

**VENTURA COUNTY
AIR POLLUTION CONTROL DISTRICT**

Memorandum

TO: Permit File No. 07340 DATE: May 17, 2018

FROM: John Harader

SUBJECT: Engineering Analysis of Application Nos. 07340-171 and 07340-191
Ventura Regional Sanitation District – Toland Road Landfill

FACILITY DESCRIPTION

The Ventura Regional Sanitation District's (VRSD) Toland Road Landfill is located at 3500 North Toland Road in an unincorporated area in eastern Ventura County between the cities of Santa Paula and Fillmore, north of Highway 126. This municipal solid waste landfill began accepting waste in 1962 and was expanded in 1996. The landfill has a Standard Industrial Classification (SIC) Code of 4953, Sanitary Services-Refuse Systems.

As required by Rule 74.17.1, "Municipal Solid Waste Landfills", the landfill is equipped with a landfill gas collection system that uses a number of gas collection wells that are routed to a common collection header. The landfill gas (LFG) is combusted in an 85.8 MMBTU/hr LFG Specialties Inc. enclosed landfill gas flare and nine 250 KW Flex Energy (formerly Ingersoll Rand) Microturbines. The landfill also has a 2,000-gallon aboveground gasoline storage tank that is equipped with vapor recovery systems to comply with Rule 70, "Storage and Transfer of Gasoline".

The Toland Road Landfill also includes a Biosolids Drying System which was installed pursuant to Authority to Construct No. 07340-130 (issued March 9, 2009) and Authority to Construct No. 07340-160 (issued June 27, 2012). The system is described in detail in these Authority to Construct. The system has operated under Temporary Permit to Operate Nos. 07340-131 (dated April 2, 2009); 07340-161 (dated November 27, 2009); and 07340-181 (dated May 7, 2014). The Biosolids Drying System has not operated since April 2015; it is proposed for "Permanent Non-Operational Status" with this proposed Part 70 Permit.

Permit to Operate No. 07340 is a Part 70 (Title V) Permit; all municipal solid waste landfills are required to hold an EPA Part 70 (Title V) Permit.

APPLICATION NO. 07340-191

Permit to Operate / Part 70 Permit Modification Application No. 07340-191 was submitted on February 3, 2016 to permit the changes requested in Authority to Construct No. 07340-190. AC No. 07340-190 was issued on February 2, 2016 to make the following changes:

- Increase the annual landfill gas consumption limit from 450,000 MMBTU per year to 751,608 MMBTU per (full-time annual capacity of flare at 8,760 hours per year)
- Place the Biosolids Drying System on "Permanent Non-Operational Status"

Part 70 Permit No. 07340 with the Biosolids Drying System has not been issued; however, the system was operating under temporary permits pursuant to Application No. 07340-131, 07340-161, and 07340-181. The system was installed pursuant to Authority to Construct Nos. 07340-130 (issued March 9, 2009) and 07340-160 (issued June 27, 2012). As a result of these Application Nos. 07340-171 and 07340-191, Application Nos. 07340-131, 07340-161, and 07340-181 have been withdrawn.

There are no changes from the permit revisions as proposed in Authority to Construct No. 07340-190. For further information, refer to the Engineering Analysis of Application No. 07340-190 dated December 15, 2015, and revised February 2, 2016.

APPLICATION NO. 07340-171

Application No. 07340-171 is the Reissuance Application for Part 70 Permit No. 07340. The proposed permit will have a five-year permit period ending December 31, 2023. The application was submitted on June 22, 2012. The current Part 70 Permit has permit period of August 4, 2008 to December 31, 2012. Pursuant to Rule 33.9.A.1, the facility was granted a permit reissuance application shield on August 22, 2012 as a timely and complete application for the reissuance of the permit was submitted on June 22, 2012. The application shield letter allows VRSD to continue operating under the current Part 70 Permit No. 07340.

Application No. 07340-171 was included with the permitting of the Biosolids Drying System and combined with Application Nos. 07340-131, 07340-161, and 07340-181 for the Biosolids Drying System. The reissuance permit was proposed to EPA on December 11, 2014 and a public notice was published on December 14, 2014. A request for a public hearing was received during the comment period. The public hearing was conducted on May 14, 2015 after EPA was notified of the public hearing on March 25, 2015. A public notice announcing the hearing was published on March 28, 2015. The submittal of Authority to Construct Application No. 07340-190 on October 22, 2015 began the formal non-operation of the Biosolids Drying Facility. As a result, the Part 70 Permit reissuance is being proposed without Application Nos. 07340-131, 07340-161, and 07340-181 for the Biosolids Drying System. The Biosolids Drying System is designated with a “Permanent Non-Operational Status.”

