

Bay Area Air Quality Management District

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Permit Evaluation and Statement of Basis for Minor Revisions

to the

MAJOR FACILITY REVIEW PERMIT

for

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

Facility Address:

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Martinez, CA 94553-4392

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Application Engineer: Brenda Cabral
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Applications: 27141, 29344

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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.

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 permit was renewed on December 11, 2006, and March 12, 2015. This application is for minor revisions as shown in the table below. All proposed changes to the permit are shown in this Statement of Basis in strikeout/underline format.

See appendices for copies of the engineering evaluation reports.

Summary of Proposed Minor Revisions

Type of Revision Requested	District NSR Application #	Project Description	Location of Engineering Evaluation Report
Minor	27113	Revisions to conditions for S197, Emergency Sludge Loading Facility	Appendix B

Summary of Proposed Minor Revisions

Type of Revision Requested	District NSR Application #	Project Description	Location of Engineering Evaluation Report
Minor	28470	Addition of oxidation catalyst to S188, Turbine	Appendix C

The purpose of Application 27113 was to provide for an annual allowance to operate S197, Emergency Sludge Loading Facility, for testing and maintenance.

The change is a minor revision because it does not meet any of the examples of a significant revision pursuant to Regulation 2-6-226:

- The incorporation of a change considered a major modification under 40 CFR Parts 51 (NSR) or 52 (PSD)
- Modification under NSPS, NESHAPS, or Section 112 of the federal CAA
- A significant change or relaxation of any applicable monitoring, reporting or recordkeeping condition
- The establishment of or change to a permit term or condition allowing a facility to avoid an applicable requirement
- The establishment of or change to a case-by-case determination of any emission limit or other standard
- The establishment of or change to a facility-specific determination for ambient impacts, visibility analysis, or increment analysis on portable sources
- The incorporation of any requirement promulgated by the U. S. EPA under the authority of the Clean Air Act provided that three or more years remain on the permit term

The purpose of Application 28470 was to install an oxidation catalyst on S188, Turbine, to reduce carbon monoxide (CO) and to allow the turbine to operate near its maximum capacity. A discussion of why the associated changes qualify as a minor revision is included in the NSR permit evaluation in appendix C.

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.

The effect on emissions of the minor revisions is summarized below. The details are in the engineering evaluations, which are found in the appendices and form part of this statement of basis.

Application #	Sources	Change in Emissions
27113	S197, Emergency Sludge Loading Facility	Negligible
28470	S188, Turbine	Actual increase of 3.84 tons per year of NO _x ; Potential decrease of 13.54 tons per year of CO ¹

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 address of the Air District has changed. This is an administrative amendment to the permit.

I. Standard Conditions

This section contains administrative requirements and conditions that apply to all facilities. If the Title IV (Acid Rain) requirements for certain fossil-fuel fired electrical generating facilities

¹ Based on 1188 MMbtu/day and 0.0402 lb CO/thousand cubic feet of natural gas after installation of oxidation catalyst, and estimated emissions in 2016 of 22.08 tpy.

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:

There are no changes to this section in this action.

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.

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 abates 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 a source (or "S").

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

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

Changes to permit:

This Statement of Basis will discuss only the sources and abatement devices that are the subject of the minor revisions.

Table II A - Permitted Sources

Each of the following sources has been issued a permit to operate pursuant to the requirements of BAAQMD Regulation 2, Permits. The capacities in this table are the maximum allowable capacities for each source, pursuant to Standard Condition I.J and Regulation 2-1-301.

S-#	Description	Make or Type	Model	Capacity
S188	Cogeneration Turbine with Heat Recovery Steam Generator (natural gas)	Solar Centaur	T-4700	49.5 MM Btu/Hr HHV; 3500 kW
S197	Emergency Sludge Loading Facility	Custom	N/A	22.7 ton/hr

Table II B - Abatement Devices

A-#	Description	Source(s) Controlled	Applicable Requirement	Operating Parameters	Limit or Efficiency
<u>A188</u>	<u>Oxidation Catalyst</u>	<u>S188</u>	<u>BAAQMD Cond# 21485, part 6</u>	<u>None</u>	<u>CO emissions 157 lbs per any consecutive 24 hours</u>
			<u>BAAQMD Cond# 21485, part 7</u>	<u>None</u>	<u>CO emissions 26.376 tons per any consecutive 365 days</u>
<u>A197</u>	<u>Deep Bed Odor Control System – Packed Bed Scrubber</u>	<u>S197</u>	<u>BAAQMD 7-102</u>	<u>None</u>	<u>H2S: 1.5 ppmv</u>
			<u>BAAQMD Condition #24708, part 3</u>	<u>None</u>	<u>H2S: 1.5 ppmv</u>
			<u>BAAQMD 9-2-301</u>	<u>None</u>	<u>H2S: GLC not to exceed 0.06 ppm average over 3 min and 0.03 ppm average over</u>

Table II B - Abatement Devices

A-#	Description	Source(s) Controlled	Applicable Requirement	Operating Parameters	Limit or Efficiency
					<u>60 min</u>
			<u>BAAQMD 8-2-301</u>	<u>None</u>	<u>POC: 300 ppm as carbon and > 15 lb/day</u>
			<u>BAAQMD Condition #24708, part 4</u>	<u>None</u>	<u>VOC: 10 ppmv as carbon</u>

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:

There are no changes to this section in this action.

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:

S197, Emergency Sludge Loading Facility, is subject to BAAQMD Regulation 8, Rule 2, Miscellaneous Operations. Section 8-2-301 limits these operations to a two-part limit. The source is limited to 15 lb/day of precursor organic compounds (POC) or a 300 ppm concentration or POC. The evaluation for Application 27113 states that the source will emit up to 4.99 lb POC/day. The concentration is limited to 10 ppm. Therefore, the source will comply with the standard.

