

Bay Area Air Quality Management District

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**Permit Evaluation
and
Statement of Basis
for
RENEWAL of**

MAJOR FACILITY REVIEW PERMIT

for
**City of Sunnyvale Water Pollution Control
Facility #A0733**

Facility Address:
1444 Borregas Ave.
Sunnyvale, CA 94089

Mailing Address:
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Application Engineer: Carol Lee

Site Engineer: Carol Lee

Application: 24582

January 2013

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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 Volume 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, of more than 100 tons per year of a regulated air pollutant.

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

Pursuant to Regulation 2, Rule 6, section 416, the District has reviewed the terms and conditions of this Major Facility Review permit and determined that they are still valid and correct. This review is included an analysis of applicability determinations for all sources, including those that have been modified or permitted since the issuance of the initial Major Facility Review Permit. This review also included an assessment of all monitoring in the permit for sufficiency to determine compliance.

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 A0733.

This facility received its initial Title V permit on July 11, 1997. The Title V renewed permit was on December 28, 2007. This application is for the second permit renewal. Although the current permit expired on December 27, 2012, it continues in force until the District takes final action on the permit renewal. The standard sections of the permit have changed since the permit was first issued. The proposed permit shows all changes to the permit in strikeout/underline format.

B. Facility Description

City of Sunnyvale Water Pollution Control Facility (CSWPCF) treats wastewater from sanitary sewer systems prior to discharge into the Bay or reuse as reclaimed water. Air emissions result from the normal treatment processes of wastewater influent containing chemicals, solvents, etc as discharged by residential and industrial sources and from combustion of digester gas, landfill gas, and natural gas.

Emission sources are area type from the wastewater treatment equipment. The categories of emissions are typically hydrocarbons (including methane).

Combustion emissions are from gas flares and IC engines burning various gaseous fuels (landfill gas, digester waste gas and natural gas).

This facility is related to the contiguous facility, City of Sunnyvale/Environmental Services (A5905), which is a Title V landfill plant. The two Engine Generators (S-14 and S-15) under this permit for A0733 burn landfill gas generated by A5905. Facility A5905 has submitted application #7364 for a Title V permit.

Since the District issued the renewal Title V permit to CSWPCF on 12/28/07, the facility submitted one permit application (AN 18331).

Permit application AN 18331 was submitted on 06/12/08 for modifying permit conditions # 10844 and # 19978 to change some recordkeeping and monitoring methodologies and for exemption status for a new Parts Washer (S-25). The new parts washer (S-25) replaced the permitted S-20 parts washer on April 1, 2009 and has been in operation ever since. The new parts washer is exempt from permitting requirements per Regulation 2-1-118.4 (<50 g/l of VOC cleaning material). There was no net increase in emission from the permit condition changes and exempt source (S-25).

In summary, there has been no net increase in emissions from the facility since the District issued the renewal Title V permit.

C. Permit Content

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

Regulation 2, Rule 5 has been added to Standard Condition 1.A.

SIP Regulation 2, Rule 6 - Permits, Major Facility Review has been added to Standard Condition 1.A.

Standard Condition I.B.11, which requires the responsible official to certify all documents submitted, was updated.

Standard Condition I.E.2 requiring the permit holder to maintain records for at least five years was updated.

Standard Condition I.G was edited for clarity.

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., S24).

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 of a “regulated air pollutant,” as defined in BAAQMD Rule 2-6-222, per year or 400 pounds of a “hazardous air pollutant,” as defined in BAAQMD Rule 2-6-210, per year.

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., A-24). 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.

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 explanations of the differences in the equipment list between the time that the facility originally applied for a Title V permit and the permit proposal date:

Changes to permit:

Devices Removed Since Permit was last modified:

S-20 Parts Washer, Model I, 20 Gallon Capacity

Two of the four anaerobic digesters (S-170) were altered without applying for an Authority to Construct; a fixed roof tank was added to each. The facility later has applied for an alteration to the existing permit for S-170 that will reflect the current operations. However, there is no change in the Title V permit required as a part of this approved alteration (Application # 24815). A copy of the evaluation report is provided in the Appendix.

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* pursuant to the definition in BAAQMD Rule 2-6-239.

Changes to permit:

Section III has been modified to update the website address where the SIP standards are now found.

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

- SIP Regulation 2-1-429, Federal Emissions Statement
- BAAQMD Regulation 2, Rule 5, New Source Review of Toxic Air Contaminants
- BAAQMD 2-1-429, Federal Emissions Statement
- SIP Regulation 5, Open Burning
- BAAQMD Regulation 6, Rule 1, Particulate Matter, General Requirements
- SIP Regulation 8, Rule 3, Architectural Coatings
- BAAQMD Regulation 8, Rule 40 Aeration of Contaminated Soil and Removal of Underground Storage Tanks
- BAAQMD Regulation 8, Rule 47, Air Stripping and Soil Vapor Extraction Operations
- SIP Regulation 8, Rule 49, Organic Compounds – Aerosol Paint Products
- SIP Regulation 9, Rule 1, Inorganic Gaseous Pollutants – Sulfur Dioxide
- California Health and Safety Code Title 17, Section 93115 et seq., Airborne Toxic Control Measure for Stationary Compression Ignition Engines

- California Health and Safety Code Title 17, Section 93116 et seq., Airborne Toxic Control Measure from Portable Engines Rated 50 Horsepower and Greater
- 40 CFR Part 61, Subpart M, National Emission Standards for Hazardous Air Pollutants – National Emission Standard for Asbestos
- Subpart F, 40 CFR 82.156, Recycling and Emissions Reduction – Required Practices

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, Applicable Limits & Compliance Monitoring 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. Section IV has been modified to update the website address where the SIP standards are now found.
- 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's or EPA's websites, or in the permit conditions, which are found in Section VI of the permit. All monitoring requirements are cited in Section IV.

Previous Section VII: Applicable Limits and Compliance Monitoring Requirements section of the permit has been deleted and combined with Section IV in this Title V permit renewal. Section IV and Section VII have been combined in this permit renewal. A discussion of monitoring is included in Section VII of this permit evaluation/statement of basis.

Complex applicability determination-POTW NESHAP: 40 CFR Part 63, Subpart VVV contains the NESHAP standards for POTWs. The NESHAP requires MACT controls at POTWS which

are major sources for HAP which are defined thusly: *...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 reviewed the wastewater borne emissions potential of the most frequently seen HAPs and conclude that CSWPCF is not a major source for HAP emissions or for combined HAP emissions. A conservative estimate of HAP emissions may be obtained by using the 80th % factors as developed by the BAAT-AMSA – CWEA studies in the 1990s. Most conservatively, the total plant throughput would have to be over 125 million gallon per day. The CSWPCF average flow rate is approximately 29.5 million gallons per day. Therefore, the facility is not a major source for HAP.

In addition, this POTW is an existing POTW that has not been reconstructed (as defined by 40 CFR 63.1595). Furthermore, CSWPCF is not an Industrial POTW as defined by 40 CFR 63.1595. CSWPCF processes strictly domestic wastewater streams.

40 CFR Part 63, Subpart ZZZZ contains the NESHAP standards for Reciprocating Internal Combustion Engines (RICE). The requirements for landfill/digester gas fired RICE at an area HAP source (not a major source of HAP) were added to the requirements for S-14 and S-15 Engines and S-16, S-17, and S-18 Influent Pumps and S-19 Emergency Natural Gas Fired Standby Generator.

Compliance Assurance Monitoring: The applicability of compliance assurance monitoring (CAM) must be considered at this facility because the facility uses an emission control device to achieve compliance with a federally enforceable emission limit. The control devices in use are Waste Gas Burner (A-12, previously identified as source S-12) and Digester Waste Gas Flare (A-13, previously identified as source S-13). These control devices control emissions from the anaerobic digesters S-170, and are subject to the requirements of Regulation 8, Rule 2-301 (see discussion above). This section prohibits the discharge of an emission containing more than 15 lbs/day and a concentration of more than 300 ppm total carbon.

The District performed a conservative calculation (see below) to estimate the NMOC emissions potential from digester gas. The calculation includes all compounds of carbon with the exception of methane and carbon dioxide. CSWPC has a maximum daily digester gas production rate of 300,000 cu ft, with a maximum concentration of 82 micro-grams NMOC per liter (16 ppmv), of digester gas. Assuming all digester gas is vented at the maximum NMOC concentration gives a daily uncontrolled emission limit of approximately 3.1 lb per day (see below for calculation). CAM only applies if the uncontrolled emissions are more than 100 tpy. Since the maximum annual emissions are less than a ton (560 lb/yr), CAM is not required.

