

**SYNTHETIC MINOR OPERATING PERMIT
EVALUATION REPORT
UCSF/PARNASSUS
PLANT NUMBER A2478
APPLICATION NUMBER 23508**

BACKGROUND

UCSF/Parnassus has made application for an amendment to its current Synthetic Minor Operating Permit under the provisions of Regulation 2, Rule 6-230 for its medical campus located at 3rd Avenue and Parnassus Street, San Francisco, California. This site requires limitations on its permit conditions to ensure that the facility does not emit more than 100,000 tons per year of greenhouse gases on a CO₂ equivalent basis, and thereby trigger classification of the site as a Major Facility under the provisions of Regulation 2, Rule 6.

SOURCES COVERED BY SYNTHETIC MINOR OPERATING PERMIT

The permitted sources covered by this synthetic minor operating permit are as follows:

- S-9 Gas Turbine, Solar Centaur Taurus, 76 MM BTU/hr capacity; Abated by A-9, CO Oxidation Catalyst and A-10, Selective Catalytic Reduction.

- S-10 Heat Recovery Steam Generator (HRSG) with Davis Duct Burner, 46 MM BTU/hr capacity; Abated by A-10 Selective Catalytic Reduction System.

- S-11 Gas Turbine, Solar Centaur Taurus, 62 MM BTU/hr capacity; Abated by A-11, CO Oxidation Catalyst and A-12, Selective Catalytic Reduction System.

- S-12 Heat Recovery Steam Generator with Davis Duct Burner, 46 MM BTU/hr capacity; Abated by A-12 Selective Catalytic Reduction Catalyst.

- S-13 Auxiliary Boiler, Nebraska, 120 MM BTU/hr, with Coen Low NO_x burner and Flue Gas Recirculation.

- S-14 Auxiliary Boiler, Nebraska, 120 MM BTU/hr, with Coen Low NO_x burner and Flue Gas Recirculation.

- S-16 Emergency Standby Diesel Generator, Caterpillar 3516, 2848 BHP.
- S-17 Emergency Standby Diesel Generator, Caterpillar 3516, 2848 BHP.
- S-18 Emergency Standby Diesel Generator, Caterpillar 3516, 2848 BHP.
- S-19 Emergency Standby Diesel Generator, Caterpillar 3512, 1910 BHP.
- S-20 Emergency Standby Diesel Generator, Caterpillar 3512, 1910 BHP.
- S-21 Emergency Standby Diesel Generator, Caterpillar 3306B, 349 BHP.
- S-22 Emergency Standby Diesel Generator, Kohler D4800X146, 134 BHP.
- S-23 Emergency Standby Diesel Generator, Cummins NT-855-G2, 235 BHP.
- S-24 Emergency Standby Diesel Generator, Cummins 4BT3.9-G1, 66 BHP.
- S-25 Emergency Standby Diesel Generator, Cummins 4BT3.9-G4, 80 BHP.
- S-26 Emergency Standby Diesel Generator, Generac 93A034685/EK130, 268 BHP.
- S-27 Emergency Standby Diesel Generator, Generac 93A034685/EK10019321, 201 BHP.
- S-30 Emergency Standby Diesel Generator, Detroit Diesel 400 ROZD, 469 BHP.
- S-32 Emergency Standby Diesel Generator Set, Caterpillar C32DITA, 1502 bhp; abated by A-32 Catalyzed Diesel Particulate Filter
- S-33 Emergency Standby Diesel Generator, Caterpillar 6.6 ATAAC, 274 BHP.

In addition, the facility has four unpermitted natural gas heaters, as listed below*:

175 Johnstone Drive	0.34 MM BTU/hour	29,784 therms/year
Proctor Foundation	0.46 MM BTU/hour	40,296 therms/year
145 Irving Street	0.17 MM BTU/hour	14,892 therms/year
Surge	0.91 MM BTU/hour	79,716 therms/year

* Annual capacity (therms/year) was based on continuous operation (8760 hours/year).

EMISSIONS LIMITATIONS AT UCSF/PARNASSUS

In order to be eligible for a synthetic minor permit, a site must either have a maximum potential to emit that is less than each Title V emission threshold (less than 95 tons/year of NO_x, CO, POC, PM₁₀, and SO₂, less than 9 tons/year of any single hazardous air pollutant (HAP), and less than 23 tons/year of all HAPs combined) or must accept conditions limiting the site to less than these emissions thresholds. At currently permitted operational levels, UCSF/Parnassus does not have the potential to exceed the above emissions limitations.

EPA has recently adopted Title V permitting thresholds for greenhouse gas (GHG) emissions that will become effective for all sites on July 1, 2011. Any site that has the potential to emit more than 100,000 tons/year of greenhouse gases (expressed as CO₂ equivalent tons/year and including biogenic CO₂) will be required to obtain a Title V permit. Based on current emissions calculations, this site has the potential to emit more than 100,000 tpy of CO₂e, and therefore would be subject to Title V unless it adopts federally enforceable limitations on its combustion sources limiting operations to less than 90,000 tons/year of CO₂e. The facility has requested that its Synthetic Minor permit be amended to limit operations in a manner that ensures that the facility's CO₂e emissions meet the Title V limitations. This will be done by limiting operating hours and criteria pollutant emissions at its combustion sources.

EMISSION CALCULATIONS

All of the combustion sources from this facility which production CO₂e emissions are either gas turbines, heat recovery systems, auxiliary boilers, or diesel-fueled emergency standby generators. These sources can be grouped by source type for the purposes of calculating their contribution to greenhouse gas emissions.

GAS TURBINES

The facility has two gas turbines, S-9 and S-11, rated at 76 MM BTU/hour and 62 MM BTU/hour. The turbines are fired with natural gas, with diesel fuel backup for cases of natural gas curtailment. The turbines are used to generate electricity for power needs on the campus. Excess electricity is sold back to Pacific Gas & Electric.