Changes to permit:

Following is an excerpt of Table IV-G showing the changes for S188:

**Table IV - J
 Source-specific Applicable Requirements
 S188, COGENERATION TURBINE, 3500 KW,
 NATURAL GAS FIRED**

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective or Expiration Date
BAAQMD Condition #21485			
part 1a	Fuel Type (Cumulative Increase)	Y	
part 1b	Throughput Limitations (Cumulative Increase)	Y	
part 1c	Requirement for PUC quality natural gas	Y	
part 2	NOx emission limitations- Stack Gas Concentration (9-9-301.1)	Y	
part 3	NOx limit – clock hour average (40 CFR 60.332)	Y	
part 4	NOx Emission limitations - Daily Total (Cumulative Increase)	Y	

Table IV - J
Source-specific Applicable Requirements
S188, COGENERATION TURBINE, 3500 KW,
NATURAL GAS FIRED

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective or Expiration Date
part 5	NOx Emission Limitations - Annual Total (Cumulative Increase)	Y	
part 6	CO Emission Limitations - Daily Total (Cumulative Increase)	Y	
part 7	CO Emission Limitations - Annual Total (Cumulative Increase)	Y	
<u>part 9a</u>	<u>Initial-CO Annual Compliance Source Tests (Cumulative Increase)</u>	<u>Y</u>	
<u>part 9b</u>	<u>Monthly or Quarterly CO monitoring</u>	<u>Y</u>	
part 10	Sampling Ports Required (Cumulative Increase)	Y	
part 11	Continuous emission monitoring (Cumulative Increase)	Y	
part 12	Records - daily usage of natural gas (Cumulative Increase)	Y	
part 13a	Fuel input monitoring (Cumulative Increase)	Y	
part 13b	Water-to-fuel monitoring (used only when NOx CEM is not operating) (40 CFR 60, sections 332(a)(2) and 334(a))	Y	
part 14	SO2 limit and monitoring (9-1-302)	Y	
part 15	Start-up Grace Period (9-9-114)	Y	
part 16	Shutdown Grace Period (9-9-114)	Y	

Following is Table IV-L showing the changes for S197:

Table IV-L
Source-specific Applicable Requirements
S197, EMERGENCY SLUDGE LOADING FACILITY

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
BAAQMD Regulation 1	General Provisions and Definitions (5/4/11)		
1-301	Public Nuisance	Y	
<u>BAAQMD Regulation 8, Rule 2</u>	<u>Organic Compounds – Miscellaneous Operations (7/20/05)</u>		
<u>8-2-301</u>	<u>Limitations on Total Carbon Emissions</u>	<u>Y</u>	
<u>BAAQMD Regulation 9 Rule 2</u>	<u>Inorganic Gaseous Pollutants – Hydrogen Sulfide (10/6/99)</u>		
<u>9-2-301</u>	<u>Limitations on Hydrogen Sulfide Emissions</u>	<u>N</u>	
BAAQMD Condition #24708			
Part 1	Abatement of odorous emissions required (Basis: BAAQMD Regulation 1-301)	Y	
Part <u>2a</u>	Operate only when S9 and S10 are not available <u>and for 100 hours/year for maintenance and testing.</u> (Basis: BAAQMD Regulation 1-301)	Y	
<u>Part 2b</u>	<u>Limitation on total hours of operation (Regulation 2, Rule 5)</u>	<u>N</u>	
<u>Part 3</u>	<u>Limit on H2S Concentration (Basis: Regulation 2, Rule 5)</u>	<u>N</u>	
<u>Part 4</u>	<u>Limit on concentration of organic compounds (Basis: Cumulative Increase)</u>	<u>Y</u>	
<u>Part 35</u>	Operate S197 in an Enclosed Area (Basis: BAAQMD Reg. 1-301, <u>Regulation 2, Rule 5</u>)	Y	
<u>Part 46</u>	Recordkeeping (Basis: Recordkeeping)	Y	

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.”

Changes to permit:

There are no changes to this section in this action.

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.

Changes to permit:

S188, Turbine

Condition 21485

For: S188, Natural Gas Fired Turbine Generator with HRSG; Solar Model Centaur T-4700, 3500 KW; Maximum Firing Capacity - 49.5 MMbtu/hr (HHV).

- 1a. The owner/operator shall ensure that S188 is fired only on natural gas. (Basis: Cumulative Increase)
- 1b. The owner/operator shall ensure that the S188 firing rate does not exceed 1188 MMbtu/day (HHV). (Basis: Cumulative Increase)
- 1c. The owner/operator shall ensure that all natural gas burned at S188 is PUC quality gas. (basis: 2-1-403)
2. The owner/operator shall ensure that NOx emissions from S188 do not exceed 42 ppmv, dry, at 15% oxygen based on a three clock hour average. (Basis: SIP Regulation 9-9-301.1))
3. The owner/operator shall ensure that NOx emissions from S188 do not exceed 167 ppmv, dry, at 15% oxygen based on a clock-hour average. (Basis: 40 CFR 60.332)
4. The owner/operator shall ensure that NOx emissions from S188 do not exceed 118 pounds in any rolling consecutive 24-hour period. (Basis: Cumulative Increase)
5. The owner/operator shall ensure that NOx emissions from S188 do not exceed 19.824 tons in any rolling 365 consecutive day period. (Basis: Cumulative Increase)
6. The owner/operator shall ensure that CO emissions from S188 do not exceed 157 pounds each rolling consecutive 24-hour period. (Basis: Cumulative Increase)
7. The owner/operator shall ensure that CO emissions from S188 do not exceed 26.376 tons in any rolling 365 consecutive day period. (Basis: Cumulative Increase)
8. Deleted Application 23445.
- 9a. To demonstrate compliance with conditions 6 and 7 above, the owner/operator shall perform a ~~compliance~~-source test for CO compliance at a frequency of at least 1 time every ~~60~~12 months after the most recent source test. Source test results shall be kept

onsite and made available to the BAAQMD staff upon request. (Basis: Cumulative Increase)