This revised version of the proposed reissuance permit includes significant revisions as compared to the permit proposed to EPA on December 11, 2014. The following list details the significant revisions to the first proposed permit:

- Biosolids Drying System (PO07340PC4) The Biosolids Drying System, and its associated air pollution control system, have been shut down and are no longer in operation. A single set of permit conditions for the Biosolids Drying System contained in PO07340PC4 has replaced a number of permit conditions in former PO07340PC4 through PO07340PC9. As detailed in PO07340PC4, the Biosolids Drying System has been placed on “Permanent Non-Operational Status” and any future operation of the Biosolids Drying System shall require a new Authority to Construct application that demonstrates compliance with all applicable

rules and regulations including, but not limited to, the Best Available Control Technology (BACT) and emission offset requirements of Rule 26, “New Source Review,” and Rule 51, “Nuisance.” The shutdown of the Biosolids Drying System was formalized in Authority to Construct Application No. 07340-190 and its associated Permit to Operate Application No. 07340-191. These actions required the shutdown of the Biosolids Drying System and authorized an increase in the landfill gas consumption limit at the Landfill Gas Flare. Landfill gas that used to be combusted in the dryers and thermal oxidizer associated with the Biosolids Drying System will now be combusted in the Landfill Gas Flare. The Toland Road Landfill accepts primary and secondary sewage sludge for disposal in accordance with its solid waste permit and waste discharge requirements.

- California Air Resources Board Regulation “Methane Emissions From Municipal Solid Waste Landfills” (Attachment CARB CH4 from MSW) When this reissuance permit was first proposed to EPA on December 11, 2014, only the California Air Resources Board had the authority to implement and enforce this state regulation. The VCAPCD signed a Memorandum of Understanding (MOU) with the ARB on May 18, 2015 to implement and enforce this regulation. Since obtaining the authority to enforce this state regulation, the VCAPCD issued four (4) Notices of Violations in 2015, four (4) Notices of Violation in 2016, three (3) Notices of Violation in 2017, and two (2) Notices of Violation in 2018 for failure to meet the landfill gas leak thresholds and landfill gas collection requirements.
- Updates to Attachment 74.17.1N5-07340 that highlight revisions to the New Source Performance Standards for municipal solid waste landfills.

Because of the above revisions, other sections of the permit have been revised to accommodate these changes. These other revisions include the Table of Contents, Periodic Monitoring Summary, and Table Nos. 2, 3, and 4. In addition, the Responsible Official listed on the permit has been changed from Frank Kiesler to Matt Baumgardner in response to a request from Ventura Regional Sanitation District.

Pursuant to Rule 33.7, “Part 70 Permits – Notification,” a public notice of the revised Part 70 Permit Reissuance will be published in the Ventura County Star. The public notice will include a 45 comment period. The revised Part 70 Permit Reissuance will also be provided to EPA pursuant to Rule 33.7. EPA has a 45 day comment period. The VCAPCD does not intend to conduct an additional public hearing at this time.

Place the Biosolids Drying System on “Permanent Non-Operational Status”

VRSD has placed the Biosolids Drying System on “Permanent Non-Operational Status.” VRSD states that this decision has been made due to technical, mechanical, regulatory compliance, budget, and landfill operational issues with the system. The impending reissuance of the Title V permit will be done with the Biosolids Drying System in “permanent non-operational status.” The system has not operated since April 2015.

Authority to Construct No. 07340-190 will require physical modifications be made to the biosolids drying system in order to ensure that it remains in a Permanent Non-Operational Status. The following physical modifications shall be conducted:

1. All landfill gas lines shall be disconnected from combustion emissions units associated with the Biosolids Drying System. This includes the two 16.8 MMBTU/hr Thermal Oil Heaters and the 4.0 MMBTU/hr Thermal Oxidizer.
2. All biosolids shall be removed from the Wet Biosolids Receiving Hopper and the two Wet Biosolids Storage Hoppers.
3. The Wet Biosolids Receiving Hopper shall be dismantled such that it cannot accept any material.