HEAT RECOVERY STEAM GENERATORS

The facility has two Heat Recovery Steam Generators with duct burners, each rated at 46 MM BTU/hour capacity. These generators are fueled solely by natural gas, and are used to generate high-pressure steam from the sensible heat from the gas turbine exhaust and the combustion of natural gas fired in the duct burners. The steam is used to power the gas turbines, and provide supplemental steam for campus heating purposes. A small amount of high-pressure steam is used for campus laboratory operations.

AUXILIARY BOILERS

The facility has two Auxiliary Boilers, each rated at 120 MM BTU/hour. The boilers are used to generate steam for campus space heat and hot water operations. These boilers are fueled with natural gas, with diesel fuel backup for cases of natural gas curtailment.

EMERGENCY STANDBY GENERATORS

The campus has 15 emergency standby generators, fired with diesel fuel. These generators are used for emergency power in case of electrical curtailment by Pacific Gas & Electric. Total diesel fuel consumption for emergency purposes is estimated at 100 hours per year per generator, and is aggregated for emissions calculations and permitting purposes.

In order to meet a facility-wide potential to emit limit of 90,000 tons per year CO₂ equivalent, the permit holder has requested reductions in the permitted usage of natural gas and diesel fuel in its combustion sources as discussed below.

GREENHOUSE GASES EMISSION CALCULATIONS

Greenhouse gases (GHGs) from the facility are expressed as tons per carbon dioxide equivalent (CO₂e). The components of GHGs are carbon dioxide, methane, and nitrous oxide. Methane and nitrous oxide contributions are multiplied by weighting factors of 21 and 310 respectively. Using the EPA's default emission factors for combustion sources for these sources, the following emission factors are derived for GHGs:

Gas-fired Sources

$$\text{GHG (lb/MMBTU)} = 116.889 + 0.002205*21 + 0.00022*310 = 117.004 \text{ lbs CO}_2\text{e/MMBTU}$$

Diesel-fueled Sources:

$$\text{GHG (lb/MMBTU)} = 163.054 + 0.00661*21 + 0.00132*310 = 163.603 \text{ lbs CO}_2\text{e/MMBTU}$$

$$\text{GHG (lb/gal)} = 163.603 \text{ lb/MMBTU} * 0.138 \text{ MMBTU/gal} = 22.577 \text{ lbs CO}_2\text{e/gallon}$$

Using these GHG emission factors and the proposed revised natural gas usage limits for S-9 through S-14, the proposed distillate fuel usage limits for S-9, S-11, S-13, S-14, and the proposed diesel fuel usage limits for the emergency standby generators, the total GHG Potential to Emit (PTE) from UCSF/Parnassus's combustion sources are as follows:

NATURAL GAS USAGE				
S#	therms/yr	mm btu/yr	lb/MMBTU	tons/year
9	5,250,000	525,000	117.004	30713.5
10	1,500,000	150,000	117.004	8775.3
11	5,250,000	525,000	117.004	30713.5
12	1,500,000	150,000	117.004	8775.3
13	300,000	30,000	117.004	1755.1
14	300,000	30,000	117.004	1755.1
175 John ⁽¹⁾	29,784	2,978	117.004	174.2
Proctor ⁽¹⁾	40,296	4,030	117.004	235.7
145 Irv ⁽¹⁾	14,892	1,489	117.004	87.1
Surge ⁽¹⁾	79,716	7,972	117.004	466.4

(1) Natural gas usages for these exempt heaters are based on operation at maximum capacity for 8760 hours per year.

DISTILLATE FUEL USAGE				
S#	hours/year	gal/year	lb/gal	tons/year
9	150	82,500	22.577	931.3
11	150	82,500	22.577	931.3
13	150	129,000	22.577	1456.2
14	150	129,000	22.577	1356.2
emrgcy gens	aggregated	86,100	22.577	971.9

TOTAL CO2e EMISSIONS (tpy)	89,199
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EXISTING PERMIT CONDITIONS

The following is the current Synthetic Minor permit condition covering all operations at the UCSF/Parnassus campus:

Condition # 13591

P#2478 – UCSF/Parnassus

Sources and Abatement Devices:

- S-9 Gas Turbine, Solar Centaur Taurus, 76 MM BTU/hr capacity; Abated by A-9, CO Oxidation Catalyst and A-10, Selective Catalytic Reduction.
- S-10 Heat Recovery Steam Generator (HRSG) with Davis Duct Burner, 46 MM BTU/hr capacity; Abated by A-10 Selective Catalytic Reduction System.
- S-11 Gas Turbine, Solar Centaur Taurus, 62 MM BTU/hr capacity; Abated by A-11, CO Oxidation Catalyst and A-12, Selective Catalytic Reduction System.
- S-12 Heat Recovery Steam Generator with Davis Duct Burner, 46 MM BTU/hr capacity; Abated by A-12 Selective Catalytic Reduction Catalyst.
- S-13 Auxiliary Boiler, Nebraska, 120 MM BTU/hr, with Coen Low NOx burner and Flue Gas Recirculation.
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- S-33 Emergency Standby Diesel Generator, Caterpillar 6.6 ATAAC, 274 BHP.

This facility has a synthetic minor operating permit. This operating permit covers all equipment existing at this facility as of permit issuance. The sources are listed above.

Conditions #1-28 establish the federally enforceable permit terms that ensure this plant is classified as a Synthetic Minor Facility under District Regulation 2, Rule 6, Major Facility Review, and ensure it is not subject to the permitting requirements of Title V of the Federal Clean Air Act as amended in 1990 and 40 CFR Part 70. Any revision to a condition establishing this plant's status as a Synthetic Minor Facility or any new permit term that would limit emissions of a new or modified source for the purposes of maintaining the facility as a synthetic minor must undergo the provisions specified in Regulation 2, Rule 6-243.

