

Bay Area Air Quality Management District

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Permit Evaluation and Statement of Basis for RENEWAL

of

MAJOR FACILITY REVIEW PERMIT

for

**Central Contra Costa Sanitary District
Facility #A0907**

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Application: 23445

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Title V Statement of Basis

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” (as defined by BAAQMD Regulation 2-6-218) more than 100 tons per year of nitrogen oxides and carbon monoxide, which are regulated air pollutants. It is also subject because it has two sewage sludge incinerators. 40 CFR 60, Subpart M, Emission Guidelines and Compliance Times for Existing Sewage Sludge Incineration Units, requires facilities with sewage sludge incinerators to have Major Facility Review permits.

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.

Pursuant to Regulation 2, Rule 6, section 416, the District has reviewed the terms and conditions of the Major Facility Review permit and determined that they are still valid and correct. This review included an analysis of applicability determinations for all sources, including those that have been modified or permitted since the issuance of the last renewal Major Facility Review Permit. The review also included an assessment of all monitoring in the permit for sufficiency to determine compliance. The statement of basis documents for permit revisions that have occurred since the initial Major Facility Review permit was issued are hereby incorporated by reference and are available upon request.

Each facility in the Bay Area is assigned a facility identifier that consists of a letter and a 4-digit number. This identifier is also considered to be the identifier for the permit. The identifier for this facility is A0907.

This facility received its initial Title V permit on July 1, 1997. The current permit was renewed on December 11, 2006. This application is for the second permit renewal. Although the current permit expired on December 10, 2011, it continues in force until the District takes final action on the permit renewal. The standard sections of the permit have been upgraded to include new standard language used in all Title V permits. The proposed permit shows all changes to the permit in strikeout/underline format.

Since the last Title V renewal, the Central Contra Costa Sanitary District has submitted a number of District New Source Review (NSR) applications that are listed in the table below. See appendices for copies of the engineering evaluation reports.

Table 1. Summary of Title V Revision/District NSR Applications

Type of Revision Requested	District NSR Application #	Project Description	Location of Engineering Evaluation Report
Minor	16073	Install mercury abatement system A1001 and A1002 for S9 and S10	Appendix E
Minor	18425	GDF alteration for S25	Appendix F
Minor	18516	Alter S7 and S8	Appendix G
Minor	19719	Replace two existing diesel engines with S195 and S196	Appendix H
Minor	22019	Emergency sludge loading facility S197	Appendix I
Minor	23040	Low-use prime portable diesel driven pump S198	Appendix J
Minor	24448	Alter S8	Appendix K
Minor	25577	Alter S7	Appendix L
Minor	25779	GDF alteration to S25	

The installation of A1001 and A1002 for mercury abatement was a pilot project that has been dismantled. It will not be included in the permit.

The S25 alteration was a replacement of the Phase I equipment on a small gasoline tank. The Phase I equipment is on the tank fitting that receives gasoline from the gasoline truck. The work did not raise emissions.

The purpose of the alteration of S7 and S8, Boilers, was to replace controls, add temperature monitoring equipment, insulate the boiler, add variable frequency drives on the fans, and replace the boiler flange heating surfaces. The work did not raise emissions.

The purpose of Application 19719 was to replace two old diesel engines with two new diesel engines. There was a small decrease in the emissions of NOx, POC, CO, and PM10. There a small increase in SOx.

The purpose of Application 22019 was to permit an emergency sludge loading source. This source will only be used if S9 and S10, Sewage Sludge Incinerators, cannot operate. No emissions increase is expected.

The purpose of Application 22019 was to permit a small (58-hp) low-use portable prime diesel engine. It is allowed to operate up to 72 hours/year. Portable engines are not subject to Title V, so the engine is listed for information only.

The purpose of Applications 24448 and 25577 was to evaluate alterations to S7 and S8, Boilers, to comply with new limits in BAAQMD Regulation 9, Rule 7, Nitrogen Oxides and Carbon Monoxide from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters. The NOx limit when burning natural gas was lowered from 30 ppmv @ 3% O2, dry to 15 ppmv @ 3% O2, dry. The NOx limit when burning digester gas remained at 30 ppmv @ 3% O2. Both units were determined to be load-following units in accordance with BAAQMD Regulation 9-7-213.

The purpose of Application 25779 was to replace the Phase I system on a small gasoline tank to meet new ARB requirements. . The Phase I equipment is on the tank fitting that receives gasoline from the gasoline truck. The work did not raise emissions.

The details of the applications above are in the appendices, which form part of this statement of basis.

B. Facility Description

The Central Contra Costa Sanitary District, (AKA Central San or CCCSD) is a publicly owned treatment works (POTW) facility that provides wastewater collection, treatment and disposal services to the residents of Contra Costa County that live in the Lafayette-Moraga-Orinda areas, the Diablo Valley, as well as the San Ramon/Danville corridor. The sources that are permitted at Central San include liquid and semi-liquid wastewater process sources, as well as a number of combustion sources including a pair of sewage sludge incinerators, a pair of boilers and one cogeneration turbine. Liquid sources include preliminary treatment, primary treatment, flow equalization, secondary treatment, secondary clarification, tertiary treatment, disinfection, and sludge handling. Additional ancillary sources are permitted for the handling of ash and other solid or semi-solid by-products.

Average dry weather wastewater effluent flow capacity is approximately 53,800,000 gal/day. Average wet weather effluent flow capacity is approximately 140,000,000 gal/day. The wastewater processes at CCCSD are similar to any other "traditional" municipal wastewater treatment facility, although solids removal is largely a function of the twin sewage sludge incinerators, S9 and S10. The wastewater plant receives flows from a number of satellite pumping stations throughout the service area. Plant processes render the influent homogeneous, allow for physical separation to occur and hasten the occurrence of normal biological processes. Effluent water outflow meets regional water quality control board standards for discharge or reuse.

The facility accepts landfill gas from Acme Fill in Martinez and burns it in its boilers and sewage sludge incinerators.

Over the past few years, the emissions of the facility have changed. Based on the emissions from the applicant's Title V permit applications submitted in 2004 (Application #10118) and 2011 (Application #23445), the change in emissions is as follows:

Year Ending	POC (tons/yr)	NOx (tons/yr)	SO2 (tons/yr)	CO (tons/yr)	PM₁₀ (tons/yr)
June, 2004	20.0	62.5	0.7	23.0	4.4
June, 2011	18.6	70.8	1.24	146	4.90
Net Emission Increases	(1.4)	8.3	0.54	123	0.5

The CO emissions for 2004 were underestimated. The facility relied on the District's estimate, which was 23 tpy. At the time, the facility did not have test results for CO for the sewage sludge incinerators.

The facility has submitted emission factors of 13.2 lb CO/dry ton of sludge at S9 and 16.3 lb CO/dry ton of sludge at S10 in addition to the CO generated based on the burning of natural gas and landfill gas.

The throughputs of sewage sludge used in 2004 were 8,053 tpy for S9 and 8,041 tpy for S10. Therefore, an additional 119 tpy of CO was emitted in 2004. The revised numbers are:

Year Ending	POC (tons/yr)	NOx (tons/yr)	SO2 (tons/yr)	CO (tons/yr)	PM₁₀ (tons/yr)
June, 2004	20.0	62.5	0.7	142	4.4
June, 2011	18.6	70.8	1.24	146	4.90
Net Emission Increases	(1.4)	8.3	0.54	4	0.5

The increases in NOx and CO are not considered to be significant.

C. Permit Content

The legal and factual basis for the permit follows. The permit sections are described in the order presented in the permit.

Title page:

The responsible official, the facility contact, and their phone numbers have changed.

The BAAQMD Engineering Division contact has changed.

I. Standard Conditions

This section contains administrative requirements and conditions that apply to all facilities. If the Title IV (Acid Rain) requirements for certain fossil-fuel fired electrical generating facilities or the accidental release (40 CFR § 68) programs apply, the section will contain a standard condition pertaining to these programs. Many of these conditions derive from 40 CFR § 70.6,

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

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

Changes to permit:

The dates of adoption and approval of rules in Standard Condition 1.A have been updated.

The following language was added to Standard Condition I.B.1: "If the permit renewal has not been issued by December 10, 2011, but a complete application for renewal has been submitted in accordance with the above deadlines, the existing permit will continue in force until the District takes final action on the renewal application." This is the "application shield" pursuant to BAAQMD Regulation 2-6-407.

The following language was added as Standard Condition I.B.12: "The permit holder is responsible for compliance, and certification of compliance, with all conditions of the permit, regardless whether it acts through employees, agents, contractors, or subcontractors. (Regulation 2-6-307)." The purpose is to reiterate that the Permit Holder is responsible for ensuring that all activities at the facility comply with all applicable requirements.

The following language was deleted from Standard Condition I.G: "The permit holder may satisfy this requirement through submittal of District-generated Compliance Certification forms: The District no longer generates these forms.

Regulation 3, Fees, was deleted from Standard Condition I.F because it is not a basis for the Monitoring Reports condition.

II. Equipment

This section of the permit lists all permitted or significant sources. Each source is identified by an S and a number (e.g., S8).

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

Table II-C for "Exempt Equipment" was added to the permit. The table lists devices that are exempt from major facility review permitting pursuant to the requirements of BAAQMD Regulation 2, Rule 6: Permits, Major Facility Review. Registered portable engines and non-road engines are exempt from BAAQMD Regulation 2, Rule 6 pursuant to BAAQMD Regulation 2-6-113 and 2-6-114, respectively, even though these engines may be required to have a BAAQMD permit to operate pursuant to BAAQMD Regulation 2, Rule 1: Permits, General Requirements.

Significant sources are those sources that have a potential to emit of more than 2 tons per year of a “regulated air pollutant” (as defined in BAAQMD Rule 2-6-222) or 400 pounds per year of a “hazardous air pollutant” (as defined in BAAQMD Rule 2-6-210).

The District has reviewed the operations at Central Contra Costa Sanitary District and concludes that there are no sources at this facility that are exempt from District permit requirements which are significant, as defined above.

All abatement (control) devices that control permitted or significant sources are listed. Each abatement device whose primary function is to reduce emissions is identified by an A and a number (e.g., A24). If a source is also an abatement device, such as when an engine controls VOC emissions, it will be listed in the abatement device table but will have an “S” number. An abatement device may also be a source (such as a thermal oxidizer that burns fuel) of secondary emissions. If the primary function of a device is to control emissions, it is considered an abatement (or “A”) device. If the primary function of a device is a non-control function, the device is considered to be a source (or “S”).

The equipment section is considered to be part of the facility description. It contains information that is necessary for applicability determinations, such as fuel types, contents or sizes of tanks, etc. This information is part of the factual basis of the permit. The equipment list has been revised to clarify the equipment names or description to remove portions of the description that are obsolete or incorrect. For example, in the case of source S180, the description was previously reported as “sludge handling processes.” This is not accurate and will be changed to “dissolved air flotation units and sludge blending tanks.”

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

Following are the differences in the equipment list between the time that the current Title V permit was renewed on December 11, 2006 and the permit proposal date:

Changes to permit:

Devices removed from service or archived since current permit was renewed on December 11, 2006:

S#	Description
S189	Emergency Standby Generator #1, Diesel Fired
S190	Emergency Standby Generator #2, Diesel Fired
S191	Portable Standby Generator, Diesel

Devices permitted since current permit was renewed on December 11, 2006:

S#	Description
S195	Emergency Standby Generator
S196	Emergency Standby Generator
S197	Emergency Sludge Loading Facility
A184	Emergency Flare
A185	Lime Slaker Preformed Spray Scrubber
A197	Deep Bed Odor Control System – Packed Bed Scrubber
A1195	Catalyzed Diesel Particulate Filter
A1196	Catalyzed Diesel Particulate Filter

District permitted sources not included in this proposed permit:

S#	Description
S194	Portable Diesel Pump
S198	Low-Use Portable Diesel Driven Pump

Corrections to devices shown in application:

The designation “load-following” has been added to S7 and S8, Boilers, at the applicant’s request.

A clarification has been added to the capacity for S9 and S10, Incinerators. Each incinerator can burn up to 27 MMbtu/hr of natural gas and landfill gas, combined.

The name of S180 has been changed from “Sludge Handling Processes” to “Dissolved Air Flotation Units and Sludge Blending Tanks” for a more accurate description of the source.

S194’s capacity is corrected to 54 hp from 95 hp to accurately reflect the description of the source.

S198’s Model is corrected to D914L03 from C24AG098 to accurately reflect the description of the source.

Other changes to this section:

The model of A2 and A4, Wet Scrubbers, has been corrected from “Krebs Medwa/Elbair” to “Krebs Medusa/Elbair,” at the applicant’s request.

BAAQMD Regulation 6, Rule 1, and SIP Regulation 6, have been added to the citations for the following scrubbers: A1, A2, A3, and A4.

BAAQMD Regulation 6, Rule 1, and SIP Regulation 6, have been added to the citations for the following abatement devices: A184, A185, A186, A191, A192, and A196.

The particulate limit in 40 CFR 60, Subpart O, omitted in error, was added to Table II-B, Abatement Devices for Sources S9, S10, A1, A2, A3, and A4.

The limits and parameters from 40 CFR 60, Subpart M, effective on 3/21/16, were added to the citations for the following scrubbers: A1, A2, A3, and A4.

III. Generally Applicable Requirements

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

Unpermitted sources are exempt from normal District permits pursuant to an exemption in BAAQMD Regulation 2, Rule 1. They may, however, be specifically described in a Title V permit if they are considered “significant sources” as defined in BAAQMD Rule 2-6-239.

Changes to permit:

Section III has been modified to say that SIP standards are now found on the EPA website and are not included as part of the permit.

Table III has been updated by adding the following rules and standards to conform to current practice:

- BAAQMD Regulation 2, Rule 1, General Requirements
- SIP 2-1-429, Federal Emissions Statement
- SIP Regulation 2, Rule 1, General Requirements
- BAAQMD Regulation 2, Rule 5, New Source Review of Toxic Air Contaminants
- BAAQMD Regulation 6, Particulate Matter and Visible Emissions has been designated as SIP Regulation 6, since the rule has been renamed and renumbered as Regulation 6, Rule 1, Particulate Matter, General Requirements
- California Health and Safety Code Section 41750 et seq., Portable Equipment
- California Health and Safety Code Section 44300 et seq., Air Toxics “Hot Spots” Information and Assessment Act of 1987
- California Health and Safety Code Section 93115 et seq., Airborne Toxic Control Measure for Stationary Compression Ignition Engines
- California Health and Safety Code Section 93116 et seq., Airborne Toxic Control Measure for Diesel Particulate Matter from Portable Engines Rated at 50 Horsepower and Greater

The dates of adoption or approval of the rules and their “federal enforceability” status in Table III have also been updated.

IV. Source-Specific Applicable Requirements

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

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

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

Complex applicability determinations:

POTW NESHAPS: 40 CFR Part 63, Subpart VVV, promulgated October 26, 1999, contains the NESHAPS standards for POTWs. This NESHAPS was evaluated to determine if Central San was subject to the MACT emission control requirements. The NESHAPS requires MACT controls at POTWS which are major sources for HAP, which are defined as: *...any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit considering controls, in the aggregate 10 tons per year (tpy) or more of any HAP or 25 tpy or more of any combination of HAP.*

The District has conducted a HAP potential to emit (PTE) analysis (see Appendix A) and concludes that Central San is not a major source for HAP emissions or for combined HAP emissions. The analysis includes boilers, S7 and S8, sewage sludge incinerators, S9 and S10, and wastewater treatment plant, S100. While S100 accounts for wastewater borne emissions potential, S7 through S10 account for the majority of HAP emissions of all other stationary sources.

In general, HAP PTE is permitted use multiplied by the emission factors. S9 and S10 have a combined sludge throughput limit of 20,000 dry tons per year. For S100, the dry weather throughput limit of 53.8 million gallons per day will be used for the whole year to calculate annual PTE. It is a conservative estimation because the concentration of HAPs is higher during dry weather. On the other hand, S7 and S8 have no limit on annual fuel use; therefore HAP PTE should be based on the maximum firing rate (28 MM BTU/hr) and the 8,760 hours per year operation.

As shown in Table 1 in Appendix A, the HAP with the highest PTE at this facility is methylene chloride emitted at 1.404 tpy; the total HAP PTE is 3.749 tpy. Neither of the thresholds for a major source of HAP emissions and for combined HAP emissions is exceeded.

In addition, this POTW is an existing POTW that has not been reconstructed (as defined by 40 CFR 63.1595). Furthermore, Central San is not an Industrial POTW as defined by 40 CFR 63.1595. Central San processes strictly domestic wastewater streams. Therefore, Central San is not subject to 40 CFR 63, Subpart VVV - National Emission Standards for Hazardous Air Pollutants: Publicly Owned Treatment Works.

Gas Turbine NESHAPS: 40 CFR Part 63, Subpart YYYY, promulgated March 5, 2004, establishes the emission standards and operating limitations for hazardous air pollutants (HAP) emissions from stationary gas turbines located at major sources of HAP emissions. The NESHAP requires MACT emission standards on gas turbines located at facilities which are major sources for HAP.

The District has reviewed the water and combustion-borne emissions of HAP and concludes that Central San is not a major source for HAP emissions, therefore the gas turbine NESHAP is not applicable to this facility.

Gas Turbine NSPS:

S188, Turbine, is subject to 40 CFR 60, Subpart GG, Standards of Performance for Stationary Gas Turbines. Section 60.332(c) subjects the turbine to the limit in 60.332(a)(2) because the heat input is between 10 and 100 MMbtu/hr. The limit is derived using the following formula,

$$STD = 0.0150 *(14.4/Y) + F = 0.0150 *(14.4/12.91) + 0 = 0.0167\% \text{ or } 167 \text{ ppm}$$

where

STD = allowable ISO corrected (if required as given in §60.335(b)(1)) NOX emission concentration (percent by volume at 15 percent oxygen and on a dry basis),

Y = manufacturer's rated heat rate at manufacturer's rated load (kilojoules per watt hour) or, actual measured heat rate based on lower heating value of fuel as measured at actual peak load for the facility. The value of Y shall not exceed 14.4 kilojoules per watt hour, and

F = NOX emission allowance for fuel-bound nitrogen as defined in paragraph (a)(4) of this section.

The facility is not using an allowance for fuel-bound nitrogen, so $F = 0$. The value of Y is 12.910, per the facility. Therefore, the limit is 167 ppm NOx @ 15% O₂, dry. The limit of 154 ppm NOx in Table VII-G will be changed to 167 ppm NOx.

The NSPS was amended on July 8, 2004, so that monitoring of fuel nitrogen is no longer required if a facility is not claiming a NOX emission allowance for fuel-bound nitrogen. Therefore, the nitrogen content monitoring in Section 60.334(a) is no longer required. Section 60.334(b) of the amendments also allows use of a CEM in place of water-to-fuel monitoring. The facility will use this option. On the same date, the NSPS was amended so that turbines using only natural gas were not required to monitor the sulfur content of the fuel.

Title IV, Acid Rain

S188, Turbine, is not subject to Title IV, because it is not a “utility unit.” A utility is a “person” that sells electricity. The facility does not sell electricity. “Utility unit” is a unit owned by a utility. Therefore, S188 is not a utility unit as defined by 40 CFR 72.2.

Compliance Assurance Monitoring: The Compliance Assurance Monitoring (CAM) regulation in 40 CFR, Part 64 was developed to provide assurance that facilities comply with applicable emissions limitations by adequately monitoring control devices. The CAM rule became effective on November 21, 1997. However, most facilities are not affected by CAM requirements until they submit applications for Title V permit renewal.

CAM applies to a source of criteria pollutant or hazardous air pollutant (HAP) emissions if all the following requirements are met:

- The source is located at a major source for which a Title V permit is required; and
- The source is subject to a federally enforceable emission limitation or standard for a criteria pollutant or HAP; and
- The source uses a control device to comply with the federally enforceable emission limitation or standard; and
- The source has potential pre-control emissions of the regulated pollutant that are equal to or greater than the major source threshold for the pollutant (in BAAQMD, the major source thresholds are 100 tons per year for each criteria pollutant, 10 tons per year for a single HAP, and 25 tons per year for two or more HAPs); and
- The source is not otherwise exempt from CAM.

The calculations of pre-control emissions for sources using abatement devices to achieve federally enforceable emissions limit are attached in Appendix B. The permit conditions allow a sludge throughput of 20,000 tpy total for both incinerators. In practice, the facility tends to run one incinerator at a time, so one incinerator could burn 20,000 tpy by itself. The calculations show that the unabated PM emissions for 20,000 tpy are about 1,000 tpy of particulate.

CAM is required for S9 and S10 because A1, A2, A3, and A4 were installed to ensure compliance with the following federally enforceable particulate emission limits:

- 40 CFR 60.152(a)(1): 0.65 gram per kilogram of dry sludge input (1.3 lb/ton dry sludge input)
- 40 CFR 60.152(a)(2): 20% opacity
- BAAQMD 6-1-301 and SIP 6-301: Ringelmann 1
- BAAQMD 6-1-302 and SIP 6-302: 20% opacity
- BAAQMD 6-1-310.1 and SIP 6-310.1: 0.15 grains/dscf @ 12% CO₂
- BAAQMD 6-1-311 and SIP 6-311: $4.10P^{0.67}$ lb/hr, where P is process weight, lb/hr, not to exceed 40 lb/hr

The limits in 40 CFR 60.152(a), BAAQMD 6-1-310.1, BAAQMD 6-1-311, SIP 6-310.1, and 6-311 are filterable particulate standards. They do not include condensable particulate.

The Ringelmann and opacity limits do not have this distinction.

S9 emitted about 0.8 lb PM/hr (filterable) during the source test performed by the facility on 3/7/13. S10 emitted about 1.6 lb PM/hr (1.2 lb/hr filterable and 0.4 lb/hr condensable) during the source test performed by the District source test group on 2/25/14. At 1.2 lb/hr filterable particulate, an incinerator would emit about 5.3 tons of filterable particulate per year, which is below 100% of the major source threshold. Per 40 CFR 64.3(b)(4)(ii), sources with after-control emissions that are below 100% of the major source threshold do not have to record each parameter four times in every hour.

The opacity standards would include all particulate that affects opacity, so it includes TSP, FP, and condensable particulate. There is no data for S9 for condensable particulate, but it is likely that the amount of condensable particulate is similar to S10. If so, using 1.6 lb/hr for total particulate, an incinerator would emit about 7.0 tons of total particulate per year, which is below 100% of the major source threshold.

The parameters proposed by the facility for the filterable particulate limits are the ones required by 40 CFR 60, Subpart O, below:

- Flow measurement of dry sludge
- Wet scrubber differential pressure drop
- Oxygen in flue gas exiting the first hearth
- Flow of auxiliary fuels
- Internal afterburner temperature (Hearth 1)
- Hearth 2-11 temperatures

The parameters above are recorded on a continuous basis.

Following is a parameter required by 40 CFR 60, Subpart O, that the applicant did not propose to use for the CAM plan:

- Volatile solid content of sewage sludge

This parameter will be added to the CAM plan. Data on this parameter is collected once per day.

Use of the existing opacity monitor will serve as the CAM plan for the Ringelmann and opacity standards since the measurements are directly related to the limit.

Following are the proposed ranges for the parameters:

- Flow measurement of dry sludge: 0 to 120 dry tpd
- Wet scrubber differential pressure drop: S10: 5.9" to 16" water column
S9: 4.7" to 16" water column
- Oxygen in flue gas exiting the first hearth: 0% to 10% O₂
- Flow of auxiliary fuels: Up to 27 MMbtu/hr
- Internal afterburner temperature (Hearth 1): 1000 F to 16500 F
- Hearth 2-11 temperatures:
 - Hearth 2: 800 to 1800 Deg F
 - Hearth 3: 1000 to 2000 Deg F
 - Hearth 4: 1150 to 2000 Deg F
 - Hearth 5: 1000 to 2000 Deg F
 - Hearth 6: 1000 to 2000 Deg F
 - Hearth 7: 100 to 1750 Deg F
 - Hearth 8: 100 to 1750 Deg F
 - Hearth 9: 80 to 1000 Deg F
 - Hearth 10: 40 to 600 Deg F
 - Hearth 11: 40 to 600 Deg F
- Volatile solid content of sewage sludge: 70% to 95%

Following are the normal operating points or ranges for these parameters:

- Dry sludge throughput: 50 dry tpd¹
- Wet scrubber differential pressure drop:
 - S9: 11.8" water column
 - S10: 13.9" water column²
- Oxygen in flue gas exiting the first hearth: 3.6% O₂³
- Flow of auxiliary fuels: 11.1 MMbtu/hr⁴
- Internal afterburner temperature (Hearth 1): 1,171 F⁵
- Hearth 2-11 temperatures:
 - Hearth 2: 1108 Deg F
 - Hearth 3: 1468 Deg F
 - Hearth 4: 1494 Deg F
 - Hearth 5: 1482 Deg F
 - Hearth 6: 1302 Deg F
 - Hearth 7: 786 Deg F
 - Hearth 8: 546 Deg F
 - Hearth 9: 181 Deg F
 - Hearth 10: 133 Deg F

¹ Source test of February 25, 2014

² Source test of February 25, 2014

³ Source test of February 25, 2014

⁴ Source test of June 5, 2014 using natural gas

⁵ Source test of February 25, 2014

- Hearth 11: 110 Deg F
- Volatile solid content of sewage sludge: 80%

40 CFR 64 has been added to the basis for existing conditions that require monitoring of these parameters. Conditions defining excursions and exceedances and requiring additional reporting have been added to Condition 21423, part 14.

The facility's CAM proposal for S9 and S10 is included in Appendix C.

112 (j) Case By Case MACT: This requirement does not apply because there are no major sources for HAP, nor does the facility qualify as a major facility for HAP.

General changes to permit:

- Section IV has been modified to say that SIP standards are now found on EPA's website and are not included as part of the permit.
- The dates of adoption or approval of the rules and their "federal enforceability" status will be updated.
- District Regulation 6 was amended on May 4, 2011, so the District rule now differs from the SIP rule. The citations of the District rule were changed and separate citations of the SIP rule have been listed after the District rule.

