

Synthetic Minor Operating Permit:
University of California, San Francisco
50 Medical Center Way
San Francisco, CA 94143

Plant No. 2478
Application No. 25574, [2776](#)

Permitted Sources:

- S-7 Ethylene Oxide Gas Sterilizer, Castle Model MPS 7260, 70.9 ft³; Abated by A-1 Castle Emission Control Device.
- S-9 Gas Turbine, Solar Centaur Taurus, 76 MMBtu/hr (5 MW) capacity; Abated by A-9, CO Catalyst and A-10, Selective Catalytic Reduction.
- S-10 Heat Recovery Steam Generator, with Davis Duct Burner, 46 MMBtu/hr capacity, Abated by A-10, Selective Catalytic Reduction.
- S-11 Gas Turbine, Solar Centaur Taurus, 76 MMBtu/hr (5 MW) capacity; Abated by A-11, CO Catalyst and A-12, Selective Catalytic Reduction.
- S-12 Heat Recovery Steam Generator, with Davis Duct Burner, 46 MMBtu/hr capacity, Abated by A-12, Selective Catalytic Reduction.
- S-13 Auxiliary Boiler, Nebraska, 120 MMBtu/hr, with Coen Low NOx Burner and Flue Gas Recirculation.
- S-14 Auxiliary Boiler, Nebraska, 120 MMBtu/hr, with Coen Low NOx Burner and Flue Gas Recirculation.

Exempt Sources:

- S-16 Emergency Generator, 4210 CID, 20 MMBtu/hr.
- S-17 Emergency Generator, 4210 CID, 20 MMBtu/hr.
- S-18 Emergency Generator, 4210 CID, 20 MMBtu/hr.

The University of California, San Francisco, Plant #2478, has a synthetic minor operating permit. This operating permit covers all sources at this facility as of permit issuance. The sources are listed above.

Conditions #1-[31](#) 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 purpose of maintaining the facility as a synthetic minor must under go the procedures specified by Rule 2-6, section 423.

Conditions #*32-*43 are District conditions that do not establish this facility as a synthetic minor. Each of these conditions is marked by 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.

This operating permit covers all sources existing at the facility as of permit issuance. The sources are listed below:

Conditions:

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1. The total usage of sterilant gas shall not exceed 20,000 pounds at S7 sterilizer in any consecutive twelve (12) month period.
2. The total usage of sterilant gas shall not exceed 3,650 pounds at S7 sterilizer in any calendar month.
3. The total usage of natural gas shall not exceed the following in any consecutive twelve (12) month period:

S9 and S11 Gas Turbines

12,000,000 therms combined

S10 and S12 Heat Recovery Steam Generators

4,400,000 therms combined

S13 Auxiliary Boiler

1,000,000 therms each

S14 Auxiliary Boiler

1,000,000 therms each

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

S9 and S11 Gas Turbines

1,900,000 therms combined

S10 and S12 Heat Recovery Steam Generators

700,000 therms combined

S13 Auxiliary Boiler
350,000 therms each
S14 Auxiliary Boiler
350,000 therms each

5. The gas turbines (S9, S11) and the Auxiliary Boilers (S13, S-14) shall burn only natural gas except that distillate oil be permitted only during short test periods; during periods of natural gas curtailment by Pacific Gas and Electric Co; and/or for 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:

S9, S11 gas turbines: 200 hours for each turbine
S13, S14 Auxiliary Boilers: 48 hours for each boiler
6. The distillate oil burned during short test periods and/or during periods of natural gas curtailment by Pacific Gas and Electric Co. shall have a sulfur content of 0.05% or less by weight.
7. S7 sterilizer shall not be operated unless emissions of ethylene oxide are reduced by 99.9% measured across the catalytic oxidizer over any period of time.
8. Emissions of carbon monoxide (CO) from S9 Gas Turbine and S10 Heat Recovery Steam Generator shall not exceed 10 ppmvd at 15% oxygen, averaged over any rolling three hour average, except during startup or shutdown .
9. Emissions of carbon monoxide (CO) from S11 Gas Turbine and S12 Heat Recovery Steam Generator shall not exceed 10 ppmvd at 15% oxygen, averaged over any rolling three hour average, except during startup or shutdown .
10. Emissions of carbon monoxide (CO) from S13 and S14 Auxiliary Boilers shall not exceed 50 ppmvd at 3% oxygen except during startup or shutdown periods.
11. Emissions of nitrogen oxides (NOx) from S9 Gas Turbine and S10 Heat Recovery Steam Generator shall not exceed 5 ppmvd at 15% oxygen, averaged over any rolling three hour average, except during startup or shutdown when firing natural gas.