CONDITIONS:

1. The total usage of natural gas shall not exceed the following in any consecutive twelve (12) month period:

S-9 & S-11 Gas Turbines	12,000,000 therms combined
S-10 & S-12 HRSG	4,400,000 therms combined
S-13 Auxiliary Boilers	1,000,000 therms combined
S-14 Auxiliary Boilers	1,000,000 therms combined

2. The total usage of natural gas shall not exceed the following in any calendar month:

S-9 & S-11 Gas Turbines	1,900,000 therms combined
S-10 & S-12 HRSG	700,000 therms combined
S-13 Auxiliary Boilers	350,000 therms combined
S-14 Auxiliary Boilers	350,000 therms combined

3. The Gas Turbines (S-9, S-11) and the Auxiliary Boilers (S-13, S-14) shall burn only natural gas except that distillate oil is permitted for short periods for testing and maintenance, during periods of natural gas curtailment by Pacific Gas and Electric, and during any upset condition that results in the loss of natural gas supply. The test and upset periods shall not exceed the following in any consecutive twelve (12) month period:

S-9 & S-11 Gas Turbines	100 hours each turbine
S-13 & S-14 Auxiliary Boilers	48 hours each boiler

4. Upon loss of electric power due to circumstances beyond the permit holder's control, the permit holder will continue to operate the Gas Turbines (S-9, S-11) and the Heat Recovery Steam Generators (S-10, S-12) to provide electrical power to the critical sectors of the health care facility. The permit holder shall document all occurrences and record emissions during any such outage, returning to normal emission levels within two hours of utility restoration. The permit holder shall also notify the District in writing within five (5) working days of any such occurrence. Such occurrences will be considered as turbine startup operations for the purposes of paragraphs 6 through 17 below.

5. Emissions of carbon monoxide (CO) from S-9 Gas Turbine and S-10 Heat Recovery Steam Generator shall not exceed 10 ppmv, dry, at 15% oxygen, averaged over any rolling three hour average, except during startup or shutdown, or during loss of electric power due to circumstances beyond the permit holder's control.

6. Emissions of carbon monoxide (CO) from S-11 Gas Turbine and S-12 Heat Recovery Steam Generator shall not exceed 10 ppmv, dry, at 15% oxygen, averaged over any rolling three hour average, except during startup or shutdown, or during loss of electric power due to circumstances beyond the permit holder's control.

7. Emissions of carbon monoxide (CO) from S-13 and S-14 Auxiliary Boilers shall not exceed 50 ppmv, dry, at 3% oxygen, except during startup or shutdown, or during loss of electric power due to circumstances beyond the permit holder's control.

8. Emissions of nitrogen oxides (NO_x), when firing natural gas, from S-9 Gas Turbine and S-10 Heat Recovery Steam Generator shall not exceed 5 ppmv, dry, at 15% oxygen, averaged over any rolling three hour average, except during startup or shutdown, or during loss of electric power due to circumstances beyond the permit holder's control.

9. Emissions of nitrogen oxides (NO_x), when firing distillate oil, from S-9 Gas Turbine and S-10 Heat Recovery Steam Generator shall not exceed 8 ppmv, dry, at 15% oxygen, averaged over any rolling three hour average, except during startup or shutdown, or during loss of electric power due to circumstances beyond the permit holder's control.
10. Emissions of nitrogen oxides (NO_x), when firing natural gas, from S-11 Gas Turbine and S-12 Heat Recovery Steam Generator shall not exceed 5 ppmv, dry, at 15% oxygen, averaged over any rolling three hour average, except during startup or shutdown, or during loss of electric power due to circumstances beyond the permit holder's control.
11. Emissions of nitrogen oxides (NO_x), when firing distillate oil, from S-11 Gas Turbine and S-12 Heat Recovery Steam Generator shall not exceed 8 ppmv, dry, at 15% oxygen, averaged over any rolling three hour average, except during startup or shutdown, or during loss of electric power due to circumstances beyond the permit holder's control.
12. Emissions of nitrogen oxides (NO_x), when firing natural gas, from S-13 and S-14 Auxiliary Boilers shall not exceed 25 ppmv, dry, at 3% oxygen, except during startup or shutdown, or during loss of electric power due to circumstances beyond the permit holder's control.
13. Emissions of nitrogen oxides (NO_x), when firing distillate oil, from S-13 and S-14 Auxiliary Boilers shall not exceed 50 ppmv, dry, at 3% oxygen, except during startup or shutdown, or during loss of electric power due to circumstances beyond the permit holder's control.
14. Emissions of precursor organic compounds (POC) from S-9 Gas Turbine and S-10 Heat Recovery Steam Generator shall not exceed 0.01 lb/MM BTU, except during startup or shutdown, or during loss of electric power due to circumstances beyond the permit holder's control.
15. Emissions of precursor organic compounds (POC) from S-11 Gas Turbine and S-12 Heat Recovery Steam Generator shall not exceed 0.01 lb/MM BTU, except during startup or shutdown, or during loss of electric power due to circumstances beyond the permit holder's control.
16. Emissions of precursor organic compounds (POC) from S-13 and S-14 Auxiliary Boilers shall not exceed 0.003 lb/MM BTU when fired on natural gas, and shall not exceed 0.006 lb/MM BTU when fired on distillate oil.
17. The total mass emissions of carbon monoxide (CO) from S-9 Gas Turbine and S-10 Heat Recovery Steam Generator shall not exceed 18,199 pounds (9.1 tons) in any consecutive twelve (12) month period.
18. The total mass emissions of carbon monoxide (CO) from S-11 Gas Turbine and S-12 Heat Recovery Steam Generator shall not exceed 18,199 pounds (9.1 tons) in any consecutive twelve (12) month period.