S7 and S8, Multi-Fuel Auxiliary Boilers:

District Regulation 8, Rule 34, was amended on June 15, 2005, to add Section 8-34-122, Limited Exemption, Permanent Collection and Control System Shutdown. Since this section does not apply to this facility, there is no change to the applicable requirements or to federal enforceability. Only the date has been changed in this table.

District Regulation 9, Rule 7, was amended on May 4, 2011, so the District rule now differs from the SIP rule. The citations of the District rule were changed and separate citations of the SIP rule have been listed after the District rule. The NO_x limit for natural gas was lowered from 30 ppm to 15 ppm. The NO_x limit when burning landfill gas remains at 30 ppm. The applicant has stated that the boilers can only burn one fuel at a time, therefore the boilers are not subject to the weighted average in Section 9-7-307.9, based on the heat input of each gas. The boilers required retrofits to achieve the new standard, which were handled in Applications 24488 and 25577.

Permit condition 21422 was simplified in Application 25577, so the citations changed. The details are in the evaluation for Application 25577 in Appendix L.

S9 and S10, Incinerators (sewage sludge, landfill gas, natural gas)

Citations of CEM and parametric monitor requirements from BAAQMD Regulation 1 and SIP Regulation 1 have been added because S9 and S10 have CEMs and parametric monitors.

District Regulation 8, Rule 34, was amended on June 15, 2005, to add Section 8-34-122, Limited Exemption, Permanent Collection and Control System Shutdown. Since this section does not apply to this facility, there is no change to the applicable requirements or to federal enforceability. Only the date has been changed in this table.

The following two sections of District Regulation 8, Rule 34, were deleted because they apply directly to the landfill and not this facility:

- 8-34-113.2: Shutdown limitation
- 8-34-501.2: Records of emission control system downtime

Section 60.153(a)(3) of 40 CFR 60, Subpart O, Standards of Performance for Sewage Treatment Plants, has been deleted because it requires a weighing device to measure municipal solid waste and the incinerators are prohibited from burning any solid other than sludge from the CCCSD sewage treatment plant. Section 60.154, Test Methods and Procedures, has been added because it is the basis for condition 21423, part 10a.

The following sections of 40 CFR 60, Subpart O, have been added:

- The title of Section 60.152, since the particulate standards in sections 60.152(a) apply.
- 60.154, Test Methods and Procedures
- The title of Section 60.155, since the reporting requirements apply.
- 60.155(c), Title V Semi-Annual Report

The description of section 60.155(b) has been corrected.

The owner/operator of these two sewage sludge incineration units commenced construction before October 14, 2010. Therefore, S9 and S10 are subject to 40 CFR 60, Subpart M, Emissions Guidelines and Compliance Times for Existing Sewage Sludge Incineration Units. The requirements have been added.

The titles of the sections have been added for 40 CFR 61, Subpart C, National Emission Standard for Beryllium, and 40 CFR 61, Subpart E, National Emission Standard for Mercury, for clarity.

40 CFR 61.55, Monitoring of Emissions and Operations, has been added to the citations for 40 CFR 61, Subpart E.

The citations for 40 CFR 64, Compliance Assurance Monitoring, have been added as discussed above.

Some of the bases for the conditions have been corrected.

The citation of Condition 21423, part 14b, has been amended to more closely follow the text of the permit condition.

S11, S13, S15, and S22, Lime Storage Silos

The table was deleted because the sources have been removed.

S25, Gasoline Dispensing Facility

The bases for the conditions have been corrected.

S180, Dissolved Air Flotation Units and Sludge Blending Tanks

The name of S180 has been changed from “Sludge Handling Processes” to “Dissolved Air Flotation Units and Sludge Blending Tanks” for a more accurate description of the source.

S182, Ash Conveying System

New requirements from 40 CFR part 60, Subpart M, Emission Guidelines and Compliance Times for Existing Sewage Sludge Incineration Units, was incorporated into the table with a future effective date of March 21, 2016.

S188, Cogeneration Turbine with Heat Recovery Steam Generator

District Regulation 9, Rule 9 was amended on December 6, 2006, so the District rule now differs from the SIP rule. Citations of the District rule were changed and separate citations of the SIP rule have been listed after the District rule. The new rule allows compliance with a concentration limit or a lb/MW-hr limit.

Changes to the citations for 40 CFR 60, Subpart GG, Standards of Performance for Stationary Gas Turbines, were explained above under “Complex Applicability Determinations.

The details of the changes to Condition 21485 are in Section C.V of this statement of basis.

S189, Emergency Standby Diesel Generator #1:

Table IV-L in the current permit was deleted from the permit because S189 has been removed from service.

S190, Emergency Standby Diesel Generator #2:

Table IV-M in the current permit was deleted from the permit because S190 has been removed from service.

S191, Portable Diesel Pump, and S198, Low-Use Prime Portable Diesel Pump:

Registered portable engines and non-road engines are exempt from BAAQMD Regulation 2, Rule 6 pursuant to BAAQMD Regulation 2-6-113 and 2-6-114, respectively, even though these engines are required to have a BAAQMD permit to operate pursuant to BAAQMD Regulation 2, Rule 1, Permit, General Requirements. Therefore, applicable requirements for S194 Portable Diesel Pump and S198 Low-Use Prime Portable Diesel Pump will not be included in the proposed permit.

S195 and S196, Emergency Standby Diesel Generators:

Table IV-L was added to the proposed permit to include all specific applicable requirements for S195 and S196 emergency standby diesel generators. The owner/operator of these two stationary compression ignition internal combustion engines commenced construction in 2009, after July 11, 2005. Therefore, S195 and S196 are subject to 40 CFR 60, Subpart III – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. Since S195 and S196 were installed after June 12, 2006, the owner/operator complies with 40 CFR 63, Subpart ZZZZ by complying with 40 CFR 60, Subpart III.

S197, Emergency Sludge Loading Facility:

Table IV-M was added to the proposed permit to include all applicable requirements for the emergency sludge loading facility.

V. Schedule of Compliance

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

“409.10 A schedule of compliance containing the following elements:

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

The responsible official for Central Contra Costa Sanitary District submitted a signed Certification Statement form dated October 31, 2014. On this form, the responsible official certified that the following statements are true:

Based on information and belief formed after reasonable inquiry, the source(s) identified in the Applicable Requirements and Compliance Summary form that is(are) in compliance will continue to comply with the applicable requirement(s);

Based on information and belief formed after reasonable inquiry, the source(s) identified in the Applicable Requirements and Compliance Summary form will comply with future-effective applicable requirement(s), on a timely basis.

Changes to permit:

None.

VI. Permit Conditions

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

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

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

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

Conditions have also been deleted due to the following:

- Redundancy in recordkeeping requirements.
- Redundancy in other conditions, regulations and rules.
- The condition has been superseded by other regulations and rules.
- The equipment has been taken out of service or is exempt.
- The event has already occurred (i.e. initial or start-up source tests).

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

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

Additional monitoring has been added, where appropriate, to assure compliance with the applicable requirements.

Many conditions were reworded to include “owner/operator” to ensure legal accountability in the case of violation.

Changes to permit:

The conditions are discussed in source number order, not condition number order, although they are found in condition number order in the permit.

Condition 21422 for S7 and S8

The condition was modified by Application 25577 to be more concise. The requirement for an annual source test to determine compliance with the POC destruction requirement in Regulation 8-34-301.2 was deleted because it is in Regulation 8-34-412.

The POC destruction requirement in Regulation 8-34-301.2 and the annual testing requirement in Regulation 8-34-412 were deleted because they are cited in Tables IV-A and VII-A of the Major Facility Review permit.

The initial source test requirement in part 5 has been deleted because it has been completed.

Part 8 was added to require annual monitoring of the stack gas temperature limit based on BAAQMD Regulation 9-7-312 as amended on May 4, 2011.

The source test requirement in part 10 for a test within 180 days of furnace startup has been deleted because it has been completed. The requirement for submittal of source test results within 60 days of “analytical completion” has been changed to within 60 days of “field test completion.”

The permit requires a source test every 60 months for compliance with the NOx and CO requirements of Regulation 9, Rule 7. The rule requires annual compliance determinations using portable analyzers.

Condition 21423 for S9 and S10

SIP 6-310.1 was added to the basis for part 4.

BAAQMD 6-1-302 was added to the basis for part 5, the percent opacity requirement because the incinerators have opacity meters.

40 CFR 61.32(a) was added to the basis for the beryllium limit in part 6.

The basis for the citations for Part 10a, b, and c was changed because of the amendment made on February 3, 1994 (59 FR 5108).

Parts 10 and 11 were amended so that source test results are submitted “within 60 days of field test completion” instead “within 60 days of analytical completion.”

Part 10a was amended to delete Method 104 for beryllium and Method 12 for lead. These are stack tests. The requirement for the stack tests is in part 10c. Method 10t for mercury was added to part 10c.

For part 12, there was a typographical error in the citation “40 CFR 60.158(c)(1)(i).” It was corrected to “40 CFR 60.758(c)(1)(i).”

A separate basis was added to each paragraph in Part 12. The NMOC destruction requirement comes from the landfill regulation, 40 CFR 60, Subpart WWW. The source test requirement comes from BAAQMD Regulation 8, Rule 34, Solid Waste Landfills. Regulation 2-1-403. Permit Conditions, has been added to the third paragraph. The term “NMHC” was corrected to “NMOC” in the fourth paragraph, last line.

The reporting requirement in part 14 was not based on the NESHAPS for Beryllium and Mercury, so the mention of these standards was removed from this section.

For part 14b, a note was added to show that the limit only applies when sludge is in the furnace.

Changes made for compliance with 40 CFR 64, Compliance Assurance Monitoring, are discussed in Section C.IV of this Statement of Basis.

Condition 16692 for S11, S13, S15, and S22, Lime Storage Silos

The condition was deleted from the permit because the sources were removed from service.

Condition 7523 for S25

Replacing the old condition 7523, the current condition 17105 was assigned to S25 via Application 18425. The bases were updated.

Condition 21485 for S188, Turbine

Part 8 has been deleted because the NSPS no longer requires monitoring of the sulfur content of natural gas.

Part 11 has been amended so that the facility can use the NO_x CEM to show compliance with the NO_x limit in the NSPS.

Part 13 has been deleted because the facility will use the NO_x CEM to show compliance with the NO_x limit in the NSPS.

The requirement in part 14 to determine the SO₂ concentrations by using the sulfur content of the fuel has been deleted because the turbine burns pipeline quality natural gas exclusively.

Condition 19290 for S189 and S190

The condition was deleted from the permit because S189 and S190 were removed from service.

Condition 24357 and 22850 for S195 and S196

S195 and S196 emergency standby diesel generators were permitted via Application 19719 to replace removed S189 and S190. Condition 24357 regulates the usage and maintenance of A1195 and A1196 catalyzed diesel particulate filters. Condition 22850 is a standard condition for emergency standby diesel engines.

Condition 24708 for S197

S197 emergency sludge loading facility was permitted via Application 22019. The owner/operator shall only operate S197 when S9 and S10 are not available. An annual sludge throughput limit was added to permit condition 24708.

VII. Applicable Limits and Compliance Monitoring Requirements

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

The District has reviewed all monitoring and has determined the existing monitoring is adequate with the some exceptions.

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

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

In the tables and discussion below, the order is by requirement, then source.

SO₂ Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S7, S8, Auxiliary Boilers, S9, S10, Sewage Sludge Incinerators, S188, Natural Gas Fired Turbine Generator with HRSG, S195, 196, Emergency Generators	BAAQMD 9-1-301	Ground level concentrations of SO ₂ shall not exceed: 0.5 ppm for 3 consecutive minutes AND 0.25 ppm averaged over 60 consecutive minutes AND 0.05 ppm averaged over 24 hours	None
S7, S8, Auxiliary Boilers	BAAQMD 9-1-302	Maximum exhaust stream concentration: 300 ppm	Analysis of landfill gas monthly
S188, Natural Gas Fired Turbine Generator with HRSG	BAAQMD 9-1-302	Maximum exhaust stream concentration: 300 ppm	None
S7, S8, Auxiliary Boilers	BAAQMD 9-1-304	Sulfur content of fuel < 0.5% by weight	Monthly records of distillate oil sulfur content
S9, S10, Sewage Sludge Incinerators	BAAQMD 9-1-304	Sulfur content of fuel < 0.5% by weight or 300 ppm	Annual source test
S195 and S196, Emergency Diesel Generators	BAAQMD 9-1-304	Sulfur content of fuel < 0.5% by weight	None
S188, Natural Gas Fired Turbine Generator with HRSG	NSPS Subpart GG, 60.333(b)	0.8 % sulfur in fuel by weight (natural gas)	None
S9, S10, Sewage Sludge Incinerators	40 CFR 60, Subpart M, Section 5165; Table 3	26 ppm (dry) @ 7% O ₂ (Effective 3/21/16 or upon adoption of state or federal plan, whichever is earlier)	Annual source test; continuous scrubber liquid pH

SO₂ Discussion:

BAAQMD Regulation 9-1-301 (Ground-Level SO₂ Concentration Limitations)

Area monitoring to demonstrate compliance with the ground level SO₂ concentration requirements of Regulation 9-1-301 is at the discretion of the APCO (per BAAQMD Regulation 9-1-501). This facility does not have equipment that emits large amounts of SO₂ and therefore is not required by the APCO to have ground level monitoring for SO₂.

All facility combustion sources are subject to the SO₂ emission limitations in District Regulation 9, Rule 1 (ground-level concentration and emission point concentration). In EPA's June 24, 1999

agreement with CAPCOA and ARB, "Periodic Monitoring Recommendations for Generally Applicable Requirements in SIP", EPA has agreed that natural-gas-fired combustion sources do not need additional monitoring to verify compliance with Regulation 9, Rule 1, since violations of the regulation are unlikely.

BAAQMD Regulation 9-1-302 (300 ppm maximum, from any vapor stream)

S7 and S8, Boilers, burn natural gas and landfill fill gas. The boilers are not expected to exceed the 9-1-302 standard. Following are the results of recent source tests that demonstrate a high margin of compliance:

<u>Source</u>	<u>Date</u>	<u>Concentration of SO₂</u>
7	11/19/13	4.4 ppmv
8	10/14/13	5.6 ppmv

S188, Turbine, burns natural gas exclusively, so it not expected to exceed the 300 ppmv standard.

BAAQMD Regulation 9-1-304 (Sulfur Content of Liquid and Solid Fuels)

The limit for sources that burn liquid fuel is 0.5% of sulfur by weight in fuel according to BAAQMD Regulation 9-1-304.

S7 and S8, Boilers, show compliance by keeping monthly records of the fuel sulfur content.

S9 and S10, Sewage Sludge Incinerators, burn sewage sludge, natural gas, and landfill gas. The standard is 0.5% sulfur content by weight or 300 ppm concentration in the gas stream. The incinerators are not expected to exceed the 9-1-304 standard. Following are the results of recent source tests that demonstrate a high margin of compliance:

<u>Source</u>	<u>Date</u>	<u>Concentration of SO₂</u>
9	3/5/13	< 2.0 ppmv
10	3/20/12	< 1.0 ppmv

No monitoring is required for the engines because the only diesel fuel available in California is CARB diesel, which has a sulfur content of 0.0015%.

40 CFR 60, Subpart GG, Standards of Performance for Stationary Gas Turbines

The limit is 0.8 % sulfur in fuel by weight. EPA amended the NSPS in 2004 to remove the requirement for monitoring of fuel sulfur when natural gas is burned due to the low fuel sulfur content.

40 CFR 60, Subpart MMMM, Emission Guidelines and Compliance Times for Existing Sewage Sludge Incineration Units (S9 and S10)

Table 3 of the emission guideline has a limit of 26 ppm @7% O₂, dry. The monitoring in the standard is an annual source test and continuous monitoring of the scrubber liquid pH. Since this emission guideline was promulgated after 1990, the monitoring in the standard is presumed to be

acceptable. Also, as shown above, the SO₂ emissions at S9 and S10 are below the limit of detection. Therefore, it is expected that S9 and S10 will comply with the new standard.

PM Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S7, S8, Auxiliary Boilers	BAAQMD Regulation 6-1-301; SIP 6-301	Ringelmann No. 1	None
S9, S10, Sewage Sludge Incinerators	BAAQMD Regulation 6-1-301; SIP 6-301	Ringelmann No. 1	None
S24, Centrifuges and Cake Hoppers	BAAQMD Regulation 6-1-301; SIP 6-301	Ringelmann No. 1	None
S180, Dissolved Air Flotation Units and Sludge Blending Tanks	BAAQMD Regulation 6-1-301; SIP 6-301	Ringelmann No. 1	None
S182, Ash Conveying System	BAAQMD Regulation 6-1-301; SIP 6-301	Ringelmann No. 1	Mikro-Charge LeakGauge Particulate Monitor/Alarm; Daily Operator Visual Stack Inspection
S188, Natural Gas Fired Turbine Generator with HRSG	BAAQMD Regulation 6-1-301; SIP 6-301	Ringelmann 1.0	None
S9, S10, Sewage Sludge Incinerators	BAAQMD Regulation 6-1-302; SIP 6-302	20% opacity for no more than 3 min in any hour	COM
S195, S196, Emergency Standby Diesel Generators	BAAQMD Regulation 6-1-303; SIP 6-303	Ringelmann 2.0	None
S7, S8, Auxiliary Boilers	BAAQMD Regulation 6-1-310; SIP 6-310	0.15 gr/dscf	None
S24, Centrifuges and Cake Hoppers	BAAQMD Regulation 6-1-310; SIP 6-310	0.15 gr/dscf	None
S180, Dissolved Air Flotation Units and Sludge Blending Tanks	BAAQMD Regulation 6-1-310; SIP 6-310	0.15 gr/dscf	None
S182, Ash Conveying System	BAAQMD Regulation 6-1-310; SIP 6-310	0.15 gr/dscf	Mikro-Charge LeakGauge Particulate Monitor/Alarm; Daily Operator Visual Stack Inspection
S188, Natural Gas Fired Turbine Generator with HRSG	BAAQMD Regulation 6-1-310; SIP 6-310	0.15 gr/dscf	None

PM Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S195 and S196, Emergency Diesel Generators	BAAQMD Regulation 6-1-310; SIP 6-310	0.15 gr/dscf	None
S9, S10, Sewage Sludge Incinerators	BAAQMD Regulation 6-1-310.1; SIP 6-310.1 and Condition 21423, part 4	0.15 grains/dscf @ 12% CO ₂ and as if no auxiliary fuel is used	Source test every 60 months
S9, S10, Sewage Sludge Incinerators	BAAQMD Regulation 6-1-311; SIP 6-311	4.10P ^{0.67} lb/hr, where P is process weight, lb/hr, not to exceed 40 lb/hr	Source test every 60 months
S24, Centrifuges and Cake Hoppers	BAAQMD Regulation 6-1-311; SIP 6-311	4.10P ^{0.67} lb/hr, where P is process weight, lb/hr, not to exceed 40 lb/hr	None
S180, Dissolved Air Flotation Units and Sludge Blending Tanks	BAAQMD Regulation 6-1-311; SIP 6-311	4.10P ^{0.67} lb/hr, where P is process weight, lb/hr, not to exceed 40 lb/hr	None
S182, Ash Conveying System	BAAQMD Regulation 6-1-311; SIP 6-311	4.10P ^{0.67} lb/hr, where P is process weight, lb/hr, not to exceed 40 lb/hr	Mikro-Charge LeakGauge Particulate Monitor/Alarm; Daily Operator Visual Stack Inspection
S9, S10, Sewage Sludge Incinerators	40 CFR 60.152(a) (1), BAAQMD Condition #21423, part 3	0.65 g particulate matter/kg dry sludge (1.3 lb/ton)	Continuous sludge flow meter, pressure drop meter, O ₂ meter, temperature monitoring, fuel flow monitor. Daily sludge sampling and analysis
S9, S10, Sewage Sludge Incinerators	40 CFR 60, Subpart M, Section 5165; Table 3	80 mg/dscm @ 7% O ₂ (Effective 3/21/16 or upon adoption of state or federal plan, whichever is earlier)	Annual source test. Continuous temperature monitoring, pressure drop measurement, scrubber flow meter
S182, Ash Conveying System	40 CFR 60, Subpart M, Section 5165; Table 3	Visible emissions for no more than 5% of every hour (Effective 3/21/16 or upon adoption of state or federal plan, whichever is earlier)	Annual visible emissions test

PM Discussion:

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

Visible Emissions

BAAQMD Regulation 6-1-301 limits visible emissions to no darker than 1.0 on the Ringelmann Chart (except for periods or aggregate periods less than 3 minutes in any hour). BAAQMD Regulation 6-1-303 limits visible emissions to no darker than 2.0 on the Ringelmann Chart (except for periods or aggregate periods less than 3 minutes in any hour) from any engine used solely as a standby source of motive power.

S7, S8, Boilers, S188, Natural Gas Fired Turbine Generator with HRSG

Visible emissions are normally not associated with combustion of gaseous fuels, such as natural gas or landfill gas. S7 and S8 burn natural gas and landfill gas. S188 burns natural gas exclusively, therefore, per the EPA's June 24, 1999 agreement with CAPCOA and ARB titled “Summary of Periodic Monitoring Recommendations for Generally Applicable Requirements in SIP”, no monitoring is required to assure compliance with Regulation 6-1-301 for these sources.

S195 and S196, Emergency Diesel Generators

In accordance with the June 24, 1999 “Periodic Monitoring Recommendations for Generally Applicable Requirements” prepared by the CAPCOA/CARB/EPA Region IX periodic monitoring workgroup, no opacity monitoring is required for diesel standby and emergency reciprocating engines.

S24, Centrifuges and Cake Hoppers, S180, Dissolved Air Flotation Units and Sludge Blending Tanks

No visible emissions have historically been associated with these sources in the past. The materials processed in these sources have a high moisture content, which makes visible emissions unlikely.

S9, S10, Sewage Sludge Incinerators

The facility is not required to perform visible emissions monitoring for these sources. However, the sources do have opacity monitors (COM) that are subject to BAAQMD Regulation 6-1-602, which is an equivalent standard. These sources are continuously monitored by the COMs.

S182, Ash Conveying System

S182 is continuously monitored by a Mikro-Charge LeakGuage particulate monitor. The facility also performs a daily visual check. This is considered to be appropriate monitoring for this source.

Particulate Weight Limitation

BAAQMD Regulation 6-1-310 limits filterable particulate (FP) emissions from any source to 0.15 grains per dry standard cubic foot (gr/dscf) of exhaust volume. Section 310.3 limits filterable particulate emissions from “heat transfer operations” to a grain-loading standard of 0.15 gr/dscf @ 6% O₂.

S7, S8, Boilers, S188, Natural Gas Fired Turbine Generator with HRSG

Exceedances of the grain loading standards are normally not associated with combustion of gaseous fuels, such as natural gas and landfill gas. S7 and S8 burn natural gas and landfill gas. S188 burns natural gas exclusively; therefore, per the EPA's July 2001 agreement with CAPCOA and ARB entitled "CAPCOA/CARB/EPA Region IX Recommended Periodic Monitoring for Generally Applicable Grain Loading Standards in the SIP: Combustion Sources: Summary of Periodic Monitoring Recommendations for Generally Applicable Requirements in SIP", no monitoring is required to assure compliance with Regulation 6-1-310 for S7, S8, or S188.

S24, Centrifuges and Cake Hoppers, S180, Dissolved Air Flotation Units and Sludge Blending Tanks

The materials processed in these sources have a high moisture content, which makes non-compliance with the grain loading standard unlikely.

S195 and S196, Emergency Diesel Generators

In accordance with the July 2001 “CAPCOA/CARB/EPA Region IX Recommended Periodic Monitoring for Generally Applicable Grain Loading Standards in the SIP: Combustion Sources,” a facility is not required to monitor the engine exhaust from non-utility distillate-oil-fueled emergency piston-type IC engines, but the facility must maintain records of all engine usage.

S182, Ash Conveying System

S182 is continuously monitored by a Mikro-Charge LeakGauge particulate monitor. The facility also performs a daily visual check. This is considered to be appropriate monitoring for this source.

S9, S10, Sewage Sludge Incinerators

The incinerators are subject to a slightly different grain loading standard: 0.15 grains/dscf @ 12% CO₂ and as if no auxiliary fuel is used. The existing monitoring is a source test every 60 months. This frequency is adequate because the margin of compliance is high. Following are the results of recent source tests that demonstrate a high margin of compliance:

<u>Source</u>	<u>Date</u>	<u>Concentration of FP</u>
9	3/5/13	0.015 grains/dscf @ 12% CO ₂
10	2/25/14	0.015 grains/dscf @ 12% CO ₂

Process Weight Standard

The process weight standard in BAAQMD Regulation 6-1-311 allows an amount of filterable particulate emissions that is proportional to the amount of material processed at an operation up to 40 lb/hr.

S9, S10, Sewage Sludge Incinerators

During the source test of 2/25/14, the facility charged about 49.9 ton/day or 2.08 ton/hr to the incinerator, which is about 4,160 lb/hr of sludge. Using the equation in Section 6-1-311 of the rule, 6.7 lb/hr of filterable particulate emissions would be allowed at that process rate. The source test results were 1.2 lb/hr of filterable particulate emissions, which demonstrates that there is a high margin of compliance.

S24, Centrifuges and Cake Hoppers, S180, Dissolved Air Flotation Units and Sludge Blending Tanks

The materials processed in these sources have a high moisture content, which makes non-compliance with the process weight standard unlikely.

S182, Ash Conveying System

S182 is continuously monitored by a Mikro-Charge LeakGuage particulate monitor. The facility also performs a daily visual check. This is considered to be appropriate monitoring for this source.