9b. After installation of the CO catalyst, the owner/operator shall measure CO concentration and oxygen content using a portable monitor for 30 continuous minutes at least once per month. The owner/operator shall use the CO concentration, oxygen content, and fuel flow to estimate the CO mass emissions in pounds on that calendar day. If the CO emissions are estimated at more than 118 lb on the calendar day, the owner/operator may take corrective action to lower the CO emissions within 5 business days before re-monitoring with the portable monitor.

If the CO emissions are estimated at more than 118 lb on the days monitored for three consecutive months, the owner/operator shall install a CEM for CO within twelve months of the third result.

In this case, the owner/operator shall comply with all applicable requirements in Volume V, Continuous Emission Monitoring Policy and Procedures, of the BAAQMD Manual of Procedures.

If the CO emissions are estimated at less than 118 lb on the days monitored for twelve consecutive months, the owner/operator may monitor with a portable monitor on a quarterly basis. If the CO emissions are estimated at more than 118 lb on any day after the quarterly monitoring has started, the owner/operator shall perform monitoring on a monthly basis until emissions are estimated at less than 118 lb/day for three consecutive months. (Basis: 2-6-503)

9c. ~~Within sixty days of the installation of the CO catalyst, the owner/operator shall perform a source test to determine the mass emissions of formaldehyde on a lb/MMBtu basis. The owner/operator shall submit the source test results to the District staff no later than 60 days after the source test. 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 IV 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: 2-1-403) Deleted Application 29344.~~

10. The owner/operator shall ensure that the stack at S188 is equipped with BAAQMD approved source testing ports to allow for the suitable sampling and testing of process flue gas emissions from S188. (Basis: Cumulative Increase)
11. The owner/operator shall operate a BAAQMD approved NOx emission monitoring and recording system for S188 to continuously assure compliance with parts 2, 4, and 5 of this condition, and the limit in 40 CFR 60.332(c). The owner/operator shall retain records made to comply with this condition for at least five years from date of last entry. This log shall be kept on-site and made available to the BAAQMD staff upon request. (Basis: Cumulative Increase, BAAQMD Regulation 2-6-501, 9-9-301.1, 40 CFR 60.334(b))

12. The daily usage of natural gas at S188, as measured at a BAAQMD approved fuel meter dedicated solely to this source~~s~~, shall be recorded daily in cubic feet (or thousands of cubic feet) in a BAAQMD approved log. This log shall be retained for at least five years from date of last entry. This log shall be kept on-site and made available to the BAAQMD staff upon request. (Basis: Cumulative Increase, BAAQMD Regulation 2-6-501)
13. a. The owner/operator shall operate a USEPA approved fuel flow monitor to show compliance with part 1b of this condition. (Basis: Cumulative Increase)
 - b. During periods that the continuous emission monitor for NOx is not operating, the owner/operator may use the water injection flow monitor and calculate the water-to-fuel ratio on a clock hour basis to show compliance with the NOx limit in 40 CFR 60.332(a)(2). (Basis: 40 CFR 60, sections 332(a)(2) and 334(a))
14. The owner/operator shall ensure that exhaust gas emissions do not exceed 300 SO₂ ppmv, dry.
(Basis: BAAQMD 9-1-302)
15. During the start-up of S188, this source shall be granted a start-up grace period during which S188 need not meet the emission limit indicated in part 2; ~~and part 3~~, above. All other conditions imposed on S188 shall remain in effect and enforceable. This start-up grace period shall begin once fuel is first combusted at S188 and shall end not more than three hours later. NOx emissions during this start-up grace period shall not be included in the cumulative NOx emissions of any rolling consecutive 24-hour period. During subsequent additional start-ups of S188 within a single 24 consecutive hour period, there shall be no start-up grace period and all conditions imposed on S188 shall be in effect and enforceable. The owner/operator shall ensure that each start-up is recorded in a District-approved log which shall be retained for at least five years from the date of last entry, be kept on site, and made available to the District upon request. (Basis: BAAQMD 9-9-114)
16. During the shutdown of S188, this source shall be granted a shutdown grace period during which S188 need not meet the emission limit indicated in part 2; ~~and part 3~~, above. All other conditions imposed on S188 shall remain in effect and enforceable. This shutdown grace period shall be defined as the last hour of operation of S188 preceding the time that all fuel combustion at S188 has ceased. NOx emissions during this start-up-shut-down grace period shall not be included in the cumulative NOx emissions of any rolling consecutive 24-hour period. Not more than one such grace period may occur in any 24-hour consecutive hour period. During additional shutdowns of S188 within a single 24 consecutive hour period, there shall be no shutdown grace period and all conditions imposed on S188 shall remain in effect and enforceable. The owner/operator shall ensure that each shutdown is recorded in a District-approved log which shall be retained for at least five years from the date of last entry, be kept on site, and made available to the District upon request. (Basis: BAAQMD 9-9-114)

The facility has opted to use a portable device to measure H2S instead of Draeger tubes, so the mention of Draeger tubes in part 3 of the following condition has been deleted.