These conditions will be enforced pursuant to District Rule 29, “Conditions On Permits.”

Permitted Emissions Change due to removal of Biosolids Drying System:

The Permit to Operate applications that include the Biosolids Drying System have not been finalized. However, the proposed Authority to Construct No. 07340-190 will show the removal of the permitted emissions for the system. The following table shows the proposed permitted emissions with the Biosolids Drying System and the removal of the Permitted Emissions associated with the system:

Tons Per Year	ROC	NO _x	PM	SO _x	CO	NH ₃
Proposed Stationary Source Permitted Emissions with Biosolids Drying System	5.04	19.63	5.69	8.00	77.70	1.93
Removal of Permitted Emissions associated with Biosolids Drying System (Previous Emission Increase)	-2.16	-6.13	-2.09	-3.50	-32.70	-1.93
Stationary Source Permitted Emissions w/o Biosolids Drying System	2.88	13.50	3.60	4.50	45.00	0.00

The proposed Emission Increase for the Biosolids Drying System was going to require 0.04 tons per year ROC and 6.13 tons per year NO_x from Essential Public Service Credits. This reduction of the

Essential Public Service credits will not take place since the Biosolids Drying System is not being permitted.

Pounds Per Hour	ROC	NO _x	PM	SO _x	CO	NH ₃
Proposed Stationary Source Permitted Emissions with Biosolids Drying System	2.44	6.68	1.93	2.74	28.23	0.44
Removal of Permitted Emissions associated with Biosolids Drying System	-0.55	-1.53	-0.56	-1.02	-11.07	-0.44
Stationary Source Permitted Emissions w/o Biosolids Drying System	1.89	5.15	1.37	1.72	17.16	0.00

Annual Landfill Gas Consumption Increase at 85.8 MMBTU/hr Flare

The Application requests an increase in LFG consumption at the flare from the current permitted limit of 450,000 MMBTU per year to 751,608 MMBTU per year. The proposed limit is the flare’s annual capacity: $(85.8 \text{ MMBTU/hr})(8760 \text{ hr/yr}) = 751,608 \text{ MMBTU/yr}$.

The flare was initially permitted pursuant to Authority to Construct No. 07340-100 (issued December 7, 2000). The flare was part of the first landfill gas collection and control system at the Toland Road Landfill and was required pursuant to Rule 74.17.1, “Municipal Solid Waste Landfills,” which includes the requirements for 40 CFR Part 60, Subpart WWW, “Standards of Performance for Municipal Solid Waste Landfills.”

Landfill gas flowrates increase over time as the capacity of a landfill increases. The District’s Engineering Analysis for Application No. 07340-100 (dated November 15, 2000) states that the 85.8 MMBTU/hr flare capacity was chosen to meet an expected maximum landfill gas flow rate in the year 2027. The 450,000 MMBTU/yr limit was applied at the initial permitting because the landfill gas flowrate was not expected to meet that level at the flare until 2010. Since 2010, VRSD has directed some landfill gas to the microturbines and the Biosolids Drying System. The need to increase the limit at the flare from 450,000 MMBTU/yr to its capacity of 751,608 MMBTU/yr is part of the normal design of the landfill.

Permitted Emissions:

The District is not proposing any changes to the emission factors for the flare permitted emissions.

Pollutant	Emission Factor (lb/MMBTU)	Reference/Basis
ROC	0.0116	1.0 lb/hr BACT limit

NOx	0.06	BACT & Rule 74.17.1
PM	0.016	AP-42
SOx	0.02	60 ppm S in LFG, BACT
CO	0.20	Rule 74.17.1

SOx Emissions –The SOx permitted emissions are based on the LFG sulfur concentration limit of 60 ppmv. The emission factor for 60 ppmv SOx in the combusted landfill gas is calculated based on the mass balance that 1 mole of H2S produces 1 mole of SO2 as follows:

$$(60 \text{ ppmv H}_2\text{S}/10^6)(34 \text{ lb H}_2\text{S}/\text{lbmole H}_2\text{S})(\text{lbmole}/385 \text{ scf})(\text{scf}/577 \text{ BTU})(10^6 \text{ BTU}/\text{MMBTU})(64\text{lbSO}_2/34 \text{ lbH}_2\text{S}) = 0.02 \text{ lbSO}_2/\text{MMBTU heat input}$$