40 CFR 60, Subpart O, Standards of Performance for Sewage Treatment Plants (S9 and S10)

The standard is 0.65 g filterable particulate/kg dry sludge. The result of the test of 2/25/14 was 0.30 g filterable particulate/kg dry sludge, which demonstrates a high margin of compliance. Subpart O requires a continuous sludge flow meter, pressure drop meter, O₂ meter, temperature monitoring, fuel flow monitor, and daily sludge sampling and analysis, which is adequate monitoring for the limit.

40 CFR 60, Subpart MMMM, Emission Guidelines and Compliance Times for Existing Sewage Sludge Incineration Units (S9 and S10)

The new emissions standard in the emission guideline is 80 mg/dscm @ 7% O₂. The monitoring is an annual source test and continuous temperature, pressure drop, and scrubber flow monitoring. Since this emission guideline was promulgated after 1990, the monitoring in the standard is presumed to be acceptable.

The new visible emissions standard is visible emissions for no more than 5% of every hour. The monitoring is an annual visible emissions test. Since this emission guideline was promulgated after 1990, the monitoring in the standard is presumed to be acceptable.

NOx Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S7, S8, Auxiliary Boilers	BAAQMD Regulation 9-7-113.1	150 ppmv, dry at 3% O ₂ when burning non-gaseous fuel during natural gas curtailment for up to 168 hours in any consecutive 12-month period or 48 hours for testing in any consecutive 12-month period	Records
S7, S8, Auxiliary Boilers	SIP 9-7-301.1	30 ppmv @ 3% O ₂ , dry for gaseous fuels	Source test every 60 months
S7, S8, Auxiliary Boilers	SIP 9-7-305.1	150 ppmv @ 3% O ₂ , dry when burning non-gaseous fuel due to natural gas curtailment	Records
S7, S8, Auxiliary Boilers	SIP 9-7-306.1	150 ppmv @ 3% O ₂ , dry when burning non-gaseous fuel for testing	Records
S7, S8, Auxiliary Boilers	BAAQMD 9-7-307.4	15 ppmv @ 3% O ₂ , dry for gaseous fuels except landfill or digester gas	Annual use of portable analyzer; Source test every 60 months
S7, S8, Auxiliary Boilers	BAAQMD 9-7-307.7	30 ppmv @ 3% O ₂ , dry for landfill or digester gas)	Annual use of portable analyzer; Source test every 60 months
S7, S8, Auxiliary Boilers	BAAQMD 9-7-307.9	Heat-input weighted average between 15 and 30 ppmv @ 3% O ₂ , dry for combination of gaseous fuel and landfill or digester gas)	Annual use of portable analyzer; Source test every 60 months
S188, Natural Gas Fired Turbine Generator with HRSG	SIP 9-9-301.1	42 ppmv, dry @ 15% O ₂ , 3-hr average	CEM
S188, Natural Gas Fired Turbine Generator with HRSG	BAAQMD 9-9-301.1.1	42 ppmv, dry @ 15% O ₂ , 3-hr average	CEM
S188, Natural Gas Fired Turbine Generator with HRSG	BAAQMD 9-9-301.2	2.12 lb/MW-hr or 42 ppmv @ 15% O ₂ , dry, 3-hr average	CEM
S188, Natural Gas Fired Turbine Generator with HRSG	40 CFR Part 60.332(a)(2) and (c)	167 ppm (dry basis) @ 15% O ₂ on a clock-hour basis	CEM

NOx Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S9, S10, Sewage Sludge Incinerators	40 CFR 60, Subpart M, Section 5165; Table 3	220 ppm (dry) @ 7% O ₂ (Effective 3/21/16 or upon adoption of state or federal plan, whichever is earlier)	Annual source test
S188, Natural Gas Fired Turbine Generator with HRSG	BAAQMD Condition #21485, Part 2	42 ppmv, dry @ 15% O ₂ , 3-hr average	CEM
S188, Natural Gas Fired Turbine Generator with HRSG	BAAQMD Condition #21485, part 4	118 lb/day	CEM
S188, Natural Gas Fired Turbine Generator with HRSG	BAAQMD Condition #21485, part 5	19.824 ton/rolling 365 day period	CEM

BAAQMD Regulation 9, Rule 7, Nitrogen Oxides and Carbon Monoxide from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters

S7 and S8, Boilers, are subject to a 15 ppmv limit when burning natural gas exclusively, a 30 ppmv limit when burning landfill gas exclusively, and a weighted average when burning both.

Following are the results of recent source tests that demonstrate a reasonable margin of compliance:

<u>Source</u>	<u>Date</u>	<u>Fuel</u>	<u>Concentration of CO</u>
7	11/19/13	Landfill gas	13 ppmv @ 3% O ₂
7	11/19/13	Natural gas	11.9 ppmv @ 3% O ₂
8	10/17/13	Landfill gas	14.7 ppmv @ 3% O ₂
8	10/17/13	Natural gas	11.9 ppmv @ 3% O ₂

BAAQMD Regulation 9, Rule 9, Nitrogen Oxides from Stationary Gas Turbines

S188, Turbine, is subject to a NOx limit of 42 ppmv, dry, @ 15% O₂ or 2.12 lb NOx/MW-hr. The existing CEM is considered to be appropriate monitoring for this limit.

40 CFR 60, Subpart GG, Standards of Performance for Stationary Gas Turbines

EPA amended this standard in 2004 to allow the use of existing CEMs for NOx monitoring.

40 CFR 60, Subpart M, Emission Guidelines and Compliance Times for Existing Sewage Sludge Incineration Units (S9 and S10)

The new emissions standard in the emission guideline is 220 ppm NOx/dscm @ 7% O₂, dry. The monitoring is an annual source test. Since this emission guideline was promulgated after 1990, the monitoring in the standard is presumed to be acceptable. The result of the most recent

source was 72 ppm NOx @ 3.6% O2, which is equivalent to 58 ppm NOx @ 7% O2. Therefore, the incinerators are expected to comply with the new NOx standard.

Condition 21485:

The condition subjects S188, Turbine, to daily and annual NOx mass emissions limits. The existing CEM is considered to be appropriate monitoring for these limits.

CO Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S7, S8, Auxiliary Boilers	BAAQMD 9-7-307.4 and 9-7-307.7	400 ppmv @ 3% O2, dry for gaseous, landfill gas and digester gas	Annual use of portable analyzer; Source test every 60 months
S7, S8, Auxiliary Boilers	BAAQMD 9-7-307.4 and 307.7	400 ppmv @ 3% O2, dry for gaseous, landfill gas and digester gas	Source test or portable analyzer
S7, S8, Auxiliary Boilers	SIP 9-7-301.2	400 ppmv @ 3% O2, dry for gaseous fuel	source test
S7, S8, Auxiliary Boilers	SIP 9-7-305.2 and 9-7-306.1	400 ppmv @ 3% O2, dry for non-gaseous fuel when burning non-gaseous fuel due to natural gas curtailment or when burning non-gaseous fuel for testing	Records
S9, S10, Sewage Sludge Incinerators	40 CFR 60, Subpart MMMM, Section 5165; Table	3,800 ppm (dry) @ 7% O2 (Effective 3/21/16 or upon adoption of state or federal plan, whichever is earlier)	Annual source test
S188, Natural Gas Fired Turbine Generator with HRSG	BAAQMD Condition #21485, part 6	157 lb/24 hour	Source test every 60 months
S188, Natural Gas Fired Turbine Generator with HRSG	BAAQMD Condition #21485, part 7	26.376 tons/rolling 365 day period	Source test every 60 months

BAAQMD Regulation 9, Rule 7, Nitrogen Oxides and Carbon Monoxide from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters
 S7 and S8, Boilers, are subject to a 400 ppmv CO limit at all times.

Following are the results of recent source tests that demonstrate a high margin of compliance:

<u>Source</u>	<u>Date</u>	<u>Fuel</u>	<u>Concentration of CO</u>
7	11/19/13	Landfill gas	9.6 ppmv @ 3% O2
7	11/19/13	Natural gas	<10.2 ppmv @ 3% O2
8	10/17/13	Landfill gas	<13.4 ppmv @ 3% O2
8	10/17/13	Natural gas	<10.2 ppmv @ 3% O2

Therefore, annual monitoring with a portable analyzer and a source test every 60 months is adequate monitoring.

40 CFR 60, Subpart MMMM, Emission Guidelines and Compliance Times for Existing Sewage Sludge Incineration Units (S9 and S10)

The new emissions standard in the emission guideline is 3,800 ppm CO/dscm @ 7% O2, dry. The monitoring is an annual source test. Since this emission guideline was promulgated after 1990, the monitoring in the standard is presumed to be acceptable. The result of the most recent source was 500 ppm CO @ 3.6% O2, which is equivalent to 400 ppm CO @ 7% O2. Therefore, the incinerators are expected to comply with the new CO standard.

Condition #21485, parts 6 and 7 (S188)

S188, Turbine, is subject to limits of 157 lb CO/24 hours and 26.376 tons/rolling 365 day period. The existing monitoring is one source test every 60 months. The most recent source test on 5/10/11, yielded results of 5.29 lb CO/hr and 127 lb CO/day, so the turbine complies with the daily limit with an adequate margin of compliance. At 5.29 lb CO/hr and 8760 hr/yr, the turbine would emit about 23.2 ton CO/yr, so the source test also shows compliance with the annual limit and the monitoring is adequate.

Organics and CH4 Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S7, S8, Auxiliary Boilers	BAAQMD 8-34-301.2	Max Leakage: 1000 ppmv (as CH4)	Quarterly leak testing
S7, S8, Auxiliary Boilers	BAAQMD 8-34-301.4	Emission Reduction: 98% by weight or concentration less than 120 ppmvd NMOC, as methane and at 3% O2	Temperature monitor and recorder, gas flow meter, annual source test
S9, S10, Sewage Sludge Incinerators	BAAQMD 8-34-301.2	Max Leakage: 1000 ppmv (as CH4)	Quarterly leak testing
S9, S10, Sewage Sludge Incinerators	BAAQMD 8-34-301.2	Emission Reduction: 98% by weight or concentration less than 120 ppmvd NMOC, as methane and at 3% O2	Temperature monitor and recorder, gas flow meter, annual source test

BAAQMD Regulation 8 Rule 34, Solid Waste Disposal Sites

The permit contains quarterly leak testing for fugitive emissions of landfill gas, temperature and gas flow monitoring, and an annual source test. This is standard District monitoring for conveying and burning landfill gases.

Sources of Toxic Air Contaminants

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S7, S8, Boilers, S9, S10, Sewage Sludge Incinerators, S24, Centrifuges and Cake Hoppers	BAAQMD 9-2-301	H2S: 24 Hour Standard: GLC not to exceed 0.06 ppm average over 3 min and 0.03 ppm average over 60 min	None
S9, S10, Sewage Sludge Incinerators	BAAQMD 11-1-301, BAAQMD Condition #21423, Part 9	Lead: < 15 lb/day	Sludge Analysis, Source Test every 60 months
S9, S10, Sewage Sludge Incinerators	BAAQMD 11-1-302	Lead: Max GLC (w/o background): 1.0 microgram/cu m (24 hr average)	None
S9, S10, Sewage Sludge Incinerators	BAAQMD 11-3-301, BAAQMD Condition #21423, part 6	Beryllium: 10 g/ 24 hr	Sludge Analysis, Source Test every 60 months
S9, S10, Sewage Sludge Incinerators	BAAQMD 11-5-302, Condition #21423, Part 7	Mercury: 3200 g/24 hr	Sludge Analysis, Source Test every 60 months
S9, S10, Sewage Sludge Incinerators	40 CFR 60, Subpart M, Section 5165; Table 3	Lead: 0.30 mg/dscm @ 7% O2 (Effective 3/21/16 or upon adoption of state or federal plan, whichever is earlier)	Annual source test
S9, S10, Sewage Sludge Incinerators	40 CFR 60, Subpart M, Section 5165; Table 3	HCl: 1.2 ppm (dry) @ 7% O2 (Effective 3/21/16 or upon adoption of state or federal plan, whichever is earlier)	Annual source test, continuous scrubber liquid pH monitoring

Sources of Toxic Air Contaminants

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S9, S10, Sewage Sludge Incinerators	40 CFR 60, Subpart M, Section 5165; Table 3	Dioxin/Furans: 5.0 ng/dscm (total mass basis); or 0.32 ng/dscm (toxic equivalency basis) @ 7% O ₂ (Effective 3/21/16 or upon adoption of state or federal plan, whichever is earlier)	Annual source test
S9, S10, Sewage Sludge Incinerators	40 CFR 60, Subpart M, Section 5165; Table 3	Mercury: 0.28 mg/dscm @ 7% O ₂ (Effective 3/21/16 or upon adoption of state or federal plan, whichever is earlier)	Annual source test
S9, S10, Sewage Sludge Incinerators	40 CFR 60, Subpart M, Section 5165; Table 3	Cadmium: 0.095 mg/dscm @ 7% O ₂ (Effective 3/21/16 or upon adoption of state or federal plan, whichever is earlier)	Annual source test
S9, S10, Sewage Sludge Incinerators	40 CFR Part 61.32	Beryllium: 10 g/ 24 hr	Sludge Analysis, Source Test every 60 months
S9, S10, Sewage Sludge Incinerators	40 CFR Part 61.52 (b)	Mercury: 3.2 kg/24 hr	Sludge Analysis, Source Test every 60 months
S24, Centrifuges and Cake Hoppers	BAAQMD Condition #1716, Part 1	1.5 ppmv	None

BAAQMD Regulation 9, Rule 2, Hydrogen Sulfide

The facility has no monitoring for H₂S. However, it is likely that the facility is in compliance because there seldom are complaints.

BAAQMD Regulation 11, Rule 1, Lead

The existing monitoring is sludge analysis and source testing every 60 months. Since the margin of compliance is high, this monitoring is adequate. Following are results of the most recent source test:

<u>Source</u>	<u>Date</u>	<u>Lead Emissions</u>
9	March, 2013	0.036 lb/day
10	February, 2008	0.025 lb/day

Therefore, the incinerators comply with the 15 lb/day/source limit in Section 11-1-301. The facility has also submitted a demonstration that the sources comply with Section 11-1-302 with an ample margin. The demonstration can be found in Appendix M of this Statement of Basis.

BAAQMD Regulation 11, Rule 3, Beryllium

The existing monitoring is sludge analysis and source testing every 60 months. Since the margin of compliance is high, this monitoring is adequate. Following are results of the most recent source test:

<u>Source</u>	<u>Date</u>	<u>Beryllium Emissions</u>
9	March, 2013	0.049 g/day
10	February, 2008	0.021 g/day

BAAQMD Regulation 11, Rule 5, Mercury

The existing monitoring is sludge analysis and source testing every 60 months. Since the margin of compliance is high, this monitoring is adequate. Following are results of the most recent source test:

<u>Source</u>	<u>Date</u>	<u>Mercury Emissions</u>
9	March, 2013	22.2 g/day
10	February, 2008	20 g/day

40 CFR 60, Subpart MMMM, Emission Guidelines and Compliance Times for Existing Sewage Sludge Incineration Units (S9 and S10)

Table 3 of the emission guideline has limits for lead, HCl, Dioxins/Furans, mercury, and cadmium. The monitoring for lead, HCl, Dioxins/Furans, mercury, and cadmium is an annual source test. The monitoring for HCl and SO₂ in the standard is continuous monitoring of the scrubber liquid pH. Since this emission guideline was promulgated after 1990, the monitoring in the standard is presumed to be acceptable.

Changes to permit:

A note has been added at the beginning of the section to clarify that this section is a summary of the limits and monitoring, and that in the case of a conflict between Sections I-VI and Section VII, the preceding sections take precedence.

The headings at the top of the tables have been updated. "Emission Limit Citation" has been changed to "Citation of Limit" since not every limit is an emission limit. "Emission Limit" has been changed to "Limit" since not every limit is an emission limit.

District Regulation 6 was amended on May 4, 2011, which results in a different version of the District rule than the SIP rule. Citations of the District rule were changed and separate citations of the SIP rule have been listed after the District rule.

The “type of limit” has been changed to “Opacity” for BAAQMD Regulation 6-1-301, since it is an opacity standard.

The “type of limit” has been changed to “FP” for BAAQMD Regulation 6-1-310 and 6-1-311, since it is a filterable particulate standard.

S7 and S8, Boilers

Revisions were made to incorporate new NO_x limits and the stack gas temperature limit in BAAQMD Regulation 9, Rule 7 as amended on May 4, 2011, into Table VII-A for S7 and S8, Boilers. The stack gas temperature limit is derived from the boiler design and whether the boiler burns gaseous or non-gaseous fuel. The boilers are firetube boilers fired on gaseous fuel. The limit is 100°F over the saturated steam temperature, which is 466 °F in this case.

Revisions were made to Table VII-A for S7 and S8, Boilers, to incorporate changes to Condition 21422. These changes were discussed in Section C.VI of this Statement of Basis and Application 25577, which is found in Appendix L and forms part of this Statement of Basis.

S9 and S10, Sewage Sludge Incinerators

New emission limits from 40 CFR part 60, Subpart M, Emission Guidelines and Compliance Times for Existing Sewage Sludge Incineration Units, were incorporated into Table VII-B for S9 and S10 with a future effective date of March 21, 2016.

The 9-2-301 H₂S standard in Table IV-B was added to Table VII-B for S9 and S10.

The 40 CFR 60, Subpart O opacity standard in Table IV-B was added to Table VII-B for S9 and S10.

Section 60.153(a)(3) of 40 CFR 60, Subpart O, Standards of Performance for Sewage Treatment Plants, has been deleted because it requires a weighing device to measure municipal solid waste and the incinerators are prohibited from burning any solid other than sludge from the CCCSD sewage treatment plant. Section 60.154, Test Methods and Procedures, has been added because it is the basis for condition 21423, part 10a.

Condition 21423 requires source testing every 60 months for various pollutants. The table says once per permit term. Since the permit term may, and has been, longer than 60 months, the requirement has been corrected.

S11, S13, S15, and S22, Lime Storage Silos

The table was deleted because the sources have been removed.

S24, Centrifuges and Cake Hoppers

The 9-2-301 H₂S standard in Table IV-C was added to Table VII-X for S9 and S10.

S182, Ash Conveying System

A new emission limit from 40 CFR part 60, Subpart M, Emission Guidelines and Compliance Times for Existing Sewage Sludge Incineration Units, was incorporated into the table with a future effective date of March 21, 2016.

S188, Cogeneration Turbine with Heat Recovery Steam Generator

District Regulation 9-9 was amended on December 6, 2006, which results in a different version of the District rule than the SIP rule. The citations of the District rule were changed and separate citations of the SIP rule were listed after the District rule. The new rule allows compliance with a concentration limit or a lb/MW-hr limit.

Changes to the monitoring requirements of 40 CFR 60, Subpart GG, were made to reflect changes made by EPA on July 8, 2004. The Subpart GG NOx limit was corrected. See Section C.IV of this statement of basis for details.

S195 and S196, Emergency Standby Diesel Generators:

Table VII-H was added to proposed permit to include all requirements for S195 and S196 emergency standby diesel generators.

VIII. Test Methods

This section of the permit lists test methods that are associated with standards in District or other rules. It is included only for reference. In most cases, the test methods in the rules are source test methods that can be used to determine compliance but are not required on an ongoing basis. They are not “applicable requirements” as defined by Regulation 2-6-202.

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

Changes to permit:

BAAQMD Regulation 6-1-303, Ringelmann No.2 limitation, has been added because it applies to the emergency generators.

Test methods to determine emission standards compliance required by 40 CFR part 60, Subpart MMMM, Emission Guidelines and Compliance Times for Existing Sewage Sludge Incineration Units, have been added.

IX. Permit Shield:

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

The second type of permit shield is allowed by EPA’s “White Paper 2 for Improved Implementation of the Part 70 Operating Permits Program.” The District uses the second type of permit shield for all streamlining of monitoring, recordkeeping, and reporting requirements in

Title V permits. The District's program does not allow other types of streamlining in Title V permits.

Changes to Permit:

The Permit Shield for S188 granted in the last renewal permit was removed because it no longer applies for the following reasons:

The latest amendment of NSPS Subpart GG §60.334 was published on Feb 24, 2006. §60.334(h)(3) provides that

...the owner or operator may elect not to monitor the total sulfur content of the gaseous fuel combusted in the turbine, if the gaseous fuel is demonstrated to meet the definition of natural gas in §60.331(u), regardless of whether an existing custom schedule approved by the administrator for subpart GG requires such monitoring.

BAAQMD Condition 21485, part 1c requires that all natural gas burned at S188 is PUC quality gas, which contains no more than 5 grains of total sulfur per one hundred standard cubic feet and therefore meets the definition of natural gas in §60.331(u). In accordance with §60.334(h)(3), monitoring of fuel sulfur and fuel nitrogen content is not required.

For fuel nitrogen content monitoring, §60.334(b) provides that

The owner or operator of any stationary gas turbine that commenced construction, reconstruction or modification after October 3, 1977, but before July 8, 2004, and which uses water or steam injection to control NO_x emissions may, as an alternative to operating the continuous monitoring system described in paragraph (a) of this section, install, certify, maintain, operate, and quality-assure a continuous emission monitoring system (CEMS) consisting of NO_x and O₂ monitors...

Since BAAQMD Condition 21485, part 11 requires that continuous emissions monitoring system (CEMS) for NO_x emissions for S188, the monitoring requirement for fuel consumption and the ratio of steam or water regulated by §60.334(a) no longer applies.

X. Glossary

Changes to permit:

The glossary was updated. See Appendix D.

D. Alternate Operating Scenarios

No alternate operating scenario has been requested for this facility.

E. Compliance Status

The responsible official for Central Contra Costa Sanitary District submitted a signed Certification Statement form dated October 31, 2014. On this form, the responsible official certified that the following four statements are true:

Based on information and belief formed after reasonable inquiry, the source(s) identified in the Applicable Requirements and Compliance Summary form that is(are) in compliance will continue to comply with the applicable requirement(s);

Based on information and belief formed after reasonable inquiry, the source(s) identified in the Applicable Requirements and Compliance Summary form will comply with future-effective applicable requirement(s), on a timely basis;

Based on information and belief formed after reasonable inquiry, information on application forms, all accompanying reports, and other required certifications is true, accurate, and complete;

All fees required by Regulation 3, including Schedule P have been paid.

F. Differences between the Application and the Proposed Permit

Following are the differences in the equipment list between the time that the current Title V permit was renewed on December 11, 2006 and the permit proposal date:

Changes to permit:

Devices Removed from service or Archived since current permit was renewed on December 11, 2006:

S#	Description
S189	Emergency Standby Generator #1, Diesel Fired
S190	Emergency Standby Generator #2, Diesel Fired
S191	Portable Standby Generator, Diesel

Devices Permitted since current permit was renewed on December 11, 2006:

S#	Description
S195	Emergency Standby Generator
S196	Emergency Standby Generator
S197	Emergency Sludge Loading Facility
A184	Emergency Flare
A185	Lime Slaker Preformed Spray Scrubber
A197	Deep Bed Odor Control System – Packed Bed Scrubber
A1001	PAC Injection & Baghouse System
A1002	Quench Tank with Water Spray-Water Spray System
A1195	Catalyzed Diesel Particulate Filter
A1196	Catalyzed Diesel Particulate Filter

District permitted sources not included in this proposed permit:

S#	Description
S194	Portable Diesel Pump
S198	Low-Use Portable Diesel Driven Pump

Corrections to Devices Shown in Application

S180’s name is changed from “Sludge Handling Processes” to “Dissolved Air Flotation Units and Sludge Blending Tanks” for more-accurate description of the source.

The Title V permit renewal application was originally submitted on June 10, 2011. This version is the basis for constructing the proposed Title V permit. Revisions were made to the application #23445 as a result of changes at the facility that were made pursuant to Permit Applications #19719, 22019, 23040, 24448 and 25577. The changes made to the permit renewal application because of these subsequent permit applications are stated in the engineering evaluation report for each application in the appendices.

Permit Evaluation and Statement of Basis: Plant No: A0907, Application No: 23445
Central Contra Costa Sanitary District, 5019 Imhoff Place, Martinez, CA 94553

APPENDIX A

Hazardous Air Pollutants' Potential to Emit

Table 1. Total HAP PTE

HAP	PTE (tons/yr)
1,1,1-trichloroethan	0.039
Benzene	0.045
Cadmium	0.017
Carbon tetrachloride	0.000
Chloroform	0.334
Chromium	0.007
Dichlorobenzene	0.039
Formaldehyde	0.024
Hydrogen sulfide	0.147
Lead pollutant	0.130
Manganese	0.003
Methylene chloride	1.404
Nickel pollutant	0.130
Perchloroethylene	0.747
Toluene	0.491
Trichloroethylene	0.030
Vinyl chloride	0.012
Vinylidene chloride	0.002
Xylene	0.147
Total	3.749

S7, Boiler 1, and S8, Boiler 2

Basis:
 Maximum firing rate: 28 MM BTU/hr
 8,760 hrs/yr
 1 cu ft of landfill gas = 500 BTU's

Table 2. S7 (or S8) HAP PTE

HAP	Emission Factor (lb/thou cu)	PTE (tons/yr)
Benzene	1.20E-05	2.94E-03
Carbon tetrachloride	9.50E-08	2.33E-05
Chloroform	1.10E-06	2.70E-04
Formaldehyde	4.80E-05	1.18E-02
Methylene chloride	1.40E-04	3.43E-02
Perchloroethylene	8.20E-05	2.01E-02
Trichloroethylene	2.10E-05	5.15E-03
Vinyl chloride	2.40E-05	5.89E-03
Vinylidene chloride	4.00E-06	9.81E-04

S9, Furnace 1, and S10, Furnace 2, Sewage Sludge Incinerators

Basis:
 20,000 dry tons of sludge/yr

Table 3. S9 and S10 Combined HAP PTE

HAP	Emission Factor (lb/ton)	PTE (tons/yr)
Cadmium	1.70E-03	1.70E-02
Chromium	6.70E-04	6.70E-03
Lead pollutant	1.30E-02	1.30E-01
Manganese	2.90E-04	2.90E-03
Nickel pollutant	8.90E-05	8.90E-04

S100, Wastewater Treatment Plant – Fugitive Emissions

Basis:
 53.8 million gallons/day (dry weather)

Table 4. S9 and S10 Combined HAP PTE

HAP	Emission Factor (lb/million gallon)	PTE (tons/yr)
Benzene	4.00E-03	3.93E-02
1,1,1-trichloroethan	1.40E-02	1.37E-01
Chloroform	3.40E-02	3.34E-01
Dichlorobenzene	4.00E-03	3.93E-02
Hydrogen sulfide	1.50E-02	1.47E-01
Methylene chloride	1.36E-01	1.34E+00
Perchloroethylene	7.20E-02	7.07E-01
Toluene	5.00E-02	4.91E-01
Trichloroethylene	2.00E-03	1.96E-02
Xylene	1.50E-02	1.47E-01

APPENDIX B

COMPLIANCE ASSURANCE MONITORING (CAM) ANALYSIS

Unabated Emission = Maximum Allowable Throughput (Capacity) x Unabated Emission Factor

S9, Furnace 1, and S10, Furnace 2, Sewage Sludge Incinerators

Abatement devices: A1 and A3, Dry Cyclone Scrubber, A2 and A4, Wet Scrubber, Knebs
Medwa/Elbair

Federally enforceable limits: 0.65 gram particulate matter / kg dry sludge. 0.15 gr/dscf @ 12%
O₂

Maximum allowable throughput: 20,000 tons solid fuel per year

Unabated emission factor for Particulates: 100 lbs/ton of sludge

$$\begin{aligned}\text{Unabated Emission} &= 20,000 \text{ TPY} \times 100 \text{ lbs PM/ton} \\ &= 2,000,000 \text{ lbs/yr} \\ &= 1,000 \text{ TPY} > 100 \text{ TPY}\end{aligned}$$

Particulate emissions at S9 and S10 require CAM.