1. NMOC Compound Concentrations in Digester Gas

Average MW of NMOC: 113 lb/lb-mole (113 g/g-mole)

Concentration of NMOC: 82 µg/l = 82 E-06 g/l (there are no digester gas test results for CSWPCF digester gas, 82 µg/l taken from EBMUD Source Tests, based on highest observed concentration; average measured concentration = 30 µg/l)

CSWPC Digester Gas Production Rate: 300,000 cu ft/day (12,500 cu ft/hr)

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Digester Gas Typical Composition:

Methane: 59% (typical, dry basis)
CO₂: 41%
(Average DG Density = 1.22 g/l at STP)
Nitrogen + Oxygen: <1%

NMOC Emissions, Uncontrolled = (300,000 cu ft/day)(82 E-06 g NMOC/liter)(1000 liter/cu m)(cu m/35.314cu ft)(lb/454 g) = 1.5 lb/day (560 lb/yr)

Conversion of 82 µg/l to ppmv, basis 1,000,000 liter digester gas: (82 E-06 g NMOC/liter DG)(1,000,000 liter DG)(g-mole NMOC/113 g NMOC)(22.4 liter NMOC/g-mole NMOC) = 16 liter NMOC per 1,000,000 liter DG = 16 ppmv

300 ppm Carbon in Digester Gas (DG):

MW, Methane: 16.1 lb/mole

Total carbon (NMOC) emitted @ 300 ppm = [300,000 cu ft/day][300 cu ft NMOC as methane/1E6 cu ft DG][lb-mole/386 cu ft][16.1 lb/lb-mole] = 3.8 lb/day

112 (j) 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.

Changes to Permit:

- Table IV and Table VII have been combined.
- The description of Section VII has been added to Section IV Source-Specific Applicable Requirements, Emission Limits & Compliance Monitoring Requirements. For periodic monitoring, the frequency of the monitoring has also been shown, either annual (A), quarterly (Q), monthly (M), weekly (W), daily (D), or on an event basis (E). No monitoring (N) has been required if the current applicable rule or regulation does not require monitoring, and the operation is unlikely to deviate from the applicable emission limit based upon the nature of the operation.
- A column for Recordkeeping Protocol, R, has been added to Table IV & Table VII for completeness.
- The dates of adoption or approval of the rules and their “federal enforceability” status in the combined Table IV & Table VII have been updated.
- BAAQMD Regulation 6, Particulate Matter and Visible Emissions has been designated as SIP Regulation 6, and the BAAQMD rule has been renamed and renumbered as Regulation 6, Rule 1, Particulate Matter, General Provisions
- The description of the BAAQMD 6-1-301 and SIP 6-301 and limit has been corrected to say “for < 3 min/hr.”
- 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 “Filterable Particulate” for BAAQMD Regulation 6-1-310 and 6-1-311, since it is a filterable particulate standard.
- All BAAQMD Regulation 10 was modified from “N” for Federal Enforceable (FE) to “Y”.
- Visible inspection by Method 9 or Method 22 is visible emission observations.

S-14 and S-15, Engines

Regulation 1 was amended in 2011. Hence, the date of the rule was changed to reflect the new adoption date for this most recent amendment. In addition, corrections were made to reflect that the District rule is not federal enforceable, while the SIP approved version is.

Regulation 6 was amended in 2007 to become Regulation 6, Rule 1. The newest adoption of Regulation 6-1 is not yet SIP approved and is thus not federally enforceable. The prior version of Regulation 6 was SIP approved and has been changed to reflect that with the date changed to reflect its federal register date.

Regulation 8, Rule 2 was amended in 2005. The current rule was updated to correct the dates of adoption and the SIP approved version of that rule was added.

Regulation 8, Rule 34 was amended in 2005. The current rule was added and the prior rule became the SIP approved rule with the federal register adoption date.

Regulation 9, Rule 1 was updated to correctly reflect the applicable headings of the sections referenced. In addition, the SIP approved version was added.

Regulation 9, Rule 2 was updated to correctly reflect the applicable headings of the sections referenced and to make a correction that the rule is NOT federally enforceable. No version of this rule has been added to the SIP.

Regulation 9, Rule 8 was amended in 2007. The current rule has been added and the SIP approved version was updated to reflect the correct federal register date when it was added to the SIP.

Condition No. 10844 was amended as part of Application No. 18331. As a result, Part 8 was amended and Part 9 was deleted.

Occasionally, sources S-14 and S-15 exceed the 200 million British Thermal Units per day (mmBTU/day) per generator limitation cited in their permit condition # 10844, Part 2. They do not exceed the 72,000 mmBTU/year generator limitation. This issue has arisen due to a gradual change in the mix of the landfill gas, digester gas, and natural gas. Landfill gas production has declined over time and is expected to continue to do so. As a consequence, the overall mixture of gases from the various sources will continue to change. The facility submitted a Change of Condition application on October 5, 2012 to the District to revise the conditions to increase daily fuel consumption capacity, which triggered Best Available Control Technology (BACT) review. The District is still awaiting the facility's response on how they will meet BACT requirements. The results of that application (if approved) will be incorporated into the Title V permit as a modification at a later date. Until that application is approved, sources S-14 and S-15 shall not exceed the 200 million BTU per day per generator limitation cited in their permit conditions # 10844, Part 2.

40 CFR Part 63, Subpart ZZZZ contains the NESHAP standards for Reciprocating Internal Combustion Engines (RICE). The requirements for RICE at an area HAP source (not a major source of HAP) were added to the requirements for S-14 and S-15 Engines.

S-16, S-17, and S-18 Influent Pumps

Regulation 1 was amended in 2011. Hence, the date of the rule was changed to reflect the new adoption date for this most recent amendment. In addition, corrections were made to reflect that the District rule is not federal enforceable, while the SIP approved version is.

Regulation 6 was amended in 2007 to become Regulation 6, Rule 1. The newest adoption of Regulation 6-1 is not yet SIP approved and is thus not federally enforceable. The prior version of Regulation 6 was SIP approved and has been changed to reflect that with the date changed to reflect its federal register date.

Regulation 8, Rule 2 was amended in 2005. The current rule was updated to correct the dates of adoption and the SIP approved version of that rule was added.

Regulation 9, Rule 1 was updated to correctly reflect the applicable headings of the sections referenced. In addition, the SIP approved version was added.

Regulation 9, Rule 2 was updated to correctly reflect the applicable headings of the sections referenced and to make a correction that the rule is NOT federally enforceable. No version of this rule has been added to the SIP.

Regulation 9, Rule 8 was added to these sources since it has been revised to cover engines between 50 and 250 HP. The facility has selected the delayed compliance of Section 9-8-303 and they have met the requirements of 9-8-402.

Condition No. 19978 was amended as part of Application No. 18331. In addition, Part 3 was added to require that the facility submit a permit application for abatement equipment or replacement equipment to comply with the delayed compliance requirement Regulation 9-8-303.3.

40 CFR Part 63, Subpart ZZZZ contains the NESHAP standards for Reciprocating Internal Combustion Engines (RICE). The requirements for RICE at an area HAP source (not a major source of HAP) were added to the requirements for S-16, S-17, and S-18 Influent Pumps.

S-19 Emergency Natural Gas Fired Standby Generator

Regulation 6 was amended in 2007 to become Regulation 6, Rule 1. The newest adoption of Regulation 6-1 is not yet SIP approved and is thus not federally enforceable. The prior version of Regulation 6 was SIP approved and has been changed to reflect that with the date changed to reflect its federal register date.

Regulation 9, Rule 1 was updated to correctly reflect the applicable headings of the sections referenced. In addition, the SIP approved version was added.

Regulation 9, Rule 8 was amended in 2007. The current rule has been added and the SIP approved version was updated to reflect the correct federal register date when it was added to the SIP.

40 CFR Part 63, Subpart ZZZZ contains the NESHAP standards for Reciprocating Internal Combustion Engines (RICE). The requirements for RICE at an area HAP source (not a major source of HAP) were added to the requirements for S-19 Emergency Natural Gas Fired Standby Generator.

S-20 Parts Washer

This source has been removed from service. As a result, it is being deleted from Title V permit.

S-100, S-110, S-120, S-130, S-140, S-150, S-161, and S-170

Regulation 8, Rule 2 was amended in 2005. The current rule was updated to correct the dates of adoption and the SIP approved version of that rule was added.

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 District has determined that the facility is subject to BAAQMD Regulation 2-6-409.10.3. Sources S-14 and S-15, Engines, burn landfill gas that is generated at Facility A5095. Therefore, these engines and the landfill gas piping are subject to BAAQMD Regulation 8, Rule 34, as amended on June 15, 2005. The facility has notified the District that it is out of compliance with permit condition # 10844, Part 2. Occasionally, sources S-14 and S-15 exceed the 200 million British Thermal Units per day (mmBTU/day) per generator limitation cited in their permit condition # 10844, Part 2. They do not exceed the 72,000 mmBTU/year generator limitation. This issue has arisen due to a gradual change in the mix of the landfill gas, digester gas, and natural gas. Landfill gas production has declined over time and is expected to continue to do so. As a consequence, the overall mixture of gases from the various sources will continue to change. The facility may submit a Change of Condition application by

November 1, 2012 to the District to revise the conditions to reflect the current make-up of the gas stream being combusted in the generators or decide to operate at a lower fuel usage rates to comply.

In addition, two of the four anaerobic digesters were altered without applying for an Authority to Construct; a fixed roof tank was added to each. The facility will apply for a modification to the existing permit for S-170 that will reflect the current operations at the site by October 1, 2012.

Other changes to permit

The language in the "standard" schedule of compliance has been updated to the current standard language.

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 has 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; 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.

The District has reviewed and, where appropriate, revised or added new annual and daily throughput limits on sources so as to help ensure compliance with District rules addressing preconstruction review. For S-16, S-17 and S-18, no throughput limit was added because these are loss of exemption sources.