19. The total mass emissions of nitrogen oxides (NO_x) from S-9 Gas Turbine and S-10 Heat Recovery Steam Generator shall not exceed 14,826 pounds (7.41 tons) in any consecutive twelve (12) month period.
20. The total mass emissions of nitrogen oxides (NO_x) from S-11 Gas Turbine and S-12 Heat Recovery Steam Generator shall not exceed 14,826 pounds (7.41 tons) in any consecutive twelve (12) month period
21. Gas Turbine startup is defined as that period of time during which a gas turbine is put into normal operation from an inactive status by following a prescribed series of steps or operations. The duration of any gas turbine (S-9 and S-11) startup shall not exceed two hours.
22. Gas Turbine shutdown is defined as that period of time during which a gas turbine is taken out of service from normal operation from normal operation to an inactive status by following a prescribed series of steps or operations. The duration of any gas turbine (S-9 and S-11) shutdown shall not exceed one hour.
23. Total startup time for each gas turbine shall not exceed 360 hours during any calendar year.
24. Total shutdown time for each gas turbine shall not exceed 200 hours during any calendar year.
25. The permit holder shall calibrate and operate a District approved Continuous Emissions Monitoring (CEM) system for nitrogen oxides, carbon monoxide, and either oxygen or carbon dioxide for the emission points at S-9/S-10 and S-11/S-12 Gas Turbines and Heat Recovery Steam Generators.
26. The permit holder shall operate and maintain District-approved totalizing meters at each of the Gas Turbines (S-9 and S-11), Heat Recovery Steam Generators (S-10 and S-12), and Auxiliary Boilers (S-13 and S-14).
27. The following monthly records shall be maintained in a District-approved log. The rolling 12-month totals shall be derived every month by summing the totals from the most recent twelve-month period. The summaries shall be completed within twenty business days after the end of each month. These logs shall be retained for at least five years and shall be available for review during normal business hours by the District's representatives.
 - a. Total natural gas usage (therms) at: S-9, S-10, S-11, S-12, S-13, S-14
 - b. Total number of hours for distillate testing and maintenance, and natural gas supply upset at S-9, S-11, S-13, S-14
 - c. Total mass emissions of carbon monoxide (CO) in pounds at S-9, S-10, S-11, S-12
 - d. Total mass emissions of nitrogen oxides (NO_x) in pounds at S-9, S-10, S-11, S-12
 - e. Number and duration of startups, shutdowns, and electrical power supply disconnects at S-9, S-10, S-11, S-12
28. The permit holder shall notify the District as follows:

- a. Within five (5) working days of discovering that the facility has exceeded any of its permit conditions
 - b. Within 96 hours after a source has exceeded any of its permit conditions as indicated by a Continuous Emissions Monitoring (CEM) system reading.
- 29*. The duct burners at S-10 and S-12 Heat Recovery Steam Generators shall be fired on natural gas exclusively.
- 30*. S-10 Heat Recovery Steam Generator duct burner shall not be operated unless S-9 Gas Turbine is operating.
- 31*. S-12 Heat Recovery Steam Generator duct burner shall not be operated unless S-11 Gas Turbine is operating.
- 32*. S-9 Gas Turbine shall be abated by the properly operated and properly maintained A-9 Oxidizing Catalyst and A-10 Selective Catalytic Reduction System. S-10 Heat Recovery Steam Generator shall be abated by the properly operated and properly maintained A-10 Selective Catalytic Reduction System.
- 33*. S-11 Gas Turbine shall be abated by the properly operated and properly maintained A-11 Oxidizing Catalyst and A-12 Selective Catalytic Reduction System. S-12 Heat Recovery Steam Generator shall be abated by the properly operated and properly maintained A-12 Selective Catalytic Reduction System.
- 34*. The inlet temperature to A-9 and A-11 Oxidizing Catalysts shall be maintained at a minimum of 600 degrees F, except during startup or shutdown. The District may require that this minimum temperature be adjusted if the source test specified in paragraph 39 below requires an appropriate temperature adjustment to comply with paragraphs 6, 7, 15 and 16 above.
- 35*. Visible particulate emissions from Sources S-9 through S-14 shall not exceed Ringelmann 1.0.
- 36*. Emissions of ammonia from Sources S-9 through S-12, averaged over any rolling three-hour period, shall not exceed 20 ppmvd at 15% oxygen.
- 37*. The permit holder shall install, calibrate, and operate a District approved continuous measuring and recording system for inlet temperatures to the oxidizing catalysts A-9 and A-11, and to the SCR units A-10 and A-12.
- 38*. In order to demonstrate compliance with the above conditions, the permit holder shall perform a District-approved compliance source test at maximum rated firing capacities of Sources S-9, S-10, S-11 and S-12 annually, and shall perform a District-approved source test at maximum rated firing capacities of Sources S-13 and S-14 once every five years. All source testing shall be done in accordance with the District's Manual of Procedures. The permit holder shall notify the Manager of

the District's Source Test Section and the Director of the Engineering Department in writing at least seven (7) days prior to the test, to provide District staff the option of observing testing. Within 30 days of test completion, a comprehensive report of the test results shall be submitted to the Manager of the District's Source Test Section for review and disposition.