The Permitted Emission changes are:

Tons Per Year	ROC	NOx	PM	SOx	CO
85.8 MMBTU LFG Flare at current 450,000 MMBTU/yr	2.61	13.50	3.60	4.50	45.00
85.8 MMBTU/hr LFG Flare at proposed 751,608 MMBTU/yr	4.36	22.55	6.01	7.52	75.16
Emission Increase	1.75	9.05	2.41	3.02	30.16
Current Stationary Source Permitted Emissions	2.88	13.50	3.60	4.50	45.00
Proposed Stationary Source Permitted Emissions	4.63	22.55	6.01	7.52	75.16

BEST AVAILABLE CONTROL TECHNOLOGY (BACT) ANALYSIS

Rule 26.2.A details the BACT requirements for new, replacement, modified, or relocated emissions units. This rule has a zero threshold for BACT for ROC, NOx, PM-10, and SOx. There is no BACT requirement for CO.

The existing flare meets the current published SCAQMD BACT standards for landfill gas flares:

- NOx: 0.06 lb/MMBTU
- ROC & CO: > 0.6 second retention time at > 1400 degrees F
- PM: Knockout Vessel

The VCAPCD also requires the landfill gas not exceed a sulfur content of 60 ppm as SOx BACT.

The application does include a cost effective analysis for replacing the flare with a John Zink ZULE Ultra Low Emission Enclosed Flare which can achieve NOx emissions of 0.025 lb NOx/MMBTU. The cost effective analysis demonstrates that the new lower NOx flare would not meet the cost

effective guidelines. However, the Rule 26.1 BACT definition does not necessarily allow for cost effectiveness evaluations in determining BACT.

The District will not require additional BACT requirements since the initial design of the flare was to meet the landfill gas requirements of the landfill beyond the initial 450,000 MMBTU/yr limit, as discussed above. The flare was installed with the intent to be used at its full capacity when the landfill gas rate reached that point. The landfill has increased its capacity since the flare was installed in 2000; however, this permit limit increase is inline with the design capacity of the landfill when the flare was installed and initially permitted. The application does state that VRSD's longer term plan is to install additional flare capacity; and that additional flare will meet a lower NOx BACT limit. Therefore, this increase for the existing flare is an incremental step. In summary, an ultra-low NOx flare is considered to be technologically feasible, but is not considered to be cost-effective, and especially not cost-effective for the incremental increase in NOx emissions for the existing flare.

EMISSION OFFSET REQUIREMENTS

Rule 26.2.B details the emission offset requirements for new, replacement, modified, or relocated emissions units for ROC, NOx, PM, and SOx. The rule does not require offsets for CO. The increase to the landfill gas annual limit at the flare is a modified emissions unit.

The ROC, PM, and SOx post project stationary source permitted emissions (shown above) are all less than the thresholds requiring offsets (Rule 26.2.B.1). The offset thresholds are 5.0 tons per year for ROC and 15.0 tons per year for PM and SOx. Therefore, the permittee is not required to supply offsets for the ROC, PM, or SOx emission increases.

The NOx post project permitted emissions are greater than the offset threshold of 5.0 tons per year; however, landfill gas control and processing equipment facilities are an "essential public service" as defined in Rule 26.1.12, and the offset requirements are governed by Rule 26.2.B.3. The tradeoff ratio is 1.0:1 and the post project permitted emissions cannot exceed 25.0 tons per year. The NOx emission increase for the increase LFG consumption at the flare is 9.05 tons per year. The post project stationary source NOx permitted emissions do not exceed 25.0 tons per year. Therefore, 9.05 tons per year will be offset with essential public service credits.

RULE COMPLIANCE

Rule 74.17, "Solid Waste Disposal Sites"

Pursuant to Section F.3 of Rule 74.17, Rule 74.17 does not apply to the Toland Road Landfill because VRSD has shown compliance with Sections H and B of Rule 74.17.1, "Municipal Solid Waste Landfills".

Rule 74.17.1, “Municipal Solid Waste Landfills”

40 CFR Part 60, Subpart WWW, “Standards of Performance for Municipal Solid Waste Landfills”

The 85.8 MMBTU/hr flare has demonstrated compliance with Rule 74.17.1 and Subpart WWW. Continued compliance is expected. The requirements of the rules are outlined in the Part 70 Permit No. 07340 Attachments “PO7340PC2” and “74.17.1N5.”

