within 60 days of the test date. After conducting three annual landfill gas characterization tests, the Permit Holder may request to remove specific compounds from the list of compounds to be tested for if the compounds have not been detected, have no significant impact on the cancer risk determination for the site, and have no significant impact on the hazard index determination for the site. If the Permit Holder has excluded any NPOCs from the POC emission calculations for the site, then the Permit Holder shall continue to test for these NPOCs on an annual basis. (basis:Regulation 2-1-403)

~~16. Deleted.~~

~~17~~19. In order to demonstrate compliance with the above conditions, the Permit Holder shall maintain the following records in a District approved logbook.

a. Record the total amount of municipal solid waste received at S-1 on a daily basis.
b. Summarize the daily waste acceptance records for each calendar month.
c. Summarize monthly waste acceptance records for each preceding 12-month period.
d. For each area or cell that is not controlled by a landfill gas collection system, maintain a record of the date that waste was initially placed in the area or cell.
e. Record the cumulative amount of waste placed in each uncontrolled area or cell on a monthly basis.
f. If the Permit Holder plans to exclude an uncontrolled area or cell from the collection system requirement, the Permit Holder shall also 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.
g. Record the initial operation date for each new landfill gas well and collector.
h. 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) that are required to be operating continuously pursuant to Part 4.a. 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.
i. Record the operating times for the ~~A-2~~A-3 Landfill Gas Flare on a daily basis.
j. Record the total amount of landfill gas vented to ~~A-2~~A-3 on a daily basis.
k. Summarize the amount of landfill gas vented to ~~A-2~~A-3 on a monthly basis.
l. Maintain continuous records of the combustion temperature achieved at ~~A-2~~A-3 during all hours of operation.
m. Maintain records of all test dates and test results performed to maintain compliance these permit conditions.
n. For each dust suppressant application, maintain records of the date the dust suppressant was applied, the areas that it was applied to, the type of dust suppressant used, and the amount of dust suppressant that was applied.
o. Maintain daily records of the water application frequency for construction areas, unpaved roads, and dirt and rock stockpiles.

All records shall be maintained on site or shall be made readily available to District staff upon request for 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: Cumulative Increase and Regulations 6-301, 6-305, 8-34-304, 8-34-501.3, and 8-34-501.8)

*~~18~~20. Handling Procedures for Soil Containing Volatile Organic Compounds

a. The procedures listed below in subparts b-k do not apply if the following criteria are satisfied. However, the record keeping requirements in subpart l 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).
    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. 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 c-k 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 c-k below.

c. Any contaminated soil received at the facility shall be clearly identified as contaminated soil, shall be handled in accordance with subparts d-k 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.

d. On-site handling of contaminated soil shall be limited to no more than 2 on-site transfers per soil lot. For instance, unloading soil from off-site transport vehicles into a temporary storage pile would be considered 1 transfer. Moving soil from a temporary storage to a staging area would be considered 1 transfer. Moving soil from a temporary storage pile to a final disposal site would be considered 1 transfer. Moving soil from a staging area to a final disposal site would be considered 1 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 would be 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 would be 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 would be 3 on-site transfers and would not be allowed.

e. If the contaminated soil has an organic content of less than 500 ppmw, the contaminated soil shall be treated, deposited in a final disposal site, or transported off-site for treatment within 90 days of receipt at the facility.

f. If the contaminated soil has an organic content 500 ppmw or more, the contaminated soil shall be treated, deposited in a final disposal site, or transported off-site for treatment within 45 days of receipt at the facility.

g. 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.

h. 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).

i. For landfills, Permit Holders 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 that has been 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.

j. 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.
k. 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 that are necessary for annual reporting requirements or for determining the applicability of 8-34-111 or 8-34-304.
l. 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, record the sampling date, test results, and the date that these 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: Regulation 8-40-301, 8-40-304 and 8-40-305)

~~19.~~21 The Permit Holder shall limit the quantity of soil (that contains VOCs) disposed of per day so that no more than 15 pounds of total carbon could be emitted to the atmosphere per day. In order to demonstrate compliance with this condition, the Permit Holder shall maintain the following records in a District approved log.

a. Record on a daily basis the amount of soil (that contains VOCs) disposed of in the landfill and used as cover material in the landfill. This total amount (in units of pounds per day) is Q in the equation in subpart c. below.
b. Record on a daily basis the VOC content of all soils disposed of or used as cover material. This VOC Content (C in the equation below) should be expressed as parts per million by weight as total carbon (or C_1).
c. Calculate and record on a daily basis the VOC Emission Rate (E) using the following equation:
E = Q * C / 1E6

All records shall be maintained on site or shall be made readily available to District staff upon request for at least 5 years from the date of entry. (basis: Regulation 8-2-301)

~~20. The Heat Input to the A-2 Landfill Gas Flare shall not exceed 1250.4 million BTU per day nor 456,396 million BTU per year. In order to demonstrate compliance with this part, the Permit Holder shall calculate and record on a monthly basis the maximum daily and total monthly heat input to the flare based on the landfill gas flow rate recorded pursuant to part 11, the average methane concentration in the landfill gas based on the most recent source test, and a high heating value for methane of 1013 BTU/scf. The records shall be retained for five years and shall be available to the District staff upon request. (basis: Regulation 2-1-301)~~

RECOMMENDATIONS:

It is recommended that an Authority to Construct be issued to the Sonoma County Central Landfill for the following:

A-3: Enclosed Landfill Gas Flare; John Zinc or Perennial, 2,740 SCFM maximum capacity, 83.3 MMBTU/hr

By: _____
Ted Hull
Senior Air Quality Engineer