- 39*. The permit holder shall conduct an annual District-approved source test at maximum rated capacities to determine compliance with testing requirements for the continuous emissions monitors specified in paragraphs 26 and 38 above. All source testing shall be done in accordance with the District's Manual of Procedures. The permit holder shall notify the Manager of the District's Source Test Section and the Director of the Engineering Department in writing at least seven (7) days prior to the test, to provide District staff the option of observing testing. Within 30 days of test completion, a comprehensive report of the test results shall be submitted to the Manager of the District's Source Test Section for review and disposition.
- 40*. Emergency standby generators Sources S-16 through S-27, S-30, S-32, and S-33 shall be fueled exclusively by diesel fuel having a sulfur content no greater than 0.0015% by weight.
- 41*. Emergency stand-by generators S-21 through S-27, S-30, S-32, and S-33 shall not exceed the opacity and particulate emissions set out in Regulation 6, "Particulate and Visual Emissions".
- 42*. Emergency stand-by generators S-21 through S-27, S-30, S-32, and S-33 shall only be operated to mitigate emergency conditions or for reliability-related operations. Operations for reliability-related activities shall be limited as described in the additional source-specific conditions for each generator. Operation while mitigating emergency conditions is unlimited.
- 43*. Emergency conditions are defined as any of the following:
 - a. Loss of regular natural gas supply
 - b. Failure of regular power supply
 - c. Flood mitigation
 - d. Sewage overflow mitigation
 - e. Fire
 - f. Failure of a primary motor, but only for such time as needed to repair or replace the primary motor
- 44*. Reliability-related activities are defined as any of the following:
 - a. Operation of an emergency stand-by engine to test its ability to perform for an emergency use
 - b. Operation of an emergency stand-by engine during maintenance of a primary motor
- 45*. The emergency stand-by engines shall be equipped with non-resettable totalizing

meters that measure and record the hours of operation for each engine.

- 46*. The following monthly records shall be maintained for emergency standby generators (S-16 through S-27, S-30, S-32, and S-33) in a District-approved log for at least five years and shall be made available to the District upon request:
- a. Total hours of operation for each generator
 - b. Total hours of operation under emergency conditions for each generator, and a description of the nature of the emergency condition
 - c. Total fuel usage for each generator

NEW SYNTHETIC MINOR OPERATING PERMIT CONDITION

The new Synthetic Minor Operating Permit Condition will incorporate all of the District requirements as set out in the original Synthetic Minor Operating Condition. In addition, the new condition will add provisions to ensure that the facility will continue to meet the requirements set out in Regulation 2, Rule 6 to avoid designation as a Title V facility.

STATEMENT OF COMPLIANCE

This facility is in compliance with the applicable requirements of Regulation 2 Rule 6 to obtain a synthetic minor permit. UCSF/Parnassus has voluntarily accepted federally enforceable permit conditions including throughput limitations that will keep its potential to emit below the synthetic minor thresholds. Parts 42-46 of the current conditions are being deleted because these requirements have been replaced with newer versions of the standard conditions for emergency standby generators. **All existing permit conditions will be replaced with the following new synthetic minor permit conditions.** Changes are shown in ~~strike-out~~ format for deleted text and underline format for new text.

Condition # 13591

SYNTHETIC MINOR OPERATING PERMIT

UCSF/Parnassus
3rd Avenue & Parnassus
San Francisco, CA 94122
Plant #2478

Sources and Abatement Devices:

- S-9 Gas Turbine, Solar Centaur Taurus, 76 MM BTU/hr (5 MW) capacity; Abated by A-9, CO Oxidation Catalyst and A-10, Selective Catalytic Reduction.

- S-10 Heat Recovery Steam Generator (HRSG) with Davis Duct Burner, 46 MM BTU/hr capacity; Abated by A-10 Selective Catalytic Reduction System.
- S-11 Gas Turbine, Solar Centaur Taurus, 62 MM BTU/hr (5.4 MW) capacity; Abated by A-11, CO Oxidation Catalyst and A-12, Selective Catalytic Reduction System.
- S-12 Heat Recovery Steam Generator with Davis Duct Burner, 46 MM BTU/hr capacity; Abated by A-12 Selective Catalytic Reduction Catalyst.
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This facility, Site # A2478, has a synthetic minor operating permit. This operating permit covers all equipment existing at this facility as of permit issuance. The sources and abatement devices are listed above.

The following conditions ~~Conditions #1-28~~ establish the federally enforceable permit terms that ensure this plant is classified as a Synthetic Minor Facility under District Regulation 2, Rule 6, Major Facility Review, and ensure it is not subject to the permitting requirements of Title V of the Federal Clean Air Act as amended in 1990 and 40 CFR Part 70. All applications submitted by the applicant and all modifications to the plant's equipment after issuance of the synthetic minor permit must be evaluated to ensure that the facility will not exceed the synthetic minor general limits below, and that sufficient monitoring, recordkeeping, and reporting requirements are imposed to ensure enforceability of the limits.

Any revision to a condition establishing this plant's status as a Synthetic Minor Facility or any new permit term that would limit emissions of a new or modified source for the purpose of maintaining the facility as a synthetic minor must undergo the procedures specified by Rule 2-6, section 423. The basis for the synthetic minor conditions is an emission limit of 95 tons per year for regulated air pollutants, of 90,000 tons per year for greenhouse gases (on a CO2 equivalent basis), an emission limit for a single hazardous air pollutant of 9 tons per year, and an emission limit for a combination of hazardous air pollutants of 23 tons per year.

Any District conditions that do not establish this facility as a synthetic minor ~~Conditions #*29-*~~49 are District conditions that do not establish this facility as a synthetic minor. Each of these conditions is are marked with an asterisk. The facility must comply with all conditions, regardless of asterisks, and must comply with all District requirements for new and modified sources regardless of its status as a synthetic minor.