S182, Ash Conveying System

Abatement devices: A186 and A196, Filter Baghouses, A191, Cyclone, Premeier, A192, Filter
Baghouse, Spervac

Federally enforceable limits: (1) Opacity: Ringelmann No. 1, (2) Particulate Weight Limitation:
0.15 grains/dscf

Capacity: 0.6 dry ton/hr

Unabated emission factor for Particulates: 0.1 lb/ton

$$\begin{aligned}\text{Unabated Emission} &= 0.6 \text{ ton/hr} \times 24 \text{ hrs/day} \times 0.1 \text{ lb/ton} \\ &= 1.44 \text{ lbs/day} \\ &= 0.26 \text{ TPY} < 100 \text{ TPY}\end{aligned}$$

Particulate emissions at S182 do not require CAM.

S195 and S196, Emergency Standby Diesel Generators

Abatement devices: A1195 and A1196, Catalyzed Diesel Particulate Filters

Federal enforceable limits: (1) Opacity: Ringelmann No. 2, (2) Particulate Weight Limitation:
0.15 grains/dscf

Capacity: 3058 bhp

Unabated emission factor for Particulates: 0.79 g/bhp-hr

$$\begin{aligned}\text{Unabated Emission} &= 3058 \text{ bhp} \times 0.79 \text{ g/bhp-hr} \times 24 \text{ hrs/day} \\ &= 57,979.7 \text{ grams/day} \\ &= 23.3 \text{ TPY} < 100 \text{ TPY}\end{aligned}$$

Particulate emissions at S195 and S196 do not require CAM.

APPENDIX C

COMPLIANCE ASSURANCE MONITORING (CAM) PLAN S9, Furnace 1, and S10. Furnace 2

APPENDIX D

GLOSSARY

ACT

Federal Clean Air Act

APCO

Air Pollution Control Officer

ARB

Air Resources Board

BAAQMD

Bay Area Air Quality Management District

BACT

Best Available Control Technology

Basis

The underlying authority which allows the District to impose requirements.

CAA

The federal Clean Air Act

CAAQS

California Ambient Air Quality Standards

CAM

Compliance Assurance Monitoring per 40 CFR Part 64

CAPCOA

California Air Pollution Control Officers Association

CEM

Continuous Emission Monitor

CEQA

California Environmental Quality Act

CFR

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

CO

Carbon Monoxide

Cumulative Increase

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

District

The Bay Area Air Quality Management District

EPA

The federal Environmental Protection Agency.

Excluded

Not subject to any District regulations.

Federally Enforceable, FE

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

FP

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

HAP

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

IC

Internal Combustion Engine

Major Facility

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

MFR

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

MOP

The District's Manual of Procedures.

NAAQS

National Ambient Air Quality Standards

NESHAPS

National Emission Standards for Hazardous Air Pollutants. See in 40 CFR Parts 61 and 63.

NMHC

Non-methane Hydrocarbons (Same as NMOC and POC)

NMOC

Non-methane Organic Compounds (Same as NMHC and POC)

NOx

Oxides of nitrogen.

NSPS

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

NSR

New Source Review. A federal program for pre-construction review and permitting of new and modified sources of pollutants for which criteria have been established in accordance with Section 108 of the Federal Clean Air Act. Mandated by Title I of the Federal Clean Air Act and implemented by 40 CFR Parts 51 and 52 and District Regulation 2, Rule 2. (Note: There are additional NSR requirements mandated by the California Clean Air Act.)

Offset Requirement

A New Source Review requirement to provide federally enforceable emission offsets for the emissions from a new or modified source. Applies to emissions of POC, NOx, PM10, and SO2.

Phase II Acid Rain Facility

A facility that generates electricity for sale through fossil-fuel combustion and is not exempted by 40 CFR 72 from Titles IV and V of the Clean Air Act.

POC

Precursor Organic Compounds (Same as NMHC and NMOC)

PM

Particulate Matter

PM10

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

PSD

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

PTE

Potential to Emit as defined by BAAQMD Regulation 2-6-218

SIP

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

SO₂

Sulfur dioxide

THC

Total Hydrocarbons (NMHC + Methane)

Title V

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

TOC

Total Organic Compounds (NMOC + Methane, Same as THC)

TPH

Total Petroleum Hydrocarbons

TSP

Total Suspended Particulate

VOC

Volatile Organic Compounds

Units of Measure:

bhp	=	brake-horsepower
btu	=	British Thermal Unit
cu. ft.	=	cubic foot
cfm	=	cubic feet per minute
dscf	=	dry standard cubic foot
dscfm	=	dry standard cubic foot per minute
g	=	gram
gal	=	gallon
gpm	=	gallons per minute
gr	=	grain
hp	=	horsepower
hr	=	hour
lb	=	pound
in	=	inch
max	=	maximum
m ²	=	square meter
min	=	minute
mm	=	million
MMbtu	=	million btu
MMcf	=	million cubic feet
ppmv	=	parts per million, by volume
ppmw	=	parts per million, by weight
psia	=	pounds per square inch, absolute
psig	=	pounds per square inch, gauge
scfm	=	standard cubic feet per minute
tpy	=	tons per year
yr	=	year

APPENDIX E

ENGINEERING EVALUATION APPLICATION 16073

ENGINEERING EVALUATION REPORT

PLANT NAME	Central Contra Costa Sanitary District
APPLICATION NUMBER	16073
PLANT NUMBER	907
DATE	20 August 2007

1. BACKGROUND

Central Contra Costa Sanitary District (Central San) has filed this application to install a trial mercury abatement system identified as powdered activated carbon (PAC) injection-Baghouse-Quench Tank Abatement System for removal of mercury from the flue gas from sewage sludge furnaces S-9 and S-10. This operation will be identified as follows:

- A-1001 Powdered Activated Carbon (PAC) Injection and Baghouse System, 300 cfm
- A-1002 Wet Quench Tank with Water Spray

Currently the particulate emissions in the flue gas from S-9 (sewage sludge furnace) is abated by A-1 Cyclone Scrubber and A-2 Wet Scrubber. Similarly sewage sludge furnace S-10 is abated by A-3 Cyclone Scrubber and A-4 Wet Scrubber. Overall particulate abatement across these systems is approximately 99.9%. Contra Costa estimates there is little or no abatement of mercury emissions across the current system.

The proposed pilot project is to direct a slipstream (100 – 200 cfm, 300 cfm maximum) of flue gas from the outlet of the cyclone scrubber (A-1 or A-3) to the new A-1001 Powdered Activated Carbon (PAC) Injection Baghouse System which includes 1) PAC injection, 2) contact/mixing, and 3) baghouse filtration using 1 micro PTFE 450 F bags. The flue gas particulate and mercury abatement at the PAC Baghouse is estimated to be 99% or better. Flue gas from the PAC Baghouse will be further treated in A-1002 bubbling quench system which includes the bubbling quench tank (with at least 24" of water) plus a water sprayer. Although no estimate is provided at this time, A-1002 will provide additional abatement by cooling and water contact of the flue gas stream.

In order to develop process information for the final design of the full-scale device, sampling will be performed at the inlet and outlet of A-1001, as well as the inlet and outlet of A-1002. Further details follow.

2. EMISSION CALCULATIONS

Total influent loading of mercury is reported to be 35 lb/yr. Following is the current final disposition of this mercury loading:

Effluent:	5 lb/yr
Ash	2 lb/yr
S-9/S-10 Flue Gas	28 lb/yr

Central San estimates that the mercury abatement efficiency across A-1001 PAC Baghouse System will be 99% (27.7 lb removal). The proposed source testing will quantify what abatement efficiency will be possible with the PAC system.

Particulate emissions (other than mercury) are expected to be reduced to an extent greater than at present since baghouses typically provide improved abatement over wet scrubber systems. Central San estimates 99% abatement of PM across A-1001 and 95% across A-1002. This would amount to a net increased PM abatement as follows (1 lb PM basis)

1 lb pm $[(0.26)(0.0034) - (0.01)(0.05)] = 0.00050$ lb additional PM abatement per lb PM into the abatement system.

3. TOXIC EVALUATION

The PAC baghouse system is temporary and will, upon successful completion be converted into a process design for a full size abatement operation. It is expected that there will be reductions in both PM and in mercury emissions. Hence toxic risk will be expected to decrease. Therefore no toxic risk evaluation is necessary.

5. PERMIT REQUIREMENTS/DISCUSSION OF EXEMPTION

Not applicable.

6. DETERMINATION OF COMPLIANCE

A. Regulation 1 – General Provisions and Definitions

§1-301: Prohibits discharging emissions in quantities that cause injury, detriment, nuisance, or annoyance. The toxic evaluation addresses these issues.

B. Permits – General Requirements, Regulation 2 Rule 1

The source is not located within 1000 feet of the nearest school, and is therefore not subject to the public notification requirements of 2-1-412.

C. Permits – New Source Review, Regulation 2 Rule 2 (dated 10/7/98)

1. **BACT:** No emission increases, therefore BACT is not applicable.
2. **Offset Requirements:** §2-2-303: Offsets are not applicable to this project.
3. **Prevention of Significant Deterioration:** §2-2-304: PSD requirements are not applicable.

D. Regulation 3 – Fees

Central San has complied with the fee requirements for this permit application.

E. Particulate Matter and Visible Emissions, Regulation 6

1. Section 301 prohibits for more than 3 minutes per hour, visible emissions as dark or darker than Ringelmann 1 or equivalent opacity. Visible emissions have never been an issue at this facility. No change is expected.
2. Section 305 prohibits emissions of visible particles from causing a nuisance on property other than the operators. Although the proposed abatement device is a test case, it is not expected to create any type of visible emission nuisance.
3. Section 310 and part 4 of Condition 21423 limits the particulate concentration in exhaust gases to 0.15 gr/dscf (343 mg/dscm). Previous source tests of the existing particulate abatement systems for S-9 and S-10 have been less than 0.012 gr/dscf (1/12th the standard) and there is reason to expect improved abatement with the PAC Baghouse system.

F. NSPS/NESHAPS

N/A

G. CEQA

This project is considered to be ministerial under the District's CEQA Regulation 2-1-311. The engineering review for this project requires only the application of standard permit conditions and standard emissions factors and therefore is not discretionary as defined by CEQA.

CONDITIONS

Recommend the following modified condition 21423 for sources S-9 and S-10:

COND# 21423 -----

For ~~S-9 Furnace 1 and S-10 Furnace 2, Sewage Sludge Incinerators~~ Furnace #1, BSP Multiple Rotary
Hearth, 27 MM Btu/hr Max Heat Input, abated by A-1 Cyclone Scrubber followed by Trial System A-1001 PAC
Injection Baghouse (pilot system) with A-1002 Water Quench Tank (pilot System) and/or A-2 Wet Scrubber, and S-10 Sewage Sludge Incinerators,
BSP Multiple Rotary Hearth, 27 MM Btu/hr Max Heat Input
abated by A-3 Cyclone Scrubber followed by A-1001 PAC
Injection Baghouse (pilot system) with A-1002 Water
Quench Tank (pilot System) and/or A-4 Wet Scrubber.

1. Solid fuel shall be solids derived from CCCSD sewage operations only.
(Basis: Cumulative Increase)
2. S-9 and S-10 combined solid fuel throughput shall not exceed 120 ton/day (dry basis) and 20,000 ton in any consecutive 12 month period.
(Basis: Cumulative Increase)
3. Particulate emissions shall not exceed 0.65 gram per kilogram of dry sludge input (1.3 lb/ton dry sludge input).
(Basis: 40CFR 60.152(a)(1), NSPS)
4. Particulate emissions shall not exceed 343 mg/dscm (0.15 grain per dscf) of exhaust gas volume. The actual measured concentration of particulate matter in the exhaust gas shall be corrected to the

concentration which the same quantity of particulate matter would constitute in the exhaust gas minus water vapor corrected to standard conditions, containing 12% CO₂ by volume, and as if no auxiliary fuel had been used. (Basis: SIP 6-310)

5. Visible emissions shall not exceed 20 percent opacity as detected by an opacity sensing device for a period or periods aggregating more than three minutes in any hour. To comply with this part the Permit Holder shall install and maintain a District-approved opacity sensing continuous emission monitor (CEM).
(Basis: SIP 6-401, 40CFR 60.152(a)(2))
6. Total combined beryllium emissions from S-9 and S-10 are not to exceed 10 grams in any 24 hr period. Unless a waiver is obtained by the APCO (according to 40CFR 60.13) the Permit Holder is to demonstrate compliance according to EPA Method 104 of Appendix B of 40CFR 61.33. (Basis: BAAQMD 11-3-301)
7. Total combined mercury emissions from S-9 and S-10 are not to exceed 3200 gram per 24 hour period. Compliance with this section may be demonstrated by performing an EPA Method 105 (Mercury in Wastewater Treatment Plant Sewage Sludge) test or an equivalent test as pre-approved by the APCO.
(Basis: BAAQMD 11-5-302, 40 CFR 61.52)
8. If mercury emissions exceed 1600 gram per 24 hour period, the Permit Holder shall monitor mercury emissions at a frequency of at least
once
every 12 months. (Basis: 40CFR61.55(a))
9. Lead emissions are not to exceed 15 lb/day per furnace (Basis: BAAQMD 11, Rule 1).
10. To demonstrate compliance with parts 4 through 9, above, and with Regulation 6-211, the Permit Holder shall perform a compliance source

test within 180 days of furnace startup, and ongoing source tests at a frequency of at least once every 60 months of furnace operation following the previous source test. Source test protocols shall be prepared and pre-approved by the APCO prior to performing any source tests. Note: Source tests performed prior to issuance of the Title V permit may be used to demonstrate initial compliance as long as appropriate sampling and analysis methods were used and approved by the APCO. Source tests to demonstrate compliance with 40 CFR part 503 may also be used to demonstrate compliance as long as appropriate sampling and analysis methods were used and approved by the APCO. Source test results shall be submitted to the APCO within 60 days of analytical completion.
(Basis: BAAQMD 2-6-501)

- a. Sewage Sludge sampling: Sewage sludge sampling shall be performed as noted in part 13(f) below. The Permit Holder shall use Method 209F to determine dry sludge content, Method 104 for beryllium, Method 12 for lead, and Method 105 for mercury. (Basis: 40CFR 60.154)
- b. Exhaust particulate testing: Three composite exhaust samples shall be collected according to EPA Method 5 and analyzed for particulate mass. (Basis: 40CFR 60.154 (d)(3))
- c. Exhaust metals testing: Three composite exhaust samples shall be collected according to EPA Method 5. Two of the samples shall be analyzed by neutron activation for arsenic, cadmium, chromium, copper, nickel, selenium and zinc; and one sample shall be analyzed according to Method 104 (or Method 103) and Method 12, respectively, for beryllium and lead. (Basis: 40CFR 60.154(d)(3)(i))

11. Ongoing Emissions - Sulfur Dioxide: Exhaust

gas emissions shall not exceed 300 ppm,
dry SO₂. (Basis: BAAQMD 9-1-304)

To demonstrate compliance with this requirement the Permit Holder shall perform a District-approved source test at a frequency of at least one time every calendar year. Source tests shall be conducted using BAAQMD Method ST-19A (or an approved equivalent method) according to a pre-approved source test protocol. Results shall be submitted to the APCO within 60 days of analytical completion. (Basis: BAAQMD 9-1-304)

12. NMOC emissions shall be abated by at least 98% by weight across S-9 and S-10 or the concentration shall be less than 120 ppmv, dry NMOC, expressed as methane corrected to 3% oxygen when firing landfill gas. To demonstrate compliance with this requirement, the Permit Holder shall perform a pre-approved initial source test within 60 days of July 1, 2002, or within 60 days of furnace startup (if the

furnace

is not operational on July 1, 2002) and ongoing source tests at a frequency of not less than 9 months nor greater than 12 months of furnace operation, after the most recent compliance source test. Source test protocols shall be prepared and pre-approved by the APCO prior to performing any source tests.
(Basis: BAAQMD 8-34-301.4)

To ensure compliance with the above NMOC Abatement efficiency or emission standard, the Permit Holder shall maintain the rolling 3 clock-hour average temperature of hearth 1 at 1,000 degrees F or greater. The Permit Holder shall calculate and record the rolling 3 clock-hour average temperatures in a District-approved log.
(Basis: 40CFR 60.158(c)(1)(i))

If a source test demonstrates compliance with all applicable requirements at a different minimum hearth 1 temperature, the APCO may revise the above temperature

limit, in accordance with the procedures identified in Regulation 2-6-414 or 2-6-415 based on the following criteria. The minimum hearth 1 temperature for S-9 and S-10 shall be equal to the average hearth 1 temperature measured during a complying source test (NMHC emission limit was met) minus 50 degrees F.
(Basis: 40 CFR 60.758(c)(1)(i))

13. Ongoing Monitoring: To demonstrate compliance with the above parts and as required by the New Source Performance Standard (NSPS) for sewage treatment plants the Permit Holder shall:
- a. Install, calibrate, maintain and operate a flow measuring device, which can be used to determine either the mass or volume of sludge charged to the incinerator. The sludge flow measurement device shall be certified by the manufacturer to have an accuracy of plus or minus 5 percent over its operating range. The flow measurement device shall be operated continuously and data recorded during all periods of operation of the furnace.
(Basis: 40CFR 60.153(a)(1))
 - b. Install, calibrate, maintain and operate a monitoring device that continuously measures and records the pressure drop of the gas flow through the wet scrubber. Where a combination of wet scrubbers is used in series, the pressure drop of the gas flow through the combined system shall be continuously monitored. The device used to monitor scrubber pressure drop shall be certified by the manufacturer to be accurate within plus or minus 1 inch water gauge and shall be calibrated on an annual basis in accordance with manufacturer's instructions. (Basis: 40CFR 60.153(b)(1))
 - c. Install, calibrate, maintain and operate

a monitoring device that continuously measures and records the oxygen content of the incinerator exhaust gases. The oxygen monitor shall be located upstream of any rabble shaft cooling air inlet in the incinerator exhaust gas stream, fan, ambient air recirculation damper, or any other source of dilution air. The oxygen monitoring device shall be certified by the manufacturer to have a relative accuracy of plus or minus 5 percent over its operating range and shall be calibrated according to method(s) prescribed by the manufacturer at least once each 24-hour operating period.
(Basis: 40CFR 60.153(b)(2))

d. Install, calibrate, maintain and operate temperature measuring devices at every hearth in multiple hearth furnaces. A minimum of one thermocouple shall be installed in each hearth in the cooling and drying zones, and a minimum of two thermocouples shall be installed in each hearth in the combustion zone. Each temperature measuring device shall be certified by the manufacturer to have an accuracy of plus or minus 5 percent over its operating range. The temperature monitoring devices shall be operated continuously and data recorded during all periods of operation of the furnace.
(Basis: 40CFR60.153(b)(3))

e. Install, calibrate, maintain and operate a device for measuring the fuel flow to the incinerator. The flow measuring device shall be certified by the manufacturer to have an accuracy of plus or minus 5 percent over its operating range. The fuel flow device(s) shall be operated continuous and data recorded during all periods of operation of the furnace.
(Basis: 40CFR 60.153(b)(4))

f. Collect and analyze a grab sample of the

sludge fed to the furnace once per day. The dry sludge content and the volatile solids content shall be determined in accordance with the method specified in 40 CFR 60.154 c (2).
(Basis: 40CFR 60.153(b)(5))

g. In order to demonstrate compliance with part 2, above, the Permit Holder shall maintain daily records of total solid fuel throughput (ton/day) to S-9 and S-10 sewage sludge furnaces.
(Basis: Cumulative Increase)

h. All records shall be retained onsite for a period of at least 5 years and made available to the APCO upon request.
(Basis: Cumulative Increase)

i. During the test run evaluation of A-1001 and pilot abatement system, the Permit Holder shall evaluate the performance of the above pilot particulate removal system to develop a parameter to ensure ongoing compliance with 3 - 8. (Basis: BAAQMD 1-521)

A-1002

shall

monitoring

parts

1001

test

permit

Upon completion of the pilot evaluation of A- and A-1002, the Permit Holder may elect to discontinue operation of A-1001 and A-1002. Upon notification of the shutdown of this equipment, the District shall handle this modification as an Administrative Amendment.

14. Reporting: As required by the New Source Performance Standard (NSPS) and NESHAPs for Beryllium and Mercury, the Permit Holder shall submit to the Administrator and the District semi-annually a report in writing which contains the following:

(Basis: 40 CFR 60.155)

- a. A record of average wet scrubber pressure drop measurements for each period of 15 minutes duration or more, when feeding sewage sludge to the furnace, when the pressure drop of the scrubber was less than the following limits:

(Basis: 40 CFR 60.155(a)(1))

1. S-9 (Furnace 1) Wet Scrubber A-2:
5.9 inches water column.
2. S-10 (Furnace 2) Wet Scrubber A-4:
4.7 inches water column.

- b. A record of average oxygen content in the incinerator exhaust gas (prior to dilution) for each period of 1-hour duration or more that the oxygen content exceeds 10 percent.

(Basis: 40CFR 60.155(a)(2))

- c. Any recent reports as appropriate or as requested by the APCO.

(Basis: 40CFR 60.155(a)(3), (4), (5), (6))

list condition NUMBER >>

8. RECOMMENDATIONS

Issue Authority to Construct for A-1001 and A-1002 subject to revised condition 21423.

By:

Randy E. Frazier, P.E.
Senior Air Quality Engineer
20 August 2007

APPENDIX F

ENGINEERING EVALUATION APPLICATION 18425

**Evaluation Report
A/N 18425
G# 6368 (P907, S25)
Contra Costa County Sanitation District, 5019 Imhoff Place, Martinez**

Background

Reinholdt Engineering, on behalf of CCSD, has submitted this application to replace the coaxial Phase I equipment on an existing aboveground gasoline tank. This site is currently permitted for a 2,000 gallon AST and one single product nozzle with coaxial Phase I and balance Phase II vapor recovery. No other modification is proposed beyond the Phase I change.

This lacks adequate bungs to accommodate the second connection necessary for a two-point system. Reinholdt proposes to connect the vapor return poppet to the vent line with a 2" tee connection. Since this tank only receives deliveries from bobtail trucks, this is acceptable. Equipment should comply with Executive Orders G-70-142A, 52AM, and 116F.

Emissions

This source is currently subject to cond #17105, which limits gasoline throughput to 400,000 gallons per year. No change in permitted throughput has been requested.

As both the existing coaxial Phase I equipment and the proposed two-point Phase II equipment were certified by CARB to be 95% effective, there should be no increase in emissions per unit throughput.

The net emission increase under this A/N will be zero.

Statement of Compliance

As there will be no net emissions increase from this project, this application is exempt from the BACT and offset requirements of Regulation 2, Rule 2.

The two point Phase I equipment is certified under G-70-97A and G-70-142A, while the existing Phase II equipment is certified under G-70-17AD and 52AM. Use of CARB certified equipment satisfies all requirements of District Regulation 8, Rule 7.

Permit Conditions

Authority to Construct Conditions:

(Data Bank Cond ID# to be assigned)

1. The Phase I equipment shall be installed in accordance with California Air Resources Board (CARB) Executive Orders G-70-97A and G-70-142A
2. Only the replacement of the existing coaxial Phase I system with two point equipment and any associated modifications of the tank to accommodate the new Phase I equipment is

authorized under this Authority to Construct. No other work, including modifications to dispensers or vapor recovery piping, is allowed.

3. The nominal inside diameter of the vapor side of the two-point system shall be no less than two inches anywhere between the storage tank and the vapor poppet.
4. This tank may only accept deliveries from bobtail trucks. The diameter of the fuel delivery hose shall not exceed 1 ½” and the delivery rate shall not exceed 80 gallons per minute.
5. The following performance tests shall be successfully conducted within (30) days of start-up:
 - I. **Static Pressure Performance Test, in accordance with CARB procedure TP-201.3B or the applicable equivalent District test procedure (ST-38). If the tank size is 500 gallons or less, the test shall be performed on an empty tank.**
6. The applicant shall notify Source Test by email at gdfnotice@baaqmd.gov or by FAX at (510) 758-3087, at least 48 hours prior to any testing required for permitting. Test results for all performance tests shall be submitted within fifteen (15) days of testing. Start-up tests results submitted to the District must include the application number and the GDF number. (For annual test results submitted to the District, enter "Annual" in lieu of the application number.) Test results may be submitted by email (gdfresults@baaqmd.gov), FAX (510) 758-3087) or mail (BAAQMD Source Test Section, Attention Hiroshi Doi, 939 Ellis Street, San Francisco CA 94109).
7. The current gasoline throughput at this facility shall not exceed 400,000 gallons of fuel per year.

