Bay Area Air Quality Management District

375 Beale Street, Suite 600
San Francisco, CA 94105
(415) 749-5000

Permit Evaluation
and
Statement of Basis
for the
Renewal
of the

MAJOR FACILITY REVIEW PERMIT

for
Energy Center San Francisco, LLC
Facility # B6151

Facility Address:
460 Jessie Street
San Francisco, CA 94103

Mailing Address:
14 Mint Plaza, Suite 200
San Francisco, CA 94103

Application Engineer: Xuna Cai
Site Engineer: Jeffrey Cleary

Application: 28452

June 2021

TABLE OF CONTENTS

Title V Statement of Basis

A. Background

This facility is subject to the Operating Permit requirements of Title V of the federal Clean Air Act, Part 70 of Title 40 of the Code of Federal Regulations (CFR), and BAAQMD Regulation 2, Rule 6, Major Facility Review because it is a major facility as defined by BAAQMD Regulation 2-6-212. It is a major facility because it has the "potential to emit," as defined by BAAQMD Regulation 2-6-218, 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.

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 B6151.

This facility is renewing their Title V permit (Application #28452, submitted on January 3, 2017). The Energy Center San Francisco was originally owned by San Francisco Thermal but changed ownership in the early 2000's. The facility has been in operation since 1957. On October 24, 1995, San Francisco Thermal submitted an application for an initial Title V permit. At that time, the District determined that the facility was not subject to Title V based upon an estimate of its potential to emit. Because S-3, S-4, S-5, S-6, and S-7 Boilers are "grandfathered" sources with no permit conditions that limit annual emissions, the District has since determined that the potential to emit for Energy Center San Francisco exceeds the major source thresholds for nitrogen oxides and carbon dioxide. Therefore, the facility is subject to Title V permitting requirements. The facility received their initial Title V permit in 2012.

Since the issuance of the initial Title V permit, the facility has had the following projects that have been approved through the District's new source review process and resulted in minor revisions of the Title V permit. The corresponding **Title V minor revision application #26098 for all of these projects will also be included in this renewal.**

NSR Application	Source	Project Description
24603	S-3 and S-4, A-34	Installation of a new SCR to abate S-3 and S-4
24900	S-9	Addition of diesel backup capability at S-9
25276	S-9	Permit condition changes due to new load-

NSR Application	Source	Project Description
		following boiler designation for S-9
25318	S-7, A-7	Installation of a new SCR to abate S-7
25850	S-21 and S-22	Two new cogeneration units

The facility also submitted a request for business name change from NRG Energy Center San Francisco LLC. to Energy Center San Francisco LLC.

B. Facility Description

Energy Center San Francisco is a steam generation facility, located in San Francisco, California, which supplies steam to industrial and commercial customers. The steam is used for space heating, water heating, and as process steam. The primary customer base consists of hotels located in or near the financial district of San Francisco. The steam is generated by 6 boilers that are fired primarily on natural gas. The boilers can be fired on diesel fuel as a backup fuel in the event of an interruption in natural gas service.

C. Permit Content

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

The facility name, responsible official, and facility contact has been updated.
The facility address has also been corrected. The facility has not been moved. The previous facility address was not the correct official address representing the facility's location that can be recognized by the U.S. post office.

I. Standard Conditions

This section contains administrative requirements and conditions that apply to all facilities. 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 the permit:

- The dates of adoption and approval of rules in Standard Condition 1.A have been updated.
- The email address and mailing address for submitting monitoring reports have been added and updated in Standard Condition F.
- The email address and mailing address for submitting compliance certification have been added and updated in Standard Condition G.

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).

Changes to the permit

- S-21 and S-22, Cogeneration Units, have been added to Table II A.
- Table II B – Abatement Devices has been added to include A-7, A-21, A-22, and A-34.

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.

Changes to the permit:

- The dates of adoption and approval of rules have been updated in Table III.
- Regulation 2, Rule 2, Rule 3, Rule 4, Rule 5, Rule 6, and Rule 9, Regulation 3 and Regulation 11, Rule 18 have been added to Table III.

IV. Source-Specific Applicable Requirements

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

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

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

Complex Applicability Determinations

40 CFR Part 60 – New Source Performance Standards

S-6 and S-7 Boilers each have a maximum heat input of 130 MM BTU/hr and were constructed before June 19, 1984 and have not been modified or reconstructed since June 19, 1984. Therefore, they are not subject to 40 CFR 60 Subpart Db, Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units. In 1994, S-3, S-4, S-5, S-6, and S-7 Boilers were retro-fitted with Low-NOx burners to comply with the NOx and CO emission standards of District Regulation 9, Rule 7. However, the maximum firing rates of the boilers did not increase and there was no increase in emissions from the boilers. Therefore, the burner retrofits were not considered to be modifications. Furthermore, the cost of the retrofitting did not exceed 50% of the cost of the boiler. Therefore, the retrofitting was not considered to be a reconstruction of the boiler.

S-3, S-4, S-5, and S-9 Boilers are not subject to Subpart Db because they each have a heat input rating of less than 100 MM BTU/hr.

S-21 and S-22 Cogeneration Units are subject to Subpart JJJJ because they are powered by spark-ignition rich-burn natural gas engines less than 500 horsepower and were manufactured after July 1, 2008. The applicable provisions are listed in Table IV-E.

40 CFR Part 63 – National Emission Standards for Hazardous Air Pollutants

On March 11, 2005, NRG Energy Center San Francisco submitted to the District an Initial Notification Report pursuant to 40 CFR 63.9(b) certifying that they are an area source for HAPs and therefore not subject to 40 CFR 63, Subpart DDDDD, "National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters". S-3, S-4, S-5, S-6, S-7, and S-9 Boilers are not subject to 40 CFR 63, Subpart JJJJJJ, "National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources" because they meet the definition of "gas-fired boiler" as stated in 40 CFR 63.11237. Pursuant to 40 CFR 63.1195(e), gas-fired boilers are not subject to Subpart JJJJJJ.

Because S-13 Standby Generator Diesel Engine was installed prior to 6/12/2006 and the NRG facility is an area source of HAPs, S-13 is subject to the provisions of 40 CFR 63, Subpart ZZZZ NESHAP for Stationary Reciprocating Internal Combustion Engines. The applicable provisions are listed in Table IV-D.

Because S-21 and S-22 are subject to 40 CFR Part 60 and are new stationary RICE at an area source of HAP emissions, the owner/operator must meet the requirements of 40 CFR part 63 Subpart ZZZZ by meeting the requirements of 40 CFR 60 Subpart JJJJ per §63.6590(c)(1).

40 CFR Part 64 – Compliance Assurance Monitoring

40 CFR Part 64 CAM does not apply to S-5, S-6, or S-9 Boilers per §64.2(a)(2) since they are not equipped with abatement devices.

NOx emissions from S-3, S-4, and S-7 are abated by SCR. After retrofitting with Low-NOx burners in 1994, these boilers without SCR complies with the 30 ppmv at 3% O2 emission limit for NOx in SIP Regulation 9, Rule 7. Assuming continuous operation year round at maximum firing rate, the potential pre-control device emissions of NOx are estimated to be 11.3 tons per year for S-3, 11.3 tons per year for S-4, and 20.4 tons per year for S-7 assuming continuous operation year round. Because the potential pre-control device emissions of NOx are less than 100 tons per year each, they are not subject to 40 CFR Part 64 CAM per §64.2(a)(3)

Regulation 6, Rule 1, Section 310.2

S-3, S-4, S-5, S-6, S-7, & S-9 Boilers, S-13 Standby Generator Diesel Engine, and S-21 & S-22 Cogeneration Engines are exempt from 6-1-310.2 per 6-1-114.1

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."

Since the District has not determined that the facility is out of compliance with an applicable requirement, the schedule of compliance for this permit contains only sections 2-6-409.10.1 and 2-6-409.10.2

VI. Permit Conditions

Changes to permit:

- Permit Condition #21200 has been updated according to the NSR Application 24900 and 25276 for S-9.
- Permit Condition #25353 has been added for S-3 and S-4 according to the NSR Application 24603.

- Permit Condition #25548 has been added for S-7 according to the NSR Application 25318.
- Permit Condition #25730 has been added for S-21 and S-22 according to the NSR Application 25850.

VII. Applicable Limits and Compliance Monitoring Requirements

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

The 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.