S197, Emergency Sludge Loading Facility

CONDITION #24708

1. When operating, the owner/operator shall abate S197 with A197 at all times. The owner/operator shall ensure that A197 is installed, operated and maintained in good working order. [Basis: Public Nuisance]
2. a. The owner/operator shall only operate S197 when S9 and S10 are not available and for an additional 100 hours/year for maintenance and testing. [Basis: Public Nuisance]
2. *b. The owner/operator shall ensure that S-197 operates for no more than 4,190 hours/year. If the owner/operator anticipates that operation for more than 4,190 hours/year is necessary, the owner/operator shall submit an application for a Health Risk Screening Analysis to determine the effect of exceeding the annual trigger for hydrogen sulfide in Regulation 2, Rule 5. [Basis: ~~Public Nuisance~~ Regulation 2, Rule 5]
3. *The owner/operator shall ensure that the concentration of H2S in the stack does not exceed 1.5 ppmv. The owner/operator shall monitor the concentration of H2S in the stack at least once every day of operation using ~~Draeger tubes or a other~~ District approved device. (Basis: Regulation 2, Rule 5)
4. The owner/operator shall ensure that the concentration of organic compounds in the stack does not exceed 10 ppmv as carbon. The owner/operator shall monitor the concentration of organic compounds in the stack at least once every day of operation using a PID or FID or other District approved device. (Basis: Cumulative Increase)
- ~~3.5.~~ The owner/operator shall operate S197 in an enclosed area. [Basis: Public Nuisance]
- ~~4.6.~~ The owner/operator shall keep records of the date, time, amount of sludge loaded and the reason(s) S9 and S10 were not available. Records shall be retained for at least ~~24 months~~ 5 years from the date the records ~~was~~were made. Records shall be made available to the District upon request. [Basis: Public Nuisance; Regulation 2, Rule 5~~Recordkeeping~~]

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 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.

Changes to permit:

Following is an excerpt of Table VII-G showing the changes for S188. The CO monitoring is improved because the source test frequency has been increased from every sixty months to every 12 months and because the CO will be monitored with a portable monitor every month or quarter, depending on the CO levels.

**Table VII - G
Applicable Limits and Compliance Monitoring Requirements
S188, Natural Gas Fired Turbine Generator with HRSG**

Type of limit	Citation of Limit	FE Y/N	Future Effective Date	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
CO	BAAQMD Condition #21485, part 6	Y		157 lb/24 hour	BAAQMD Condition #21485, part 9a	P/once every 60 12 months	source test
	<u>BAAQMD Condition #21485, part 6</u>	<u>Y</u>		<u>157 lb/24 hour</u>	<u>BAAQMD Condition #21485, part 9b</u>	<u>P/M or Q</u>	<u>Portable monitor</u>
	BAAQMD Condition #21485, part 7	Y		26.376 tons/rolling 365 day period	BAAQMD Condition #21485.	P/once every 60 12 months	source test

Table VII - G
Applicable Limits and Compliance Monitoring Requirements
S188, Natural Gas Fired Turbine Generator with HRSG

Type of limit	Citation of Limit	FE Y/N	Future Effective Date	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
					part 9a		
Fuel usage	BAAQMD Condition #21485, part 1b	Y		≤ 1188 MMBtu/day (HHV) on any fuel	BAAQMD Condition #21485, part 12	P/D	records

Following is Table VII-I showing the changes for S197. H2S and organic compounds will be monitored daily when the source is in use.

Table IV-I
Source-specific Applicable Requirements
S197, EMERGENCY SLUDGE LOADING FACILITY

<u>Type of limit</u>	<u>Citation of Limit</u>	<u>FE Y/N</u>	<u>Future Effective Date</u>	<u>Limit</u>	<u>Monitoring Requirement Citation</u>	<u>Monitoring Frequency (P/C/N)</u>	<u>Monitoring Type</u>
<u>H2S</u>	<u>BAAQMD 9-2-301</u>	<u>N</u>		<u>Property Line Ground Level Limits:</u> <u>< 0.06 ppmv during any 24 hour period</u> <u>and</u> <u>< 0.03 ppmv during any 60 minute period</u>	<u>None</u>	<u>N</u>	<u>N</u>
	<u>BAAQMD Condition #24708, part 3</u>	<u>N</u>		<u>H2S:</u> <u>1.5 ppmv in stack</u>	<u>BAAQMD Condition #24708, part 3</u>	<u>P/D during operation</u>	<u>Portable monitor</u>
<u>VOC</u>	<u>BAAQMD Condition #24708, part 3</u>	<u>Y</u>		<u>VOC:</u> <u>10 ppmv as carbon in stack</u>	<u>BAAQMD Condition #24708, part 3</u>	<u>P/D during operation</u>	<u>Portable monitor</u>
<u>POC</u>	<u>BAAQMD 8-2-301 and SIP 8-2-301</u>	<u>Y</u>		<u>< 15 pounds/day or < 300 ppm total carbon concentration</u>	<u>BAAQMD Condition #24708, part 3</u>	<u>P/D during operation</u>	<u>Portable monitor</u>
<u>Hours of operation</u>	<u>BAAQMD Condition #24708, part</u>	<u>Y</u>		<u>100 hours/yr for maintenance and testing and when S9</u>	<u>BAAQMD Condition #24708, part 6</u>	<u>P/E</u>	<u>Record-keeping</u>

Table IV-I
Source-specific Applicable Requirements
S197, EMERGENCY SLUDGE LOADING FACILITY

<u>Type of limit</u>	<u>Citation of Limit</u>	<u>FE Y/N</u>	<u>Future Effective Date</u>	<u>Limit</u>	<u>Monitoring Requirement Citation</u>	<u>Monitoring Frequency (P/C/N)</u>	<u>Monitoring Type</u>
	<u>2a</u>			<u>and S10 are not available</u>			
<u>Hours of operation</u>	<u>BAAQMD Condition #24708, part 2b</u>	<u>N</u>		<u>4,190 per year</u>	<u>BAAQMD Condition #24708, part 6</u>	<u>P/D</u>	<u>records</u>

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:

There are no changes to this section in this action.