Permit to Operate Conditions

COND# 17105 -----
For S-25 Non Retail Gasoline
Dispensing Facility

- *1. Pursuant to BAAQMD Toxic Section Policy, this facility's annual gasoline throughput shall not exceed 400,000 gallons in any consecutive 12 month period.
(Basis: Toxic Section Policy/Toxic Risk)
- *2. In order to demonstrate compliance with the above condition, Central Contra Costa Sanitary District shall maintain the following records and provide all of the data necessary to evaluate compliance with the above condition, including the following information:

Monthly gasoline throughput
(gallons/month)

All records shall be retained on-site for five years, from the date of entry, and made available for inspection by District staff upon request. These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable District Regulations.

(Basis: Toxic Section Policy/Toxic Risk)

list condition NUMBER >> 16516

COND# 16516 -----

-
The Static Pressure Performance Test (Leak Test) ST-38 shall be successfully conducted at least once in each twelve consecutive month period after the date of successful completion of the startup Static Pressure Performance Test.

The applicant shall notify Source Test by email at gdfnotice@baaqmd.gov or by FAX at (510) 758-3087, at least 48 hours prior to any testing required for permitting.

Test results for all performance tests shall be submitted within fifteen (15) days of testing. Start-up tests results submitted to the District must include the application number and the GDF number. (For annual test results submitted to the District, enter "Annual" in lieu of the application number.) Test results may be submitted by email (gdfresults@baaqmd.gov), FAX (510) 758-3087) or mail

(BAAQMD Source Test Section, Attention Hiroshi Doi, 939 Ellis Street, San Francisco CA 94109). (Basis: Regulation 8-7-407)

list condition NUMBER >> 24089

COND# 24089 -----

-
1. The nominal inside diameter of the vapor side of

the two-point system shall be no less than two inches

anywhere between the storage tank and the vapor poppet.

2. This tank may only accept deliveries from bobtail trucks. The diameter of the fuel delivery hose shall not exceed 1.5 inches and the delivery rate shall not exceed 80 gallons per minute.

Title V Permit Revisions

This plant has a Title V permit. This project will require a minor revision of the Title V permit. The plant engineer for P907 has been advised of the need to incorporate these changes into the Title V permit as soon as possible

Proposed revisions to the Title V permit are attached.

Recommendation

All fees have been paid. Recommend that an A/C be issued for the above project.

By _____ date _____

Scott Owen
Supervising AQ Engineer

APPENDIX G

ENGINEERING EVALUATION APPLICATION 18516

**EVALUATION REPORT
CENTRAL CONTRA COSTA SANITARY DISTRICT
APPLICATION #18516
PLANT #907**

BACKGROUND

Central Contra Costa Sanitary District is applying for an A/C & P/O for altering the following equipment:

S-7 Auxiliary Boiler ME 74139, Cleaver Brooks CB-700-200, 28 MM BTU/hr
S-8 Auxiliary Boiler ME 74140, Cleaver Brooks CB-700-200, 28 MM BTU/hr

This is an alteration application. The applicant requests to make the following changes to S-7 and S-8:

- Replacement of existing open-loop controller and mechanical jackshaft control linkage with direct-acting servomotors and solid state, programmable, closed-loop control system.
- Addition of temperature monitoring equipment.
- Insulation of the boiler outside surfaces.
- Installation of a variable frequency drive for each combustion air fan.
- Replacement of boiler flange sealing surfaces.

The proposed project is essentially an elaborate oxygen trim control system to improve the efficiency and reliability of the boilers, and minimize air pollution emissions. This is an alteration of the two sources by definition Regulation 2-1-233. Because such changes may affect emissions, Regulation 2-1-233 requires a permit alteration. Continuing compliance with the NO_x and CO limits of Regulation 9-7, and the NMOC limits of Regulation 8-34 will be verified by the recurring source test requirements in the permit conditions. (See Compliance section of this evaluation report.) There will be no change in the current permit condition.

The applicant confirms in his September 15, 2008 email that they will conduct source tests, at the completion of the project, to demonstrate compliance of Parts 3, 4, 5, and 8 of the current permit condition #21422.

EMISSION CALCULATIONS

There will be no increase or no change in emission of the regulated air pollutants. The no increase will be verified by source tests.

PLANT CUMULATIVE INCREASE

There will no plant cumulative increase.

RISK SCREEN ANALYSIS

Since there will be no increase in TAC emissions, health risk analysis is not required.

BACT DETERMINATION

This application does not trigger BACT requirement because there will be no increase in emissions.

OFFSET REQUIREMENT

Offset is not required because no emission increase is expected.

COMPLIANCE DETERMINATION

The proposed boilers, after the alteration project, are expected to comply with:

- 9-1-302 (General Emission Limitation, ≤ 300 ppmv dry SO_2)
- 9-1-302 (Fuel Burning, Fuel with sulfur content ≤ 0.5 % w/w)
- 9-7-301.1 (Emission Limits, $\text{NO}_x \leq 30$ ppmv @ 3% O_2 for gaseous fuel)
- 9-7-301.2 (Emission Limits, $\text{NO}_x \leq 40$ ppmv @ 3% O_2 for non-gaseous fuel)
- 8-34-301.4 (Landfill Gas Collection and Emission Control System Requirements, 98% NMOC destruction efficiency or 120 ppmv NMOC, dry, @3% O_2 , at the exhaust gas stream)

This application does not trigger the New Source Review rule (Regulation 2-2) or the Toxics Review rule (Regulation 2-5).

Federal New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAPS) requirements are not applicable.

This application is exempt from the California Environmental Quality Act (CEQA) because the permit review is ministerial and covered by Permit Handbook Chapter 2.1.

The proposed sources are not located within 1,000 feet of the outer boundary of the nearest school, therefore school public notice is not required.

CONDITIONS

There is no change in permit condition.

For S-7 Auxiliary Steam Boiler 1 and S-8
Auxiliary Steam Boiler 2; Both Boilers
Specified as Follows: Cleaver Brooks

CB700, Maximum Firing Capacity:
28 MM Btu/hr (HHV) with High Turn Down
Multi-fuel Burners and Cleaver Brooks
induced Flue Gas Recirculation System.

1. S-7 Boiler and S-8 Boiler shall be fired at a rate not to exceed 28 MM Btu/hr (HHV) per boiler. (Basis: Cumulative Increase)
2. Exhaust gas emissions shall not exceed 300 ppm, dry SO₂. The Permit Holder shall use the sulfur content of the fuels in conjunction with a material balance to calculate the exhaust gas sulfur dioxide concentration. The Permit Holder shall calculate and record the resulting sulfur dioxide concentration at least 1 time every calendar quarter.
(Basis: BAAQMD 9-1-302)

The Permit Holder shall monitor and record the sulfur content of the landfill gas at a frequency of at least one time every calendar month when burning landfill gas.
(Basis: BAAQMD 1-441)

3. Emissions of nitrogen oxides (NO_x) shall not exceed 30 ppmv (@ 3 percent O₂, dry) when firing gaseous fuels.
(Basis: BAAQMD 9-7-301.1)
4. Emissions of nitrogen oxides (NO_x) shall not exceed 40 ppmv (@ 3 percent O₂, dry) when firing distillate oil.
(Basis: BAAQMD 9-7-302.1)
5. Emissions of carbon monoxide (CO) shall not exceed 400 ppmv @ 3 percent O₂, dry.
(Basis: BAAQMD 9-7-301.2, 9-7-302.2)
6. The distillate oil sulfur content shall not exceed 0.5 percent by weight.
(Basis: BAAQMD 9-1-304)
7. To demonstrate ongoing compliance with parts 3, 4, and 5 above, the Permit Holder shall perform a compliance source test at a frequency of at least 1 time every 60 months after the previous source test. Compliance source tests shall be conducted in accordance with District Manual of Procedures (MOP). Source test results shall be kept on site and made available to the

District upon request.
(Basis: Cumulative Increase)

8. While burning landfill gas, NMOC emissions shall be abated by at least 98% by weight across S-7 and S-8 auxiliary boiler(s), or the exhaust emissions of NMOC shall be less than 120 ppm by volume, dry basis, expressed as methane, corrected to 3% oxygen.
(Basis: BAAQMD 8-34-301.4)

To demonstrate ongoing compliance with this requirement the Permit Holder shall perform a pre-approved annual source test in accordance with the District Manual of Procedures. The annual source test shall be conducted at a frequency of not less than 9 months nor greater than 12 months after the most recent compliance source test. (Basis: BAAQMD 8-34-412)

To ensure ongoing compliance with the above NMOC destruction efficiency, the Permit Holder shall maintain the rolling 3 clock-hour average first pass boiler temperature of S-7 and S-8 at 770 degrees F or greater when burning landfill gas. While burning landfill gas, the Permit Holder shall continuously monitor the first pass temperatures of S-7 and S-8 and shall calculate and record the rolling 3 clock-hour average temperatures in a District-approved log.
(Basis: 40 CFR 50.758(c)(1)(i))

If a source test demonstrates compliance with all applicable requirements at a different minimum first pass temperature, the APCO may revise the above temperature limit, in accordance with the procedures identified in Regulation 2-6-414 or 2-6-415 based on the following criteria. The minimum first pass temperature for S-7 and S-8 shall be equal to the average first pass temperature measured during a complying source test (NMOC and CO emission limits were met) minus 50 degrees F.
(Basis: 40 CFR 60.758(c)(1)(i))

9. The Permit Holder shall maintain the following records and provide all of the data necessary to demonstrate compliance with the above conditions, including the following information:
 - a. Monthly records of the quantity of natural gas, landfill gas and distillate oil burned at this source.

- b. Monthly records of the distillate oil sulfur content certification.
- c. Monthly records shall be totaled for each consecutive 12-month period.
- d. Records of the rolling 3 clock-hour average first pass boiler temperatures.
- e. All records shall be retained on site for five years from the date of entry, and made available for inspection by the District upon request. These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable District Regulations.
(Basis: Cumulative Increase, BAAQMD 9-1-304)

RECOMMENDATION

I recommend an alteration letter be issued to Central Contra Costa Sanitary District for the following equipment:

- S-7 Auxiliary Boiler ME 74139, Cleaver Brooks CB-700-200, 28 MM BTU/hr
- S-8 Auxiliary Boiler ME 74140, Cleaver Brooks CB-700-200, 28 MM BTU/hr

Alteration:

- Replacement of existing open-loop controller and mechanical jackshaft control linkage with direct-acting servomotors and solid state, programmable, closed-loop control system.
- Addition of temperature monitoring equipment.
- Insulation of the boiler outside surfaces.
- Installation of a variable frequency drive for each combustion air fan.
- Replacement of boiler flange sealing surfaces.

EXEMPTION

None.



Hon-ting Man
Air Quality Engineer
September 16, 2008

APPENDIX H

ENGINEERING EVALUATION APPLICATION 19719

EVALUATION REPORT
Central Contra Costa Sanitary District
Application #19719 - Plant #907 (Site #A0907)
5019 Imhoff Place
Martinez, CA 94553

BACKGROUND

Central Contra Costa Sanitary District applied for an Authority to Construct/Permit to Operate for the following:

S-195 Emergency Standby Generator
Detroit Diesel, Model 16V4000G43, 3058 BHP, 2008

Abated by A-1195
Catalyzed Diesel Particulate Filter
Miratech, Model P CBSI64V-55-20

S-196 Emergency Standby Generator
Detroit Diesel, Model 16V4000G43, 3058 BHP, 2008

Abated by A-1196
Catalyzed Diesel Particulate Filter
Miratech, Model P CBSI64V-55-20

These engines will replace currently permitted engines, Source 189 and 190. Using the CARB certified emission factors with abatement, these engines would be allowed up to 50 hours for testing and maintenance. Since the facility received a guarantee that the PM emission factor would be equal to or less than 0.01 grams/bhp-hr, the facility has agreed to source test the engines to verify the emission factor. The engines will each be limited to 50 hours per year for testing and maintenance unless the source test shows the diesel PM emission factor is at or below 0.01 grams/bhp-hr. If so, the number of testing and maintenance hours will be increased to 100 hours.

EMISSION CALCULATIONS

Per Division policy, non-emergency operation usage is counted towards emission calculations for standby engines. Operation during possible emergency events is not considered.

Emission calculation for PM, POC, CO and NO_x use CARB certified emission factors.

Emission factors for S-189 and S-190

Pollutant	Emission Factor, g/bhp-hr
PM10	0.63
POC	1.05
CO	4.2
NOx	13.0

Emission factors for new engines, S-195 and S-196 (pre-source test)

Pollutant	Emission Factor, g/bhp-hr
PM10	0.119
POC	0.213
CO	0.820
NOx	4.038

$$\left(\text{Emission Factor in } \frac{\text{g}}{\text{hp} \cdot \text{hr}} \right) * (\text{hp rating}) * \left(\frac{\# \text{ hours}}{\text{year}} \right) * \left(\frac{\text{pounds}}{453.6 \text{ grams}} \right) = \frac{\text{X pounds}}{\text{year}}$$

Emission calculation for SO₂ per engine

$$\left(\frac{7.05 \text{ lb}}{\text{gal}} \right) * \left(\frac{\text{gal}}{137000 \text{ BTU}} \right) * \left(\text{Rating in } \frac{\text{BTU}}{\text{hour}} \right) * \left(\frac{\# \text{ hr}}{\text{year}} \right) * \left(\frac{\text{mole SO}_2}{\text{mole S}} \right) * \left(\frac{64 \text{ lb/mole SO}_2}{32 \text{ lb/mole S}} \right) * (0.0005) = \frac{\text{X lb of SO}_2}{\text{year}}$$

See attached spreadsheet for additional calculations.

PLANT CUMULATIVE INCREASE (since 4/5/91)

To determine the cumulative increase/contemporaneous decrease of emissions from this project, the average approved emissions from 2006, 2007 and 2008 for S-189 and S-190 were compared to the baseline of assuming 20 hours of use from testing and maintenance from S-189 and S-190. The 3-year baseline comparison follows procedures in Section 2-2-605. The emission from the new engines, S-195 and S-196 was compared with the small emission value for S-189 and S-190. See the attached spreadsheet.

For S-95 & S-196 permitted at 50 hours for maintenance and testing:

Material	App. Increase, tpy
PM10	-0.079
POC	-0.056
CO	-0.057
NOx	-0.178
SOx	0.066

For S-95 & S-196 permitted at 100 hours for maintenance and testing:

Material	App. Increase, tpy
PM10	-0.073
POC	0.016
CO	0.220
NOx	1.183
SOx	0.133

TOXIC SCREENING ANALYSIS

There is no increase in emissions as defined by diesel PM. There will be a net decrease in PM10 emissions with the shutdown of the old engines (S-189 and S-190), and their replacement by the new engines (S-195 and S-196) even if they are ultimately permitted at 100 hours per year for maintenance and testing.

BEST AVAILABLE CONTROL TECHNOLOGY

Daily emissions may exceed 10 pounds per highest day. This source complies with BACT2 requirements.

OFFSETS

The facility emits more than 10 tons per year but less than 35 tons per year of POC emissions. The facility emits more than 35 tons per year of NOx emissions. At 50 hours for maintenance and testing, emissions of POC and NOx do not increase. At 100 hours for maintenance and testing, emissions of POC and NOx increase by 0.018 and 1.183 tons per year respectively. If the owner/operator decides to increase the number of hours of maintenance and testing based on the test results, then the owner/operator shall surrender 1.361 tons per year of emission offsets for NOx prior to approval, based on a 1:1.15 ratio. Offsets of 0.018 tons per year of POC emissions will be provided by the small facility bank.

STATEMENT OF COMPLIANCE

The owner/operator is expected to meet the requirements of Regulation 6 for Visible Emissions, Regulation 9-8-330 for hours of operation and Section 93115, title 17 of the California Code of Regulations (Airborne Toxic Control Measure for Stationary Compression Ignition Engine). The owner/operator is expected to comply with monitoring and recordkeeping requirements of Regulation 9-8-530, and standard Permit Condition #24356, #24357 and 22850 (outlined in Section VIII).

The engineering review is consistent with similar projects. Standard permit conditions were applied and standard emission factors were used in accordance with Permit Handbook, Chapter 2.3. This project is considered to be ministerial and therefore is not subject to CEQA review. PSD is not triggered.

The engine is subject to NSPS: 40 CFR 60, Subpart IIII because it was manufactured after April 1, 2006. It complies with the NSPS emission standards as certified by CARB Executive Order U-R-001-0325 for the equivalent California standards. NESHAPS does not apply because the plant is not a major facility for HAPs.

This project is over 1,000 feet from the nearest public school and is therefore not subject to the public notification requirements of Regulation 2-1-412.

CONDITIONS

Condition #24356

The owner/operator shall comply with the following start-up conditions for Sources 195 and 196. Parts 3, 4, and 5 only apply if the owner/operator plans to pursue an increase in hours for maintenance and testing allowed under Permit Condition #22850.

1. The owner/operator shall shutdown S-189 and surrender its Permit to Operate to the District within 90 days of start up of S-195. [Basis: Cumulative increase, Regulation 2-2-410]
2. The owner/operator shall shutdown S-190 and surrender its Permit to Operate to the District within 90 days of start up of S-196. [Basis: Cumulative increase, Regulation 2-2-410]
3. Not later than 60 days from the startup of each engine, the owner/operator shall conduct District approved source tests to determine the particulate matter (PM) emission rate in grams per brake horsepower-hour. The owner/operator shall perform the emission test method using the ISO 8178 D2 5-mode steady state test cycle, as specified in Section 93115.14 of the state ATCM for diesel particulates from compression ignition engines. The owner/operator shall submit the source test results to the District no later than 60 days after the source test. [Basis: BACT, Cumulative Increase, Stationary Diesel Engine ATCM" section 93115, title 17, CA Code of Regulations, subsection (i)(1)(A)]
4. The owner/operator shall obtain approval for all source test procedures from the District's Source Test Section prior to conducting any tests. The owner/operator shall comply with all applicable testing requirements as specified in Volume V of the District's Manual of Procedures. The owner/operator shall notify the District's Source Test Section, in writing, of the source test protocols and projected test dates at least 7 days prior to testing. [Basis: BACT, Cumulative Increase]
5. If the results of the source tests demonstrate that the PM emissions factor is at or below 0.01 grams per brake horsepower-hour and the owner/operator chooses to increase the number of hours of maintenance and testing from 50 hours to 100 hours each per year, the owner/operator shall notify the District in writing and obtain approval. In addition, the owner/operator shall surrender emission offsets of 1.361 tons per year for NO_x (or other amount based on the number of hours requested at an emission offset ratio of 1 to 1.15) before the change can be made. [Basis: Cumulative increase, Offsets]

Condition #24357

The owner/operator shall comply with the following

conditions for the Miratech, CombiKat CBS
Particulate Trap, Catalyzed Diesel Particulate
Filter.

1. The owner/operator shall abate emissions from the engine at all times. [Basis: Cumulative Increase, Regulation 2-5]
2. The owner/operator shall clean the filter on or before 2,000 hours of operation. [Basis: Cumulative Increase, Regulation 2-5]
3. The owner/operator shall maintain the following records:
 - a. The date, action taken, reading on hour meter and the reason of any catalyst maintenance and regeneration; and
 - b. Diesel fuel specifications indicating the sulfur content.Records shall be kept for at least 36 months from the date the record was made. Records shall be made available to District staff upon request. [Basis: Recordkeeping]

Condition #22850

1. The owner/operator shall not exceed 50 hours per year per engine for reliability-related testing. [Basis: "Stationary Diesel Engine ATCM" section 93115, title 17, CA Code of Regulations, subsection (e)(2)(A)(3) or (e)(2)(B)(3)]
2. The owner/operator shall operate each emergency standby engine only for the following purposes: to mitigate emergency conditions, for emission testing to demonstrate compliance with a District, State or Federal emission limit, or for reliability-related activities (maintenance and other testing, but excluding emission testing). Operating while mitigating emergency conditions or while emission testing to show compliance with District, State or Federal emission limits is not limited. [Basis: "Stationary Diesel Engine ATCM" section 93115, title 17, CA Code of Regulations, subsection (e)(2)(A)(3) or (e)(2)(B)(3)]
3. The owner/operator shall operate each emergency standby engine only when a non-resettable totalizing meter (with a minimum display capability of 9,999 hours) that measures the hours of operation for the engine is installed, operated and properly maintained. [Basis: "Stationary Diesel Engine ATCM" section 93115, title 17, CA Code of Regulations, subsection(e)(4)(G)(1)]
4. Records: The owner/operator shall maintain the following

monthly records in a District-approved log for at least 36 months from the date of entry (60 months if the facility has been issued a Title V Major Facility Review Permit or a Synthetic Minor Operating Permit). Log entries shall be retained on-site, either at a central location or at the engine's location, and made immediately available to the District staff upon request.

- a. Hours of operation for reliability-related activities (maintenance and testing).
- b. Hours of operation for emission testing to show compliance with emission limits.
- c. Hours of operation (emergency).
- d. For each emergency, the nature of the emergency condition.
- e. Fuel usage for each engine(s).

[Basis: "Stationary Diesel Engine ATCM" section 93115, title 17, CA Code of Regulations, subsection (e)(4)(I), (or, Regulation 2-6-501)]

5. At School and Near-School Operation:

If the emergency standby engine is located on school grounds or within 500 feet of any school grounds, the following requirements shall apply:

The owner/operator shall not operate each stationary emergency standby diesel-fueled engine for non-emergency use, including maintenance and testing, during the following periods:

- a. Whenever there is a school sponsored activity (if the engine is located on school grounds)
- b. Between 7:30 a.m. and 3:30 p.m. on days when school is in session. "School" or "School Grounds" means any public or private school used for the purposes of the education of more than 12 children in kindergarten or any of grades 1 to 12, inclusive, but does not include any private school in which education is primarily conducted in a private home(s). "School" or "School Grounds" includes any building or structure, playground, athletic field, or other areas of school property but does not include unimproved school property.

[Basis: "Stationary Diesel Engine ATCM" section 93115, title 17, CA Code of Regulations, subsection (e)(2)(A)(1)] or (e)(2)(B)(2)]

RECOMMENDATION

I recommend the Authority to Construct be issued to CCCSD for:

**S-195 Emergency Standby Generator
 Detroit Diesel, Model 16V4000G43, 3058 BHP, 2008**

**Abated by A-1195
 Catalyzed Diesel Particulate Filter
 Miratech, Model P CBSI64V-55-20**

**S-196 Emergency Standby Generator
 Detroit Diesel, Model 16V4000G43, 3058 BHP, 2008**

**Abated by A-1196
 Catalyzed Diesel Particulate Filter
 Miratech, Model P CBSI64V-55-20**

Sources 195 and 196 are subject to Conditions 24356, 24357 and 22850.

Fred Tanaka
Senior Air Engineer, Engineering Division

Date: _____

APPENDIX I

ENGINEERING EVALUATION APPLICATION 22019

ENGINEERING EVALUATION

Central Contra Costa Sanitary District

Plant: 907

Application: 22019

5019 Imhoff Place
Martinez, CA 94553

BACKGROUND

The **Central Contra Costa Sanitary District** is applying for an Authority to Construct and/or a Permit to Operate the following equipment:

S-197 Emergency Sludge Loading Facility

abated by

A-197 Bay Products, Inc. Deep Bed Odor Control System

The Central Contra Costa Sanitary District is installing S-197 in case of a catastrophic failure of one or both of the multiple hearth furnaces (S-9 and S-10). Typically one furnace is running during the year and the next year the other furnace will run. At any given time, should an operating furnace fail, it takes a number of weeks to get the other furnace back up and running. S-197 would be needed at this time or in case both furnaces are not available. The emergency sludge loading facility is designed to temporarily store dewatered biosolids until the sludge can be loaded onto tanker trucks for transportation to a local landfill. The dewatered sludge will be conveyed via a sealed pipeline to hoppers (elevated pipeway from the solids control building to the sludge loading facility that is enclosed but the area underneath is open) on the sludge loading facility. Tank trucks will pull into the fully enclosed sludge loading facility and have dewatered sludge dropped into the truck from the hoppers. The tank truck loading area is fully enclosed and ventilated to A-197.

EMISSIONS

The expected emissions from S-197 are only odor, therefore no emissions calculations are necessary.

PLANT CUMULATIVE INCREASE

There is no increase of emissions.

TOXIC RISK SCREENING ANALYSIS

There is no increase of emissions.

BACT

There is no increase of emissions.

OFFSETS

There is no increase of emissions.

CEQA

The project is considered to be ministerial under the District's CEQA Regulation 2-1-311 and therefore is not subject to CEQA review. The engineering review for this project requires only the application of standard permit conditions and standard emissions factors and therefore is not discretionary as defined by CEQA (Permit Handbook Chapters 8.2).

STATEMENT OF COMPLIANCE

The Central Contra Costa Sanitary District is subject to Regulation 1-301 -- Public Nuisance.

Public notification requirements of Regulation 2-1-412 are not triggered since emissions are not increasing.

Central Contra Costa Sanitary District

Application: 22019

Plant: 907

PSD, NSPS & NESHAP do not apply.