SO_2 Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S13 Standby Generator Diesel Engine	BAAQMD 9-1-301	Ground level concentrations of SO2 shall not exceed: 0.5 ppm for 3 consecutive minutes AND 0.25 ppm averaged over 60 consecutive minutes AND 0.05 ppm averaged over 24 hours	None
S3, S4, S5, S6, S7, S9 BOILERS, S21 & S22 COGENERATION UNITS	BAAQMD 9-1-302	300 ppm (dry)	None
S3, S4, S5, S6, S7 Boilers, S13 Standby Generator Diesel Engine	BAAQMD 9-1-304	Sulfur content of fuel < 0.5% by weight	None

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.

All facility combustion sources are subject to the SO2 emission limitations in District Regulation 9, Rule 1 (ground-level concentration and emission point concentration). In EPA's June 24, 1999 agreement with CAPCOA and ARB, "Periodic Monitoring Recommendations for Generally Applicable Requirements in SIP", EPA has agreed that natural-gas-fired combustion sources do not need additional monitoring to verify compliance with Regulation 9, Rule 1, since violations of the regulation are unlikely. Therefore, no monitoring is necessary for this requirement for sources that are fired with natural gas.

S-21 and S-22 are fired exclusively with natural gas. Therefore, monitoring for 9-1-301 is not necessary.

S-3, S-4, S-5, S-6, S-7, and S-9 Boilers are capable of firing diesel fuel. However, this occurs infrequently and only during periods of natural gas curtailment and equipment testing. Therefore, monitoring for ground-level SO2 concentrations is not justified for these sources.

S-13 Standby Generator Diesel Engine is fired exclusively on California low-sulfur diesel fuel (15 ppmw sulfur) and is operated infrequently during power outages and equipment testing. Therefore, monitoring for ground-level SO2 concentrations is not justified for this source.

BAAQMD Regulation 9-1-302

S-3, S-4, S-5, S-6, S-7 S-9 Boilers and S-21, S-22 Cogeneration Units will not exceed the 300 ppmv SO2 emission limit of 9-1-302 when firing natural gas. Therefore, monitoring for this standard is not necessary.

BAAQMD Regulation 9-1-304

S-3, S-4, S-5, S-6, S-7, S-9 Boilers and S-13 Diesel Engine will be fired on California low-sulfur diesel fuel with a maximum sulfur content of 15 ppm or 0.0015% by weight. Therefore, monitoring for the fuel sulfur content limit of 0.5% by weight specified in Regulation 9-1-304 is not necessary.

PM Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S3, S4, S5, S6, S7, S9 Boilers, & S21 and S22 Cogeneration Units	BAAQMD Regulation 6-1-301	Ringelmann 1.0	None

PM Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S13 Standby Generator Diesel Engine	BAAQMD Regulation 6-1-303.1	Ringelmann 2.0	None
S3, S4, S5, S6, S7, S9 Boilers, S13 Standby Generator Diesel Engine, S21 and S22 Cogeneration Units	BAAQMD Regulation 6-1-310	0.15 gr/dscf at 6% O2	None

PM Discussion:

BAAQMD Regulation 6 "Particulate Matter and Visible Emissions"

Visible Emissions

BAAQMD Regulation 6-1-301 limits visible emissions to no darker than 1.0 on the Ringelmann Chart (except for periods or aggregate periods less than 3 minutes in any hour). Visible emissions are normally not associated with combustion of gaseous fuels, such as natural gas. Sources 3, 4, 5, 6, 7, 9, 21, and 22 burn primarily natural gas and only burn diesel fuel during periods of natural gas curtailment and equipment testing. 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.

BAAQMD Regulation 6-1-303.1 limits visible emissions to no darker than 2.0 on the Ringelmann Chart (except for periods or aggregate periods less than 3 minutes in any hour). This section applies to internal combustion engines. S-13 Standby Generator Diesel Engine is fired exclusively on California low-sulfur diesel fuel with a maximum sulfur content of 15 ppmw. Therefore, particulate emissions are expected to be minimal and monitoring for this visible emissions standard is not justified.

Particulate Weight Limitation

BAAQMD Regulation 6-1-310.1 limits filterable particulate (FP) emissions from any source to 0.15 grains per dry standard cubic foot (gr/dscf) of exhaust volume. Section 310.3 limits filterable particulate emissions from "heat transfer operations" to 0.15 gr/dscf @ 6% O_2. These are the "grain loading" standards.

Regulation 6-1-310.2 does not apply to S-3 through S-8, S-9, S-21, and S-22 per 6-1-114.1. Regulation 6-1-310.2 does not apply to S-13 Standby Generator Diesel Engine because the PTE TSP for S-13 does not exceed 1000 kg/year.

Exceedances of the grain loading standards are normally not associated with combustion of gaseous fuels, such as natural gas. Sources 3, 4, 5, 6, 7, 9, 21, and 22 primarily burn natural gas and only burn diesel fuel during periods of natural gas curtailment and equipment testing. Therefore, per the EPA's July 2001 agreement with CAPCOA and ARB entitled "CAPCOA/CARB/EPA Region IX Recommended Periodic Monitoring for Generally Applicable Grain Loading Standards in the SIP: Combustion Sources: Summary of Periodic Monitoring Recommendations for Generally Applicable Requirements in SIP", no monitoring is required to assure compliance with this limit for these sources.

S-13 Standby Generator Diesel Engine is fired exclusively on California low-sulfur diesel fuel with a maximum sulfur content of 15 ppmw. Therefore, particulate emissions are expected to be minimal and monitoring for this emission limit is not justified.

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:

- Test methods for verifying compliance with BAAQMD Regulation 9-8-301.1 and 301.3 have been added.

IX. Permit Shield

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

The second type of permit shield is allowed by EPA's White Paper 2 for Improved Implementation of the Part 70 Operating Permits Program. The District uses the second type of permit shield for all streamlining of monitoring, recordkeeping, and reporting requirements in Title V permits. The District's program does not allow other types of streamlining in Title V permits.

This facility has no permit shields.

X. Revision History

Changes to permit:

- Permit Renewal Application 28452 has been added

XI. Glossary

The Renewal Application does not change this section of the permit.

D. Alternate Operating Scenarios

No alternate operating scenario has been requested for this facility.

E. Compliance Status

The responsible official for Energy Center San Francisco, LLC. submitted a signed Certification Statement form dated February 8, 2021. On this form, the responsible official certified that the following four statements are true:

Based on information and belief formed after reasonable inquiry, the sources identified in the Applicable Requirements and Compliance Summary form that are in compliance will continue to comply with the applicable requirements;

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

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

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

F. Differences between the Application and the Proposed Permit

The renewal Title V permit application was originally submitted on January 3, 2017. This version serves as the basis for the Air District's development of the proposed Title V permit. The facility's responsible official also submitted a request to change the business name and correct the physical address of the site on November 14, 2018. In 2021, the facility's responsible official has also been changed. In addition, this version includes minor revisions in Title V application 26089.

APPENDIX A

GLOSSARY

ACT
Federal Clean Air Act

APCO
Air Pollution Control Officer

ARB
Air Resources Board

BAAQMD
Bay Area Air Quality Management District

BACT
Best Available Control Technology

Basis
The underlying authority which allows the District to impose requirements.

CAA
The federal Clean Air Act

CAAQS
California Ambient Air Quality Standards

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.

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

THC
Total Hydrocarbons (NMHC + Methane)

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

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

TPH
Total Petroleum Hydrocarbons

TSP
Total Suspended Particulate

VOC
Volatile Organic Compounds

Units of Measure:

bhp	=	brake-horsepower
btu	=	British Thermal Unit
cfm	=	cubic feet per minute
g	=	grams
gal	=	gallon
gpm	=	gallons per minute
hp	=	horsepower
hr	=	hour
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
psia	=	pounds per square inch, absolute
psig	=	pounds per square inch, gauge
scfm	=	standard cubic feet per minute
yr	=	year

APPENDIX B

NSR Evaluation Reports

Engineering Evaluation
NRG Energy Center
Application Number 24603
Plant Number 16151

Background

NRG Energy Center has applied for an Authority to Construct and/or Permit to Operate the following equipment at the San Francisco site:

A-34 Selective Catalytic Reduction System: Make Nationwide, Model CataStak; Abating S-3 and S-4, Boilers with Maximum Firing Rate 72 MMBtu/hour Each.

The Selective Catalytic Reduction (SCR) system is intended to reduce the NOx emissions from S-3 and S-4 in order to comply with the applicable NOx standards in the District's Regulation 9-7 by January 1, 2013. Both boilers can burn natural gas as the primary fuel and diesel as backup fuel.