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:

There are no changes to this section in this action.

X. Glossary

Changes to permit:

There are no changes to this section in this action.

D. Alternate Operating Scenarios

No alternate operating scenario has been requested for this facility.

E. Compliance Status

There has been no change in the compliance status of this facility.

F. Differences between the Application and the Proposed Permit

None.

APPENDIX A

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)

NO_x

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, NO_x, 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 B

ENGINEERING EVALUATION APPLICATION 27113

ENGINEERING EVALUATION
Central Contra Costa Sanitary District, Plant No. 907
Application No. 27113

BACKGROUND

Central Contra Costa Sanitary District has submitted an application for a Change in Conditions for the following source and abatement device:

S197, Emergency Sludge Loading Facility abated by A197, Deep Bed Odor System
A197, Deep Bed Odor System

The facility is permitted only for use in an emergency when neither sewage sludge incinerator, S9 or S10, is available to process sewage sludge. In that case, the sewage sludge would be trucked to a landfill. The only other sewage sludge incinerator in the Bay Area is at the City of Palo Alto, which is not allowed to process sewage sludge from other facilities.

In this application, the facility is applying for an allowance of 100 hr/yr to startup the unit and for maintenance and testing. This application also considers the H₂S and organic emissions of the source, which were not considered in Application 22019.

EMISSIONS

A197, Deep Bed Odor System, is a carbon bed containing 11,735 pounds of carbon that is treated to absorb H₂S. It will also absorb an unknown quantity of organics. Application 22019 stated that the flow through the system is 8,000 acfm at 68 F. The applicant has recently stated that the actual flow is 11,100 acfm.

The vendor, Bay Products, Inc. states that the control rate will be 99% of the H₂S when the inlet H₂S is above 10 ppm, 0.1 ppm when the inlet is between 1 and 10 ppm and 0.05 ppm when the inlet is below 1 ppm.

The vendor, Bay Products, Inc. states that odors will be reduced by 90%. Presumably, this means that organic compounds will be reduced by 90%.

H₂S

The applicant has agreed to limit the H₂S to an amount below the hourly H₂S trigger in BAAQMD Regulation 2, Rule 5, New Source Review of Toxic Air Contaminants, which is 0.093 lb/hr. The annual trigger is 390 lb/yr. The applicant may limit operation to 4190 hours per year or calculate emissions to ensure that the yearly emissions are less than 390 lb/yr.

Following are calculations to determine the concentration that will keep the operation below the hourly trigger:

Volume	11,100	acfm
Pressure	1	atm
R	0.7302	
Temperature, F	68	F
Temperature, R	528	R
lb-mol/min	28.79	lb-mol/min
lb-mol/hr	1727.42	lb-mol/hr
H2S at 10 ppm	0.0173	lb-mol/hr at 10 ppm
MW H2S	34	
H2S at 10 ppm	0.5873	lb/hr at 10 ppm
Toxic Trigger	0.093	lb/hr
H2S at 1 ppm	0.058	lb/hr at 1 ppm
H2S at toxic trigger	1.583	ppm
H2S at 1.5 ppm	0.088	lb/hr

The concentration limit will be 1.5 ppmv.

Organics

The applicant has agreed to change the carbon when the concentration is 10 ppmv. Following is a calculation of the hourly emissions.

Volume	11,100	acfm
Pressure	1	atm
R	0.7302	
Temperature, F	68	F
Temperature, R	528	R
lb-mol/min	28.79	lb-mol/min
lb-mol/hr	1727.42	lb-mol/hr
C at 10 ppm	0.0173	lb-mol/hr at 10 ppm
MW C	12	
C at 10 ppm	0.208	lb/hr at 10 ppm
	4.99	lb/day
	20.80	lb/100 hrs
	1819	lb/yr at 10 ppm (8760 hrs)

When the incinerators are out of service, the amount of organics emitted by the sludge handling is less than the amount emitted by the incinerator, so no additional emissions

will be added to the cumulative increase. For example, the source test of S10 of April, 2010, showed that the incinerator emitted about 0.33 lb/hr as carbon.

When the sludge handling is tested while the incinerator is running, the organic emissions are in addition to the emissions of the incinerator. The sludge handling will be limited to 100 hr/yr for testing. 21 lb or 0.010 tons of POC will be added to the cumulative increase.

PLANT CUMULATIVE INCREASE

	Post-1991 increases	New	Total
NOX	4.360		4.360
POC	0.145	.01	0.155
SO2	0.333		0.333
PM10	0.252		0.252
CO	2.894		2.894

OFFSETS

The applicant possesses offsets. Therefore, the applicant is required to provide the offsets for this source. The actual POC emissions of the facility, as calculated by the District's database, are about 18.9 tpy. The Potential to Emit is likely below 35 tpy. Therefore the offset ratio is 1:1 in accordance with BAAQMD Regulation 2-2-302 and 0.01 tpy of POC offsets are required.

TOXIC RISK SCREENING ANALYSIS

The application is not subject to Regulation 2, Rule 5, New Source Review of Toxic Air Contaminants because emissions of all toxic compounds are below the trigger levels in Table 2-5-1 of the regulation. As describe above in the "Emissions" section, the facility will operate the sludge handling so that the emissions of H2S are below daily and annual triggers.

BACT

The emissions of POC will be below 10 lb/day. Therefore, the source is not subject to BACT per BAAQMD Regulation 2-2-301.

STATEMENT OF COMPLIANCE

Regulation 7, Odorous Substances

The source is controlled by carbon and is not expected to become subject to this regulation. The source is only subject if the facility receives 10 or more complaints over a 90-day period.