Conditions that are obsolete or that have no regulatory basis have been deleted from the permit.

Conditions have also been deleted due to the following:

- Redundancy in record-keeping 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.
- **TRMP:** This term is used for a condition imposed by the APCO to ensure compliance with limits that arise from the District's Toxic Risk Management Policy.

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

Changes to permit:

Condition 10844 and 19978 was replaced with new language as part of permit condition modification in Application # 18331 to identify key operating parameters and specify new or updated methodologies used in measuring them. A copy of the evaluation report for Application # 18331 is provided in the appendix of this statement of basis.

Condition # 19930 was deleted with the shutdown of S-20 Parts Washer.

Condition # 19929, Part 1 was revised to reflect the reduced "allowable hours of operation" for reliability-related activities per Regulation 9-8-331.3.

VII. Applicable Limits and Compliance Monitoring Requirements

This section was deleted and combined with Section IV.

The combined Section IV and VII 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 tables below contain only the limits for which there is no monitoring or inadequate monitoring in the applicable requirements. The District has examined the monitoring for other limits and has determined that monitoring is adequate to provide a reasonable assurance of compliance. Calculations for potential to emit will be provided in the discussion when no monitoring is proposed due to the size of a source.

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 following exceptions.

The tables below contain only the limits for which there is no monitoring or inadequate monitoring in the applicable requirements. The District has examined the monitoring for other limits and has determined that monitoring is adequate to provide a reasonable assurance of compliance. Calculations for potential to emit will be provided in the discussion when no monitoring is proposed due to the size of a source.

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 only when it can support a conclusion that existing monitoring is inadequate.

NOX Sources

| S# & Description | Emission Limit Citation | Federally Enforceable Emission Limit | Monitoring |
|---------------------------------|--------------------------------|---|--------------------|
| S-14, S-15 Engine Generators | BAAQMD 9-8-302.1 | 70 ppmv @ 15% O ₂ , dry | Annual source test |
| | SIP 9-8-302.1 | 70 ppmv @ 15% O ₂ , dry | Annual source test |
| | BAAQMD cond #10844, part 4c | 1.5 gram/bhp-hr | Annual source test |

NOx Discussion:

Based on the annual source test reports submitted by the facility, S-14 and S-15 meet the NOx emission requirements of 65 ppmv @ 15% O2, dry and 1.5 gram/bhp-hr. Any exceedence, if any, would be rectified at once and source tested again to demonstrate compliance. Annual source tests are a standard way to determine compliance at engines.

Regulation 9, Rule 8 was amended in 2007. The current rule has been added and the SIP approved version was updated to reflect the correct federal register date when it was added to the SIP.

CO Sources

| S# & Description | Emission Limit Citation | Federally Enforceable Emission Limit | Monitoring |
|---------------------------------|--------------------------------|---|--------------------|
| S-14, S-15 Engine Generators | BAAQMD 9-8-302.3 | 2000 ppmv @ 15% O2, dry | Annual source test |
| | SIP 9-8-302.3 | 2000 ppmv @ 15% O2, dry | Annual source test |
| | BAAQMD cond #10844, part 4b | 2.5 gram/bhp-hr | Annual source test |

CO Discussion:

Based on the annual source test report submitted by the facility, S-14 and S-15 meet the CO emission requirements of 2000 ppmv @ 15%O2, dry and 2.5 gram/bhp-hr. Any exceedence, if any, would be rectified at once and source tested again to demonstarte compliance. Annual source tests are a standard way to determine compliance at engines.

Regulation 9, Rule 8 was amended in 2007. The current rule has been added and the SIP approved version was updated to reflect the correct federal register date when it was added to the SIP.

SO₂ Sources

| S# & Description | Emission Limit Citation | Federally Enforceable Emission Limit | Monitoring |
|-----------------------------|--------------------------------|---|-------------------|
|-----------------------------|--------------------------------|---|-------------------|

SO₂ Sources

| S# & Description | Emission Limit Citation | Federally Enforceable Emission Limit | Monitoring |
|---------------------------------------|--------------------------------|--|----------------------|
| S-14, S-15, S-16, S-17, S-18 and S-19 | 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 | N/A |
| | SIP 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 | N/A |
| S-14 and S-15 | BAAQMD 9-1-302 | 300 ppm (dry) | Source Test Annually |
| | SIP 9-1-302 | 300 ppm (dry) | Source Test Annually |
| S-16, S-17 and S-18 | BAAQMD 9-1-302 | 300 ppm (dry) | Source Test Annually |
| | SIP 9-1-302 | 300 ppm (dry) | Source Test Annually |
| S-19 | BAAQMD 9-1-302 | 300 ppm (dry) | N/A |
| | SIP-1-302 | 300 ppm (dry) | N/A |

SO₂ Discussion:

BAAQMD Regulation 9-1-301

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 to have ground level monitoring by the APCO.

S-14, S-15, S-16, S-17 and S-18 are subject to the SO₂ emission limitations in District Regulation 9, Rule 1 (ground-level concentration and emission point concentration). Annual source tests are required to demonstrate compliance. S-14 and S-15 burn landfill gas and digester gas. S-16, S-17 and S-18 burn digester gas.

No monitoring is required for S-19 per 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.

The SIP approved versions of the requirements were added to the permit.

PM Sources

| S# & Description | Emission Limit Citation | Federally Enforceable Emission Limit | Monitoring |
|---------------------------------------|--------------------------------|---|-------------------|
| S-14, S-15, S-16, S-17 and S-18 | BAAQMD Regulation 6-1-301 | No. 1 on Ringelmann Chart for 3 minutes in any hour | N/A |
| | SIP Regulation 6-301 | No. 1 on Ringelmann Chart for 3 minutes in any hour | N/A |
| S-19 | BAAQMD Regulation 6-1-303 | No. 2 on Ringelmann Chart for 3 minutes in any hour | N/A |
| | SIP Regulation 6-303 | No. 2 on Ringelmann Chart for 3 minutes in any hour | N/A |
| S-14, S-15, S-16, S-17, S-18 and S-19 | BAAQMD Regulation 6-1-310 | 0.15 gr/dscf | N/A |
| | SIP Regulation 6-310 | 0.15 gr/dscf | N/A |

PM Discussion:

BAAQMD Regulation 6 “Particulate Matter and Visible Emissions”

Visible Emissions

BAAQMD Regulation 6-301 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). Visible emissions are normally not associated with combustion of gaseous fuels, such as natural gas. Source S-19 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 this limit for these sources.

S-14, S-15, S-16, S-17 and S-18 only burn gaseous fuels. They are expected to operate with compliance of Regulation 6-1-301 and Regulation 6-1-310. Monitoring is therefore not required.

Regulation 6 was amended in 2007 to become Regulation 6, Rule 1. The newest adoption of Regulation 6-1 is not yet SIP approved and is thus not federally enforceable. The prior version of Regulation 6 was SIP approved and has been changed to reflect that with the date changed to reflect its federal register date.

POC Sources

| S# & Description | Emission Limit Citation | Federally Enforceable Emission Limit | Monitoring |
|-----------------------------|--------------------------------|--|-------------------|
| S-14 and S-15 | BAAQMD Regulation 8-2-301 | 15 lb/day or 300 PPM total carbon on a dry basis | Source test |
| | SIP Regulation 8-2-301 | 15 lb/day or 300 PPM total carbon on a dry basis | Source test |
| | BAAQMD Regulation 8-34-301.4 | 98% NMOC reduction by weight or 120 ppmv (dry) NMOC corrected @ 3% O ₂ at exhaust | Source test |
| | SIP Regulation 8-34-301.4 | 98% NMOC reduction by weight or 120 ppmv (dry) NMOC corrected @ 3% O ₂ at exhaust | Source test |
| | BAAQMD cond #10844, part 4a | 0.3 gram/bhp-hr | Source test |
| S-16, S-17, and S-18 | BAAQMD Regulation 8-2-301 | 15 lb/day or 300 PPM total carbon on a dry basis | None |
| | SIP Regulation 8-2-301 | 15 lb/day or 300 PPM total carbon on a dry basis | None |

POC Discussion:

Based on the annual source test reports submitted by the facility, S-14 and S-15 meet the POC emission requirement of 0.3 gram/bhp-hr. Any exceedance would be rectified at once and source tested again to demonstrate compliance.

An annual source test requirement has been imposed to ensure compliance with Regulations 8-2-301 and 8-34-301.4 at S-14 and S-15. This is a standard monitoring condition. Since Regulation 8-34 requires parametric monitoring, requirements for daily monitoring of air-to-fuel ratio and continuous monitoring of exhaust gas oxygen content have been added.

The calculations in Section C.IV of this Statement of Basis show that the total mass emissions of NMOC in the digester gas are less than 15 lb/day. Since sources S-16, S-17, and S-18 exclusively burn digester gas, there is no possibility that the limit in Regulation 8-2-301 could be exceeded and therefore, no monitoring is required.

Regulation 8, Rule 2 was amended in 2005. The current rule was updated to correct the dates of adoption and the SIP approved version of that rule was added.

Regulation 8, Rule 34 was amended in 2005. The current rule was added and the prior rule became the SIP approved rule with the federal register adoption date.

Source S-20 has been removed from service and as a result, it has been deleted from the Title V permit.

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.