Previously, S-3 and S-4 were designated as load following units, and the facility requests to remove the load following designation to the two boilers upon the installation of A-34.

Emissions Calculation

Upon the installation of A-34, NOx emissions from S-3 and S-4 are expected to decrease and no emission increase of any criteria pollutant is expected. Therefore, this project will not result in any cumulative increase in emission.

Toxics Risk Screening Analysis

Selective Catalytic Reduction of NOx uses ammonia as the reducing agent. Emissions of unreacted ammonia may result from incomplete reaction of NOx and reagent, which is referred to be ammonia slip.

Ammonia is a toxic air contaminant in the District's Regulation 2-5. Since the facility has agreed to a limit of 10 ppmv ammonia as a permit condition, ammonia emissions from the outlet of A-34 is estimated to be 2.09 lb/hour and 18,291 lb/year. Because the annual emission is above the chronic trigger level at 7,700 lb/year, a Health Risk Screening Analysis has been performed for this project.

According to the interoffice memo dated August 31, 2012 from Daphne Chong, results from the analysis indicate that the maximum project chronic hazard indix is estimated at 0.0028. In accordance with the District's Regulation 2-5, the project is in compliance.

Statement of Compliance

S-3 and S-4 are subject to Regulation 9-7, NOx and CO from Industrial, Institutional and Commercial Boilers, Steam Generators, and Process Heaters. Based on the vendor guarantee, the abated emissions from the boilers are expected to meet the requirements in Section 307.5 (NOx not to exceed 9 ppmv and CO not to exceed 400 ppmv, dry at 3% O2) when using natural gas, and in Section 113.2 (NOx not to exceed 150 ppmv, dry at 3% O2) when using diesel oil. The initial source test requirement in Section 403 and periodic source test requirement in Section 506 will be specified as a permit condition.

The application is considered to be ministerial under the District's CEQA Regulation 2-1-311 and therefore, is not subject to CEQA review. The engineering review for this project requires only the fixed standards and objective measurements outlined in the Permit Handbook Chapter 2.1 and therefore, is not discretionary as defined by CEQA.

BACT, Offset, PSD, NSPS, and NESHAPS do not apply.

PERMIT CONDITIONS

Upon installation of A-34, S-3 and S-4 will be subject to Permit Condition Number 25353 as shown below:

In addition to the requirements in BAAQMD Regulation 9 Rule 7, the owner/operator shall comply with the following:

1. The owner/operator shall abate NOx emissions from S-3 and S-4, Boilers, with the properly operated and properly maintained A-34, Selective Catalytic Reduction System.
(Basis: BAAQMD Regulation 9-7-307)

2. The owner/operator shall meet the follow requirement for S-3 and S-4 at all times:
Ammonia (NH3) emissions at the outlet of A-34 shall not exceed 10 ppmv, dry at 15% oxygen and averaged over any rolling 3-hour period.
(Basis: BAAQMD Regulation 2-5 [Toxics] for NH3)

3. When S-3 or S-4 is in operation, the owner/operator shall monitor and record the nitrogen oxide concentration in ppmv, carbon monoxide concentration in ppmv, and the oxygen content in percent at the outlet of A-34 at least once per week using a portable analyzer in accordance with U.S. EPA Method CTM-030. The owner/operator may propose for District review, based on actual measurements taken at the site during operation of the sources, that the monitoring schedule be changed based on the data demonstrating continuous compliance. Written approval by the District's Engineering Division must be received by the owner/operator prior to a change to the monitoring schedule.
(Basis: BAAQMD Regulation 2-6-503 and 9-7-606)

4. The owner/operator shall conduct a district-approved source test within 60 days of startup of A-34 and on an annual basis thereafter to verify compliance with Part 2 and all applicable NOx and CO standards in BAAQMD Regulation 9 Rule 7. The owner/operator shall submit a source test protocol to the District at least 30 days prior to the testing date, and shall notify the District of the testing date at least ten days prior to the test so that a District observer may witness the test. The source test protocol shall comply with the test methods for NOx, CO, and stack gas oxygen content set forth in Regulation 9-7-600. Alternative test methods, and source testing scope, may also be used to address the source testing requirements of the permit if approved in advance by the District. The source test reports shall be provided to the District within 30 days of the testing date.
(Basis: BAAQMD Regulation 9-7-403 and 9-7-506)

5. To verify compliance with above parts, the owner/operator shall maintain all records and reports on site for a minimum of 5 years. These records shall include but are not limited to:
a. Portable analyzer monitoring records on a weekly basis.
b. For each boiler, date and duration of each startup and shutdown periods.
The owner/operator shall make all records and reports available to District staff upon request.
(Basis: BAAQMD Regulation 2-6-501 and Regulation 9-7-503)

RECOMMENDATION

Issue an Authority to Construct for the following abatement device:

A-34 Selective Catalytic Reduction System: Make Nationwide, Model CataStak; Abating S-3 and S-4, Boilers with Maximum Firing Rate 72 MMBtu/hour Each.

by: _____ Date: _____

Xuna Cai
Air Quality Engineer

Engineering Evaluation
NRG Energy Center, LLC.
Application Number 24900
Plant Number 16151

Background

NRG Energy Center, LLC (NRG) has applied for an Authority to Construct and/or Permit to Operate to modify the following equipment at its San Francisco site:

S-9 Boiler No. 8: Natural Gas Fired, Diesel Fuel Backup, Maximum Firing Rate 99.93 MMBtu/hour for Natural Gas, Maximum Firing Rate 140 MMBtu/hour for Diesel

The existing burner of S-9 can only burn natural gas exclusively and has a maximum firing rate of 100 MMBtu per hour. In order to increase the current overall emergency oil capability at the site, the facility requests to install a new diesel oil fuel gun with a 140 MMBtu per hour rating capacity at S-9. When NRG's natural gas supplier, Pacific Gas & Electric, declares gas curtailment, the facility will remove the existing natural gas injection nozzle and add the proposed central oil gun. When natural gas service is restored, the oil gun will be removed and the existing natural gas gun will be installed for regular operation.

The boiler's original design capacity was 140 MMBtu per hour, but the facility decided to de-rate the boiler by installing a smaller capacity natural gas fuel gun when the boiler was permitted in 2004. Therefore, the boiler is capable to handle the new 140 MMBtu per hour diesel oil gun as the facility proposes.

The facility has six boilers on site, and two of these boilers, S-9 and S-6, burn exclusively natural gas with no diesel backup capability. While the facility is presently permitted to burn 569 MMBtu per hour of natural gas, it is permitted to burn 339 MMBtu per hour of diesel, which is equivalent to about 60% capacity on oil as compared to natural gas fuel. After this modification project at S-9, the total capacity on oil is increased to 479 MMBtu per hour which is 84% of the natural gas capacity. The facility indicates that this is important because the most likely scenario for a PG&E declared gas curtailment would be at a time of high gas demand on extremely cold days or during disaster.

Emissions Calculation

Because the proposed modification will not change the emissions from the regular operation of S-9 when burning natural gas, only emissions when burning diesel fuel are calculated.

Basis:

- The facility proposes a maximum annual operating hour limit of 216 hours per year:
  Maximum Annual Fuel Usage = (140 x 216) MMBtu/year = 30,240 MMBtu/year

- Since the duration of a gas curtailment period is not predictable, the facility cannot accept a daily operating hour limit and the maximum daily emissions are calculated for a continuous 24-hour:
  Maximum Daily Fuel Usage = (140 x 24) MMBtu/day = 3,360 MMBtu/day

- According the vendor specifications, NOx Emission Factor = 80 ppmv at 3% O2:
  $NOx\ (lb/MMBtu) = ppm_{measured} *[(21-0)/(21-\%O_{measured})] *(Molecular\ Wt)* (F_d)/(Molar\ Volume)$
  $= (80/1E6)*[(21-0)/(21-3)]*(46lb/mol)*(8710DSCF/MMBtu)/(359DSCF/mol)$
  $= 0.104\ lb/MMBtu$

- According the vendor specifications, CO Emission Factor = 100 ppmv at 3% O2:

*CO (lb/MMBtu) = $ppm_{measured}$ *[(21-0)/(21-%$O_{measured}$)] *(Molecular Wt)* (F_d)/(Molar Volume)*

= (100/1E6)[(21-0)/(21-3)]*(28lb/mol)*(8710DSCF/MMBtu)/(359DSCF/mol)*

= 0.079 lb/MMBtu

- Emission factors for POC, PM10 and SO2 are taken from EPA's AP-42, Chapter 1.3, Fuel Oil Combustion.