- 12.** Emissions of nitrogen oxides (NO_x) from S9 Gas Turbine and S10 Heat Recovery Steam Generator shall not exceed 8 ppmvd at 15% oxygen, averaged over any rolling three hour average, except during startup or shutdown when firing distillate oil.
- 13.** Emissions of nitrogen oxides (NO_x) from S- 11 Gas Turbine and S- 12 Heat Recovery Steam Generator shall not exceed 5 ppmvd at 15% oxygen, averaged over any rolling three hour average, except during startup or shutdown when firing natural gas.
- 14.** Emissions of nitrogen oxides (NO_x) from S- 11 Gas Turbine and S- 12 Heat Recovery Steam Generator shall not exceed 8 ppmvd at 15% oxygen, averaged over any rolling three hour average, except during startup or shutdown when firing distillate oil.
- 15.** Emissions of nitrogen oxides (NO_x) from S13 and S14 Auxiliary Boilers shall not exceed 25 ppmvd at 3% oxygen when firing natural gas, except during startup or shutdown periods.
- 16.** Emissions of nitrogen oxides (NO_x) from S13 and S14 Auxiliary Boilers shall not exceed 50 ppmvd at 3% oxygen when firing distillate oil, except during startup or shutdown periods.
- 17.** Emissions of precursor organic compounds (POC) from S9 Gas Turbine and S10 Heat Recovery Steam Generator shall not exceed 0.01 lb/MMBtu, except during startup or shutdown periods.
- 18.** Emissions of precursor organic compounds (POC) from S11 Gas Turbine and S12 Heat Recovery Steam Generator shall not exceed 0.01 lb/MMBtu, except during startup or shutdown periods.
- 19.** Emissions of precursor organic compounds (POC) from S13 and S14 Auxiliary Boilers shall not exceed 0.003 lb/MMBtu when fired on natural gas and shall not exceed 0.006 lb/MMBtu when fired on distillate oil.
- 20.** The total mass emissions of carbon monoxide (CO) from S9 Gas Turbine and S10 Heat Recovery Steam Generator shall not exceed 18,199 pounds (9.1 tons) in any consecutive twelve (12) month period.

- 21.** The total mass emissions of carbon monoxide (CO) from S11 Gas Turbine and S12 Heat Recovery Steam Generator shall not exceed 18,199 pounds (9.1 tons) in any consecutive twelve (12) month period.
- 22.** The total mass emissions of nitrogen oxides (NOx) from S9 Gas Turbine and S10 Heat Recovery Steam Generator shall not exceed 14,826 pounds (7.41 tons) in any consecutive twelve (12) month period.
- 23.** The total mass emissions of nitrogen oxides (NOx) from S11 Gas Turbine and S12 Heat Recovery Steam Generator shall not exceed 14,826 pounds (7.41 tons) in any consecutive twelve (12) month period.
- 24.** The duration of any gas turbine (S9 and S11) startup shall not exceed two hours. Startup is 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.
- 25.** The duration of any gas turbine (S9 and S11) shutdown shall not exceed one hour. Shutdown is that period of time during which a gas turbine is taken out of service from a normal operation to an inactive status by following a prescribed series of steps or operations.
- 26.** The total startup time shall not exceed 360 hours during any calendar year for each turbine; and the maximum start up time shall be prorated during the first calendar year.
- 27.** The total shutdown time shall not exceed 200 hours during any calendar year for each turbine; and the maximum shutdown time shall be prorated during the first calendar year.
- 28.** Prior to initial operation, the owner or operator shall install, calibrate, and operate a District approved continuous emission monitoring and recording 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. The monitoring system shall be switched between the two HRSG stacks as dictated by operating cycles. The owner or operator shall also obtain District approval of the location and number of sampling ports and the minimum monitoring

frequency.