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

Changes to permit:

Additional test methods were identified for Regulation 6-1. In addition, because of changes to permit conditions No. 10844, parts 8 and part 9 test methods were deleted.

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.

This facility has no permit shields.

This permit has no streamlining.

X. Alternate Operating Scenarios:

No alternate operating scenario has been requested for this facility.

XI. Compliance Status:

A December 3, 2012 office memorandum from the Director of Compliance and Enforcement to the Director of Permit Services presents a review of the compliance record of City of Sunnyvale Water Pollution Control Facility. The Compliance and Enforcement Division staff has reviewed the records for the period from October 1, 2007 through December 3, 2012. This review was initiated as part of the District evaluation of an application by City of Sunnyvale Water Pollution Control Facility for a renewal to their Title V permit. During the period subject to review, activities known to the District include:

- Four Notices of Violation were issued during this review period.
- Six odor complaints were received. Of the six complaints, only one was verified associated with the facility.
- The facility is not operating under a Variance or an Order of Abatement from the District Board.
- One monitor excess was reported.

The Enforcement Division concluded that there is no evidence of ongoing noncompliance and no recurring patterns of violations that warrant a Title V permit schedule of compliance for this facility.

The owner certified that all equipment was operating in compliance on November 29, 2012. No non-compliance issues have been identified to date.

XII. Differences between the Application and the Proposed Permit:

The Title V renewal permit application was originally submitted on June 27, 2012. This version is the basis for constructing the proposed Title V permit.

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City of Sunnyvale Water Pollution Control Facility,
1444 Borregas Ave., Sunnyvale, CA 94089

APPENDIX A

BAAQMD Compliance Report

COMPLIANCE & ENFORCEMENT DIVISION

Inter-Office Memorandum

December 3, 2012

TO: JIM KARAS – DIRECTOR OF ENGINEERING *J. Karas*
FROM: WAYNE KINO – DIRECTOR OF COMPLIANCE & ENFORCEMENT *W. Kino*
SUBJECT: REVIEW OF COMPLIANCE RECORD OF:

CITY OF SUNNYVALE WATER POLLUTION CONTROL PLANT; SITE # A0733

Background

This review was initiated as part of the District evaluation of an application by City of Sunnyvale Water Pollution Control Plant for a Title V Permit Renewal. It is standard practice of the Compliance and Enforcement Division to undertake a compliance record review in advance of a renewal of a Title V Permit. The purpose of this review is to assure that any non-compliance problems identified during the prior five-years permit term have been adequately addressed, or, if non-compliance persists, that a schedule of compliance is properly incorporated into the Title V permit compliance schedule. In addition, the review checks for patterns of recurring violation that may be addressed by additional permit terms. Finally, the review is intended to recommend, if necessary, any additional permit conditions and limitations to improve compliance.

Compliance Review

Compliance records were reviewed for the time period from October 1, 2007 through December 3, 2012. The results of this review are summarized as follows.

1. Violation History

Staff reviewed City of Sunnyvale Water Pollution Control Plant Annual Compliance Certifications and found no ongoing non-compliance and no recurring pattern of violations.

Staff also reviewed the District compliance records for the review period. During this period City of Sunnyvale Water Pollution Control Plant activities known to the District include:

District-issued four Notices of Violation (NOV):

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City of Sunnyvale Water Pollution Control Plan – SITE #A0733
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| NOV# | Regulation | Date Occur | # of Days | Comments | Disposition |
|--------|------------|----------------------|-----------|---|--------------------------------------|
| A47736 | 2-6-307 | 3/31/2008 | 1 | Reportable Compliance Activity (RCA) #05E95 exceeded permit condition 10844.9 & 19978.2 | Resolved and Canceled |
| A52007 | 2-1-301 | 2006 & 2008 | 2 | Omission of obtaining Authority to Construct for Digester # 3 & 4 | Permit to Operate issued on 10-22-12 |
| A52008 | 2-6-307 | 8-21-12— 6/14/12 | 70 | Intermittent exceedance of the input heat value | Pending legal action |
| A52009 | 2-6-307 | 10-18-11— 5-18-12 | 30 | Intermittent exceedance of the input heat value | Pending legal action |

2. Complaint History

The District received six air pollution odor complaints alleging City of Sunnyvale Water Pollution Control Plant as the source. One of the six complaints was confirmed to the alleged plant.

3. Reportable Compliance Activity

Reportable Compliance Activity (RCA), also known as "Episode" reporting, is the reporting of compliance activities involving a facility as outlined in District Regulations and State Law. Reporting covers breakdown requests, indicated monitor excesses, pressure relief device releases, inoperative monitor reports and flare monitoring.

Within the review period, the District received one notification for RCA. One NOV was issued as a result of this RCA.

The District received 1 notification for Reportable Compliance Activities (RCA).

| Episode | Date Occur | # of Days | Comments | Disposition |
|---------|------------|-----------|--|--|
| 05E95 | 3/31/2008 | 1 | Quarterly testing of digester gas per permit condition exceeded. | NOV A47736 was issued and later was resolved and canceled. |

4. Enforcement Agreements, Variances, or Abatement Orders

There were no enforcement agreements, variances, or abatement orders for City of Sunnyvale Water Pollution Control Plant over review period.

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Conclusion

Following its review of all available facility and District compliance records from October 1, 2007 through December 3, 2012, the District's Compliance and Enforcement Division has determined that City of Sunnyvale Water Pollution Control Plant was in intermittent compliance from the initial permit period through the present. City of Sunnyvale Water Pollution Control Plant has demonstrated no evidence of ongoing noncompliance and no recurring pattern of violations that would warrant consideration of a Title V permit compliance schedule for this facility.

Based on this review and analysis of all the violations for the review period, the District has concluded that no schedule of compliance or change in permit terms is necessary.

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APPENDIX B

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 that allows the District to impose requirements.

CAA

The federal Clean Air Act

CAAQS

California Ambient Air Quality Standards

CAPCOA

California Air Pollution Control Officers Association

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

dscf

Dry Standard Cubic Feet

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.

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.

MW

Molecular Weight

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)

NMOC

Non-methane Organic Compounds (Same as NMHC)

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

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.

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

STP

Standard Temperature and Pressure

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

TRMP

Toxic Risk Management Plan

TSP

Total Suspended Particulate

VOC

Volatile Organic Compounds

Units of Measure:

| | | |
|----------------|---|------------------------------|
| bhp | = | brake-horsepower |
| btu | = | British Thermal Unit |
| cfm | = | cubic feet per minute |
| cu | = | cubic |
| ft | = | foot |
| g | = | grams |
| µg | = | microgram |
| gal | = | gallon |
| gpm | = | gallons per minute |
| hp | = | horsepower |
| hr | = | hour |
| l | = | liter |
| lb | = | pound |
| in | = | inches |
| 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 |

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| | | |
|------|---|----------------------------------|
| psia | = | pounds per square inch, absolute |
| psig | = | pounds per square inch, gauge |
| scfm | = | standard cubic feet per minute |
| yr | = | year |

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APPENDIX C

EVALUATION REPORTS OF PAST APPLICATIONS

ENGINEERING EVALUATION
City of Sunnyvale, Plant: 733
Application: 24815

BACKGROUND

The City of Sunnyvale has notified the District that they have altered the following sources:

S-170 Anaerobic Digesters; abated by A-12 and A-13

by modifying installing fixed roofs for each of the formerly floating roof tanks that comprise the four anaerobic digesters making up source S-170. The installation of the fixed roofs covers should reduce fugitive emissions of methane and volatile organic compounds from these digesters. Digester gas is collected from the four digesters (S-170) and distributed first to the engine/combustion sources (S-14 through S-18) that power operations for the facility. Specifically, approximately one quarter of the gas generated is directed to fuel the influent pump engines (S-16, S-17, and S-18) which typically run solely on digester gas. The remaining digester gas is mixed with landfill gas to supply the power generation sources (S-14 and S-15) for the facility; air-blended natural gas is used to augment this supply. Under normal operations, all digester gas is distributed to the five engine sources. When demand for digester gas is lower than supply, due to engine downtime (for repair, maintenance, or PG&E shutdown), digester gas is directed to the flares (A-12 and A-13) for abatement.

EMISSIONS CALCULATION

The addition of the fixed roofs on the tanks should reduce fugitive losses. There is no increase or change of emissions from this alteration.

STATEMENT OF COMPLIANCE

The Anaerobic Digesters are subject and in compliance with Regulation 8-2 and Regulation 7. The addition of the fixed roofs on the tanks should reduce fugitive losses. There is no change of permit conditions required for this alteration. There is no increase or change of emissions from this alteration. There is no change of permit conditions required for this alteration.

This application is considered to be ministerial under the District's CEQA guidelines (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 8.2.

A risk screening is not required, because there is no increase or change of toxics estimated as a result of the alteration. PSD, NSPS, and NESHAPS are not triggered. The facility is not located within 1000 feet of any school. As a result, school public notice is not triggered.

PERMIT CONDITIONS

None.