Criteria Pollutant	Emission Factor (lb/MMBtu)	Basis	Max. Daily Emissions (lb/day)	Annual Emissions (ton/yr)
Nitrogen Oxides	0.104	Vendor Specifications	349.44	1.572
Carbon Monoxide	0.079	Vendor Specifications	265.44	1.194
POC	0.002	AP-42, Table 1.3-3	6.72	0.030
PM10	0.024	AP-42, Table 1.3-1 and1.3-2	80.64	0.363
Sulfur Dioxide	0.0015	AP-42, Table 1.3-1	5.04	0.023

Plant Cumulative Increase: (ton/year after 4/5/91)

Pollutant	Existing	New	Total
NOx	6.720	1.572	8.292
CO	22.600	1.194	23.794
POC	2.510	0.030	2.540
PM10	3.430	0.363	3.793
SO2	0.360	0.023	0.383

Toxics Risk Screening Analysis

S-9 was initially permitted in 2004 for burning natural gas exclusively. Per the definition of Project in Regulation 2-5-216, any consecutive modification of a source, occurred after January 1, 1987, shall be considered together as a project. Therefore, both emissions from burning natural gas and diesel fuel at S-9 will be included in this project for the health risk screening analysis (HRSA). Based on the AP-42 emission factors for natural gas combustion and fuel oil combustion, the calculated Toxic Air Contaminant (TAC) emissions of Formaldehyde are in excess of the chronic risk screening trigger as set forth in Regulation 2-5, and a HRSA is required. The TAC emissions are summarized below.

TACs from combustion of natural gas	AP-42 Emission factor	Emission factor	Annual emission rate	TAC trigger level	Hourly emission rate	TAC trigger level
	lb/MM cu. ft.	lb/MMBtu	lb/yr	lb/yr	lb/hr	lb/hr
Benzene	2.10E-03	2.1E-06	1.8E+00	3.8E+00	2.1E-04	2.9E+00

Formaldehyde	7.50E-02	7.4E-05	**6.4E+01**	**1.8E+01**	7.3E-03	1.2E-01
Toluene	3.40E-03	3.3E-06	2.9E+00	1.2E+04	3.3E-04	8.2E+01
TACs from combustion of diesel	**lb/Kgal**	**lb/MMBtu**	**lb/yr**	**lb/yr**	**lb/hr**	**lb/hr**
Benzene	2.14E-04	1.53E-06	4.6E-02	3.8E+00	2.1E-04	2.9E+00
Ethylbenzene	6.36E-05	4.54E-07	1.4E-02	4.3E+01	6.4E-05	N/A
Formaldehyde	3.30E-02	2.36E-04	7.1E+00	1.8E+01	3.3E-02	1.2E-01
Naphthalene	1.13E-03	8.07E-06	2.4E-01	3.2E+00	1.1E-03	N/A
1,1,1-Trichloroethane	2.36E-04	1.69E-06	5.1E-02	3.9E+04	2.4E-04	1.5E+02
Toluene	6.20E-03	4.43E-05	1.3E+00	1.20E+04	6.2E-03	8.2E+01
o-Xylene	1.09E-04	7.79E-07	2.4E-02	2.7E+04	1.1E-04	4.9E+01
Benz(a)anthracene	4.01E-06					
Chrysene	2.38E-06					
Dibenzo(a,h)anthracene	1.67E-06					
Indeno(1,2,3-cd)pyrene	2.14E-06					
Benzo(a)pyrene equivalent	2.39E-06	1.71E-08	5.2E-04	6.90E-03	2.4E-06	N/A

According to the interoffice memorandum dated December 19, 2012 from Daphne Chong, results from the HRSA indicate that the maximum project cancer risk is estimated at 0.03 in a million, and the maximum project chronic hazard index is estimated at 0.0036. In accordance with the District's Regulation 2-5, this project is in compliance with the project risk requirements.

Statement of Compliance

S-9 is subject to Regulation 9-7, NOx and CO from Industrial, Institutional and Commercial Boilers, Steam Generators, and Process Heaters. The facility proposes to comply with the limited exemption in Regulation 9-7-113 for natural gas curtailment and testing, which means that S-9 will not burn diesel fuel for more than 168 total hours in each consecutive 12-month period plus 48 hours in each consecutive 12-month period for readiness testing. Based on the vendor guarantees, the boiler is expected to meet the NOx requirement in Section 113.2 (150 ppmv at 3% O2) and the CO requirement in Section 307.8 (400 ppmv at 3% O2)

The application is considered to be ministerial under the District's CEQA Regulation 2-1-311 and therefore, is not subject to CEQA review. The engineering review for this project requires only the fixed standards and objective measurements outlined in the Permit Handbook Chapter 2.1 and therefore, is not discretionary as defined by CEQA.

Best Available Control Technology (BACT):

In accordance with Regulation 2-2-301, BACT is triggered for any new or modified source with the potential to emit 10 pounds or more per highest day of POC, NPOC, NOx, CO, SO_2 or PM_{10}.

Based on the emission calculations above, the owner/operator of S-9 is subject to BACT for NOx, CO, and PM10. The District's BACT Guideline for boilers no less than 50 MMBtu per hour is addressed in Document # 17.3.1, dated August 4, 2010.

Reference c specifies that “BACT limits apply to all fuels except for emergency backup fuel oil used during natural gas curtailment.” Since the facility will be permitted to burn diesel at S-9 for emergency backup purpose during natural gas curtailment only, S-9 is not subject to these BACT limits. However, these limits for backup fuel oil in Reference c can still provide some guidance for determining the BACT limits in this project.

If cost-effective, BACT 1 requirement is usually an add-on abatement device, which would be a Selective Catalytic Reduction (SCR) system for a boiler. Vendor proposals to install an SCR on S-9 show that the equipment cost alone is $588,986, which can be converted to an annualized cost of approximately $133,110 by following the method in the District’s BACT Guideline. Assuming a potential NOx reduction of 1.081 tons per year, the cost of installing an SCR is much greater than the cost limit of $17,500 per ton of NOx in the District’s BACT Guideline. Therefore, it is not cost-effective to implement add-on abatement for S-9.

Reference c states that, for backup fuel oil, BACT 2 requirements are 40 ppmv NOx and 100 ppmv CO at 3% O2, and PM10 is the use of low sulfur fuel with less than 0.05 wt% surfur. The facility utilizes CARB diesel with 15 ppm sulfur content at all boilers onsite, so S-9 is expected to meet the BACT 2 limit for PM10. The vendor guaranteed emissions for S-9 after installing the proposed new oil gun are 80 ppmv NOx and 100 ppmv CO at 3% O2 for fuel oil, so S-9 is expected to meet the BACT 2 limit for CO but not the BACT 2 limit for NOx. The typical technology is an ultra-low (ULN) NOx burner with flue gas recirculation (FGR) and good combustion practice. The existing burner of S-9 installed in 2004 is an ULN NOx burner equipped with FGR. The burner manufacturer’s representative indicates that, to retrofit this burner with the fuel oil gun, air in the core is needed to maintain a clean fire, controlling CO, and opacity, and the core air offsets the minor effect of FGR on the oil flame outer envelope. In addition, the applicant has also explored the option of a low Nitrogen fuel to reduce NOx emissions, but no vendor in the Bay Area is currently supplying this type of fuel. As the NOx emission reduction is limited by the original design of the existing burner and the low Nitrogen fuel is not available locally, the 80 ppmv NOx at 3% O2 is considered the BACT limit for NOx in this retrofit project. .

Therefore, S-9 is determined to be in compliance with the BACT 2 limits for NOx, CO, and PM10.

Offset:

Offsets must be provided for any new or modified source at a facility that emits or will be permitted to emit more than 10 ton/yr (TPY) of POC or NOx. According to the databank’s 2012 emissions inventory, the facility emitted 19.570 ton/yr of NOx, and therefore, the facility is subject to the offset requirement. Per Regulation 2-2-302, the emission offsets can be provided by the District’s Small Facility Bank if the facility emits or permitted to emit more than 10 tons/yr but less than 35 tons/yr at a 1.0 to 1.0 ratio. The facility is permitted to emit less than 35 tons/yr of NOx, and the District’s will provide 1.572 TPY of NOx credits from the Small Facility Banking account.

NSPS:
The boiler after the retrofit with fuel oil gun is subject to 40 CFR 60, Subpart Db, Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units. because it is modified after June 19, 1984 and has a heat input capacity from fuels combusted in the steam generating unit of greater than 100 MMBtu/hour.