1. In no event shall the emissions from this site exceed any of the emission limits listed below. The owner/operator shall demonstrate compliance with these emission limits by complying with all emission limits, monitoring procedures, and record keeping requirements identified in Parts 4-16 below. (Basis: Regulation 2-6-423)

<u>NOx</u>	<u>95 tons/year</u>
<u>CO</u>	<u>95 tons/year</u>
<u>POC</u>	<u>95 tons/year</u>
<u>PM10</u>	<u>95 tons/year</u>
<u>SO2</u>	<u>95 tons/year</u>
<u>Any Single HAP</u>	<u>9 tons/year</u>
<u>Combination of HAPs</u>	<u>23 tons/year</u>
<u>CO2e</u>	<u>90,000 tons/year</u>

—CONDITIONS:

21. The total usage of natural gas shall not exceed the following in any consecutive twelve (12) month period:

S-9 & S-11 Gas Turbines	<u>10,500,000</u> 12,000,000 therms combined
S-10 & S-12 HRSG	<u>3,000,000</u> 4,400,000 therms combined
S-13 & S-14 Auxiliary Boilers	<u>600,000</u> 1,000,000 therms <u>combined</u>
S-14 Auxiliary Boiler	1,000,000 therms

(Basis: Regulations 2-6-423.2.2; Cumulative Increase)

32. The total usage of natural gas shall not exceed the following in any calendar month:

S-9 & S-11 Gas Turbines	1,900,000 therms combined
S-10 & S-12 HRSG	700,000 therms combined
S-13 & S-14 Auxiliary Boilers	<u>600,000</u> 350,000 therms <u>combined</u>
S-14 Auxiliary Boiler	350,000 therms

(Basis: Regulations 2-6-423.2.2; Cumulative Increase)

43. The Gas Turbines (S-9, S-11) and the Auxiliary Boilers (S-13, S-14) shall burn only natural gas except that distillate oil is permitted for short periods for testing and maintenance, during periods of natural gas curtailment by Pacific Gas and Electric, and during any upset condition that results in the loss of natural gas supply. ~~The test and upset periods shall not exceed the following in any consecutive twelve (12) month period.~~ Total use of distillate oil at Sources S-9, S-11, S-13, and S-14 shall not exceed 432,000 gallons combined in any consecutive twelve (12) month period.

~~S-9 & S-11 Gas Turbines — 100 hours each turbine~~

~~S-13 & S-14 Auxiliary Boilers — 48 hours each boiler~~

(Basis: Regulations 2-6-423.2.2; 9-7-113, 9-8-331.3)

54. Upon loss of electric power due to circumstances beyond the owner/operator's control, the owner/operator will continue to operate the Gas Turbines (S-9, S-11) and the Heat Recovery Steam Generators (S-10, S-12) to provide electrical power to the critical sectors of the health care facility. The owner/operator shall document all occurrences and record emissions during any such outage, returning to normal emission levels within two hours of utility restoration. The permit holder shall also notify the District in writing within five (5) working days of any such occurrence. Such occurrences will be considered as turbine startup operations for the purposes of paragraphs ~~56~~ through ~~1647~~ below. (Basis: Regulation 1-207)

65. Emissions of carbon monoxide (CO) from S-9 Gas Turbine and S-10 Heat Recovery Steam Generator shall not exceed 10 ppmv, dry, at 15% oxygen, averaged over any rolling three hour average, except during startup or shutdown, or during loss of electric power due to circumstances beyond the owner/operator's control. (Basis: Cumulative Increase; BACT)

76. Emissions of carbon monoxide (CO) from S-11 Gas Turbine and S-12 Heat Recovery Steam Generator shall not exceed 10 ppmv, dry, at 15% oxygen, averaged over any rolling three hour average, except during startup or shutdown, or during loss of electric power due to circumstances beyond the owner/operator's control. (Basis: Cumulative Increase; BACT)
87. Emissions of carbon monoxide (CO) from S-13 and S-14 Auxiliary Boilers shall not exceed 50 ppmv, dry, at 3% oxygen, except during startup or shutdown, or during loss of electric power due to circumstances beyond the owner/operator's control. (Basis: Cumulative Increase; BACT)
98. Emissions of nitrogen oxides (NO_x), when firing natural gas, from S-9 Gas Turbine and S-10 Heat Recovery Steam Generator shall not exceed 5 ppmv, dry, at 15% oxygen, averaged over any rolling three hour average, except during startup or shutdown, or during loss of electric power due to circumstances beyond the owner/operator's control. (Basis: Cumulative Increase; BACT)
109. Emissions of nitrogen oxides (NO_x), when firing distillate oil, from S-9 Gas Turbine and S-10 Heat Recovery Steam Generator shall not exceed 8 ppmv, dry, at 15% oxygen, averaged over any rolling three hour average, except during startup or shutdown, or during loss of electric power due to circumstances beyond the owner/operator's control. (Basis: Cumulative Increase)
1140. Emissions of nitrogen oxides (NO_x), when firing natural gas, from S-11 Gas Turbine and S-12 Heat Recovery Steam Generator shall not exceed 5 ppmv, dry, at 15% oxygen, averaged over any rolling three hour average, except during startup or shutdown, or during loss of electric power due to circumstances beyond the owner/operator's control. (Basis: Cumulative Increase; BACT)
1244. Emissions of nitrogen oxides (NO_x), when firing distillate oil, from S-11 Gas Turbine and S-12 Heat Recovery Steam Generator shall not exceed 8 ppmv, dry, at 15% oxygen, averaged over any rolling three hour average, except during startup or shutdown, or during loss of electric power due to circumstances beyond the owner/operator's control. (Basis: Cumulative Increase)
1342. Emissions of nitrogen oxides (NO_x), when firing natural gas, from S-13 and S-14 Auxiliary Boilers shall not exceed 25 ppmv, dry, at 3% oxygen, except during startup or shutdown, or during loss of electric power due to circumstances beyond the owner/operator's control. (Basis: Cumulative Increase; BACT)
1443. Emissions of nitrogen oxides (NO_x), when firing distillate oil, from S-13 and S-14 Auxiliary Boilers shall not exceed 50 ppmv, dry, at 3% oxygen, except during startup or shutdown, or during loss of electric power due to circumstances beyond the owner/operator's control. (Basis: Cumulative Increase; BACT)