Regulation 8, Rule 2, Miscellaneous Operations

S197 will emit less than 15 lb/day of POC and therefore complies with the limit in Section 8-2-301.

Regulation 9, Rule 2, Hydrogen Sulfide

Following are the standards in Section 9-2-301:

- 9-2-301 Limitations on Hydrogen Sulfide:** A person shall not emit during any 24 hour period, hydrogen sulfide in such quantities as to result in ground level concentrations in excess of 0.06 ppm averaged over three consecutive minutes or 0.03 ppm averaged over any 60 consecutive minutes.

The District analyzed the concentrations using ISCST3 and found that at 1.5 ppmv at the outlet, the highest concentration outside the property line will be 0.00578 µg/m³. This is equivalent to 0.004 ppmv as permitted. Therefore, the source will comply with Regulation 9, Rule 2.

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 emission factors, and therefore is not discretionary as defined by CEQA. This project is in compliance with Chapter 8.2 of the permit handbook.

PSD

PSD is not triggered because this is not a major modification.

NSPS

There is no NSPS that applies to the sludge handling.

NESHAPS

There is no NESHAPS that applies to the sludge handling.

Public School, Schools

The facility is not within 1000 feet of a school and there will be no increase in toxic air contaminants, therefore, the application is not subject to public notification pursuant to BAAQMD Regulation 2-1-412, Public Notice, Schools.

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 and for an additional 100 hours/year for maintenance and testing. The owner/operator shall ensure that S-197 operates for no more

than 4,190 hours/year. If the owner/operator anticipates that operation for more than 4,190 hours/year is necessary, the owner/operator shall submit an application for a Health Risk Screening Analysis to determine the effect of exceeding the annual trigger for hydrogen sulfide in Regulation 2, Rule 5. [Basis: Public Nuisance; Regulation 2, Rule 5]

3. The owner/operator shall ensure that the concentration of H2S in the stack does not exceed 1.5 ppmv. The owner/operator shall monitor the concentration of H2S in the stack at least once every day of operation using Draeger tubes or other District approved device. (Basis: Regulation 2, Rule 5)

4. The owner/operator shall ensure that the concentration of organic compounds in the stack does not exceed 10 ppmv as carbon. The owner/operator shall monitor the concentration of organic compounds in the stack at least once every day of operation using a PID or FID or other District approved device. (Basis: Cumulative Increase)

5. The owner/operator shall operate S-197 in an enclosed area. [Basis: Public Nuisance]

5.7.The owner/operator shall keep records of the date, time, amount of sludge loaded and the reason(s) S-9 and S-10 were not available. Records shall be retained for at least 24 months-5 years from the date the records ~~was~~ere made. Records shall be made available to the District upon request. [Basis: Public Nuisance; Regulation 2, Rule 5~~Recordkeeping~~]

RECOMMENDATION

Issue a Change in Conditions for:

S197, Emergency Sludge Loading Facility abated by A197, Deep Bed Odor System

A197, Deep Bed Odor System

By: _____
Brenda Cabral
Supervising Air Quality Engineer

Date: _____

APPENDIX C

ENGINEERING EVALUATION APPLICATION 28470

ENGINEERING EVALUATION
Central Contra Costa Sanitary District, Plant No. 907
Application No. 28470

BACKGROUND

Central Contra Costa Sanitary District (CCCSD) has submitted an application for an Authority to Construct for the following abatement device:

- A188, Oxidation Catalyst
- abating S188, Cogeneration Turbine with Heat Recovery Steam Generator (natural gas)

The applicant expects the oxidation catalyst to lower the CO emissions by 50%. The purpose of the abatement device is to allow the facility to approach the maximum capacity of the turbine without exceeding the CO limits of 157 lb/every consecutive 24-hour period and 26.376 tons/every 365-day period. The fuel usage limit is 1188 MMbtu/day (HHV). The average usage in June 2017 was 938 MMbtu/day. The increase in actual usage could be about 25%.

This is not considered to be a modification under the BAAQMD Regulation 2-1-234.1, because the source has a “legally enforceable limitation” that limits its potential to emit. Therefore, this physical change will be considered an alteration.

EMISSIONS

Emissions will not increase over the permitted limits. At present, the turbine has the following emission limits:

- CO: 26.376 tpy; 157 lb/day
- NOx: 19.824 tpy; 118 lb/day; 42 ppm, dry, @ 15% O₂, 3-hr average
- SO₂: 300 ppm

There are no limits for POC and PM₁₀, but the emissions of both are not expected to exceed the emissions calculated in Applications 6422 (1991) and 25008 (1995):

- PM₁₀: 5.214 tpy
- POC: 6.6 tpy

NO_x emissions are measured by a NO_x CEM. The NO_x emissions for the year ending June 2017 were 14.980 tpy. Actual NO_x emissions are expected to rise by about 25% to about 18.725 tpy, remaining under the current limit.

Currently, CO emissions are measured by source test once every five years. Following are the results:

- 5/10/11 0.115 lb/MMbtu
- 5/20/16 0.123 lb/MMbtu

Using the larger emission factor and the natural gas usage for the year ending 12/31/15 (342 MMcf), the emissions are estimated at 22.08 tpy.

Using the larger emission factor and the maximum daily natural gas usage (1188 MMbtu/day), the emissions are estimated at 146 lb/day. The facility claims that CO emissions will be controlled by 50% to about 73 lb/day.

PLANT CUMULATIVE INCREASE

This alteration will not cause an increase or decrease to the cumulative increase.

OFFSETS

This alteration does not require offsets because permitted emissions will not increase.