The boiler complies with the 0.2 lb/MMBtu SO2 standard in §60.42b (a) because the facility uses CARB diesel with 15 ppm sulfur content at S-9. It is also expected to comply with the 20 percent opacity standard in §60.43b (f) when burning diesel oil. Because the vendor guaranteed NOx emissions are 80 ppmv at 3% O2 which is equivalent to 0.10 lb/MMBtu, the boiler should comply with the 0.10 lb/MMBtu NOx standard in §60.44b (a)(1), and an initial source test is required to verify compliance as a permit condition.

NESHAP:
The boiler is not subject to 40 CFR 63, Subpart JJJJJ, National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources in according to §63.11195(e) since S-9 is defined as a gas-fired boiler per §62.11237, which burns gaseous fuels not combined with any solid fuels and burns liquid fuel only during periods of gas curtailment.

PSD:
The emission increase resulted from this project is expected to be less than 2 TPY of any criteria pollutants. Since they are far below the PSD thresholds, the project is not subject to PSD review.

PERMIT CONDITIONS

S-9 is subject to Permit Condition Number 21200, which will be modified in the underline/strikeout format as shown below:

Permit Condition Number 21200

NRG Energy Center
Application # 8383, 25276, 24900

PERMIT CONDITIONS

1. The owner/operator shall insure S-9 Boiler be fired exclusively with natural gas at a firing rate not to exceed 99.93 MMBtu/hr except during natural gas curtailment . [Basis: BACT or Cumulative Increase]

2. The owner/operator shall operate S-9 Boiler with a low NOx burner and flue gas recirculation system. [Basis: BACT]

3. The owner/operator shall insure S-9 Boiler emissions of nitrogen oxides (NOx) shall not exceed 9 ppmv (reference 3 percent O2, dry), averaged over any rolling 3 hour period, when firing natural gas. [Basis: BACT]

4. The owner/operator shall insure S-9 Boiler emissions of carbon monoxide (CO) shall not exceed 50 ppmv (reference 3 percent O2, dry) averaged over any rolling 3 hour period. [Basis: BACT]

5. The total usage of natural gas shall not exceed 8,730,000 therms for S-9 Boiler in any consecutive twelve (12) month period. [Basis: Cumulative Increase]

6. Visible particulate emissions from S-9 Boiler shall not exceed Ringelmann 1.0. [Basis: Regulation 6-301]

7. The limits specified in conditions 3 and 4 shall not apply during startup periods not exceeding 3 hours, shutdown periods not exceeding 2 hours, ~~and~~ load-following operation periods, and periods of natural gas curtailment a for source S-9. [Basis: Regulation 2-1-403]

8. During load-following operation, the owner/operator shall insure that S-9 Boiler emissions of nitrogen oxides (NOx) shall not exceed 15 ppmv (reference 3 percent O2, dry), when firing natural gas. [Basis: Regulation 9-7-307.4]

9. "Startup" shall mean that period of time during which the piece of equipment in question is put into normal operation from an inactive status by following a prescribed series of separate steps or operations, not to exceed 3 hours. [Basis: Regulation 2-1-403]

10. "Shutdown" shall mean that period of time during which the piece of equipment in question is taken out of service from a normal operating mode to an inactive status following a prescribed series of separate steps of operations, not to exceed 2 hours. [Basis: Regulation 2-1-403]

11. The owner/operator shall not operate S-9 with diesel fuel for more than 216 hours in any consecutive 12-month period. [Basis: Cumulative Increase]

12. The owner/operator shall not operate S-9 with diesel fuel except during natural gas curtailment, oil-burn readiness testing, or state, federal, or local agency-required performance testing. [Basis: BACT]

13. During natural gas curtailment, the owner/operator shall insure that S-9 Boiler emissions of nitrogen oxides (NOx) shall not exceed 80 ppmv (reference 3 percent O2, dry), when firing diesel. [Basis: BACT]

14. During natural gas curtailment, the owner/operator shall insure that S-9 Boiler emissions of carbon monoxide (CO) shall not exceed 100 ppmv (reference 3 percent O2, dry), when firing diesel. [Basis: BACT]

15. The owner/operator shall not burn diesel fuel with sulfur content greater than 0.05 weight percent at S-9. [Basis: BACT]

16. Initial Source Testing: Within 60 days of startup of the diesel fuel oil gun at S-9, the owner/operator shall conduct a district-approved source test to verify compliance with Part 13, Part 14, and all applicable NOx and CO standards in BAAQMD Regulation 9 Rule 7. The owner/operator shall submit a source test protocol to the District at least 30 days prior to the testing date, and shall notify the District of the testing date at least ten days prior to the test so that a District observer may witness the test. The source test protocol shall comply with the test methods for NOx, CO, and stack gas oxygen content set forth in Regulation 9-7-600. Alternative test methods, and source testing scope, may also be used to address the source testing requirements of the permit if approved in advance by the District. The source test reports shall be provided to the District within 30 days of the testing date. [Basis: BAAQMD Regulation 2-1-403]

17~~1~~. Source Testing: For boilers S-3, S-4, S-5, S-6, S-7, S-9, a source test shall be conducted at one year before the expiration of the Title V permit to verify compliance with the other parts of this condition and District Regulations. Additional source testing may be required at the discretion of the District to address or ascertain compliance with the requirements of this permit. The written test results of the source tests shall be provided to the District within sixty days after testing. A complete test protocol shall be submitted to the District no later than 30 days prior to testing, and notification to the District at least ten

days prior to the actual date of testing shall be provided so that a District observer may be present. The source test protocol shall comply with the measurements of NOx, CO, and stack gas oxygen content as set forth in Regulation 9-7-600. Alternative test methods, and source testing scope, may also be used to address the source testing requirements of the permit if approved in advance by the District. [Basis: Regulation 9-7-600]

182. To determine compliance with the above conditions, the Permit Holder shall maintain the following records and provide all of the data necessary to evaluate compliance with the above conditions, including the following information:

a. Monthly records of the quantity of natural gas (therms) and sulfur content at S-3, S-4, S-5, S-6, S-7, and S-9.
b. Monthly records of the number and duration (hours) of load-following operations of S-9, shutdowns and startups.
c. Monthly operating hours using diesel fuel, and the hours of equipment testing using diesel fuel at S-9 dc. Monthly records shall be totaled for each consecutive 12-month period.

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

RECOMMENDATION

Issue the Authority to Construct to NRG for modifying the following source:

S-9 Boiler No. 8: Natural Gas Fired, Diesel Fuel Backup, Maximum Firing Rate 99.93 MMBtu/hour for Natural Gas, Maximum Firing Rate 140 MMBtu/hour for Diesel

by: _____ Date: _____

Xuna Cai
Air Quality Engineer

EVALUATION REPORT
NRG Energy
Plant Number 16151
Application Number 25276

Background

NRG Energy at 465 Stevenson Street, San Francisco, provides steam to approximately 180 customers in downtown San Francisco. The facility currently operates six permitted steam boilers and requests to designate the following boiler as load-following unit as defined in Regulation 9-7-213:

S-9 Boiler No. 8, Rating 99.93 MMBtu/hr

S-9 is currently subject to the 9 ppmv NOx limit in Regulation 9-7-117, Limited Exemption, Devices Rated 75 MM BTU/hr or Higher Limited to 9 PPMV NOx, which is also the same as the Best Available Control Technology (BACT) requirement when the boiler was initially permitted in 2004 under Application 8383. If S-9 is designated as a "load-following unit", then they will be subject to a 15 ppmv NOx limit in accordance with Regulation 9-7-307.4.

The definition of a "load-following unit" appears in Regulation 9-7-213. This definition includes the following elements:

• the boiler operates in a load-following mode to meet a variable demand for hot water or steam
• the fluctuations in load experienced by the boiler would exceed the ability of a burner capable of complying with a 9 ppmv NOx limit under steady-state or substantially steady-state conditions to do so under actual operating conditions

Supporting Information for Load-Following Designation

Regulation 9-7-408 provides guidance on the information to be considered in determining if the load-following designation is appropriate for any particular boiler. This information includes:

• information verifying operation in a load-following capacity
• information regarding the boiler design and condition that would affect the ability to operate at 9 ppmv
• technical data such as steam demand charts

NRG has demonstrated with steam supply charts that the facility needs two boilers to be operated as load-following units to provide near-instantaneous increases in steam supply as customers open steam valves on a daily basis and to provide an automatic and near-instantaneous increase in steam supply in the even that one of the other facility boilers comes off-line or a customer unexpectedly increases steam use. These fluctuations can be abrupt and substantial. S-3 and S-4, two boilers, had been designated as load-following units, but now cannot be operated as backup to each other serving as loading following units after they are abated by the same Selective Catalytic Reduction system, A-34. The facility requested to designate S-9 to be a load-following unit instead.