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RECOMMENDATIONS

I recommend that the Authority to Construct be waived, and Permits to Operate be issued to the City of Sunnyvale for the following:

S-170 Anaerobic Digesters; abated by A-12 and/or A-13

M.K. Carol Lee (signed)

10/15/2012

M.K. Carol Lee, Senior Air Quality Engineer

Date

EVALUATION REPORT
CITY OF SUNNYVALE WATER POLLUTION CONTROL PLANT
APPLICATION #18331
PLANT #733

BACKGROUND

The City of Sunnyvale Water Pollution Control Plant (CS) has applied for modifying Conditions #10844 and #19978, and for an A/C and P/O for the following new Parts Washer (S-25). Also, CS has submitted the key emission control system operating parameters (key parameters) for the District's approval per Part 8 of Condition #10844.

S-25 Parts Washer, Safety-Kleen Model 250, 30 Gallons exempt per Regulation 2-1- 118.4

The proposed S-25 replaced the permitted S-20 (Parts Washer) on April 1, 2009, and has been in operation since then. Based on the MSDS submitted by CS, the VOC content of the cleaning chemical being used at the proposed S-25 is less than 25 grams/liter. Therefore, the proposed S-25 is exempt from permit requirements per Regulation 2-1- 118.4:

2-1-118 Exemption, Surface Preparation and Cleaning
Equipment: *The following equipment is exempt from the requirements of Sections 2-1-301 and 302, provided that the source does not require permitting pursuant to Section 2-1-319.*

118.4 *Equipment, including solvent cold cleaners using an unheated solvent mixture for surface preparation, cleaning, wipe cleaning, fluxing or stripping by use of solutions with a VOC content less than or equal to 50 grams per liter (0.42 lb/gal).*

Since the permit application was received by the District on April 25, 2008, CS has been proposing a number of modifications and a new source through correspondences to Enforcement Division and Engineering Division in the course of the permit evaluation process. On July 31, 2009, CS summarized all proposed permit modifications and emailed to Ken Lim of Engineering Division. On July 21, 2010, CS submitted, as required by Part 8 of Condition # 10844*, the proposed key emission control system operating parameters for District's approval.

* 8. *Within 3 months of renewal of the MFR Permit, the permit holder of S-14 and S-15 shall submit a source test protocol to the District to establish the air to fuel ratio setting range and exhaust gas oxygen content range, or other proposed key emission control system operating parameters to be approved by the APCO, that S-14 and S-15 shall be operated at to demonstrate compliance with Regulation 8-34-301.4 NMOC reduction efficiency. Within 3 months, the permit holder shall identify monitoring equipment, procedures and monitoring frequency for those agreed key parameter measurements. The Engineering Division and Source Test Section of the District shall review and approve these key parameters, source test protocols, and monitoring requirements.*

Within 3 months of receiving the APCO's approval of the above, the permit holder shall conduct source tests to

determine source specific ranges for the key parameters and shall submit test results within 60 days of conducting source test. The Source Test Section of the District shall review and approve test results. The Engineering Division of the District shall modify permit conditions to include the source key parameters, operating ranges/limits, and the final monitoring procedures and frequency using minor permit revision procedures in accordance with BAAQMD Regulation 2-6-414. The MFR Permit shall be modified to reflect these condition revisions.

APPLICANT REQUEST 1

1. Remove John Addeo's name (retired) and replace it with Joanna De Sa, current Operations Manager on Title page of Title V permit.

DISTRICT RECOMMENDATION 1

It is recommended that the proposed administrative change to be reflected in the Title V revision application (AN 17915) being worked on.

APPLICANT REQUEST 2

2. Delete Permit Condition 19930, #2.

S-20 Parts Washer, Model I-52150, 20 Gallons

1. *The net solvent usage at the Parts Washer (S-20) shall not exceed 50 gallons during any rolling 12 consecutive month period. [Basis: Plant Cumulative Increase]*
2. *To demonstrate compliance with Condition #1, the monthly net usage of solvent shall be maintained in a District approved log. These usage records shall be kept on site and made available for District inspection for a period of at least 5 years from the date on which a record is made. [Basis: Plant Cumulative Increase]*

DISTRICT RECOMMENDATION 2

Permit Condition #19930 was linked to the Part Washer (S-20) that has been archived and replaced on April 1, 2009 by the proposed replacement Parts Washer (S-25) under this application. Therefore, this permit condition has already been archived, and no action is recommended for this request.

The proposed S-25 is exempt per Regulation 2-1-118.4 (Exemption, Surface Preparation and Cleaning Equipment). Detailed information is in the Background Section of this evaluation report.

The proposed change will not increase regulated air pollutant emissions, plant cumulative increase, or TAC emissions. Also, the proposed change will not subject the facility to any new BACT, offset, or regulatory requirements that were not previously applicable.

APPLICANT REQUEST 3

3. Delete Condition 10844, Item #5.

Permit condition #10844, Part 5:

5. *In order to demonstrate compliance with part 2, S-14* and S-15* shall be equipped with gas flow meters and recorders that record the gas flow rates of landfill gas, digester gas and natural gas at least every 15 minutes. (Basis: Offsets and Cumulative Increase)*

- * S-14 Engine/Generator No. 1
Reciprocating Engine, Cogeneration, 8.2 MMBTU/hr max
- * S-15 Engine/Generator No. 2
Reciprocating Engine, Cogeneration, 8.2 MMBTU/hr max

Background

The applicant requests that Part 5 of permit condition #10844 be modified to allow them to use the methodology* currently in place to determine gas flow rates from three different fuel sources (landfill gas, digester gas, and natural gas) that go to S-14 and S-15. It is because CS does not have separate meters to measure different gaseous fuels to each engine required by the subject permit condition. They claim that modifying piping and installing those meters are prohibitively expensive.

The approach CS has been practicing is similar to what is currently permitted by the District for the contiguous Plant #5905 (City of Sunnyvale/Public Works Dept, CSPW) regarding landfill gas flare operation reporting. CSPW supplies landfill gas to S-14 and S-15 located and owned by CS. S-14 and S-15 burns a mixture of landfill gas from CSPW, digester gas from CS itself, and natural gas.

* *Methodology: First, calculate the individual natural gas flows to the two engines by subtracting the known gas flows (measured by means of meters) of landfill gas and digester gas from the total gas flow to the engine, and assume a 5:1 expansion ratio for the natural gas air-blending that occurs. Second, determine the proportion of each gas going to each engine based on the load or KWh produced by each engine. A similar approach was approved by the BAAQMD for our landfill (Plant #5905).*

Under the original permit application, CS was charged with emissions of regulated air pollutants calculated based on the worst scenario: both S-14 and S-15 are assumed to operate at the maximum capacity 24 hr/day and 365 day/yr. The condition modification request proposed by CS allows the facility flexibility in monitoring the flow rates without having to modify piping and install new flow meters, yet it does not increase emissions.

DISTRICT RECOMMENDATION 3

It is recommended to replace the current part 5 of Condition 10844 with the following condition suggested by CS and agreed by the District:

- ~~5. *In order to demonstrate compliance with part 2, S-14* and S-15* shall be equipped with gas flow meters and recorders that record the gas flow rates of landfill gas, digester gas and natural gas at least every 15 minutes. (Basis: Offsets and Cumulative Increase)*~~
- 5. *The owner/operator shall record the gas flow rates of landfill gas, digester gas, and natural gas to each of the S-14 and S-15 in order to demonstrate compliance with Part 2.*

The volume of each fuel source to each engine shall be derived by utilizing the ratio of the total measured volume of each individual fuel to the total measured volume of combined fuels, and multiplying that ratio by the flow of fuel measured to each engine. The hourly records shall be totaled daily and summarized monthly. Monthly records shall be totaled every consecutive 12-month. (Basis: Offsets and Cumulative Increase)

The proposed change will not increase regulated air pollutant emissions, plant cumulative increase, or TAC emissions. Also, the proposed change will not subject the facility to any new BACT, offset, or regulatory requirements that were not previously applicable.

APPLICANT REQUEST 4

4. Identify the reference that a footnote is referring to in the text of the permit.

DISTRICT RECOMMENDATION 4

It is recommended that the proposed administrative change to be reflected in the Title V revision application (AN 17915) being worked on.

APPLICANT REQUEST 5

5. Revise permit condition to allow the use of high-heat values for landfill gas and digester gas as measured monthly to calculate maximum daily and total monthly heat input rate (in BTU) to each engine rather than current permit language that requires using the BTU value based on average methane concentration in digester gas and landfill gas measured during the most recent source test. (Reference: Condition 10844 Part 7c)

Permit condition #10844, Part 7c:

7. *The Permit Holder shall maintain the following records:*
 - c. *On a monthly basis calculate and record the maximum daily and total monthly heat input rate (in BTU) to each engine based on the average methane concentrations in the landfill gas and digester gas (as measured during the most recent source test), a high heating value for methane of 1013 BTU/ft³ at 60 degrees F, and the amounts of landfill gas and digester gas burned in each generator.*

DISTRICT RECOMMENDATION 5

It is recommended that the current part 7c of Condition 10844 be modified per request to better reflect the BTU of the landfill gas and digester gas for calculating the heat input at S-14 and S-15:

7. *The Permit-Holder owner/operator shall maintain the following records:*
 - c. *On a monthly basis calculate and record the maximum daily and total-monthly yearly heat input rate (BTU) to each engine of S-14 and S-15 based on the gas flow rates and high-heat values of landfill gas, digester gas, and natural gas. Monthly measured high-heat values of landfill gas and digester gas shall be used for the heat input calculation. In accordance with CCR Title 17 Section*

95103(a)(8) every reasonable effort will be made to obtain 100 percent capture of the high-heat value of landfill gas and digester gas used for the heat input calculation. However, if greater than 80 percent and less than 100 percent of the fuel analytical data is captured, the mean value for the captured fuel analytical data shall be used to substitute for the missing data. average methane concentrations in the landfill gas and digester gas (as measured during the most recent source test), a high heating value for methane of 1013 BTU/ft³ at 60 degrees F, and the amounts of landfill gas and digester gas burned in each generator

The proposed change will not increase regulated air pollutant emissions, plant cumulative increase, or TAC emissions. Also, the proposed change will not subject the facility to any new BACT, offset, or regulatory requirements that were not previously applicable.