PERMIT CONDITIONS

CONDITION 24708

1. When operating the owner/operator shall abate S-197 with A-197 at all times. The owner/operator shall ensure that A-197 is installed, operated and maintained in good working order. [Basis: Public Nuisance]
2. The owner/operator shall only operate S-197 when S-9 and S-10 are not available. [Basis: Public Nuisance]
3. The owner/operator shall operate S-197 in an enclosed area. [Basis: Public Nuisance]
4. The owner/operator shall keep records of the date, time, amount of sludge loaded and the reason S-9 and S-10 were not available. Records shall be retained for at least 24 months from the date the record was made. Records shall be made available to the District upon request. [Basis: Recordkeeping]

End of Conditions

RECOMMENDATION

Waive the Authority to Construct and issue a Permit to Operate to the Central Contra Costa Sanitary District for:

S-197 Emergency Sludge Loading Facility

abated by

A-197 Bay Products, Inc. Deep Bed Odor Control System

Signed by Elisha Ezersky
Elisha Ezersky
Air Quality Engineer

7/27/10
Date

APPENDIX J

ENGINEERING EVALUATION APPLICATION 23040

ENGINEERING EVALUATION

Central Contra Costa Sanitary District

Plant: 907

Application: 23040

5019 Imhoff Place
 Martinez, CA 94553

BACKGROUND

Central Contra Costa Sanitary District (CCCSD) has applied to obtain an Authority to Construct (AC) and/or a Permit to Operate (PO) for the following equipment:

S-198

Low-Use Prime Portable Diesel Driven Pump

2008 Deutz, model: F3L

58 BHP, 0.42 MMBTU/hr

S-198 is considered a low-use engine because it will operate for less than 80 hours per calendar year. S-198 will be permitted for up to 72 hours of operation and will be operated at many different sites in the treatment plant area.

EMISSIONS

S-198 has been certified by CARB to be a cleaner burning engine. Except for SO₂, the emission factors for this engine are from the CARB Certification (CARB Executive Order # U-R-013-0258). The SO₂ emissions were calculated based on the maximum allowable sulfur content (0.0015 wt% S) of the diesel fuel with assumption that all of the sulfur present will be converted to SO₂ during the combustion process. The POC emission factor is assumed to be 5% of the total CARB's certified NO_x and POC (NMHC+NO_x) factor based on District Policy.

Basis:

- 58 hp output rating
- 72 hr/yr operation for testing and maintenance
- 2 gallons/hr max fuel use rate
- NMHC + NO_x, CO and PM10 emission factors provided by CARB Certification with Executive Order # U-R-013-0258
- POC is assumed to be 5% of NMHC + NO_x
- NO_x is assumed to be 95% of NMHC + NO_x
- The SO₂ emission factor was derived from EPA AP-42

Table 1. Total Abated Annual and Daily Emissions for S-198

Pollutant	Emission Factor (g/kw-hr)	Emission Factor (g/hp-hr)	Annual Emissions (lb/yr)	Annual Emissions (TPY)	Max. Daily (lb/day)
NO _x	4.18	3.12	28.7	0.014	9.56
POC	0.22	0.16	1.51	0.001	0.50
CO	3.50	2.61	24.0	0.012	8.01
PM10	0.27	0.20	1.85	0.001	0.62
SO ₂		0.001515*	0.05	0.000	0.02

*lb SO₂/MMBtu

PLANT CUMULATIVE INCREASE

The CCCSD is an existing facility. Therefore, the District’s database contains information on existing emissions at the plant. Table 2 summarizes the cumulative increase in criteria pollutant emissions that will result at Plant 907 from the operation of S-198.

Table 2. Plant Cumulative Increase

Pollutant	Increase with this application (TPY)
NO _x	0.014
POC	0.001
CO	0.012
PM ₁₀	0.001
SO ₂	0.000

TOXIC RISK SCREENING ANALYSIS

This application required a Toxics Risk Screen because the diesel particulate emissions are greater than the toxic trigger level. See Table 3.

Table 3. Diesel Exhaust Particulate Matter Emissions

Toxic Pollutant Emitted	Emission Rate (lb/yr)	Risk Screening Trigger (lb/yr)
PM ₁₀ (Diesel Particulate)	1.85	0.34

Estimates of residential risk assume exposure to annual average toxic air contaminant concentrations occur 24 hours per day, 350 days per year, for a 70-year lifetime. Risk estimates for offsite workers assume exposure occurs 8 hours per day, 245 days per year, for 40 years. Risk estimates for students assume a higher breathing rate, and exposure is assumed to occur 10 hours per day, 36 weeks per year, for 9 years.

Based on 72 hours per year of operation, the emergency generator passed the Health Risk Screening Analysis (HRSA) conducted on March 18, 2011 by the District’s Toxic Evaluation Section. The source poses no significant toxic risk, since the increased cancer risk to the maximally exposed receptor (resident) is 0.3 in a million with a hazard index for of 0.00009. The increased cancer risk to worker is 0.2 in a million with a hazard index of 0.0002. The source is not located near students. In accordance with the District’s Regulation 2, Rule 5, this risk level is considered acceptable.

BACT

In accordance with Regulation 2, Rule 2, Section 301, BACT is triggered for any new or modified source with the potential to emit 10 pounds or more per highest day of POC, NPOC, NO_x, CO, SO₂ or PM₁₀.

BACT is not triggered since the maximum daily emissions of these pollutants do not exceed 10 lb/day. Please refer to Table 1 on page 1 of this evaluation.

OFFSETS

Offsets must be provided for any new or modified source at a facility that emits more than 10 tons/yr of POC or NO_x per Regulation 2, Rule 2, Section 302. The District may provide offsets from the Small Facility Banking Account for a facility with emissions between 10 and 35 tons per year of POC or NO_x, provided that facility has no available offsets. The current PTE for NO_x is 70.8 TPY and for POC is 20.8 TPY. There are three banking certificates for the plant. The banking certificate numbers for the plant are 448, 478 and 525. Certificate #448 does not have any balance left for offsets. However, certificate numbers 478 and 525 have 2.243 ton per year and 1.12 ton per year of NO_x, and 0.561 and 0.153 of POC, respectively, available for offsets. Offsets of 0.014 tons per year of NO_x and 0.001 ton per year of POC will be provided by the applicant’s Banking Certificate #478.

CARB PORTABLE DIESEL ENGINE ATCM

The State Office of Administrative Law approved the Airborne Toxic Control Measure (ATCM) on November 8, 2004. State law requires the local Air Districts to implement and enforce the requirements of the ATCM effective on September 12, 2007. Portable certified emergency or low-use diesel-fueled engines are expected to meet one of the following requirements by January 1, 2020, as of ATCM 93116.3(b)(3):

- (A) the portable diesel-fueled engine is certified to Tier 4 emission standards for newly manufactured nonroad engines; or
- (B) the portable diesel-fueled engine is equipped with a properly functioning level-3 verified technology; or
- (C) the portable diesel-fueled engine is equipped with a combination of verified emission control strategies that have been verified together to achieve at least 85 percent reduction in diesel PM emissions.

This emergency standby diesel engine (S-198) is in compliance with the above ATCM requirements. This engine is subject to the EPA Tier 4 Interim off-road CI engine standards for HC, NO_x, NMHC+NO_x and CO. As shown in the Table 4, the engine meets these requirements.

Table 4. ATCM Tier 4 Compliance

	CARB Certified g/bhp-hr	ATCM Tier 2 g/bhp-hr
NMHC+NO _x	3.28	3.5
NO _x	N/A	N/A
NMHC (POC)	N/A	N/A
CO	2.61	3.7
PM ₁₀	0.20	0.22

STATEMENT OF COMPLIANCE

Source S-198 is subject to and expected to be in compliance with the requirements of District Regulation 1-301 (Public Nuisance), Regulation 6-1-303 (Ringelmann No. 2 Limitation), Regulation 9-1-302 (Sulfur Dioxide ground level concentration), and Regulation 9-1-304 (0.5% by weight sulfur). Any portable diesel engine, which operates exclusively using diesel fuel is not be subject to the requirements of Regulations 9-8-301, 9-8-302, and 9-8-502 per Regulation 9, Rule 8, Section 110.2.

This application is considered to be ministerial under the District's Regulation 2-1-311 and therefore is not subject to CEQA review. The engineering review for this project requires only the application of standard permit conditions and standard emission factors in accordance with Permit Handbook Chapter 2.3.

This facility is greater than 1,000 feet from the nearest school and therefore is not subject to the public notification requirements of Regulation 2-1-412.

PSD, NSPS, and NESHAPs do not apply.

PERMIT CONDITIONS

CONDITION # 24911

1. The owner/operator shall operate at all times the mobile equipment in conformance with the eligibility requirements set forth in BAAQMD Regulation 2-1-220 for portable equipment. [Basis: Portable Eligibility Requirements]
2. If the owner/operator places the portable equipment at any fixed location in the Bay Area Air Basin for more than 12 months, the portable permit will automatically revert to a conventional permanent location BAAQMD permit and will lose its portability. [Basis: Portable Eligibility Residence Time Requirement]
3. Pursuant to the definition of low use engine, the owner/operator shall not operate more than 72 hours per year per engine. [Basis: "ATCM for Diesel Particulate Matter from Portable Engines Rated 50 Horsepower or Greater" section 93116.2, title 17, CA Code of Regulations, subsection (a)(21)]
4. The owner/operator of S-198 shall not operate the engine for more than 24 hours during any calendar day. The total operation is limited to 72 hours of operation in any consecutive 12-month period. [Basis: Cumulative increase, BACT, Toxic Risk Screen]
5. The owner/operator shall only fire the mobile equipment with diesel fuel containing less than 0.0015% by weight sulfur. [Basis: Regulation 9-1]
6. The owner/operator shall not discharge any air contaminant into the atmosphere for a period or periods aggregating more than 3 minutes in any one hour that is as dark or darker than Ringlemann 1 or equivalent to 20% opacity. [Basis: Regulation 6]
7. The owner/operator will ensure that the mobile equipment shall not emit emissions in sufficient quantities as to cause a public nuisance under Regulation 1-301. [Basis: Regulation 1-301]
8. The owner/operator shall not operate the mobile equipment for longer than 72 consecutive hours within 1,000 feet of a school. To operate for longer than 72 consecutive hours within 1,000 feet of a school, the Permit Holder must submit an application to the District so that proper notification of your intended operation can be made known to the affected public in advance of any continued usage of the equipment. [Basis: Regulation 2-1-412]
9. The owner/operator shall keep the following records in a District approved logbook and retain the records for a period of at least two years following the date of entry. The owner/operator shall keep the log with the equipment and make it available to District staff upon request.
 - a. Weekly hours of operation or fuel usage for the mobile equipment.
 - b. Hours of operation or fuel usage shall be totaled on a monthly basis.[Basis: Portable Eligibility Residence Time Requirement]
10. The owner/operator shall notify the District, in writing, at least 3 days in advance, of the new location in which they intend to operate for longer than 72 consecutive hours. The notification shall include:
 - a. Brief description of the general nature of the operation.
 - b. The estimated duration of the operation at this site.
 - c. The name and phone number of a contact person where the equipment will be operated.[Basis: Compliance Verification]
11. Within 30 days after the end of every calendar year, the owner/operator shall provide a year-end summary showing the following information:
 - a. The location(s) at which the owner/operator operated the equipment for more than 72 consecutive hours including the dates operated at each location.
 - b. The total amount of hours of operation or fuel used by the mobile equipment for the previous 12 months.[Basis: Regulation 2-1-412]

End of Conditions

Permit Evaluation and Statement of Basis:
Plant No: A0907, Application No: 23445

Central Contra Costa Sanitary District
5019 Imhoff Place, Martinez, CA 94553

RECOMMENDATION

Issue an Authority to the Central Contra Costa Sanitary District for:

S-198
Low-Use Prime Portable Diesel Driven Pump
2008 Deutz, model: F3L
58 BHP, 0.42 MMBTU/hr

Subject to condition number 24911.

Hari Doss & Elisha Ezersky
Air Quality Engineer

Date

APPENDIX K

ENGINEERING EVALUATION APPLICATION 24448

ENGINEERING EVALUATION
Central Contra Costa Sanitary District
PLANT NO. 907
APPLICATION NO. 24448

BACKGROUND

Central Contra Costa Sanitary District (CCCSD) has submitted an application for alteration to the following equipment:

S-8 Auxiliary Boiler, ME 74140

S-8 is currently permitted at a maximum rated heat input of 28 MMBtu/hour. S-8 is permitted to be fired with natural gas (primary fuel), landfill gas (primary fuel), and No. 2 fuel oil (emergency fuel). In order to comply with the new NO_x and CO limits in Regulation 9-7, CCCSD is proposing to replace the existing burner at this source with the following new burner:

Type: Low NO_x Burner
Manufacturer: Cleaver Brooks, Model: GWKO CB700LE, Max Firing Rate: 28.0 MMBtu/hr
Fuel Type: Natural gas (primary fuel), landfill gas (primary fuel), and No. 2 fuel oil (emergency fuel)

S-8 is subject to Permit Condition No. 21422, which has the following NO_x and CO limits:

- NO_x emissions: 30 ppmvd at 3% O₂ with gaseous fuel, 40 ppmvd at 3% O₂ with distillate oil
- CO emissions: 400 ppmvd at 3% O₂

The new burner ensures the followings:

- NO_x emissions: 15 ppmvd at 3% O₂ with natural gas, 30 ppmvd at 3% O₂ with landfill gas, and 150 ppmvd at 3% O₂ with distillate oil
- CO emissions: 400 ppmvd at 3% O₂ with gaseous fuel

When S-8 burns gaseous fuel, NO_x and CO emission rates with the new burner will be lower than or the same as the current permit condition limits. When S-8 burns distillate oil, on the other hand, NO_x and CO emission rates with the new burner will be higher than the current permit condition limits. However, the limits (40 ppm of NO_x and 400 ppm of CO) for distillate oil were adopted because, at the time the conditions were written, Regulation 9-7-302 (Emission Limits – Non-gaseous Fuel) was still in effect. Regulation 9-7-302 was later deleted in 2008 and no longer exists. In 2008, Regulation 9-7-113 was adopted to address the new emission limit (150 ppm of NO_x) for any boiler while burning non-gaseous fuel during a natural gas curtailment. CCCSD is not requesting any limit in its permit condition for when S-8 burns distillate oil that is higher than the limit currently set forth in Regulation 9-7-113. Therefore, the District will consider this burner retrofit project at S-8 to result in no increase in emissions and will treat it as an “alteration,” not “modification.” The retrofit is not expected to increase any other criteria pollutant emissions either.

This evaluation report will discuss the compliance of the burner retrofit project at S-8 with applicable rules and regulations.

EMISSIONS CALCULATIONS

There is no emission increase associated with the alteration to S-8.

CUMMULATIVE INCREASE

The cumulative increase for this application is ZERO for all pollutants.

TOXIC RISK SCREENING

The alteration to S-8 is not subject to the requirements of Regulation 2-5 because S-8 is neither a new nor modified source. S-8 is not subject to Regulation 2-1-316 either.

BEST AVAILABLE CONTROL TECHNOLOGY (BACT)

S-8 is not subject to BACT requirements in Regulation 2-2-301 because: (1) S-8 is neither a new nor modified source, and (2) S-8 is altered in order to comply with emission regulations, per Regulation 1-115 (*Exemption, Modification to Meet Emission Standards*).

OFFSETS

S-8 is not subject to offset requirements in Regulation 2-2-302 because: (1) S-8 is neither a new nor modified source, and (2) S-8 is altered in order to comply with emission regulations, per Regulation 1-115 (*Exemption, Modification to Meet Emission Standards*).

STATEMENT OF COMPLIANCE

The owner/operator of S-8 will continue to comply with Regulation 6-1 (*Particulate Matter: General Requirements*) and Regulation 9-1-301 (*Inorganic Gaseous Pollutants: Sulfur Dioxide for Limitations on Ground Level Concentrations*).

The owner/operator of S-8 is subject to and expected to comply with the following requirements of Regulations 9-7 (*Inorganic Gaseous Pollutants: Nitrogen Oxides and Carbon Monoxide from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters*):

- The limits of 15 ppmvd for NO_x and 400 ppmvd for CO, both at 3% O₂, of Regulation 9-7-307.4 for load-following unit when S-8 burns natural gas. Appendix A shows load-following designation for S-8.
- The limits of 30 ppmvd for NO_x and 400 ppmvd for CO, both at 3% O₂, of Regulation 9-7-307.7 when S-8 burns landfill gas.
- The limit of 150 ppmvd at 3% O₂ for NO_x of Regulation 9-7-113.2 when S-8 burns distillate oil.
- Compliance schedule requirement of Regulation 9-7-308. CCCSD has two permitted boilers, and at least 66% of these devices or at least one boiler (because 66% of 2 is 1.3 or 1) which is S-8 will meet the limits in Regulation 9-7-307.4 before January 1, 2013.
- Insulation requirement of Regulation 9-7-311, which limits the temperature of exposed, external surface of a boiler or steam generator, including all pipes and ducts heated by the device, to no higher than 120°F, does not apply to S-8 because there is at least one inch of insulation on the boiler. This is in accordance with Section 9-7-311.3.
- Initial demonstration of compliance requirement of Regulation 9-7-403. CCCSD has agreed to conduct a source test at S-8 in accordance with Sections 9-7-601 or 602. CCCSD has acknowledged and agreed to comply with this requirement.

CCCSD has also acknowledged and agreed to comply with the stack gas temperature requirement of Regulation 9-7-312 by January 1, 2013.

At S-8, emissions from combustion of gaseous fuels are tested at least one time every 60 months, or more frequently if required by applicable requirements of Regulation 9-7, as stipulated in Permit Condition No. 21422. Therefore, CCCSD complies with the periodic testing requirements in Regulation 9-7-506. Emissions from combustion of

distillate oil are not required to be tested for verification of readiness for a natural gas curtailment, pursuant to Regulation 9-7-506.

Permit Condition No. 21422 will be amended to ensure compliance with the above applicable requirements. The permit condition will also be amended to remove redundant condition items referencing District's regulations.

The project is considered to be ministerial under the District's CEQA Regulation 2-1-311 and therefore is not subject to CEQA review. The engineering review for this project requires only the application of standard permit conditions and standard emissions factors and therefore is not discretionary as defined by CEQA (BAAQMD Permit Handbook, Chapter 2.1).

The project is not subject to the public notification requirements of Regulation 2-1-412.

The alteration to S-8 is not subject to PSD review in Regulation 2-2-304 because S-8 is neither a new nor modified source.

NSPS and NESHAPS are not triggered.

PERMIT CONDITION

Condition # 21422 -----

For S-7 Auxiliary Steam Boiler 1 and S-8 Auxiliary Steam Boiler 2; Both Boilers Specified as Follows: Cleaver Brooks CB700, Maximum Firing Capacity: 28 MM Btu/hr (HHV) with High Turn Down Multi-fuel Burners and Cleaver Brooks induced Flue Gas Recirculation System.

1. The owner/operator shall fire S-7 Boiler and S-8 Boiler at a rate not to exceed 28 MM Btu/hr (HHV) per boiler. (Basis: Cumulative Increase)
2. The owner/operator of S-7 Boiler and S-8 Boiler shall monitor and record the sulfur content of the landfill gas at a frequency of at least one time every calendar month when burning landfill gas. (Basis: BAAQMD 1-441)
3. To demonstrate compliance with Regulation 9-1-302, the owner/operator shall calculate and record the exhaust gas SO₂ concentration from each of S-7 Boiler and S-8 Boiler at least 1 time every calendar quarter. The owner/operator shall use the sulfur content of the fuels in conjunction with a material balance to calculate the exhaust gas SO₂ concentration. (Basis: BAAQMD 9-1-302)
4. The owner/operator shall not fire S-7 Boiler and S-8 Boiler with non-gaseous fuel except during a natural gas curtailment or during testing to verify readiness for such a curtailment. (Basis: Cumulative Increase)
5. The owner/operator shall do the following:
 - a. To demonstrate compliance with Regulations 9-7-301.1, 9-7-301.2, and 9-7-301.4, the owner/operator shall perform a compliance source test of S-7 at a frequency of at least 1 time every 60 months, or more frequently if required by applicable requirements of Regulation 9-7, after the previous source test. (Basis: Cumulative Increase)
 - b. To determine compliance with Regulations 9-7-307.4 and 9-7-307.7, the owner/operator shall perform a compliance source test of S-8 within 60 days of permit approval. Thereafter, to demonstrate ongoing compliance with Regulations 9-7-307.4 and 9-7-307.7, the owner/operator shall perform a compliance source test of S-8 at a frequency of at least 1 time every 60 months, or more frequently if required by applicable requirements of Regulation 9-7, after the previous source test. (Basis: Cumulative Increase, BAAQMD 9-7-403)

The owner/operator shall ensure the compliance source tests are conducted in accordance with District Manual of Procedures (MOP).

6. To ensure compliance with Regulation 8-34-301.4, the owner/operator shall maintain the rolling 3 clock-hour average first pass boiler temperature of S-7 and S-8 at 770 degrees F or greater when burning landfill gas. (Basis: 40 CFR 50.758c(1)(i))

If a source test demonstrates compliance with all applicable requirements at a different minimum first pass temperature, the APCO may revise the above temperature limit, in accordance with the procedures identified in Regulation 2-6-414 or 2-6-415 based on the following criteria. The minimum first pass temperature for S-7 and S-8 shall be equal to the average first pass temperature measured during a complying source test (NMOC and CO emission limits were met) minus 50 deg.F. (Basis: 40 CFR 60.758c(1)(i))

7. The owner/operator shall maintain the following records and provide all of the data necessary to demonstrate compliance with the above conditions, including the following information:
 - a. Monthly records of the quantity of natural gas, landfill gas, and distillate oil burned at each source.
 - b. Monthly records of the distillate oil sulfur content.
 - c. Monthly records shall be totaled for each consecutive 12-month period.
 - d. Records of the rolling 3 clock-hour average first pass boiler temperatures.
 - e. All source test results.

All records shall be retained on site for five years from the date of entry, and made available for inspection by the District upon request. These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable District Regulations.
(Basis: Cumulative Increase, BAAQMD 9-1-304)

RECOMMENDATION

I recommend a change of Permit Condition No. 21422, which is applicable to the following equipment:

S-8 Auxiliary Boiler, ME 74140 – Alteration to install Low NOx burner

By: _____
Kevin Oei
Air Quality Engineer

Date: _____

Appendix A Load-Following Designation for S-8

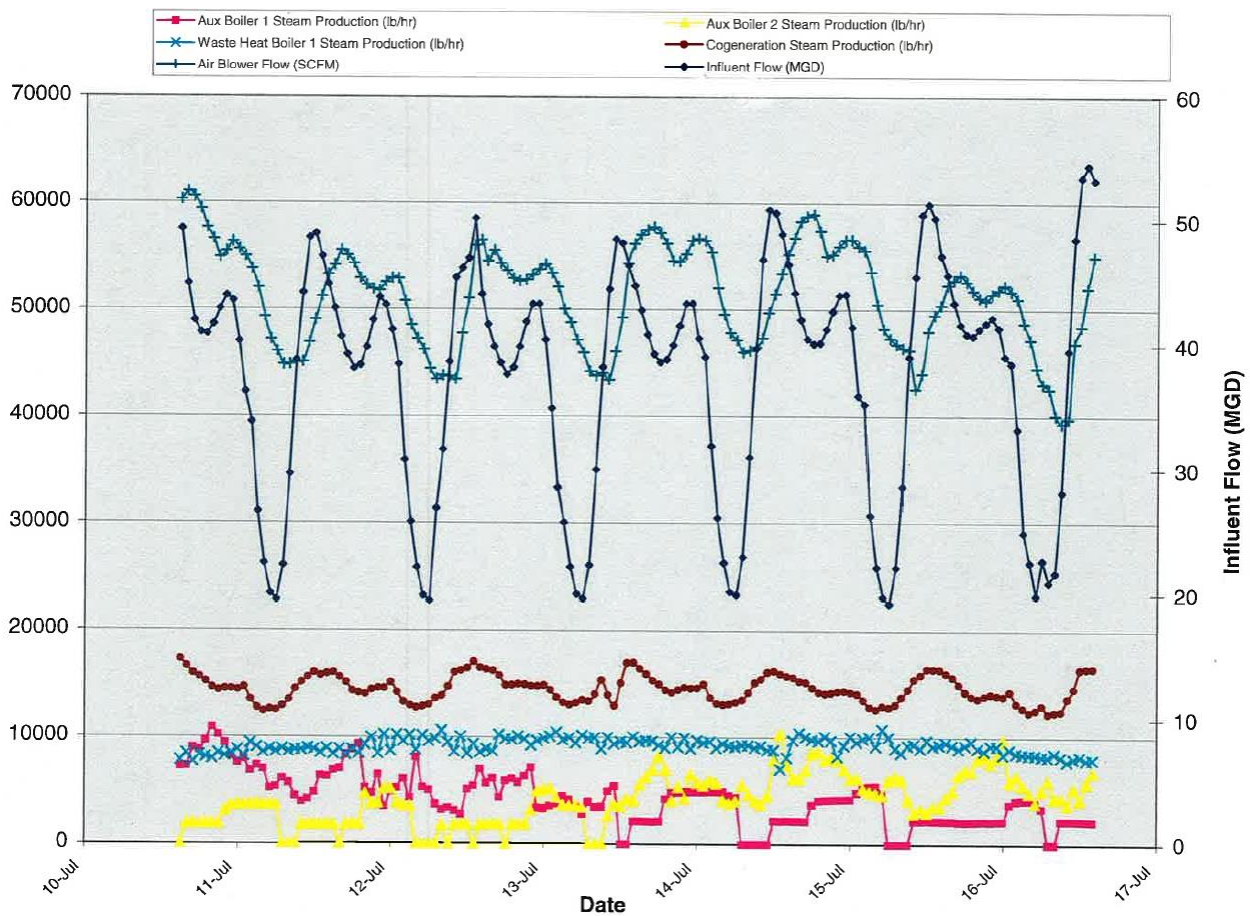
Per Regulation 9-7-213, a load-following unit is defined as a unit that cannot be operated in a base-loaded mode, and that has normal operational load fluctuations and requirements, imposed by fluctuations in the process(es) served by the unit, that exceed the operational response range of a Ultra-Low NOx burner system operating at 9 ppmv NOx, as determined by the District and indicated on the device’s permit to operate.