S-9 is currently equipped with a ultra-low NOx burner and flue gas recirculation, which is considered as the typical technology to meet the current BACT requirements for boilers greater than 50 MM Btu/hour according to the District's BACT Guidelines. It has been source tested in 2004, and is verified that it can meet the 9 ppmv NOx limit during steady state operation. However, the burner manufacturer provided a technical analysis to explain why the emissions may not be able to stay below 9 ppmv NOx during a rapid change of load and it would take some time for the combustion process to stabilize after a rapid load fluctuation. The analysis further indicates that the burner is designed to meet a 9 ppmv NOx limit and will continue to meet this limit in steady state operation and during a slow change of load.

After being designated as load-following unit, S-9 is still subject to the 9 ppmv NOx limit during steady state operation based on the BACT requirement. Since the current applicable source test method (the District Manual of Procedures, Volume IV, ST-13A) determines the time-averaged of NOx and the typical time for each run is 1 hour, it is designed to test steady state operation and can only be used to verify the steady state emission limit for S-9. Nevertheless, the 15 ppmv NOx limit for S-9 will be specified as only applicable during load-following operation in the permit conditions as clarification.

Emission Calculations

There will be no increase in emissions as a result of this application.

Plant Cumulative Increase

There will be no increase in the Plant Cumulative Increase as a result of this application.

Toxics Risk Screening Analysis

A toxics risk analysis is not required for this application since the TAC emissions are not expected to increase as a result of this application.

Statement of Compliance

S-9 is subject to and expected to comply with Regulation 9-7, Nitrogen Oxides and Carbon Monoxide from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters. Review of Section 213 and 408, the burner specifications, and facility operation indicates that the boiler is qualified as a load-following unit. Therefore, it is subject to the emission limits for load-following units in Section 307, which are 15 ppmv of NOx and 400 ppmv of CO.

This application will not trigger BACT, offsets, PSD, or Water's Bill Notification requirements since there will be no increase in emissions as a result of this application.

This application is not subject to CEQA since the project is a ministerial action conducted using the fixed standards and objective measurements outlined in the Permit Handbook Chapter 2.1.

Permit Condition

S-9 will continue to be subject to Permit Condition Number 21200 which will be modified to clarify the load-following NOx limit in the underline/strikeout format as shown below:

Permit Condition Number 21200

NRG Energy Center
Application # 8383, 25276

PERMIT CONDITIONS

1. The owner/operator shall insure S-9 Boiler be fired exclusively with natural gas at a firing rate not to exceed 99.93 MMBtu/hr. [Basis: BACT or Cumulative Increase]

2. The owner/operator shall operate S-9 Boiler with a low Nox burner and flue gas recirculation system. [Basis:BACT]

3. The owner/operator shall insure S-9 Boiler emissions of nitrogen oxides (NOx) shall not exceed 9 ppmv (reference 3 percent O2, dry), averaged over any rolling 3 hour period, when firing natural gas. [Basis: BACT]

4. The owner/operator shall insure S-9 Boiler emissions of carbon monoxide (CO) shall not exceed 50 ppmv (reference 3 percent O2, dry) averaged over any rolling 3 hour period. [Basis: BACT]

5. The total usage of natural gas shall not exceed 8,730,000 therms for S-9 Boiler in any consecutive twelve (12) month period. [Basis: Cumulative Increase]

6. Visible particulate emissions from S-9 Boiler shall not exceed Ringelmann 1.0. [Basis: Regulation 6-301]

7. The limits specified in conditions 3 and 4 shall not apply during startup periods not exceeding 3 hours, ~~and~~ shutdown periods not exceeding 2 hours, and load-following operation periods for source S-9. [Basis: Regulation 2-1-403]

8. During load-following operation, the owner/operator shall insure that S-9 Boiler emissions of nitrogen oxides (NOx) shall not exceed 15 ppmv (reference 3 percent O2, dry), when firing natural gas. [Basis: Regulation 9-7-307.4]

9~~8~~. "Startup" shall mean that period of time during which the piece of equipment in question is put into normal operation from an inactive status by following a prescribed series of separate steps or operations, not to exceed 3 hours. [Basis: Regulation 2-1-403]

10~~9~~. "Shutdown" shall mean that period of time during which the piece of equipment in question is taken out of service from a normal operating mode to an inactive status following a prescribed series of separate steps of operations, not to exceed 2 hours. [Basis: Regulation 2-1-403]

11~~0~~. Source Testing: For boilers S-3, S-4, S-5, S-6, S-7, S-9, a source test shall be conducted at one year before the expiration of the Title V permit to verify compliance with the other parts of this condition and District Regulations. Additional source testing may be required at the discretion of the District to address or ascertain compliance with the requirements of this permit. The written test results of the source tests shall be provided to the District within sixty days after testing. A complete test protocol shall be submitted to the District no later than 30 days prior to testing, and notification to the District at least ten days prior to the actual date of testing shall be provided so that a District observer may be present. The source test protocol shall comply with the measurements of NOx, CO, and stack gas oxygen content as set forth in Regulation 9-7-600. Alternative test methods, and source testing scope, may also be used to address the source testing requirements of the permit if approved in advance by the District. [Basis: Regulation 9-7-600]

12~~1~~. To determine compliance with the above conditions, the Permit Holder shall maintain the following records and provide all of the data necessary to evaluate compliance with the above conditions, including the following information:

a. Monthly records of the quantity of natural gas (therms) and sulfur content at S-3, S-4, S-5, S-6, S-7, and S-9.
b. Monthly records of the number and duration (hours)of load-following operations of S-9, shutdowns and startups.
c. Monthly records shall be totaled for each consecutive 12-month period.

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

Recommendation

Modify the source descriptions to specify “Load-Following Boiler” for S-9:

S-9 Load-Following Boiler No. 8, Rating 99.93 MMBtu/hr

by_____date_____

Xuna Cai
Air Quality Engineer

Engineering Evaluation
NRG Energy Center
Application Number 25318
Plant Number 16151

BACKGROUND

NRG Energy Center has applied for an Authority to Construct and/or Permit to Operate the following equipment at the San Francisco site:

A-7 Selective Catalytic Reduction System: Make Haldor Topsoe; Abating S-7, Boiler with Maximum Firing Rate 130 MMBtu/hour.

The Selective Catalytic Reduction (SCR) system is intended to reduce the NOx emissions from S-7 in order to comply with the applicable NOx standards in the District's Regulation 9-7. The boiler can burn natural gas as the primary fuel and diesel as backup fuel.

EMISSIONS CALCULATION

Upon the installation of A-7, NOx emissions from S-7 are expected to decrease and no emission increase of any criteria pollutant is expected. Therefore, this project will not result in any cumulative increase in emission.

TOXICS RISK SCREENING ANALYSIS

Selective Catalytic Reduction of NOx uses ammonia in the form of urea as the reducing agent. Emissions of unreacted ammonia may result from incomplete reaction of NOx and reagent, which is referred to be ammonia slip.

Ammonia is a toxic air contaminant in the District's Regulation 2-5. Since the facility has agreed to a limit of 10 ppmv ammonia at 15% oxygen as a permit condition, ammonia emissions from the outlet of A-34 is estimated to be 1.88 lb/hour and 16,200 lb/year. Because the annual emission is above the chronic trigger level at 7,700 lb/year, a Health Risk Screening Analysis has been performed for this project.

According to the interoffice memo dated May 7, 2013 from Daphne Chong, results from the analysis indicate that the maximum project chronic hazard index is estimated at 0.0031. In accordance with the District's Regulation 2-5, the project is in compliance.

STATEMENT OF COMPLIANCE

S-7 is subject to Regulation 9-7, NOx and CO from Industrial, Institutional and Commercial Boilers, Steam Generators, and Process Heaters. Based on the vendor guarantee, the abated emissions from the boiler are expected to meet the requirements in Section 307.6 (NOx not to exceed 5 ppmv and CO not to exceed 400 ppmv, dry at 3% O2) when using natural gas, and in Section 113.2 (NOx not to excceed 150 ppmv, dry at 3% O2) when using diesel oil. The initial source test requirement in Section 403 and periodic source test requirement in Section 506 will be specified as a permit condition.