APPLICANT REQUEST 6

6. Revise allowed concentration of total reduced sulfur compounds with calculation using methane concentrations measured in digester gas (57%) rather than assumed content of 45% to establish the surrogate (total reduced sulfur compounds) limit for testing using the Draeger tube.

DISTRICT RECOMMENDATION 6

It is recommended that 57% as methane concentration in digester gas be used for revising the allowed concentration (1300 ppmv, as stipulated in permit condition #19978 part 2) of total reduced sulfur compounds (as surrogate gas) for demonstrating compliance of the 300 ppmv SO₂ limit at the exhausts of the engines (S-16, S-17, and S-18) per Regulation 9-1-302 (SO₂, General Emission Limitation). There was no part 2 requirement (1300 ppmv) when the subject engines were originally permitted under NSR permit application. Part 2 requirement was only added to the permit condition #19978 in the Title V renewal permit for compliance demonstration purpose. During the evaluation of the Title V renewal permit, the 1300 ppmv was established by assuming that the digester gas had 45% methane content. If the datum (57% methane content) were available at the time the subject permit condition was added in the Title V renewal permit, the District would have used it for the total reduced sulfur compound concentration calculation. This request does not increase the SO₂ emissions because there is no change in throughput, nor the operations of the related equipment.

The consultant, CH2M HILL, was retained by the applicant to investigate the methane concentration of digester gas. It was found that the methane concentration in digester gas is 57% by volume. And based on this 57% methane concentration, the corresponding concentration of total reduced sulfur compounds (surrogate gas) is calculated to be 1553 ppmv versus 1300 ppmv in the current permit condition.

On average, methane concentration in digester gas is around 64% v/v, which is higher than CH2M HILL's findings. Therefore, the revised concentration (1533 ppmv) limit of total reduced sulfur compounds is conservative and acceptable for compliance demonstration purposes. SO₂ emissions from these engines are further reduced by the fact that the applicant adds natural gas to digester gas as a fuel.

The proposed change will not increase regulated air pollutant emissions, plant cumulative increase, or TAC emissions. Also, the proposed change will not subject the facility to any new BACT, offset, or regulatory requirements that were not previously applicable.

APPLICANT REQUEST 7

7. Remove requirement for surrogate testing for total reduced sulfur compounds in digester gas to sources S-14 and S-15 and allow annual source test to demonstrate compliance by the direct measurement of SO₂ emissions not to exceed the 300 ppm limit that is currently in the permit in Table IV-A, Rule 9-1-302.

Permit condition #10844, Part 9:

9. *Total reduced sulfur compounds in the collected landfill gas and digester gas shall be monitored as a surrogate for monitoring sulfur dioxide in control system's exhaust. The concentrations of total reduced sulfur compounds in the collected landfill gas and digester gas shall not exceed 1300 ppmv (dry). In order to demonstrate compliance with this part, the permit holder shall measure the total sulfur content in collected landfill gas and digester gas on a quarterly basis using a Draeger Tube. The samples of landfill gas and digester gas shall be taken from their respective main gas headers. The permit holder shall follow the manufacturer's recommended procedures for using the Draeger Tube and interpreting the results. The permit holder shall conduct the first Draeger Tube test no later than 3 months after the renewal date of the MFR Permit and quarterly thereafter. (Basis: Regulation 9-1-302)*

DISTRICT RECOMMENDATION 7

It is recommended to delete Part 9 of Condition #10844 per request. This recommendation is based on the fact that the SO₂ emissions at the exhausts of the subject engines (S-14 and S-15) are well below the 300 ppmvd permit limit. Annual source tests conducted by the District found that these SO₂ emissions were in the range of <2 ppmvd to 39 ppmvd. Due to the low SO₂ emissions of S-14 and S-15, the monitoring requirement of the total reduced sulfur compounds (surrogate) is therefore not necessary.

The proposed change will not increase regulated air pollutant emissions, plant cumulative increase, or TAC emissions. Also, the proposed change will not subject the facility to any new BACT, offset, or regulatory requirements that were not previously applicable.

APPLICANT REQUEST 8

8. Revise language to allow measurement of the gas at the header from each individual digester, and then calculate the weighted average concentration going to the engines, based on the quantity of the gas flow from each digester.

Permit condition # 19978, Part 2:

2. *Total reduced sulfur compounds in the collected digester gas shall be monitored as a surrogate for monitoring sulfur dioxide in control system's exhaust. The concentrations of total reduced sulfur compounds in the collected digester gas shall not exceed 1300 ppmv (dry). In order to demonstrate compliance with this part, the permit holder shall measure the total sulfur content in collected digester gas on a quarterly basis using a Draeger Tube. The samples of digester gas shall be taken from their respective main gas headers. The permit holder shall follow the*

manufacturer's recommended procedures for using the Draeger Tube and interpreting the results. The permit holder shall conduct the first Draeger Tube test no later than 3 months after the renewal date of the MFR Permit and quarterly thereafter. (Basis: Regulation 9-1-302)

The applicant would like Part 2 of Condition #19978 revised as:

2. *When digester gas is used as a fuel for S-16, S-17, and S-18, it shall be tested on a quarterly basis. Total reduced sulfur compounds in the collected digester gas shall be monitored as a surrogate for monitoring sulfur dioxide in control system's exhaust for these sources. The concentrations of total reduced sulfur compounds in the collected digester gas shall not exceed 1550* ppmv (dry). In order to demonstrate compliance with this part, the Permit Holder shall measure the total sulfur content in the collected digester gas on a quarterly basis, using a Draeger Tube and interpreting the results. The samples of digester gas shall be taken from the main gas header, before piping splits to enter each engine and may include natural gas used as fuel for the engines. The permit holder shall follow the manufacturer's recommended procedures for using the Draeger Tube and interpreting the results. (Basis: Regulation 9-1-302)*
- * Surrogate concentration of 1550 ppmv (dry), proposed by the applicant replacing 1300 ppmv (dry), is based on CH2M HILL's findings and calculations using the measured methane content of 57% for digester gas. The District's established surrogate concentration of 1300 ppmv (dry) was based on 45% methane content for digester gas. The proposed increase in the concentration limit of the surrogate will not increase SO2 emissions, nor exceed the SO2 emission regulatory limit of 300 ppmv (dry).

DISTRICT RECOMMENDATION 8

It is recommended to incorporate the applicant's concerns, and revise Part 2 of Condition #19978 as:

2. *The owner/operator shall not allow concentrations of total reduced sulfur compounds in the collected digester gas to exceed 1300 ppmv (dry) 1550 ppmv (dry). When digester gas is used as a fuel for the engines (S-16, S-17, and S-18), the owner/operator shall monitor the total reduced sulfur compounds in the collected digester gas shall be monitored as a surrogate for monitoring sulfur dioxide in control system's exhaust. The concentrations of total reduced sulfur compounds in the collected digester gas shall not exceed 1300 ppmv (dry) 1550 ppmv (dry). In order to demonstrate compliance with this Part part, the permit holderowner/operator shall measure and record the total reduced sulfur compounds content in collected digester gas on a quarterly basis using a Draeger Tube. The samples of digester gas shall be taken from their respective main gas headers taken from the main gas header, before piping splits to enter each of S-16, S-17, and S-18, and may include natural gas used as fuel for these engines. The permit holderowner/operator shall follow the manufacturer's recommended procedures for using the Draeger Tube and interpreting the resultsFT2. The permit holder shall conduct the first Draeger Tube test no later than 3 months after the renewal date of the MFR Permit and quarterly thereafter. All records shall be retained on site for a minimum of 5 years and shall be made available to District staff upon requestFT3. (Basis: Regulation 9-1-302)*

The proposed change will not increase regulated air pollutant emissions, plant cumulative increase, or TAC emissions. Also, the proposed change will not subject the facility to any new BACT, offset, or regulatory requirements that were not previously applicable.

APPLICANT REQUEST 9

9. Revise concentration limit from 1300 ppmv to 1550 ppmv (dry) for reduced sulfur monitoring, based on stoichiometric proportions of the combustion air to digester gas, using actual analyses of methane content of the digester gas.

DISTRICT RECOMMENDATION 9

This request is included in the applicant's Request 8, and has been discussed under that Section.

APPLICANT REQUEST 10

10. Revise compliance deadline for permit condition 10844 (8) of the custom compliance schedule. Also, requested that modification of the custom compliance schedule for Condition 10844 (8) may occur with written approval of the APCO. (May be addressed with removal of compliance schedule from permit.)