1514. Emissions of precursor organic compounds (POC) from S-9 Gas Turbine and S-10 Heat Recovery Steam Generator shall not exceed 0.01 lb/MM BTU, except during startup or shutdown, or during loss of electric power due to circumstances beyond the owner/operator's control. (Basis: Cumulative Increase)
1615. Emissions of precursor organic compounds (POC) from S-11 Gas Turbine and S-12 Heat Recovery Steam Generator shall not exceed 0.01 lb/MM BTU, except during startup or shutdown, or during loss of electric power due to circumstances beyond the owner/operator's control. (Basis: Cumulative Increase; BACT)
1716. Emissions of precursor organic compounds (POC) from S-13 and S-14 Auxiliary Boilers shall not exceed 0.003 lb/MM BTU when fired on natural gas, and shall not exceed 0.006 lb/MM BTU when fired on distillate oil. (Basis: Cumulative Increase; BACT)
1817. The total mass emissions of carbon monoxide (CO) from S-9 Gas Turbine and S-10 Heat Recovery Steam Generator shall not exceed 14,981 ~~18,199~~ pounds (7.41 ~~9.1~~ tons) in any consecutive twelve (12) month period. (Basis: Cumulative Increase; Regulation 2-6-232)
1918. The total mass emissions of carbon monoxide (CO) from S-11 Gas Turbine and S-12 Heat Recovery Steam Generator shall not exceed 14,981 ~~18,199~~ pounds (7.41 ~~9.1~~ tons) in any consecutive twelve (12) month period. (Basis: Cumulative Increase; Regulation 2-6-232)
2019. The total mass emissions of nitrogen oxides (NOx) from S-9 Gas Turbine and S-10 Heat Recovery Steam Generator shall not exceed 12,204 ~~14,826~~ pounds (6.10 ~~7.41~~ tons) in any consecutive twelve (12) month period. (Basis: Cumulative Increase; Regulation 2-6-232)
2120. The total mass emissions of nitrogen oxides (NOx) from S-11 Gas Turbine and S-12 Heat Recovery Steam Generator shall not exceed 12,204 ~~14,826~~ pounds (6.210 ~~7.41~~ tons) in any consecutive twelve (12) month period. (Basis: Cumulative Increase; Regulation 2-6-232)
2221. Gas Turbine startup is defined as that period of time during which a gas turbine is put into normal operation from an inactive status by following a prescribed series of steps or operations. The duration of any gas turbine (S-9 and S-11) startup shall not exceed two hours. (Basis: Regulation 9-9-218)
2322. Gas Turbine shutdown is defined as that period of time during which a gas turbine is taken out of service from normal operation from normal operation to an inactive status by following a prescribed series of steps or operations. The duration of any gas turbine (S-9 and S-11) shutdown shall not exceed one hour. (Basis: Regulation 9-9-217)
2423. Total startup time for each gas turbine shall not exceed 360 hours during any calendar year. (Basis: Cumulative Increase)

2524. Total shutdown time for each gas turbine shall not exceed 200 hours during any calendar year. (Basis: Cumulative Increase)
2625. The owner/operator shall calibrate and operate a District approved Continuous Emissions Monitoring (CEM) system for nitrogen oxides, carbon monoxide, and either oxygen or carbon dioxide for the emission points at S-9/S-10 and S-11/S-12 Gas Turbines and Heat Recovery Steam Generators. (Basis: 40 CFR 60.4340(b); District MOP, Volume V)
2726. The owner/operator shall operate and maintain District-approved totalizing meters at each of the Gas Turbines (S-9 and S-11), Heat Recovery Steam Generators (S-10 and S-12), and Auxiliary Boilers (S-13 and S-14). (Basis: Cumulative Increase)
2827. The following monthly records shall be maintained in a District-approved log. The rolling 12-month totals shall be derived every month by summing the totals from the most recent twelve-month period. The summaries shall be completed within twenty business days after the end of each month. These logs shall be retained for at least five years and shall be available for review during normal business hours by the District's representatives.
- a. Total natural gas usage (therms) at: S-9, S-10, S-11, S-12, S-13, S-14
 - b. Total number of hours for distillate testing and maintenance, and natural gas supply upset at S-9, S-11, S-13, S-14
 - c. Total mass emissions of carbon monoxide (CO) in pounds at S-9, S-10, S-11, S-12
 - d. Total mass emissions of nitrogen oxides (NO_x) in pounds at S-9, S-10, S-11, S-12
 - e. Number and duration of startups, shutdowns, and electrical power supply disconnects at S-9, S-10, S-11, S-12
- (Basis: Regulation 9-9-501; District MOP, Volume V; 40 CFR Part 75)
2928. The owner/operator shall notify the District as follows:
- a. Within five (5) working days of discovering that the facility has exceeded any of its permit conditions;
 - b. Within 96 hours after a source has exceeded any of its permit conditions as indicated by a Continuous Emissions Monitoring (CEM) system reading.
- (Basis: Cumulative Increase; District MOP, Volume V)
- *3029. The duct burners at S-10 and S-12 Heat Recovery Steam Generators shall be fired on natural gas exclusively. (Basis: Cumulative Increase; Regulation 1-207)
- *3130. S-10 Heat Recovery Steam Generator duct burner shall not be operated unless S-9 Gas Turbine is operating. (Basis: Cumulative Increase; Regulation 1-207)
- *3234. S-12 Heat Recovery Steam Generator duct burner shall not be operated unless S-11 Gas Turbine is operating. (Basis: Cumulative Increase; Regulation 1-207)