The application is considered to be ministerial under the District's CEQA Regulation 2-1-311 and therefore, is not subject to CEQA review. The engineering review for this project requires only the fixed standards and objective measurements outlined in the Permit Handbook Chapter 2.1 and therefore, is not discretionary as defined by CEQA.

BACT, Offset, PSD, NSPS, and NESHAPS do not apply.

PERMIT CONDITIONS

Upon installation of A-7, S-7 will be subject to Permit Condition Number 25548 as shown below:

In addition to the requirements in BAAQMD Regulation 9 Rule 7, the owner/operator shall comply with the following:

1. The owner/operator shall abate NOx emissions from S-7, Boiler, with the properly operated and properly maintained A-7, Selective Catalytic Reduction System.
(Basis: BAAQMD Regulation 9-7-307)

2. The owner/operator shall meet the following requirement for S-7 at all times:
Ammonia (NH3) emissions at the outlet of A-7 shall not exceed 10 ppmv, dry at 15% oxygen and averaged over any rolling 3-hour period.
(Basis: BAAQMD Regulation 2-5 [Toxics] for NH3)

3. When S-7 is in operation, the owner/operator shall monitor and record the nitrogen oxide concentration in ppmv, carbon monoxide concentration in ppmv, and the oxygen content in percent at the outlet of A-7 at least once per week using a portable analyzer in accordance with U.S. EPA Method CTM-030. The owner/operator may propose for District review, based on actual measurements taken at the site during operation of the sources, that the monitoring schedule be changed based on the data demonstrating continuous compliance. Written approval by the District's Engineering Division must be received by the owner/operator prior to a change to the monitoring schedule.
(Basis: BAAQMD Regulation 2-6-503 and 9-7-606)

4. The owner/operator shall conduct a district-approved source test within 60 days of startup of A-7 and on an annual basis thereafter to verify compliance with Part 2 and all applicable NOx and CO standards in BAAQMD Regulation 9 Rule 7. The owner/operator shall submit a source test protocol to the District at least 30 days prior to the testing date, and shall notify the District of the testing date at least ten days prior to the test so that a District observer may witness the test. The source test protocol shall comply with the test methods for NOx, CO, and stack gas oxygen content set forth in Regulation 9-7-600. Alternative test methods, and source testing scope, may also be used to address the source testing requirements of the permit if approved in advance by the District. The source test reports shall be provided to the District within 30 days of the testing date.
(Basis: BAAQMD Regulation 9-7-403 and 9-7-506)

5. To verify compliance with above parts, the owner/operator shall maintain all records and reports on site for a minimum of 5 years. These records shall include but are not limited to:
a. Portable analyzer monitoring records on a weekly basis.
b. For each boiler, date and duration of each startup and shutdown periods.
The owner/operator shall make all records and reports available to District staff upon request.
(Basis: BAAQMD Regulation 2-6-501 and Regulation 9-7-503)

RECOMMENDATION

Issue an Authority to Construct for the following abatement device:

A-7 Selective Catalytic Reduction System: Make Haldor Topsoe; Abating S-7, Boiler with Maximum Firing Rate 130 MMBtu/hour.

by: _____ Date: _____

Xuna Cai
Air Quality Engineer

Engineering Evaluation
NRG Energy Center
Application # 25850
Plant # 16151

BACKGROUND

NRG Energy Center has applied for an Authority to Construct/Permit to Operate for the following:

S-21 Cogeneration Unit 1: Natural Gas Engine, Make MAN, Model E2842E312, Model Year 2014, Rated 375 BHP; Abated by A-21, 3-Way Catalyst, Make Johnson Matthey, Model CXX8-Duel SSTL.

S-22 Cogeneration Unit 2: Natural Gas Engine, Make MAN, Model E2842E312, Model Year 2014, Rated 375 BHP; Abated by A-22, 3-Way Catalyst, Make Johnson Matthey, Model CXX8-Duel SSTL.

NRG is a regulated utility steam generation facility, which supplies steam to industrial and commercial customers. The primary customer base consists of hotels located in or near the financial district of San Francisco. The facility currently operates six permitted boilers that are fired primarily on natural gas. Some of the boilers are also permitted to fire diesel fuel as backup fuel in the event of an interruption in natural gas service. The facility operates 24 hours a day year round.

The proposed natural gas cogeneration units will be primarily used to produce electricity for lighting, large fans and motors, office equipment, and process controls at the facility. Water jackets will also recover heat from the engines and the exhaust to supplement steam produced by the NRG boilers.

EMISSIONS CALCULATIONS

Basis:

Each cogeneration system is assumed to be operated 24 hours/day and 8760 hours/year since no limits will be imposed on the operation. For this report, it is assumed that the emission value of Non-Methane Hydrocarbons (NMHC) or Volatile Organic Compounds (VOC) is equivalent to the emission value of Precursor Organic Compounds (POC). Emission factors and their respective basis are summarized below:

Component	Emission Factor	Unit	Basis
NOx	0.15	gram/bhp-hr	Vendor guaranteed
CO	0.60	gram/bhp-hr	Vendor guaranteed
POC	0.15	gram/bhp-hr	Vendor guaranteed
PM10	1.94E-2	lb/MMBtu	Table 3.2-3 of EPA AP-42
SO2	5.88E-4	lb/MMBtu	Table 3.2-3 of EPA AP-42

Annual Emissions for Each Source:

NOx	=	(	0.15	g/hp-hr)	(	375	hp)	(	8760	hr/yr)	(lb/454g)	=	1085.35	lb/yr	=	0.543	TPY			
CO	=	(	0.60	g/hp-hr)	(	375	hp)	(	8760	hr/yr)	(lb/454g)	=	4341.41	lb/yr	=	2.171	TPY			
POC	=	(	0.15	g/hp-hr)	(	375	hp)	(	8760	hr/yr)	(lb/454g)	=	1085.35	lb/yr	=	0.543	TPY			
PM10	=	(	1.94E-02	lb/MMBtu)	(	2.57	MMBtu/hr)	(	8760	hr/yr)	=	436.98	lb/yr	=	0.218	TPY				
SO2	=	(	5.88E-04	lb/MMBtu)	(	2.57	MMBtu/hr)	(	8760	hr/yr)	=	13.24	lb/yr	=	0.007	TPY				

Maximum Daily Emissions for Each Source:

NOx	=	(	0.15	g/hp-hr)	(	375	hp)	(	24	hr/day)	(lb/454g)	=	2.97	lb/day
CO	=	(	0.60	g/hp-hr)	(	375	hp)	(	24	hr/day)	(lb/454g)	=	11.89	lb/day
POC	=	(	0.15	g/hp-hr)	(	375	hp)	(	24	hr/day)	(lb/454g)	=	2.97	lb/day
PM10	=	(	1.94E-02	lb/MMBtu)	(	2.57	MMBtu/hr)	(	24	hr/day)		=	1.20	lb/day
SO2	=	(	5.88E-04	lb/MMBtu)	(	2.57	MMBtu/hr)	(	24	hr/day)		=	0.04	lb/day

Plant Cumulative Increase: (ton/year):

Pollutant	Currently Permitted	Application Increase	New Total
NOx	6.382	1.086	7.468
CO	17.384	4.342	21.726
POC	2.440	1.086	3.526
PM_{10}	3.693	0.436	4.129
SO_2	0.283	0.014	0.297

TOXICS RISK SCREENING ANALYSIS

Emission factors for Toxic Air Contaminants (TACs) are from the California Air Toxics Emission Factor Database (maintained by the California Air Resources Board) for Natural Gas Fired 4-Stroke Rich Burn Engines with less than 650 hp. The detailed TAC emission calculations are shown in Appendix A. The toxic emissions of Butadiene from the cogeneration systems with NSCR exceed the District Risk Screening Chronic Trigger level, so a health risk screening analysis (HRSA) has been performed.

The results of the HRSA indicate that the maximum project cancer risk is 0.09 in a million, and the chronic hazard index is 0.0026. In accordance with the District's Regulation 2-5, these risk levels are in compliance with the requirements in Section 301 and 302.

STATEMENT OF COMPLIANCE

Regulation 9, Rule 1:
The owner/operator of S-21 and S-22 is expected to comply with Reg. 9-1-301 (Inorganic Gaseous Pollutants: Sulfur Dioxide for Limitations on Ground Level Concentrations) because both engines burn pipeline quality natural gas which has low sulfur content. From Regulation 9-1-301, the ground level concentrations of SO_2 will not exceed 0.5 ppm continuously for 3 consecutive minutes or 0.25 ppm averaged over 60 consecutive minutes, or 0.05 ppm averaged over 24 hours.