Figure A1 illustrates the diurnal flow variation, the base steam loading of cogeneration, the quasi-base steam loading of the sewage sludge incinerator, and the load-following steam production of S-8 (Auxiliary Boiler #2) at CCCSD. As can be seen in the figure, CCCSD’s diurnal steam demand fluctuates highly in a 24-hour period. In this example, steam from cogeneration and sewage sludge incinerator is fairly stable, but steam demand from S-8 varies by as much as 75%.

The process data demonstrates the regular fluctuations in steam production and aeration demand, which are both related to the diurnal flow pattern. The cogeneration unit and sewage sludge incineration provide base-load steam. S-8 is clearly not base-loaded and follows the diurnal demand for aeration air.

Therefore, S-8 will be designated a load-following unit.

Figure A1. Average hourly steam production, aeration demand and influent flow in dry weather at CCCSD



Addendum
Engineering Evaluation
Central Contra Costa Sanitary District (Plant No. 907)
Application No. 24448

Background

This is an addendum to the original evaluation report for Application No. 24448, which was approved on 07/23/12.

Central Contra Costa Sanitary District (CCCSD) has formally requested to have the timetable in item 5b of Permit Condition No. 21422 to conduct the official source test of the new low NOx burner at S-8 revised so that CCCSD is allowed to conduct the source test within 60 days of the installation of the low NOx burner retrofit and to submit a comprehensive report of the test results to the District within 45 days of source test completion.

CCCSD anticipates installing the new burner in October 2012, conducting the source test in November 2012, and submitting a test result report to the District in December 2012. Because Regulation 9-7-308 allows CCCSD until 01/01/13 to comply with the emission standards in Regulation 9-7-307 for S-8, CCCSD's source test timetable revision request is considered acceptable and does not violate the provisions of Regulation 9-7-308. Permit Condition No. 21422 will be amended to reflect this revision.

Permit Condition

Only item 5b of Permit Condition No. 21422 will be amended under this addendum, and the amendment will be as follows:

Condition # 21422 -----

For S-7 Auxiliary Steam Boiler 1 and S-8 Auxiliary Steam Boiler 2; Both Boilers Specified as Follows: Cleaver Brooks CB700, Maximum Firing Capacity: 28 MM Btu/hr (HHV) with High Turn Down Multi-fuel Burners and Cleaver Brooks induced Flue Gas Recirculation System.

1. The owner/operator shall fire S-7 Boiler and S-8 Boiler at a rate not to exceed 28 MM Btu/hr (HHV) per boiler. (Basis: Cumulative Increase)
2. The owner/operator of S-7 Boiler and S-8 Boiler shall monitor and record the sulfur content of the landfill gas at a frequency of at least one time every calendar month when burning landfill gas. (Basis: BAAQMD 1-441)
3. To demonstrate compliance with Regulation 9-1-302, the owner/operator shall calculate and record the exhaust gas SO₂ concentration from each of S-7 Boiler and S-8 Boiler at least 1 time every calendar quarter. The owner/operator shall use the sulfur content of the fuels in conjunction with a material balance to calculate the exhaust gas SO₂ concentration. (Basis: BAAQMD 9-1-302)
4. The owner/operator shall not fire S-7 Boiler and S-8 Boiler with non-gaseous fuel except during a natural gas curtailment or during testing to verify readiness for such a curtailment. (Basis: Cumulative Increase)
5. The owner/operator shall do the following:
 - a. To demonstrate compliance with Regulations 9-7-301.1, 9-7-301.2, and 9-7-301.4, the owner/operator shall perform a compliance source test of S-7 at a frequency of at least 1 time every 60 months, or more frequently if required by applicable requirements of Regulation 9-7, after the previous source test. (Basis: Cumulative Increase)
 - b. To determine compliance with Regulations 9-7-307.4 and 9-7-307.7, the owner/operator shall perform a compliance source test of S-8 within 60 days of [the installation of the low NOx burner retrofit, in accordance with Regulation 9-7-601 or 602](#)~~permit approval~~. [The owner/operator shall obtain approval](#)

for all source test procedures from the District's Source Test Section prior to conducting any tests. The owner/operator shall notify the District's Source Test Section, in writing, of the source test protocols and projected test dates at least 7 days prior to testing. Within 45 days of test completion, a comprehensive report of the test results shall be submitted to the Manager of the Source Test Section for review and disposition. Thereafter, to demonstrate ongoing compliance with Regulations 9-7-307.4 and 9-7-307.7, the owner/operator shall perform a compliance source test of S-8 at a frequency of at least 1 time every 60 months, or more frequently if required by applicable requirements of Regulation 9-7, after the previous source test. (Basis: Cumulative Increase, BAAQMD 9-7-403)

The owner/operator shall ensure the compliance source tests are conducted in accordance with District Manual of Procedures (MOP).

6. To ensure compliance with Regulation 8-34-301.4, the owner/operator shall maintain the rolling 3 clock-hour average first pass boiler temperature of S-7 and S-8 at 770 degrees F or greater when burning landfill gas. (Basis: 40 CFR 50.758c(1)(i))

If a source test demonstrates compliance with all applicable requirements at a different minimum first pass temperature, the APCO may revise the above temperature limit, in accordance with the procedures identified in Regulation 2-6-414 or 2-6-415 based on the following criteria. The minimum first pass temperature for S-7 and S-8 shall be equal to the average first pass temperature measured during a complying source test (NMOC and CO emission limits were met) minus 50 deg.F. (Basis: 40 CFR 60.758c(1)(i))

7. The owner/operator shall maintain the following records and provide all of the data necessary to demonstrate compliance with the above conditions, including the following information:
 - a. Monthly records of the quantity of natural gas, landfill gas, and distillate oil burned at each source.
 - b. Monthly records of the distillate oil sulfur content.
 - c. Monthly records shall be totaled for each consecutive 12-month period.
 - d. Records of the rolling 3 clock-hour average first pass boiler temperatures.
 - e. All source test results.

All records shall be retained on site for five years from the date of entry, and made available for inspection by the District upon request. These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable District Regulations.

(Basis: Cumulative Increase, BAAQMD 9-1-304)

Recommendation

I recommend item 5b of Permit Condition No. 21422 be amended as shown in the above "Permit Condition" Section.

By: _____
Kevin Oei
Air Quality Engineer

Date: _____

Subject: Compliance with Regulations 9-7-307.4 and 9-7-307.7 (as required in Part 5b of Permit Condition #21422)

Application: 24448

Plant: 907 (Central Contra Costa Sanitary District)

Central Contra Costa Sanitary District (CCCSD) has submitted the results of source tests of S-8 performed on 12/6/2012. The source tests were conducted on three different fuel types: natural gas, landfill gas, and distillate oil. Per memo dated 1/16/2013 from Tim Underwood of the District, the quantified emissions from the altered boiler were in compliance with the following emission limits:

- Limits of Regulation 9-7-307.4 (i.e., 15 ppmvd of NO_x and 400 ppmvd of CO, both at 3% O₂) during natural gas firing
- Limit of Regulation 9-7-307.7 (i.e., 30 ppmvd of NO_x and 400 ppmvd of CO, both at 3% O₂) during landfill gas firing
- Limit of Regulation 9-7-113.2 (i.e., 150 ppmvd of NO_x at 3% O₂) during distillate oil firing. Use of oil fuel will be restricted to times of natural gas curtailment only, per Part 4 of Permit Condition #21422.

Upon issuance of Permit to Operate, Part 5b of Permit Condition #21422 will be revised to remove the initial demonstration of compliance requirements of Regulation 9-7-403. The periodic testing requirements in the condition will remain. The revised condition will read as follows:

Condition #21422 -----

For S-7 Auxiliary Steam Boiler 1 and S-8 Auxiliary Steam Boiler 2; Both Boilers Specified as Follows: Cleaver Brooks CB700, Maximum Firing Capacity: 28 MM Btu/hr (HHV) with High Turn Down Multi-fuel Burners and Cleaver Brooks induced Flue Gas Recirculation System.

1. The owner/operator shall fire S-7 Boiler and S-8 Boiler at a rate not to exceed 28 MM Btu/hr (HHV) per boiler. (Basis: Cumulative Increase)
2. The owner/operator of S-7 Boiler and S-8 Boiler shall monitor and record the sulfur content of the landfill gas at a frequency of at least one time every calendar month when burning landfill gas. (Basis: BAAQMD 1-441)
3. To demonstrate compliance with Regulation 9-1-302, the owner/operator shall calculate and record the exhaust gas SO₂ concentration from each of S-7 Boiler and S-8 Boiler at least 1 time every calendar quarter. The owner/operator shall use the sulfur content of the fuels in conjunction with a material balance to calculate the exhaust gas SO₂ concentration. (Basis: BAAQMD 9-1-302)
4. The owner/operator shall not fire S-7 Boiler and S-8 Boiler with non-gaseous fuel except during a natural gas curtailment or during testing to verify readiness for such a curtailment. (Basis: Cumulative Increase)

5. The owner/operator shall do the following:
 - a. To demonstrate compliance with Regulations 9-7-301.1, 9-7-301.2, and 9-7-301.4, the owner/operator shall perform a compliance source test of S-7 at a frequency of at least 1 time every 60 months, or more frequently if required by applicable requirements of Regulation 9-7, after the previous source test. (Basis: Cumulative Increase)
 - b. ~~To determine compliance with Regulations 9-7-307.4 and 9-7-307.7, the owner/operator shall perform a compliance source test of S-8 within 60 days of the installation of the low NOx burner retrofit, in accordance with Regulation 9-7-601 or 602. The owner/operator shall obtain approval for all source test procedures from the District's Source Test Section prior to conducting any tests. The owner/operator shall notify the District's Source Test Section, in writing, of the source test protocols and projected test dates at least 7 days prior to testing. Within 45 days of test completion, a comprehensive report of the test results shall be submitted to the Manager of the Source Test Section for review and disposition. Thereafter, to~~ To demonstrate ongoing compliance with Regulations 9-7-307.4 and 9-7-307.7, the owner/operator shall perform a compliance source test of S-8 at a frequency of at least 1 time every 60 months, or more frequently if required by applicable requirements of Regulation 9-7, after the previous source test. (Basis: Cumulative Increase, ~~BAAQMD 9-7-403~~)

The owner/operator shall ensure the compliance source tests are conducted in accordance with District Manual of Procedures (MOP).

6. To ensure compliance with Regulation 8-34-301.4, the owner/operator shall maintain the rolling 3 clock-hour average first pass boiler temperature of S-7 and S-8 at 770 degrees F or greater when burning landfill gas. (Basis: 40 CFR 50.758c(1)(i))

If a source test demonstrates compliance with all applicable requirements at a different minimum first pass temperature, the APCO may revise the above temperature limit, in accordance with the procedures identified in Regulation 2-6-414 or 2-6-415 based on the following criteria. The minimum first pass temperature for S-7 and S-8 shall be equal to the average first pass temperature measured during a complying source test (NMOC and CO emission limits were met) minus 50 deg.F. (Basis: 40 CFR 60.758c(1)(i))

7. The owner/operator shall maintain the following records and provide all of the data necessary to demonstrate compliance with the above conditions, including the following information:
 - a. Monthly records of the quantity of natural gas, landfill gas, and distillate oil burned at each source.
 - b. Monthly records of the distillate oil sulfur content.
 - c. Monthly records shall be totaled for each consecutive 12-month period.
 - d. Records of the rolling 3 clock-hour average first pass boiler temperatures.
 - e. All source test results.

All records shall be retained on site for five years from the date of entry, and made available for inspection by the District upon request. These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable District Regulations. (Basis: Cumulative Increase, BAAQMD 9-1-304)

End of Conditions

Permit Evaluation and Statement of Basis:
Plant No: A0907, Application No: 23445

Central Contra Costa Sanitary District
5019 Imhoff Place, Martinez, CA 94553

|

Prepared by: _____

Kevin Oei
AQ Engineer

Date: _____

|

APPENDIX L

ENGINEERING EVALUATION APPLICATION 25577

ENGINEERING EVALUATION
Central Contra Costa Sanitary District
PLANT NO. 907
APPLICATION NO. 25577

BACKGROUND

Central Contra Costa Sanitary District (CCCSD) has submitted an application for alteration to the following equipment:

S-7 Auxiliary Boiler ME 74139

S-7 is currently permitted at a maximum rated heat input of 28 MMBtu/hour. S-7 is permitted to be fired with natural gas (primary fuel), landfill gas (primary fuel), and No. 2 fuel oil (emergency fuel). In order to comply with the NO_x and CO limits in Regulation 9-7, CCCSD is proposing to replace the existing burner at this source with the following new burner:

Type: Low NO_x Burner

Manufacturer: Cleaver Brooks, Model: GWKO CB700LE, Max Firing Rate: 28.0 MMBtu/hr

Fuel Type: Natural gas (primary fuel), landfill gas (primary fuel), and No. 2 fuel oil (emergency fuel)

S-7 is subject to Permit Condition No. 21422, which has the following NO_x and CO limits:

- NO_x emissions: 30 ppmvd at 3% O₂ with gaseous fuel (basis: Reg. 9-7-301.1, amended 9/15/93), 40 ppmvd at 3% O₂ with distillate oil (basis: Reg. 9-7-302.1, amended 9/15/93)
- CO emissions: 400 ppmvd at 3% O₂ (basis: Regs. 9-7-301.2 & 9-7-302.2, amended 9/15/93)

The new burner ensures the followings:

- NO_x emissions: 15 ppmvd at 3% O₂ with natural gas, 30 ppmvd at 3% O₂ with landfill gas, and 150 ppmvd at 3% O₂ with distillate oil
- CO emissions: 400 ppmvd at 3% O₂ with gaseous fuel

When burning gaseous fuel, S-7 is not expected to emit NO_x and CO with the new burner at emission rates higher than the current permit condition limits. When burning distillate oil, on the other hand, S-7 is expected to emit NO_x with the new burner at an emission rate (150 ppm) that is higher than the current permit condition limit (40 ppm). However, the 40-ppm NO_x limit for distillate oil was adopted because, at the time the conditions were written, Regulation 9-7-302 (Emission Limits – Non-gaseous Fuel) was still in effect. Regulation 9-7-302 was later deleted in 2008 and no longer exists. In 2008, Regulation 9-7-113 was adopted to address the new emission limit (150 ppm of NO_x) for any boiler while burning non-gaseous fuel during a natural gas curtailment. CCCSD is not requesting any limit in its permit condition for when S-7 burns distillate oil that is higher than the limit currently set forth in Regulation 9-7-113. In addition, Part 4 of Permit Condition No. 21422 limits distillate oil use only to a natural gas curtailment or testing to verify readiness for such a curtailment, and CCCSD has used zero distillate oil at S-7 in the last three years (calendar years 2009 through 2011). Therefore, the District will consider this burner retrofit project at S-7 to result in no increase in emissions and will treat it as an “alteration,” not “modification.” The retrofit is not expected to increase any other criteria pollutant emissions either.

This evaluation report will discuss the compliance of the burner retrofit (alteration) at S-7 with applicable rules and regulations.

EMISSIONS CALCULATIONS

There is no emission increase associated with alteration to S-7.

CUMMULATIVE INCREASE

The cumulative increase for this application is ZERO for all pollutants.

TOXIC RISK SCREENING

Alteration to S-7 is not subject to the requirements of Regulation 2-5 because S-7 is neither a new nor modified source. S-7 is not subject to Regulation 2-1-316 either.

BEST AVAILABLE CONTROL TECHNOLOGY (BACT) and OFFSETS

S-7 is not subject to BACT requirements in Regulation 2-2-301 and offset requirements in Regulations 2-2-302 and 2-2-303 because: (1) S-7 is neither a new nor modified source, and (2) S-7 is altered in order to comply with emission regulations, per Regulation 1-115 (*Exemption, Modification to Meet Emission Standards*).

STATEMENT OF COMPLIANCE

The owner/operator of S-7 will continue to comply with Regulation 6-1 (*Particulate Matter: General Requirements*) and Regulation 9-1-301 (*Inorganic Gaseous Pollutants: Sulfur Dioxide for Limitations on Ground Level Concentrations*).

The owner/operator of S-7 is subject to and expected to comply with the following requirements of Regulations 9-7 (*Inorganic Gaseous Pollutants: Nitrogen Oxides and Carbon Monoxide from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters*):

- The limits of 15 ppmvd for NO_x and 400 ppmvd for CO, both at 3% O₂, of Regulation 9-7-307.4 for load-following unit when S-7 burns natural gas. Appendix A shows load-following designation for S-7.
- The limits of 30 ppmvd for NO_x and 400 ppmvd for CO, both at 3% O₂, of Regulation 9-7-307.7 when S-7 burns landfill gas.
- The limit of 150 ppmvd at 3% O₂ for NO_x of Regulation 9-7-113.2 when S-7 burns distillate oil.
- Compliance schedule requirement of Regulation 9-7-308. CCCSD has two permitted boilers, and 100% of these devices will meet the limits in Regulation 9-7-307.4 before January 1, 2014.
- Insulation requirement of Regulation 9-7-311, which limits the temperature of exposed, external surface of a boiler or steam generator, including all pipes and ducts heated by the device, to no higher than 120°F. This requirement does not apply to Subsections 9-7-311.1 through 9-7-311.5. CCCSD has confirmed that S-7 will comply with this requirement.
- Stack gas temperature requirement of Regulation 9-7-312, which limits a boiler or steam generator's stack gas temperature (downstream of any economizer) to no higher than the limits set forth in the table in the regulation unless the device is certified by the Air-Conditioning, Heating and Refrigeration Institute (AHRI) as

having a thermal efficiency of 80% or more. CCCSD has confirmed that S-7 will comply with this requirement.

- Initial demonstration of compliance requirement of Regulation 9-7-403. CCCSD has agreed to conduct a source test (initial demonstration of compliance) at S-7 in accordance with Sections 9-7-601 or 602.

At S-7, emissions from combustion of gaseous fuels are tested at least one time every 60 months, or more frequently if required by applicable requirements of Regulation 9-7, as stipulated in Permit Condition No. 21422. Therefore, CCCSD complies with the periodic testing requirements in Regulation 9-7-506. Emissions from combustion of distillate oil are not required to be periodically tested for verification of readiness for a natural gas curtailment, pursuant to Regulation 9-7-506.

Permit Condition No. 21422 will be amended to ensure compliance with the above applicable requirements.

The project is considered to be ministerial under the District's CEQA Regulation 2-1-311 and therefore is not subject to CEQA review. The engineering review for this project requires only the application of standard permit conditions and standard emissions factors and therefore is not discretionary as defined by CEQA (BAAQMD Permit Handbook, Chapter 2.1).

The project is not subject to the public notification requirements of Regulation 2-1-412.

The alteration to S-7 is not subject to PSD review in Regulation 2-2-304 because S-7 is neither a new nor modified source.

NSPS and NESHAPS are not triggered.

PERMIT CONDITION

Condition # 21422 -----

For S-7 Auxiliary Steam Boiler 1 and S-8 Auxiliary Steam Boiler 2; Both Boilers Specified as Follows: Cleaver Brooks CB700, Maximum Firing Capacity: 28 MM Btu/hr (HHV) with High Turn Down Multi-fuel Burners and Cleaver Brooks induced Flue Gas Recirculation System.

8. The owner/operator shall fire S-7 Boiler and S-8 Boiler at a rate not to exceed 28 MM Btu/hr (HHV) per boiler. (Basis: Cumulative Increase)
9. The owner/operator of S-7 Boiler and S-8 Boiler shall monitor and record the sulfur content of the landfill gas at a frequency of at least one time every calendar month when burning landfill gas. (Basis: BAAQMD 1-441)
10. To demonstrate compliance with Regulation 9-1-302, the owner/operator shall calculate and record the exhaust gas SO₂ concentration from each of S-7 Boiler and S-8 Boiler at least 1 time every calendar quarter. The owner/operator shall use the sulfur content of the fuels in conjunction with a material balance to calculate the exhaust gas SO₂ concentration. (Basis: BAAQMD 9-1-302)
11. The owner/operator shall not fire S-7 Boiler and S-8 Boiler with non-gaseous fuel except during a natural gas curtailment or during testing to verify readiness for such a curtailment. (Basis: Cumulative Increase)

12. The owner/operator shall do the following:

- a. To determine compliance with Regulations 9-7-307.4 and 9-7-307.7, the owner/operator shall perform a compliance source test of S-7 within 60 days of the installation of the low NOx burner retrofit, in accordance with Regulation 9-7-601 or 602. The owner/operator shall obtain approval for all source test procedures from the District's Source Test Section prior to conducting any tests. The owner/operator shall notify the District's Source Test Section, in writing, of the source test protocols and projected test dates at least 7 days prior to testing. Within 45 days of test completion, a comprehensive report of the test results shall be submitted to the Manager of the Source Test Section for review and disposition. Thereafter, to ~~to~~ demonstrate ongoing compliance with Regulations 9-7-307.4 and 9-7-307.7, ~~9-7-301.1, 9-7-301.2, and 9-7-301.4~~, the owner/operator shall perform a compliance source test of S-7 at a frequency of at least 1 time every 60 months, or more frequently if required by applicable requirements of Regulation 9-7, after the previous source test. (Basis: Cumulative Increase)
- b. To demonstrate ongoing compliance with Regulations 9-7-307.4 and 9-7-307.7, the owner/operator shall perform a compliance source test of S-8 at a frequency of at least 1 time every 60 months, or more frequently if required by applicable requirements of Regulation 9-7, after the previous source test. (Basis: Cumulative Increase, BAAQMD 9-7-403)

The owner/operator shall ensure the compliance source tests are conducted in accordance with District Manual of Procedures (MOP).

13. To ensure compliance with Regulation 8-34-301.4, the owner/operator shall maintain the rolling 3 clock-hour average first pass boiler temperature of S-7 and S-8 at 770 degrees F or greater when burning landfill gas. (Basis: 40 CFR 50.758c(1)(i))

If a source test demonstrates compliance with all applicable requirements at a different minimum first pass temperature, the APCO may revise the above temperature limit, in accordance with the procedures identified in Regulation 2-6-414 or 2-6-415 based on the following criteria. The minimum first pass temperature for S-7 and S-8 shall be equal to the average first pass temperature measured during a complying source test (NMOC and CO emission limits were met) minus 50 deg.F. (Basis: 40 CFR 60.758c(1)(i))

14. The owner/operator shall maintain the following records and provide all of the data necessary to demonstrate compliance with the above conditions, including the following information:

- a. Monthly records of the quantity of natural gas, landfill gas, and distillate oil burned at each source.
- b. Monthly records of the distillate oil sulfur content.
- c. Monthly records shall be totaled for each consecutive 12-month period.
- d. Records of the rolling 3 clock-hour average first pass boiler temperatures.
- e. All source test results.

All records shall be retained on site for five years from the date of entry, and made available for inspection by the District upon request. These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable District Regulations. (Basis: Cumulative Increase, BAAQMD 9-1-304)

RECOMMENDATION

I recommend above changes to Permit Condition No. 21422, which is applicable to the following equipment:

S-7 *Auxiliary Boiler ME 74139 – Alteration to install Low NOx burner*

By: _____

Kevin Oei
Air Quality Engineer

Date: _____

Appendix A Load-Following Designation for S-7

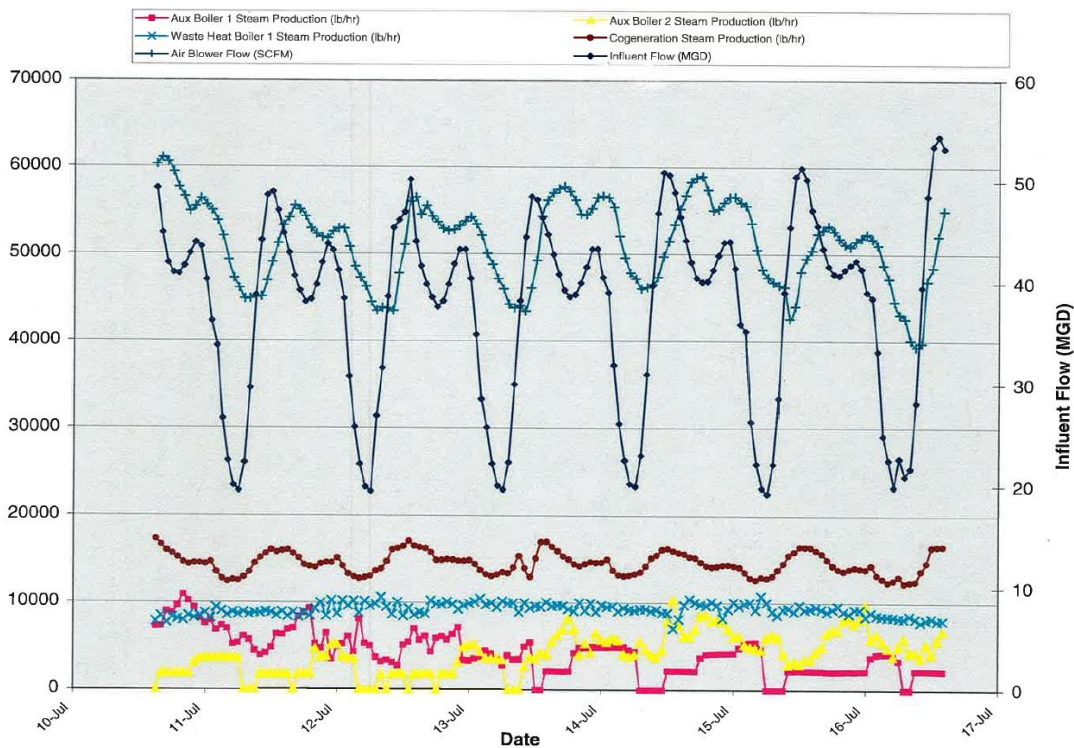
Per Regulation 9-7-213, a load-following unit is defined as a unit that cannot be operated in a base-loaded mode, and that has normal operational load fluctuations and requirements, imposed by fluctuations in the process(es) served by the unit, that exceed the operational response range of an Ultra-Low NOx burner system operating at 9 ppmv NOx, as determined by the District and indicated on the device's permit to operate.