TOXIC RISK SCREENING ANALYSIS

The emissions of TACs are not expected to increase, therefore this project is not subject to Regulation 2, Rule 5, New Source Review for Toxic Air Contaminants.

However, the District estimates that formaldehyde emissions are high, based on AP-42 factors. For the year ending 12/31/15, the formaldehyde emissions are calculated as 3,332 lb/yr. The oxidation catalyst is likely to lower emissions of organic compounds. There are no existing tests of formaldehyde at the turbine. Therefore, the facility has agreed to perform one test to quantify the formaldehyde emissions after the catalyst has been installed.

BACT

This alteration is not subject to BACT because there will be no increase in POC, NO_x, SO₂, CO, PM₁₀ or PM_{2.5} beyond permitted limits. There will likely be a decrease in CO and POC.

STATEMENT OF COMPLIANCE

CEQA

The project is exempt from CEQA in accordance with BAAQMD Regulation 2-1-312.2, because it is an application to install air pollution control.

PSD

PSD is not triggered because this is not a major modification.

NSPS

The turbine is subject to 40 CFR 60, Subpart GG, Standards of Performance for Stationary Gas Turbines. The turbine would be subject to 40 CFR 60, Subpart KKKK, Standards of Performance for Stationary Gas Turbines, if it were reconstructed.

The source is not considered to be reconstructed per Section 60.15 because the addition of an oxidation catalyst is not the “replacement of components” as described in Section 60.15(b).

NESHAPS

The turbine is not subject to 40 CFR 63, Subpart YYYY, National Emission Standards for Stationary Combustion Turbines because Section 63.6085 states that only major facilities for hazardous air pollutants (HAPs) are subject to the standards and the facility is not a major source of HAPs.

Public School, Schools

The facility is not within 1000 feet of a school and there will be no increase in toxic air contaminants, therefore, the application is not subject to public notification pursuant to BAAQMD Regulation 2-1-412, Public Notice, Schools.

Regulation 2, Rule 6, Major Facility Review

This application will result in a minor revision of the Title V permit. Actual NO_x emissions may rise from about 15.463 tpy¹ to 19.824 tpy, an actual increase of 4.361 tpy. CO emissions will likely fall from about 22.08 tpy to about 13.33 tpy, an actual decrease of 8.768 tpy. The actual increase of NO_x is below the threshold for a major modification, which is 40 tpy.

The change does not meet the other definitions of a significant revision to a Title V permit:

- Modification under NSPS, NESHAPS, or Section 112 of the federal CAA
- A significant change or relaxation of any applicable monitoring, reporting or recordkeeping condition
- The establishment of or change to a permit term or condition allowing a facility to avoid an applicable requirement
- The establishment of or change to a case-by-case determination of any emission limit or other standard
- The establishment of or change to a facility-specific determination for ambient impacts, visibility analysis, or increment analysis on portable sources

¹ Annual emissions taken from CEM report of 9/11/17 for 12 months ending on 8/31/17.

- The incorporation of any requirement promulgated by the U. S. EPA under the authority of the Clean Air Act provided that three or more years remain on the permit term

Monitoring is reviewed for Title V permit changes per Section 2-6-503 of Regulation 2, Rule 6. The facility will be required to conduct CO source tests on an annual basis. The facility will also be required to check the CO concentration and oxygen content with a portable monitor and estimate daily emissions on a monthly basis for one year. If the emissions calculated on each of those 12 days is below 75% of the daily limit, the facility may continue to monitor the daily emissions in this manner on quarterly basis with an annual source test. If the emissions on any monitored day are over 75% of the limit (118 lb/day), the facility will have five business days to take corrective action to lower the CO emissions and re-monitor with a portable monitor. If the turbine's estimated emissions are over 118 lb/day for 3 consecutive instances of monitoring, the facility will install a continuous emission monitor for CO within twelve months of the third result.

Other changes

Parts 15 and 16 of the permit condition exempt the turbine from the emission limits in Regulation 9, Rule 9, during startup and shutdown as allowed by Section 9-9-114 of the rule. In 2006, during the Title V renewal pursuant to Application 10118, the exemption was extended to the much higher NSPS limit of 167 ppm @ 15% O₂, dry, clock-hr basis. The exemption in Section 9-9-114 does not apply to the NSPS, so this change is being deleted from the condition.

PERMIT CONDITIONS

Condition 21485

For: S188, Natural Gas Fired Turbine Generator with HRSG; Solar Model Centaur

T-4700, 3500 KW; Maximum Firing Capacity - 49.5 MMbtu/hr (HHV).

- 1a. The owner/operator shall ensure that S188 is fired only on natural gas. (Basis: Cumulative Increase)
- 1b. The owner/operator shall ensure that the S188 firing rate does not exceed 1188 MMbtu/day (HHV). (Basis: Cumulative Increase)
- 1c. The owner/operator shall ensure that all natural gas burned at S188 is PUC quality gas. (basis: 2-1-403)
2. The owner/operator shall ensure that NO_x emissions from S188 do not exceed 42 ppmv, dry, at 15% oxygen based on a three clock hour average. (Basis: SIP Regulation 9-9-301.1))
3. The owner/operator shall ensure that NO_x emissions from S188 do not exceed 167 ppmv, dry, at 15% oxygen based on a clock-hour average. (Basis: 40 CFR 60.332)