Regulation 6, Rule 1:
Since the engines are fueled with natural gas, the owner/operator is expected to comply with Regulation 6-1 (Particulate Matter General Requirements). Thus, for any period aggregating more than three minutes in any hour, there should be no visible emission as dark or darker than No. 1 on the Ringelmann Chart (Regulation 6-1-301) and no visible emission to exceed 20% opacity (Regulation 6-1-302).

Regulation 9, Rule 8:
The owner/operator shall comply with Reg. 9-8-301 (Emission Limits for Spark-Ignited Engines Powered by Fossil Derived Fuels). NOx and CO emissions shall not exceed 25 ppm and 2000 ppm as corrected to 15% O_2, respectively. Based on the vendor guarantees, both engines are expected to meet the NOx and CO standards.

The project is considered to be ministerial under the District's CEQA regulation 2-1-311 and therefore is not subject to CEQA review. The engineering review for this project requires only the application of standard permit conditions and standard emissions factors and therefore is not discretionary as defined by CEQA. (Permit Handbook Chapter 2.3.2)

Public Notification:
The project is not within 1000 feet from a school and therefore is not subject to the public notification requirements of Reg. 2-1-412.

Best Available Control Technology:
In accordance with Regulation 2, Rule 2, Section 301, BACT is triggered for any new or modified source with the potential to emit 10 pounds or more per highest day of POC, NPOC, NOx, CO, SO_2 or PM_{10}.

Based on daily emission calculations above, the owner/operator of S-21 and S-22 is subject to BACT for CO. The District's BACT requirements for "IC Engine – Spark Ignition, Natural Gas Fired Rich Burn Engine >= 50 HP" are addressed in the BACT Guideline, document # 96.3.2, revision 1, dated May 7, 2003. The BACT2 requirement for CO is 0.60 g/bhp-hr (56 ppmvd @ 15% O2) and the typical technology is a 3-way catalyst. CO emissions from S-21 abd S-22 are abated by 3-way catalyst, and therefore, is expected to meet the BACT2 requirement for CO. An initial source test requirement will be specified as a permit condition to demonstrate compliance with the BACT level.

Offsets:
Offsets must be provided for any new or modified source at a facility that emits or will be permitted to emit more than 10 ton/yr (TPY) of POC or NOx. According to the databank's 2013 emissions inventory, the facility emitted 19.490 ton/yr of NOx, and therefore, the facility is subject to the offset requirement. Per Regulation 2-2-302, the emission offsets can be provided by the District's Small Facility Bank if the facility emits or permitted to emit more than 10 tons/yr but less than 35 tons/yr at a 1.0 to 1.0 ratio. The facility is permitted to emit less than 35 tons/yr of NOx, and the District's will provide 1.086 TPY of NOx credits from the Small Facility Banking account.

Prevention of Significant Deterioration:
The emission increase resulting from this project is expected to be less than 5 TPY for each criteria pollutant. Since it is far below the PSD thresholds, the project is not subject to PSD review.

New Source Performance Standards:
These engines are subject to 40 CFR part 60, Subpart JJJJ, Standards of Performance for Stationary Spark Ignition (SI) Internal Combustion Engines (ICE), because the engines are manufactured after July 1, 2008 and each engine has a maximum engine power less than 500 hp per §60.4230(a)(4)((iii).

Section 60.4233(e) requires compliance with the emission standards in Table 1 to this subpart for stationary SI ICE greater than or equal to 100 horsepower.

According to Table 1, S-21 and S-22 are subject to the following emission standards for non-emergency SI Natural Gas engine manufactured after January 1, 2011 in between 100 to 500 horsepower:

NOx: 1.0 g/HP-hr or 82 ppmvd at 15% O2
CO: 2.0 g/HP-hr or 270 ppmvd at 15% O2
VOC: 0.7 g/HP-hr or 60 ppmvd at 15% O2

For engines in between 25 to 500 HP, section 60.4243(b) states that the owner/operator must comply with the emission standards specified in §60.4233(d) or (e) by either purchasing a certified engine or by performing all of the following for a non-certified engine:

- Demonstrating compliance with the emission standards according to the requirements specified in 60.4244;
- Keeping a maintenance plan and records of conducted maintenance to minimize emissions;
- Performing an initial performance test.

Since neither engine is certified, an initial performance test will be required to demonstrate compliance and will be specified as a permit condition for both sources.

In addition, the owner/operator must comply with the applicable sections of 40 CFR 1068, subparts A through D. Generally, for owner/operators, this standard prohibits tampering with the emission controls.

National Emission Standard for Hazardous Air Pollutants:
Because the engines are subject to 40 CFR Part 60 and are new stationary RICE at a area source of HAP emissions, the owner/operator must meet the requirements of 40 CFR part 63 Subpart ZZZZ by meeting the requirements of 40 CFR 60 Subpart JJJJ per §63.6590(c)(1).

PERMIT CONDITIONS

S-21 and S-22 will be subject to Permit Condition Number 25730 as shown below:

1. The owner/operator shall fire natural gas exclusively at each engine. [Basis: Cumulative Increase]

2. The owner/operator shall not operate S-21, Natural Gas Cogeneration Unit, unless emissions from S-21 are abated by the properly maintained A-21, 3-Way Catalyst. [Basis: Cumulative Increase]

3. The owner/operator shall not operate S-22, Natural Gas Cogeneration Unit, unless emissions from S-22 are abated by the properly maintained A-22, 3-Way Catalyst. [Basis: Cumulative Increase]

4. The owner/operator shall ensure that emissions from S-21 meet all of the following limits:
(a) NOx: 0.15 g/bhp-hr or 9 ppmv at 15% oxygen dry basis [Basis: Cumulative Increase].
(b) CO: 0.60 g/bhp-hr or 56 ppmv at 15% oxygen dry basis [Basis: BACT].

5. The owner/operator shall ensure that emissions from S-22 meet all of the following limits:
(a) NOx: 0.15 g/bhp-hr or 9 ppmv at 15% oxygen dry basis [Basis: Cumulative Increase].
(b) CO: 0.60 g/bhp-hr or 56 ppmv at 15% oxygen dry basis [Basis: BACT].

6. The owner/operator shall monitor the NOx and CO emissions at each engine at least once during each calendar quarter, in which a source test is not performed, using a portable analyzer in according to the District Regulation 9-8-503. [Basis: BACT; Cumulative Increase; Regulation 9-8-503]

7. The owner/operator shall conduct a district-approved source test within 60 days of startup of S-21 and S-22 to verify compliance with Parts 4 and 5, all applicable NOx and CO standards in BAAQMD Regulation 9 Rule 8, all applicable NOx, CO and VOC standards in 40 CFR 60 Subpart JJJJ. The owner/operator shall submit a source test protocol to the District at least 30 days prior to the testing date, and shall notify the District of the testing date at least ten days prior to the test so that a District observer may witness the test. The source test protocol shall comply with the test methods for NOx, CO, and stack gas oxygen content set forth in Regulation 9-8-600 and the requirements specified in 40 CFR 60.4244. Alternative test methods, and source testing scope, may also be used to address the source testing requirements of the permit if approved in advance by the District. The source test reports shall be provided to the District within 30 days of the testing date. [Basis: Regulation 2-1-403; 40 CFR 60.4243(b)(2)(i)]

8. The Owner/Operator shall maintain the following records in a District-approved log for at least 24 months from the date of entry. Log entries shall be retained on-site, either at a central location or at the engine's location, and made immediately available to the District staff upon request.
(a)Each calendar quarter monitoring results for NOx and CO emissions to demonstrate compliance with emission limits.
(b) Fuel usage for engine.
(c) Records of maintenance conducted
(d) Source test reports
[Basis: Recordkeeping]

RECOMMENDATIONS

Issue the Authorities to Construct for the following sources:

S-21 Cogeneration Unit 1: Natural Gas Engine, Make MAN, Model E2842E312, Model Year 2014, Rated 375 BHP; Abated by A-21, 3-Way Catalyst, Make Johnson Matthey, Model CXX8-Duel SSTL.

S-22 Cogeneration Unit 2: Natural Gas Engine, Make MAN, Model E2842E312, Model Year 2014, Rated 375 BHP; Abated by A-22, 3-Way Catalyst, Make Johnson Matthey, Model CXX8-Duel SSTL.

By: _____ Date: _____
Xuna Cai
Air Quality Engineer