- *~~3332~~. S-9 Gas Turbine shall be abated by the properly operated and properly maintained A-9 Oxidizing Catalyst and A-10 Selective Catalytic Reduction System. S-10 Heat Recovery Steam Generator shall be abated by the properly operated and properly maintained A-10 Selective Catalytic Reduction System. (Basis: Cumulative Increase; Regulation 1-207)
- *~~3433~~. S-11 Gas Turbine shall be abated by the properly operated and properly maintained A-11 Oxidizing Catalyst and A-12 Selective Catalytic Reduction System S-12 Heat Recovery Steam Generator shall be abated by the properly operated and properly maintained A-12 Selective Catalytic Reduction System. (Basis: Cumulative Increase; Regulation 1-207)
- *~~3534~~. The inlet temperature to A-9 and A-11 Oxidizing Catalysts shall be maintained at a minimum of 600 degrees F, except during startup or shutdown. The District may require that this minimum temperature be adjusted if the source test specified in paragraph ~~39~~ ~~38~~ below requires an appropriate temperature adjustment to comply with paragraphs 6, 7, 15 and 16 ~~5, 6, 14 and 15~~ above. (Basis: Cumulative Increase; Regulation 1-207)
- *~~3635~~. Visible particulate emissions from Sources S-9 through S-14 shall not exceed Ringelmann 1.0. (Basis: Regulation 6-1-301)
- *~~3736~~. Emissions of ammonia from Sources S-9 through S-12, averaged over any rolling three-hour period, shall not exceed 20 ppmvd at 15% oxygen. (Basis: Regulation 2-5-302)
- *~~3837~~. The owner/operator shall install, calibrate, and operate a District approved continuous measuring and recording system for inlet temperatures to the oxidizing catalysts A-9 and A-11, and to the SCR units A-10 and A-12. (Basis: Cumulative Increase: District MOP, Volume V; 40 CFR 60.4340(b))
- *~~3938~~. In order to demonstrate compliance with the above conditions, the owner/operator shall perform a District-approved compliance source test at maximum rated firing capacities of Sources S-9, S-10, S-11 and S-12 annually, and shall perform a District-approved source test at maximum rated firing capacities of Sources S-13 and S-14 once every five years. All source testing shall be done in accordance with the District's Manual of Procedures. The permit holder shall notify the Manager of the District's Source Test Section and the Director of the Engineering Department in writing at least seven (7) days prior to the test, to provide District staff the option of observing testing. Within 30 days of test completion, a comprehensive report of the test results shall be submitted to the Manager of the District's Source Test Section for review and disposition. (Basis: Cumulative Increase; District MOP, Volume V; 40 CFR 60.4400; 40 CFR 60.8)

- *~~4039~~. The permit holder shall conduct an annual District-approved source test at maximum rated capacities to determine compliance with testing requirements for the continuous emissions monitors specified in paragraphs ~~26 and 38 25 and 37~~ above. All source testing shall be done in accordance with the District's Manual of Procedures. The permit holder shall notify the Manager of the District's Source Test Section and the Director of the Engineering Department in writing at least seven (7) days prior to the test, to provide District staff the option of observing testing. Within 30 days of test completion, a comprehensive report of the test results shall be submitted to the Manager of the District's Source Test Section for review and disposition. (Basis: Cumulative Increase; District MOP, Volume V; 40 CFR 60.4405; 40 CFR 60.8)
- *~~4140~~. Emergency standby generators Sources S-16 through S-27, S-30, S-32, and S-33 shall be fueled exclusively by diesel fuel having a sulfur content no greater than 0.0015% by weight. (Basis: Title 17, CCR, 93115: CARB ATCM for Stationary Compression-Ignition Engines)
- *~~4241~~. Emergency stand-by generators S-16 through S-27, S-30, and S-32, and S-33 shall not exceed the opacity and particulate emissions set out in Regulation 6, "Particulate and Visual Emissions". (Basis: Regulation 6-1-301)
43. Total annual diesel fuel usage used at emergency stand-by generators S-16 through S-27, S-30, S-32, and S-33 shall be limited to no more than 86,100 gallons combined per year. (Basis: Regulation 2-6-423.2.2)
- ~~*42. Emergency stand by generators S 16 through S 27, S 30, and S 32, and S 33 shall only be operated to mitigate emergency conditions or for reliability related operations. Operations for reliability related activities shall be limited as described in the additional source specific conditions for each generator. Operation while mitigating emergency conditions is unlimited.~~
- ~~*43. Emergency conditions are defined as any of the following:~~
- ~~a. Loss of regular natural gas supply~~
 - ~~b. Failure of regular power supply~~
 - ~~c. Flood mitigation~~
 - ~~d. Sewage overflow mitigation~~
 - ~~e. Fire~~
 - ~~f. Failure of a primary motor, but only for such time as needed to repair or replace the primary motor~~
- ~~*44. Reliability related activities are defined as any of the following:~~
- ~~a. Operation of an emergency stand by engine to test its ability to perform for an emergency use;~~
 - ~~b. Operation of an emergency stand by engine during maintenance of a primary motor.~~

~~*45. The emergency stand-by engines shall be equipped with non-resettable totalizing meters that measure and record the hours of operation for each engine.~~

~~*46. The following monthly records shall be maintained for emergency standby generators (S-16 through S-27, S-30, and S-32) in a District approved log for at least five years and shall be made available to the District upon request:~~

~~a. Total hours of operation for each generator~~

~~b. Total hours of operation under emergency conditions for each generator, and a description of the nature of the emergency condition~~

~~c. Total fuel usage for each generator~~

By: _____
Catherine S. Fortney
Air Quality Engineer II

Date: _____