- 29.** Prior to initial operation, the owner or operator shall install District approved totalizing fuel instrumentation at each of the gas turbines (S-9 and S-11) and heat recovery steam generators (S-10 and S-12) and auxiliary boilers (S-13 and S-14).
- 30.** 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 be available for review during normal business hours by the District's representatives.
- a. Total amount of natural gas (therms) used at:
 - 1. S9, S11
 - 2. S10, S12
 - 3. S13, S14
 - b. Total number of hours of oil testing and natural gas supply upset at:
 - 1. S9, S11
 - 2. S13, S14
 - c. The total mass emissions of carbon monoxide (CO) in pounds at:
 - 1. S9/S10
 - 2. S11/S12
 - d. The total mass emissions of nitrogen oxides (NOx) in pounds at:
 - 1. S9/S10
 - 2. S11/S12
 - e. The throughput of sterilant gas at S7.
 - f. Number and duration of startups and shutdowns at sources S9/S10, S11/S12.
- 31.** UCSF shall notify the District as follows:
- a. Within five 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 Emission Monitoring system (CEM).

S7:

- *[32](#). The sterilizer chamber shall not be operated unless emissions of ethylene oxide are reduced by 99.9% measured across the catalytic oxidizer over any period of time.
- *[33](#). The permit holder shall maintain a log of sterilant gas purchases and the date and time of each sterilizer operation cycle. These records shall be retained on site for a period of two years after the date of entry, and shall be made available for inspection by the District staff.

S9, S10, S11, S12, S13, S14:

- *[34](#). The duct burners at S10 and S12 Heat Recovery Steam Generators shall be fired on natural gas exclusively.
- *[35](#). S10 Heat Recovery Steam Generator duct burner shall not be operated unless S9 Gas Turbine is operating.
- *[36](#). S12 Heat Recovery Steam Generator duct burner shall not be operated unless S11 Gas Turbine is operating.
- *[37](#). S-9 Gas Turbine shall be abated by the properly operated and properly maintained A9 Oxidizing Catalyst and A10 Selective Catalytic Reduction System. S10 Heat Recovery Steam Generator shall be abated by the properly operated and properly maintained A10 Selective Catalytic Reduction System.
- *[38](#). S-11 Gas Turbine shall be abated by the properly operated and properly maintained A11 Oxidizing Catalyst and A12 Selective Catalytic Reduction System. S12 Heat Recovery Steam Generator shall be abated by the properly operated and properly maintained A12 Selective Catalytic Reduction System.
- *[39](#). The inlet temperature to A9 and A11 Oxidizing Catalysts shall be maintained at a minimum of 600 degrees Fahrenheit, except during startup or shutdown and the initial plant commissioning periods. The District may require that this minimum temperature be adjusted if the source test specified in Condition No. 48 requires an appropriate temperature adjustment to comply with Conditions Numbers [8](#), [9](#), [17](#), and [18](#).
- *[40](#). Visible particulate emissions from sources S9/S10,

S11/S12, S13, and S14 shall not exceed Ringelmann 1.0.

- *[41](#). Emissions of Ammonia, averaged over any rolling three hour average, shall not exceed 20 ppmvd at 15% oxygen from S9/S10, S11/S12 Gas Turbines and Heat Recovery Steam Generators/duct burners.
- *[42](#). Prior to initial operation of the gas turbines (S-9 and S-11) and heat recovery steam generators (S-10 and S-12), the owner or operator shall install, calibrate, and operate a District approved continuous measuring and recording system for inlet temperature to the Oxidizing catalyst (A-9 and A-11) and to the SCR units (A-10 and A-12). The owner or operator shall also obtain District approval of the location and number of these monitors.
- *[43](#).

The owner/operator shall conduct an annual District approved source test at maximum rated capacities to determine compliance with the following:

- a. Compliance with Permit Conditions Numbers 8, 9, 10, 11, 13, 15, 17, 18, 19 and 43 when firing natural gas, and
- b. Compliance with testing requirements for the continuous emissions monitors specified in Condition Numbers 28 and 42.

All source testing shall be done in accordance with District's Manual of Procedures. The facility shall receive approval from the District's Source Test Manager for installation of test ports and source testing procedures. The results shall be delivered to the District no later than 30 days from the date of the source test.