Permit condition #10844, Part 8:

8. *Within 3 months of issuance of the MFR Permit, The Permit Holder of S-14 and S-15 shall submit source test protocol to the District to establish the air to fuel ratio setting range and exhaust gas oxygen content range, or other proposed key emission control system operating parameters to be approved by the APCO, that S-14 and S-15 shall be operated at to demonstrate compliance with Regulation 8-34-301.4 NMOC reduction efficiency. Within 3 months, The Permit Holder shall identify monitoring equipment, procedures and monitoring frequency for those agreed key parameter measurements. The Engineering Division and Source Test Section of the District shall review and approve these key parameters, source test protocols, and monitoring requirements.*

Within 3 months of receiving the APCO's approval of the above, The Permit Holder shall conduct source test to determine source specific ranges for the key parameters and shall submit test results within 60 days of conducting source test. The Source Test Section of the District shall review and approve test results. The Engineering Division of the District shall modify permit conditions to include the source key parameters, operating ranges/limits, and the final monitoring procedures and frequency. The MFR Permit shall be modified to reflect these condition revisions.

Per requirements of Part 8 of Condition #10844, the applicant submitted to the District on July 21, 2010 the proposal of using cylinder temperatures of the engines (S-14 and S-15) as the key emission control system operating parameters. The District has reviewed and agreed with the proposal. The current Part 8 of Condition #10844 is recommended to be replaced.

DISTRICT RECOMMENDATION 10

It is recommended to replace the current Part 8 of Condition #10844 with:

8. Following a 30-minute warm up period upon start-up of S-14 and S-15, the owner/operator shall maintain the combustion temperatures in the cylinders at a

minimum of 940 degrees F, averaged over any three-hour period. Thermocouples shall be placed in each of the cylinders of S-14 and S-15, and shall accurately indicate the combustion temperatures at all times. A temperature monitor with readout display and continuous recorder shall be installed and maintained on S-14 and S-15. Temperatures will be recorded at 15-minute intervals. Temperature records and/or charts shall be retained for at least five years and made available at all times for District inspection. (Basis: Regulations 2-5, 8-34-301.4, 8-34-501, and 8-34-507)

The proposed change will not increase regulated air pollutant emissions, plant cumulative increase, or TAC emissions. Also, the proposed change will not subject the facility to any new BACT, offset, or regulatory requirements that were not previously applicable.

APPLICANT REQUEST 11

11. Revise emission rates from Engine Generators No. 4 (S-14) and No. 5 (S-15) to Shall not exceed: a. 0.3 gram/bhp-hr for POC or 18.28 lbs/day; b. 2.5 grams/bhp-hr for CO or 151.98 lbs/day; c. 1.5 grams/bhp-hr for NOx or 91.2 lbs/day (See BACT, Offsets)

This request affects Part 4 of Condition #10844:

4. *The emission rates from the Engine Generator No. 4 (S-14) and Engine Generator No. 5 (S-15) shall not exceed:*
- 0.3 gram/bhp-hr for POC,
 - 2.5 gram/bhp-hr for CO; and
 - 1.5 gram/bhp-hr for NOx. (Basis: BACT, Offsets)

DISTRICT RECOMMENDATION 11

It is recommended that this request be denied because those are BACT requirements of the subject engines. Administrative modification to Part 4 of Condition #10844 is recommended:

4. *The owner/operator shall not allow emission rates from from the Engine Generator No. 4 (S-14) and Engine Generator No. 5 (S-15) shall not S-14 and S-15 to exceed the following:*
- 0.3 gram/bhp-hr for POC,
 - 2.5 gram/bhp-hr for CO; and
 - 1.5 gram/bhp-hr for NOx. (Basis: BACT, Offsets)

APPLICANT REQUEST 12

12. Request revision of sulfur dioxide emissions limits to read: Sulfur dioxide emissions from Engine Generator No. 4 (S-14) and No. 5 (S-15) shall not exceed 300 ppm dry. To demonstrate compliance with this requirement the permit holder shall include testing for sulfur dioxide emissions during the annual District-approved source test for S-14 and S-15 or monitor total reduced sulfur compounds in the collected digester gas, landfill gas, and air-blended natural gas as a surrogate for monitoring sulfur dioxide in control systems. The concentrations of total reduced sulfur compounds shall not exceed 1550 ppmv (dry). In order to demonstrate compliance with this part, the permit holder shall measure the total sulfur content of the combined digester gas, landfill gas, and air-blended natural gas on a quarterly basis, using a Draeger Tube and interpreting the results. The sample of the combined digester gas, landfill gas, and air-blended natural gas shall be taken from the main gas

header for S-14 and S-15 before piping splits to enter each engine. The permit holder shall follow the manufacturer's recommended procedures for using the Draeger tube and interpreting the results. (Basis Regulation 9-1-302)

Permit condition affected by this proposed request:

Permit condition #10844, Part 9:

9. *Total reduced sulfur compounds in the collected landfill gas and digester gas shall be monitored as a surrogate for monitoring sulfur dioxide in control system's exhaust. The concentrations of total reduced sulfur compounds in the collected landfill gas and digester gas shall not exceed 1300 ppmv (dry). In order to demonstrate compliance with this part, the permit holder shall measure the total sulfur content in collected landfill gas and digester gas on a quarterly basis using a Draeger Tube. The samples of landfill gas and digester gas shall be taken from their respective main gas headers. The permit holder shall follow the manufacturer's recommended procedures for using the Draeger Tube and interpreting the results. The permit holder shall conduct the first Draeger Tube test no later than 3 months after the renewal date of the MFR Permit and quarterly thereafter. (Basis: Regulation 9-1-302)*

Both this proposed request and the Applicant Request 7 apply to Part 9 of Condition #10844. It has been recommended under District Recommendation 7 that the subject Part 9 of Condition #10844 be deleted. The recommended deletion has been explained in details under District Recommendation 7.

DISTRICT RECOMMENDATION 12

It is recommended that the whole Part 9 of Condition #10844 be deleted. Same recommendation has been made under District Recommendation 7.

The proposed change will not increase regulated air pollutant emissions, plant cumulative increase, or TAC emissions. Also, the proposed change will not subject the facility to any new BACT, offset, or regulatory requirements that were not previously applicable.

APPLICANT REQUEST 13

13. Request modification to digester gas use as fuel for Sources 16, 17, and 18 to read: When digester gas is used as fuel for S-16, S-17, and S-18, it shall be tested on a quarterly basis. Total reduced sulfur compounds in the collected digester gas shall be monitored as a surrogate for monitoring sulfur dioxide in control systems exhaust for these sources. The concentrations of total reduced sulfur compounds in the collected digester gas shall not exceed 1550 ppmv (dry). In order to demonstrate compliance with this part, the permit holder shall measure the total sulfur content in collected digester gas on a quarterly basis, using a Draeger Tube and interpreting the results. The samples of digester gas shall be taken from the main gas header, before piping splits to enter each engine and may include natural gas used as fuel for the engines. The Permit holder shall follow the manufacturer's recommended procedures for using the Draeger Tube and interpreting the results. (Basis: Regulation 9-1-302)

This is a similar request as Request 8 regarding modifying Part 2 of Condition #19978.

DISTRICT RECOMMENDATION 13

This request has been discussed in details and recommendations made under Applicant Request 8 and District Recommendation 8.

The proposed change will not increase regulated air pollutant emissions, plant cumulative increase, or TAC emissions. Also, the proposed change will not subject the facility to any new BACT, offset, or regulatory requirements that were not previously applicable.

CONDITION

All the changes in the following permit conditions have been reviewed and concurred by the applicant (reference: applicant's 11/22/2010 email).

It is recommended Condition #19930 be deleted, and Conditions #10844 and #19978 be modified:

Condition #19930:

~~S-20 Parts Washer, Model I-52150, 20 Gallons~~

- ~~1. The net solvent usage at the Parts Washer (S-20) shall not exceed 50 gallons during any rolling 12 consecutive month period. [Basis: Cumulative Increase]~~
- ~~2. To demonstrate compliance with Part #1, the monthly net usage of solvent shall be maintained in a District approved log. These usage records shall be kept on site and made available for District inspection for a period of at least 5 years from the date on which a record is made.~~

~~[Basis: Plant Cumulative Increase]~~

Condition #10844:

For Sources S-14 and S-15, Engine Generators

- ~~1. The owner/operator Engine Generators (S-14 and S-15) shall be fired the Engine Generators (S-14 and S-15) on only landfill gas, digester gas and and/or natural gas exclusively. (Basis: Offsets and Cumulative Increase)~~
- ~~2. The owner/operator shall not allow the heat input to of S-14 and S-15 shall not to exceed 200 million BTUs per day per generator nor 72,000 million BTUs per generator during any consecutive 12-month period [F4]. (Basis: Offsets and Cumulative Increase)~~
- ~~3. S-14 and S-15 The owner/operator shall continuously operate S-14 and S-15 when any landfill gas and/or digester gas are/is vented to shall operate continuously during all times that landfill gas and digester gas are vented to them the engines. (Basis: Regulation 8-34-301.1 [F5])~~
- ~~4. The owner/operator shall not allow emission rates from from the Engine Generator No. 4 (S-14) and Engine Generator No. 5 (S-15) shall not S-14 and S-15 to exceed the following:
 - a. 0.3 gram/bhp-hr for POC,
 - b. 2.5 gram/bhp-hr for CO; and
 - c. 1.5 gram/bhp-hr for NOx. (Basis: BACT, Offsets)~~