Figure A1 illustrates the diurnal flow variation, the base steam loading of cogeneration, the quasi-base steam loading of the sewage sludge incinerator (Waste Heat Boiler #1), the load-following steam production of S-7 (Auxiliary Boiler #1), and the load-following steam production of S-8 (Auxiliary Boiler #2) at CCCSD. CCCSD's diurnal steam demand, the graph of which is not displayed in the figure but is closely tied to the air blower flow, fluctuates greatly in a 24-hour period. As can be seen in Figure 1, steam production from cogeneration and sewage sludge incinerator is fairly stable; therefore, to meet the fluctuating diurnal steam demand, the steam production from both S-7 and S-8 must be load-following. Figure 1 shows the steam demand from S-7 varies by as much as 75%.

In conclusion, the process data demonstrates the regular fluctuations in steam production and aeration demand, which are both related to the diurnal flow pattern. The cogeneration unit and sewage sludge incineration provide base-load steam. S-7 is clearly not base-loaded and follows the diurnal demand for aeration air.

Therefore, S-7 will be designated a load-following unit.

Figure A1. Average hourly steam production, aeration demand and influent flow in dry weather at CCCSD



APPENDIX M

Central Contra Costa Sanitary District Multiple Hearth Furnace Dispersion Modeling

TECHNICAL MEMORANDUM



Central Contra Costa Sanitary District Multiple Hearth Furnace Dispersion Modeling

PREPARED FOR: Rita Cheng/CCCSD
 COPY TO: Susan Dennis/CH2MHILL
 PREPARED BY: Keith McGregor/CH2MHILL
 John Frohning/CH2MHILL
 Elyse Engel/CH2MHILL
 DATE: June 26, 2012
 PROJECT NUMBER: 438130

The Central Contra Costa Sanitary District (CCCSD) operates two multiple hearth furnaces (MHF) at their Martinez, California treatment plant for sewage sludge incineration. As part of the requirements for the operation of the MHF units, CCCSD is required to calculate the maximum allowable metal concentrations in the facility sewage sludge per 40 Code of Federal Regulations (CFR) Part 503 regulations. In support of this requirement, CH2M HILL pre-processed three years of on-site meteorological data provided by CCCSD and completed a dispersion modeling analysis to develop an annual Chi over Q (χ/Q) dispersion factor for each of the MHFs in units of micrograms per cubic meter over grams per second ($\mu\text{g}/\text{m}^3/(\text{g}/\text{s})$). This technical memorandum presents the dispersion modeling approach and the results of the analysis.

Methodology for Pre-processing the On-site Meteorological Data for the Dispersion Modeling Analysis

Three years of onsite meteorological data provided by CCCSD for years 2009, 2010, and 2011 were used for this analysis. The data were collected at a height of 40 feet above ground level. The data completeness summary for wind speed, wind direction, and temperature are summarized in Table 1. The data meets the Environmental Protection Agency (EPA) data completeness recommendations of 90 percent complete.

TABLE 1
 Onsite Station Meteorological Data Completeness

Parameter	2009	2010	2011
Valid Wind Speed Observations	8,744	8,752	8,755
Possible Observations	8,760	8,760	8,760
% Complete	99.8%	99.9%	99.9%
Valid Wind Direction Observations	8,730	8,741	8,746
Possible Observations	8,760	8,760	8,760
% Complete	99.7%	99.8%	99.8%
Valid Temperature Observations	8,744	8,735	8,755
Possible Observations	8,760	8,760	8,760
%Complete	99.8%	99.7%	99.9%

CENTRAL CONTRA COSTA SANITARY DISTRICT MULTIPLE HEARTH FURNACE DISPERSION MODELING

The onsite data were supplemented with National Weather Service (NWS) cloud cover and upper air sounding data collected at the Oakland Metropolitan Airport (WBAN # 23230). The Oakland Metropolitan Airport is located about 35 kilometers (km) from the Project site. The cloud cover data were collected at the Oakland Metropolitan Airport surface station and obtained from the National Climatic Data Center. The upper air data consisted of twice-daily soundings obtained from the National Oceanic and Atmospheric Administration.

AERMET (Version 11059) was used to pre-process the meteorological data for the AERMOD dispersion model. Data from 2009 through 2011 were used in the analysis. AERMET uses three steps to pre-process and combine the surface and upper air soundings to output the data in a format that is compatible with the AERMOD model. The first step extracts the data and performs a brief quality assurance check of the data. The onsite data, upper air sounding data, and cloud cover data were extracted and processed during the first step of AERMET. The second step merges the meteorological data sets. The third step outputs the data in the AERMOD-compatible format while also incorporating surface characteristics surrounding the collection or application site.

The noontime albedo, daytime Bowen ratio, and surface roughness lengths are considered when conducting the Stage 3 AERMET processing. Collectively, these are described as surface characteristics. Surface characteristics can vary by season and region (sector) around the data collection site. The noontime albedo is the fraction of total incident solar radiation reflected by the surface back to space without absorption. The daytime Bowen ratio is an indicator of surface moisture, which is the ratio of the sensible heat flux to the latent heat flux. The Bowen ratio is used to determine the planetary boundary layer parameters for convective conditions. Surface roughness length is related to the height of obstacles to the wind flow and is the height at which the mean horizontal wind speed is zero. The AERMOD model uses the surface characteristics to define dispersion coefficients in the model.

The AERSURFACE program (Version 08009) was used to determine the surface characteristics surrounding the onsite and NWS monitoring sites. AERSURFACE was developed by the EPA to assist in determining surface characteristics by using U.S. Geological Survey (USGS) land use maps and converting the land use type to values described in the *AERMET User's Guide*¹. AERSURFACE uses a 1-km radius surrounding the monitoring site to determine angle-dependant surface roughness values for each sector and a 10x10-km area to determine the noontime albedo and daytime Bowen Ratio. AERSURFACE was run for month-specific surface characterization.

The output from the AERMET model consists of two separate files—the surface conditions file and a vertical profile dataset. AERMOD uses these two files in the dispersion-modeling algorithm to predict ambient contaminant concentrations. Figure 1 presents the wind rose for the AERMET data used in the dispersion analysis.

Methodology for Predicting the MHF Unit Dispersion Factors

Model Selection

The air dispersion modeling analysis was conducted in accordance with the air quality impact analysis guidelines presented in the EPA's 40 CFR Part 51, Appendix W: *Guideline on Air Quality Models*² and the EPA-approved dispersion model, AERMOD (Version 12060). The analysis includes an evaluation of the possible effects of simple, intermediate, and complex terrain, and aerodynamic effects (downwash) due to nearby building(s) and structures on plume dispersion and ground-level concentrations. A basic Gaussian plume model was used in this analysis. The model assumes that the concentrations of emissions within a plume can be characterized by a Gaussian distribution of gaseous concentrations about the plume centerline. Gaussian dispersion models are approved by the EPA for regulatory use and are based on conservative assumptions (i.e., the models tend to over-predict actual impacts by assuming steady-state conditions, no pollutant loss through conservation of mass, no chemical reactions, etc.).

The AERMOD model is a steady-state, multiple-source, dispersion model that incorporates hourly meteorological data inputs and local surface characteristics. The required emission source data inputs to AERMOD include source locations, source elevations, stack heights, stack diameters, stack exit temperatures, stack exit velocities, and

¹ U.S. Environmental Protection Agency (EPA). 2004. *AERMET User's Guide*. November.

² U.S. Environmental Protection Agency (EPA). 2005. *Guideline on Air Quality Models*. 40 CFR, Part 51, Appendix W. November.

CENTRAL CONTRA COSTA SANITARY DISTRICT MULTIPLE HEARTH FURNACE DISPERSION MODELING

pollutant emission rates. The source locations are specified for a Cartesian (x,y) coordinate system where x and y are distances east and north in meters, respectively. The Cartesian coordinate system used for this analysis is the Universal Transverse Mercator Projection (UTM), 1983 North American Datum (NAD 83).

Model Options

The technical options selected for the AERMOD model include:

- Regulatory default control options.
- Rural dispersion mode based on the assumption that 35 percent of the land use within 3 km of the Project site is open space or grassland.
- Receptor elevations and controlling hill heights were obtained from AERMAP (Version 11103) output.

Receptor Grid Spacing

The receptor grid for the AERMOD modeling consists of receptors that are placed at the ambient air boundary and Cartesian-grid receptors that are placed beyond the CCCSD facility boundary at spacing that increases with distance from the origin. Property boundary receptors were placed at 50-meter intervals. Beyond the Project’s property boundary, receptor spacing was as follows:

- 50-meter spacing from property boundary to 1 km from the origin.
- 500-meter spacing from beyond 1 km to 5 km from the origin.
- 1,000-meter spacing from beyond 5 km to 10 km from the origin.

All receptors and source locations were expressed in UTM NAD83, Zone 10 coordinate system. AERMAP was used to calculate the receptor elevations and the controlling hill heights. Terrain in the vicinity of the facility was accounted for by assigning base elevations to each receptor. National Elevation Dataset files from the USGS were obtained in one-third arc-second resolution for a 50-km grid. The AERMAP domain was large enough to encompass the 10 percent slope factor required for calculating the controlling hill height.

The receptor grids are presented in Figures 2 and 3.

Building Downwash and Good Engineering Practice Assessment

The EPA Building Profile Input Program – Plume Rise Model Enhancement (BPIP-Prime, Version 04274) was used to calculate the projected building dimensions required for AERMOD evaluation of impacts from building downwash.

Model Inputs

The model inputs were based on MHF source data provided by CCCSD. The exhaust velocity was based on the average of the 2010 and 2011 source test results. The exhaust temperature was based on the average of the 2009, 2010, and 2011 source test data. Building elevations were obtained from AERMAP output. A plot of the buildings included in the model setup file is presented in Figure 4.

TABLE 2
 Source Parameters Included in the Dispersion Model

Source ID	Easting (X) (m)	Northing (Y) (m)	Base Elevation (feet)	Stack Height (feet)	Temperature (°F)	Exit Velocity (m/s)	Stack Diameter (feet)	Emission Rate (g/s)
MHF1	581,950	4,205,941	19.7	98.6	136.1	16.1	3.50	1.0
MHF2	581,963	4,205,947	19.7	98.6	136.1	16.1	3.50	1.0

Notes:

- °F = degree(s) Fahrenheit
- g/s = gram(s) per second
- m = meter
- m/s = meter(s) per second

CENTRAL CONTRA COSTA SANITARY DISTRICT MULTIPLE HEARTH FURNACE DISPERSION MODELING

Results of the Dispersion Modeling Analysis

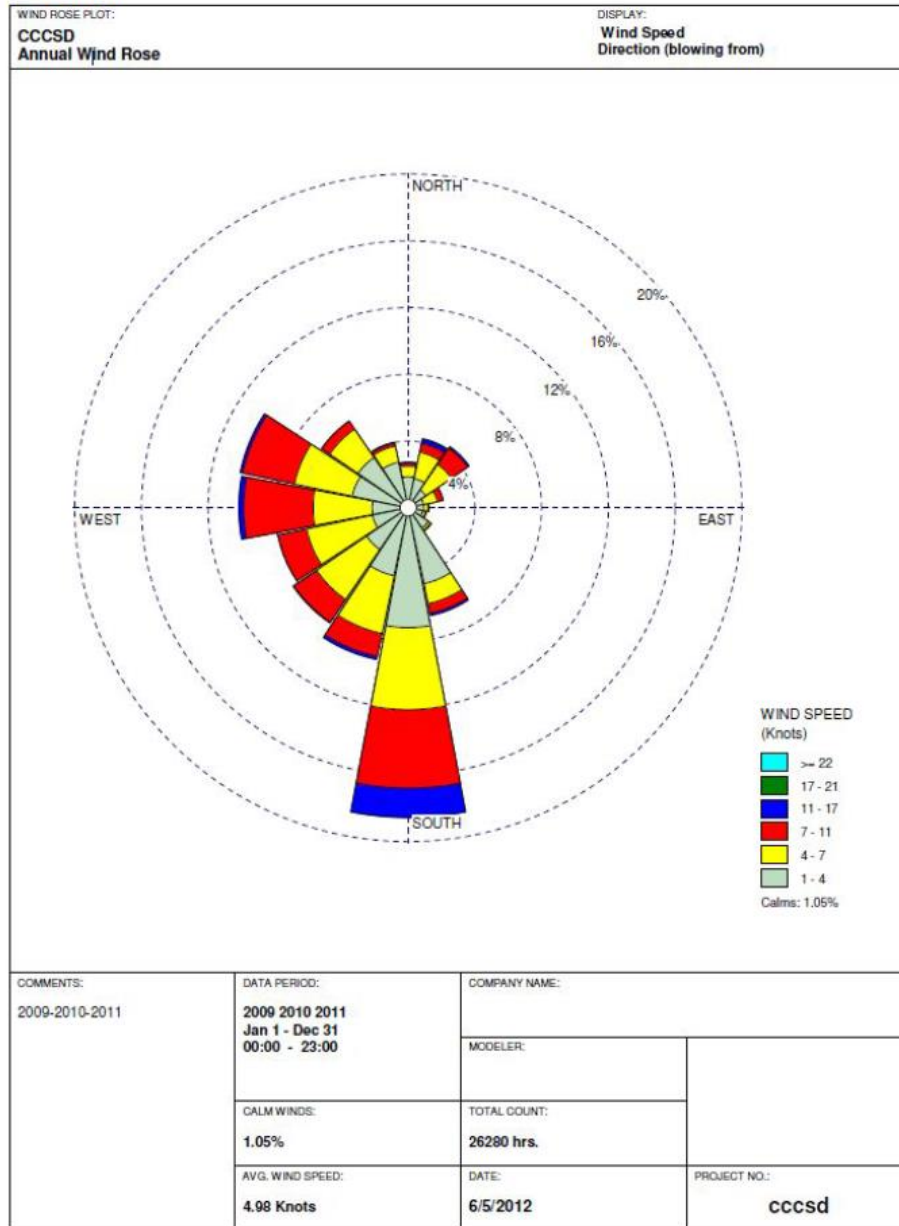
The maximum predicted annual concentrations for each year of meteorological data are presented in Table 3. The maximum unit emission impacts for each year were located near the southeast corner of the facility boundary.

TABLE 3
CCCSO MHF Modeling Results – Maximum Annual Impacts ($\mu\text{g}/\text{m}^3/\text{g}/\text{s}$)

Source ID	2009	2010	2011	Maximum
MHF1	11.3	10.9	9.4	11.3
MHF2	9.8	9.3	8.3	9.8

Predicted concentrations based on a 1-g/s unit emission factor.

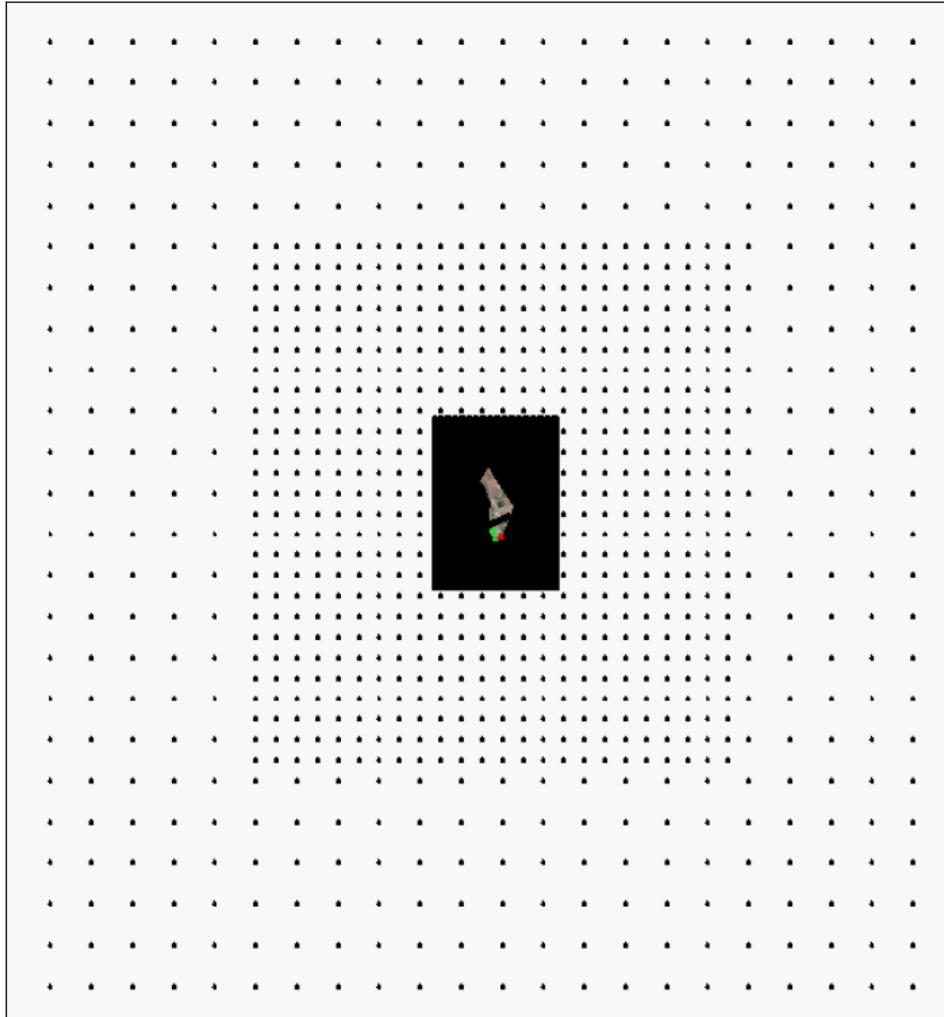
FIGURE 1
 CCCSD Wind Rose



SAC/438130/121770001 (CCCSD_MHF_DISPERSION_MODELING_TECHNICAL_MEMO_06_26_2012)
 ES0625122145246SAC

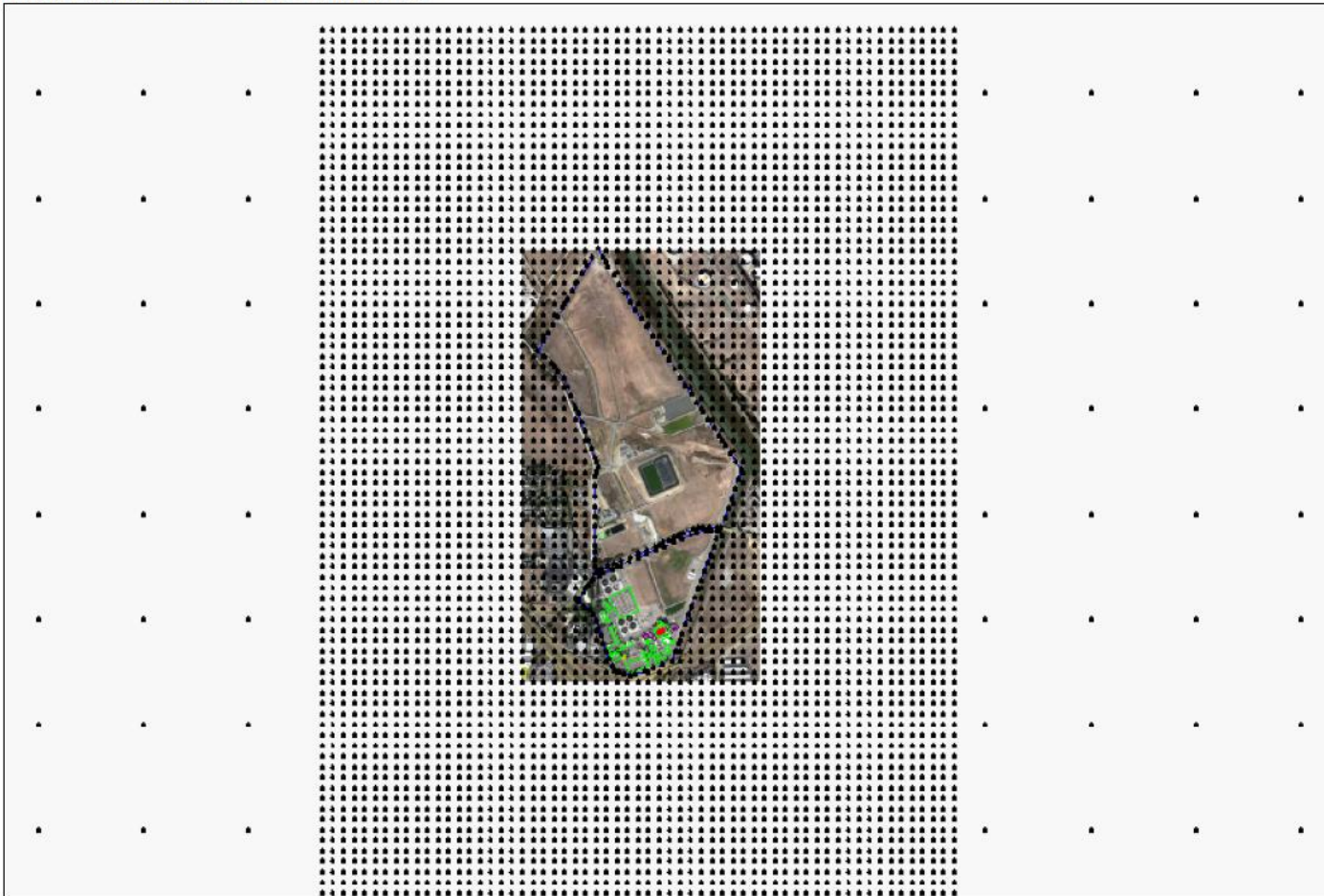
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FIGURE 2
Complete Receptor Grid for the CCCSD MHF Modeling



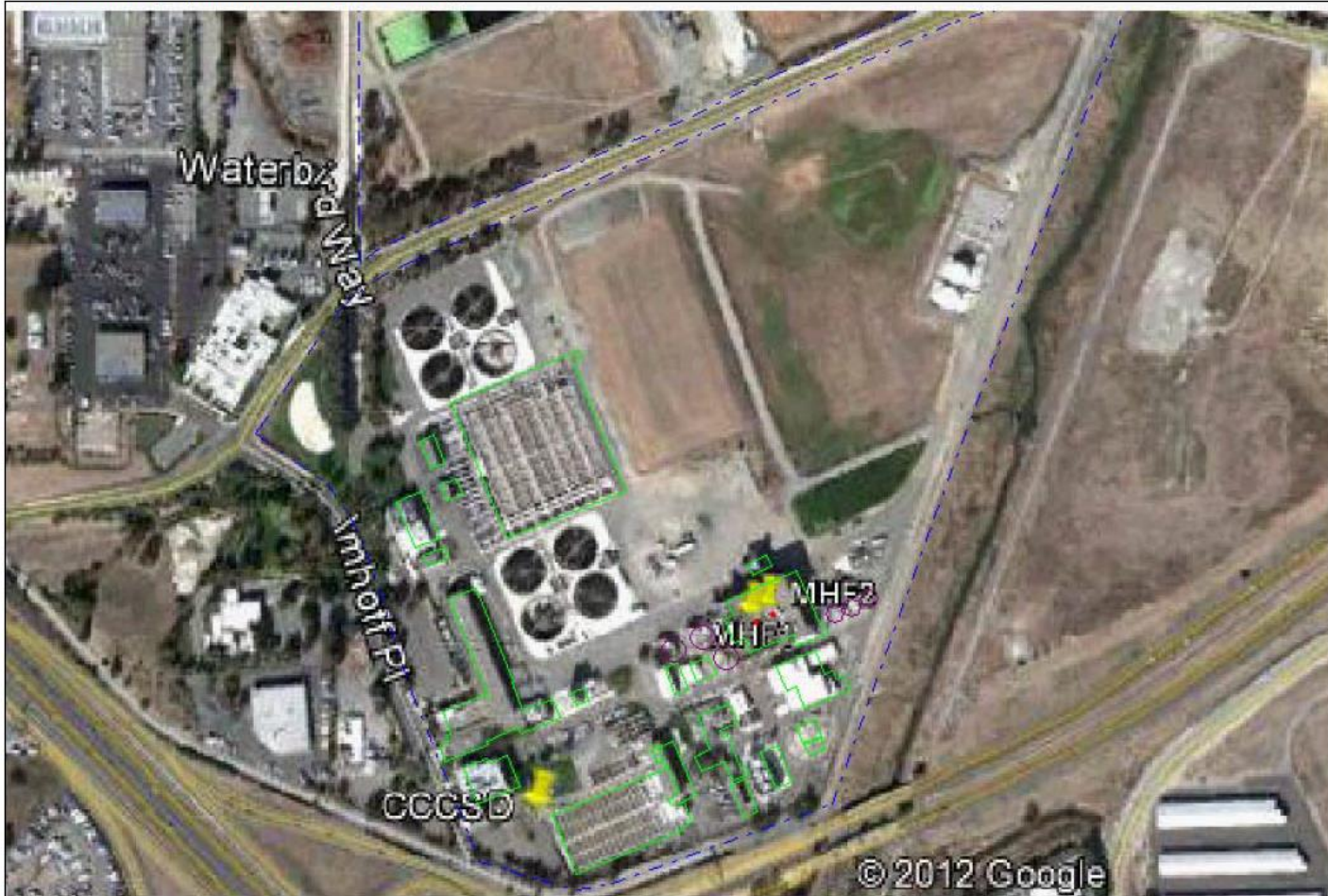
CENTRAL CONTRA COSTA SANITARY DISTRICT MULTIPLE HEARTH FURNACE DISPERSION MODELING

FIGURE 3
Close-up Receptor Grid for the CCCSD MHF Modeling



CENTRAL CONTRA COSTA SANITARY DISTRICT MULTIPLE HEARTH FURNACE DISPERSION MODELING

FIGURE 4
Source and Building Layout for the CCCSD HMF Modeling



SAC/438130/121770001 (CCCSD_MHF_DISPERSION_MODELING_TECHNICAL_MEMO_04_26_2012)
ES0625120145269AC

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