4. The owner/operator shall ensure that NOx emissions from S188 do not exceed 118 pounds in any rolling consecutive 24 hour period. (Basis: Cumulative Increase)
5. The owner/operator shall ensure that NOx emissions from S188 do not exceed 19.824 tons in any rolling 365 consecutive day period. (Basis: Cumulative Increase)
6. The owner/operator shall ensure that CO emissions from S188 do not exceed 157 pounds each rolling consecutive 24-hour period. (Basis: Cumulative Increase)
7. The owner/operator shall ensure that CO emissions from S188 do not exceed 26.376 tons in any rolling 365 consecutive day period. (Basis: Cumulative Increase)
8. Deleted Application 23445.
- 9a. To demonstrate compliance with conditions 6 and 7 above, the owner/operator shall perform a ~~compliance~~-source test for CO compliance at a frequency of at least 1 time every ~~60~~12 months after the most recent source test. Source test results shall be kept onsite and made available to the BAAQMD staff upon request. (Basis: Cumulative Increase)

9b. After installation of the CO catalyst, the owner/operator shall measure CO concentration and oxygen content using a portable monitor for 30 continuous minutes at least once per month. The owner/operator shall use the CO concentration, oxygen content, and fuel flow to estimate the CO mass emissions in pounds on that calendar day. If the CO emissions are estimated at more than 118 lb on the calendar day, the owner/operator may take corrective action to lower the CO emissions within 5 business days before re-monitoring with the portable monitor.

If the CO emissions are estimated at more than 118 lb on the days monitored for three consecutive months, the owner/operator shall install a CEM for CO within twelve months of the third result.

In this case, the owner/operator shall comply with all applicable requirements in Volume V, Continuous Emission Monitoring Policy and Procedures, of the BAAQMD Manual of Procedures.

If the CO emissions are estimated at less than 118 lb on the days monitored for twelve consecutive months, the owner/operator may monitor with a portable monitor on a quarterly basis. If the CO emissions are estimated at more than 118 lb on any day after the quarterly monitoring has started, the owner/operator shall perform monitoring on a monthly basis until emissions are estimated at less than 118 lb/day for three consecutive months. (Basis: 2-6-503)

9c. Within sixty days of the installation of the CO catalyst, the owner/operator shall perform a source test to determine the mass emissions of formaldehyde on a lb/MMbtu basis. The owner/operator shall submit the source test results to the District staff no later than 60 days after the source test. 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 IV 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: 2-1-403)

10. The owner/operator shall ensure that the stack at S188 is equipped with BAAQMD approved source testing ports to allow for the suitable sampling and testing of process flue gas emissions from S188. (Basis: Cumulative Increase)
11. The owner/operator shall operate a BAAQMD approved NOx emission monitoring and recording system for S188 to continuously assure compliance with parts 2, 4, and 5 of this condition, and the limit in 40 CFR 60.332(c). The owner/operator shall retain records made to comply with this condition for at least five years from date of last entry. This log shall be kept on-site and made available to the BAAQMD staff upon request. (Basis: Cumulative Increase, BAAQMD Regulation 2-6-501, 9-9-301.1, 40 CFR 60.334(b))
12. The daily usage of natural gas at S188, as measured at a BAAQMD approved fuel meter dedicated solely to this source~~s~~, shall be recorded daily in cubic feet (or thousands of cubic feet) in a BAAQMD approved log. This log shall be retained for at least five years from date of last entry. This log shall be kept on-site and made available to the BAAQMD staff upon request. (Basis: Cumulative Increase, BAAQMD Regulation 2-6-501)
- 13.a. The owner/operator shall operate a USEPA approved fuel flow monitor to show compliance with part 1b of this condition. (Basis: Cumulative Increase)
 - b. During periods that the continuous emission monitor for NOx is not operating, the owner/operator may use the water injection flow monitor and calculate the water-to-fuel ratio on a clock hour basis to show compliance with the NOx limit in 40 CFR 60.332(a)(2). (Basis: 40 CFR 60, sections 332(a)(2) and 334(a))
14. The owner/operator shall ensure that exhaust gas emissions do not exceed 300 SO₂ ppmv, dry.
(Basis: BAAQMD 9-1-302)

15. During the start-up of S188, this source shall be granted a start-up grace period during which S188 need not meet the emission limit indicated in part 2, ~~and part 3,~~ above. All other conditions imposed on S188 shall remain in effect and enforceable. This start-up grace period shall begin once fuel is first combusted at S188 and shall end not more than three hours later. NOx emissions during this start-up grace period shall not be included in the cumulative NOx emissions of any rolling consecutive 24-hour period. During subsequent additional start-ups of S188 within a single 24 consecutive hour period, there shall be no start-up grace period and all conditions imposed on S188 shall be in effect and enforceable. The owner/operator shall ensure that each start-up is recorded in a District-approved log which shall be retained for at least five years from the date of last entry, be kept on site, and made available to the District upon request. (Basis: BAAQMD 9-9-114)
16. During the shutdown of S188, this source shall be granted a shutdown grace period during which S188 need not meet the emission limit indicated in part 2, ~~and part 3,~~ above. All other conditions imposed on S188 shall remain in effect and enforceable. This shutdown grace period shall be defined as the last hour of operation of S188 preceding the time that all fuel combustion at S188 has ceased. NOx emissions during this ~~start-up-shut-down~~ grace period shall not be included in the cumulative NOx emissions of any rolling consecutive 24-hour period. Not more than one such grace period may occur in any 24-hour consecutive hour period. During additional shutdowns of S188 within a single 24 consecutive hour period, there shall be no shutdown grace period and all conditions imposed on S188 shall remain in effect and enforceable. The owner/operator shall ensure that each shutdown is recorded in a District-approved log which shall be retained for at least five years from the date of last entry, be kept on site, and made available to the District upon request. (Basis: BAAQMD 9-9-114)

RECOMMENDATION

Issue a conditional Authority to Construct to the following abatement device:
A188, Oxidation Catalyst
abating S188, Cogeneration Turbine with Heat Recovery Steam
Generator (natural gas)

By: _____
Brenda Cabral
Supervising Air Quality Engineer

Date: _____