Rule 54, “Sulfur Compounds”

Continued compliance with Rule 54 is also expected and is addressed in Part 70 Permit No. 07340 Attachment “PO7340PC2.” The application includes a Rule 54 modeling analysis. Emission concentrations of Sulfur dioxide and hydrogen sulfide were modeled at the property fenceline. The results were found to be in compliance with the limits of Rule 54. The analysis is included in the permit file. The District has reviewed the modeling and found it to be within current guidelines.

RULE 26.13 PREVENTION OF SIGNIFICANT DETERIORATION (PSD)

Rule 26.13, “New Source Review – Prevention Of Significant Deterioration”, applies to new major sources or to major modifications as defined in 40 CFR Part 52.21(b)(1) and 40 CFR Part 52.21(b)(2), respectively. In order to be a major source for PSD, the potential for any regulated pollutant must exceed 250 tons per year. The post project permitted emissions for the stationary source are all below 250 tons per year; therefore, Rule 26.10 does not apply. Note that based on the most recent U.S. EPA regulations, greenhouse gas emissions by themselves do not trigger PSD applicability.

RULE 51 (NUISANCE) REQUIREMENTS FOR TOXIC EMISSIONS

VRSD has submitted a health risk assessment for the increased landfill gas combustion in the flare. In addition to the flare emissions, the HRA includes emissions from the nine microturbines and landfill fugitive emissions. The HRA has been reviewed by the District. The reported cancer risks are:

Receptor	Cancer Risk (per million)		
	30-yr Resident	9-yr Child	25-yr Worker
PMI	3.97	3.02	0.28
MEIR	0.99	0.74	NA
MEIW	NA	NA	0.28
School	0.02	0.02	0.02

PMI = Point of Maximum Impact = the off-site location with the highest impact, but does not coincide with the presence of an individual.

MEIR = Maximum Exposed Individual Resident

MEIW = Maximum Exposed Individual Worker (assumed to be an agricultural worker at the PMI location)

The school is located 1.61 miles from the fenceline.

The cancer risks for individual exposures (MEIR and MEIW) are less than the District's Toxic New Source Review Policy threshold of 1 in a million.

The chronic and acute non-cancer risks are:

Receptor	Chronic Hazard Index	Acute Hazard Index
PMI/MEIW	0.0041	0.0080
MEIR	0.0006	0.0031

These values are less than the District's Toxic New Source Review Policy threshold for acute and chronic hazard indices of 0.5.

The District has reviewed the HRA report and found it to be within current guidelines. See the memo in file dated December 14, 2015 for further information.

PUBLIC NOTIFICATION REQUIREMENTS

This application requires a public newspaper notification, pursuant to Rule 26.7, since the potential to emit of the modified emissions unit, the 85.8 MMBTU/hr Landfill Gas Flare, is greater than the 15.0 tons per year NO_x threshold. A notice describing the preliminary decision to increase the landfill gas annual limit at the flare will be published in the Ventura County Star. A 30 day comment period is required. A copy of the public notice and the proposed Authority to Construct will also be provided to EPA and CARB as required by Rule 26.7

Update: Public notice was published on December 19, 2015. Notices were sent to EPA and ARB on December 16, 2015. No comments were received from the public or agencies during the 30 day comment period.

This application does not trigger the public notification requirements of H&SC Section 42301.6 since the applicant has stated that this source is not located within 1,000 feet from the outer boundary of a school site.

Upon issuance of Authority to Construct No. 07340-190 and completion of the physical shutdown of the Biosolids Drying System, a Part 70 Permit Modification application will be required. The application will be a Minor Part 70 Permit Modification. The Part 70 Permit Modification application will require notification as required by Rule 33.7, "Part 70 Permits – Notification". The District is required to submit a copy of the Permit to Operate application, the proposed changes to the Part 70 permit, and the District's analysis of the application to EPA Region 9 for a 45 day review period. Rule 33.7 does not require public notice for a Minor Part 70 Permit Modification.

CONDITIONAL USE PERMIT / CEQA PROCESS

VRSD holds a County of Ventura Conditional Use Permit for the Toland Road Landfill (CUP 3141). The flare is included in the CUP; however, the CUP does not limit the amount of LFG flared.