5. ~~In order to demonstrate compliance with part 2, S-14 and S-15 shall be equipped with gas flow meters and recorders that record the gas flow rates of landfill gas, digester gas and natural gas at least every 15 minutes. (Basis: Offsets and Cumulative Increase)~~
5. The owner/operator shall record the gas flow rates of landfill gas, digester gas, and natural gas to each of the S-14 and S-15 in order to demonstrate compliance with Part 2. The volume of each fuel source to each engine shall be derived by utilizing the ratio of the total measured volume of each individual fuel to the total measured volume of combined fuels, and multiplying that ratio by the flow of fuel measured to each engine. The hourly records shall be totaled daily and summarized monthly. Monthly records shall be totaled every consecutive 12-month. (Basis: Offsets and Cumulative Increase)
6. In order to demonstrate compliance with ~~part~~ Part 4 above and Regulations 8-34-301.4, 9-8-302.1, and 9-8-302.3, the ~~Permit Holder~~ owner/operator shall ensure that ~~conduct and successfully pass a District-District-approved source test is conducted annually on S-14 and S-15. Source tests shall be conducted no sooner than 9 months and no later than 12 months after the previous source test. The Source Test Section of the District shall be contacted to obtain their approval of the source test procedures at least 14 days in advance of each source test. They shall be notified of the scheduled test date at least 7 days in advance of each source test. The source test report shall be submitted to the Compliance and Enforcement Division of the District within 45 days of the test date. The report shall include the following information:~~
- landfill gas and digester gas flow rates to S-14 and S-15 (dry basis);
 - concentrations (dry basis) of carbon dioxide (CO₂), nitrogen (N₂), oxygen (O₂), methane (CH₄), and non-methane organic compounds (NMOC) in the landfill gas and digester gas;
 - exhaust gas flow rates from S-14 and S-15 (dry basis);
 - concentrations (dry basis) of NO_x, CO, NMOC, and O₂ in the exhaust gas from S-14 and S-15;
 - the NMOC destruction efficiency achieved by S-14 and S-15; and
 - the average air to fuel ratio setting range and exhaust gas oxygen content range, or other proposed key emission control system operating parameters approved by the APCO, for S-14 and S-15 that is required to maintain compliance with part 4 above and Regulation 8-34-301.4.
(Basis: BACT, and Regulations 8-34-301.4, 8-34-412, 9-8-302.1, and 9-8-302.3)
7. ~~The Permit Holder~~ owner/operator shall maintain the following records:
- Records of all start up and shut down dates and times and the reason for any shut downs for S-14 and S-15.
 - Records of landfill gas, digester gas and natural gas throughputs to S-14 and S-15.
 - On a monthly basis calculate and record the maximum daily and ~~total monthly~~ yearly heat input rate (BTU) to each engine of S-14 and S-15 based on the gas flow rates and high-heat values of landfill gas, digester gas, and natural gas. Monthly measured high-heat values of landfill gas and digester gas shall be used for the heat input calculation. In accordance with CCR Title 17 Section 95103(a)(8) every reasonable effort will be made to obtain 100 percent capture of the high-heat value of landfill gas and digester gas used for the heat input calculation. However, if greater than 80 percent and less than 100 percent of the fuel analytical data is captured, the mean value for the captured fuel analytical data shall be used to substitute for the missing data. average methane concentrations in the landfill gas and digester gas (as measured during the most recent source test), a high heating value for methane of 1013 BTU/ft³ at 60

degrees F., and the amounts of landfill gas and digester gas burned in each generator.

- d. Records of all compliance demonstration test data.

[All records shall be retained on site for a minimum of 5 years and shall be made available to District staff upon request.] (Basis: BACT, Offsets, Cumulative Increase, and Regulation 8-34-501)

- ~~8. Within 3 months of renewal of the MFR Permit, the permit holder of S-14 and S-15 shall submit source test protocol to the District to establish the air to fuel ratio setting range and exhaust gas oxygen content range, or other proposed key emission control system operating parameters to be approved by the APCO, that S-14 and S-15 shall be operated at to demonstrate compliance with Regulation 8-34-301.4 NMOC reduction efficiency. Within 3 months, the permit holder shall identify monitoring equipment, procedures and monitoring frequency for those agreed key parameter measurements. The Engineering Division and Source Test Section of the District shall review and approve these key parameters, source test protocols, and monitoring requirements.~~

~~Within 3 months of receiving the APCO's approval of the above, the permit holder shall conduct source tests to determine source specific ranges for the key parameters and shall submit test results within 60 days of conducting source test. The Source Test Section of the District shall review and approve test results. The Engineering Division of the District shall modify permit conditions to include the source key parameters, operating ranges/limits, and the final monitoring procedures and frequency using minor permit revision procedures in accordance with BAAQMD Regulation 2-6-414. The MFR Permit shall be modified to reflect these condition revisions.~~

- ~~8. Following a 30-minute warm up period upon start-up of S-14 and S-15, the owner/operator shall maintain the combustion temperatures in the cylinders at a minimum of 940 degrees F, averaged over any three-hour period. Thermocouples shall be placed in each of the cylinders of S-14 and S-15, and shall accurately indicate the combustion temperatures at all times. A temperature monitor with readout display and continuous recorder shall be installed and maintained on S-14 and S-15. Temperatures will be recorded at 15-minute intervals. Temperature records and/or charts shall be retained for at least five years and made available at all times for District inspection. (Basis: Regulations 2-5, 8-34-301.4, 8-34-501, and 8-34-507)~~

- ~~9. Total reduced sulfur compounds in the collected landfill gas and digester gas shall be monitored as a surrogate for monitoring sulfur dioxide in control system's exhaust. The concentrations of total reduced sulfur compounds in the collected landfill gas and digester gas shall not exceed 1300 ppmv (dry). In order to demonstrate compliance with this part, the permit holder shall measure the total sulfur content in collected landfill gas and digester gas on a quarterly basis using a Draeger Tube. The samples of landfill gas and digester gas shall be taken from their respective main gas headers. The permit holder shall follow the manufacturer's recommended procedures for using the Draeger Tube and interpreting the results. The permit holder shall conduct the first Draeger Tube test no later than 3 months after the renewal date of the MFR Permit and quarterly thereafter. (Basis: Regulation 9-1-302)~~

Condition #19978:

- S-16 Influent Pump: Digester Gas Engine, Make: Waukesha, Model: NKR 1905, Horsepower Rating: 224 HP.
S-17 Influent Pump: Digester Gas Engine, Make: Waukesha, Model: NKR 1905, Horsepower Rating: 224 HP.

S-18 Influent Pump: Digester Gas Engine, Make: Waukesha, Model: NKR 1905, Horsepower Rating: 224 HP.

1. The owner/operator shall not allow ~~No~~ air contaminants ~~shall to be~~ discharged 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. [Regulation 6-1]
2. ~~The owner/operator shall not allow concentrations of total reduced sulfur compounds in the collected digester gas to exceed 1300 ppmv (dry) 1550 ppmv (dry). When [FT7] digester gas is used as a fuel for the engines (S-16, S-17, and S-18), the owner/operator shall monitor the total reduced sulfur compounds in the collected digester gas shall be monitored as a surrogate for monitoring sulfur dioxide in control system's exhaust. The concentrations of total reduced sulfur compounds in the collected digester gas shall not exceed 1300 ppmv (dry) 1550 ppmv (dry). In order to demonstrate compliance with this Part part, the permit holderowner/operator shall measure and record the total reduced sulfur compounds content in collected digester gas on a quarterly basis using a Draeger Tube. The samples of digester gas shall be taken from their respective main gas headers taken from the main gas header, before piping splits to enter each of S-16, S-17, and S-18, and may include natural gas used as fuel for these engines. The permit holderowner/operator shall follow the manufacturer's recommended procedures for using the Draeger Tube and interpreting the results [FT8]. The permit holder shall conduct the first Draeger Tube test no later than 3 months after the renewal date of the MFR Permit and quarterly thereafter. All records shall be retained on site for a minimum of 5 years and shall be made available to District staff upon request. [FT9]. (Basis: Regulation 9-1-302)~~

RECOMMENDATION

I recommend that a Change of Conditions letter be issued to The City of Sunnyvale Water Pollution Control Plant for the following equipment:

- S-14 Engine/Generator No. 1, Reciprocating Engine, Cogeneration, 8200K BTU/hr max, Multifuel
- S-15 Engine/Generator No. 2, Reciprocating Engine, Cogeneration, 8200K BTU/hr max, Multifuel
- S-16 Influent Pump #1-IC Engine, Com/Inst Reciprocating Engine, 1905 in3 displ, 224 hp
- S-17 Influent Pump #2-IC Engine, Com/Inst Reciprocating Engine, 1905 in3 displ, 224 hp
- S-18 Influent Pump #3 - IC Engine, Com/Inst Reciprocating Engine, 1905 in3 displ, 224 hp

EXEMPTION

- S-25 Parts Washer, Safety-Kleen Model 250, 30 Gallons exempt per Regulation 2-1- 118.4



Hon Man
Air Quality Engineer
October 12, 2010