

APPENDIX 5.1F

BACT

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Evaluation of Best Available Control Technology

To evaluate BACT for the proposed turbine, the guidelines for large combined or cogeneration cycle gas turbines (> 50 MW) as delineated in the District, state, and federal BACT listings were reviewed. The relevant BACT determinations for this analysis are shown in Tables 5.1F-1 and 5.1F-2.

TABLE 5.1F-1 BACT DATA FOR COGENERATION/COMBINED CYCLE GAS TURBINES (CARB)

Pollutant	BACT	Typical Technology
Nitrogen oxides (NO _x)	5 ppm dry @ 15% O ₂ , 1 or 3 hr avg	1. SCR + DLN, low NO _x burners (HRSG) or, 2. SCR + water or steam injection, low NO _x burners (HRSG)
Sulfur dioxide (SO ₂)	Natural gas fuel	PUC regulated gas
Carbon monoxide (CO)	6 ppm dry @ 15% O ₂ , 1 or 3 hr avg	Catalytic oxidation
VOC	2 ppm dry @ 15% O ₂	Catalytic oxidation
TSP/PM10/2.5	Natural gas fuel	PUC regulated gas

Ref: CARB Power Plant Guidance for BACT, July 1999.

TABLE 5.1F-2 BAAQMD BACT DATA FOR COGENERATION/COMBINED CYCLE GAS TURBINES

Pollutant	BACT	Typical Technology
Nitrogen oxides (NO _x)	2.0-2.5 ppm dry @ 15% O ₂ , 1 or 3 hr avg	1. SCR + DLN, low NO _x burners (HRSG) or, 2. SCR + water or steam injection low NO _x burners (HRSG)
Sulfur dioxide (SO ₂)	Natural gas fuel	PUC regulated gas
Carbon monoxide (CO)	3.0-6.0 ppm dry @ 15% O ₂ , 1 or 3 hr avg	Catalytic oxidation
VOC	2.0 ppm dry @ 15% O ₂	Catalytic oxidation
TSP/PM10/2.5	Natural gas fuel	PUC regulated gas

Ref: Recent BACT decisions by BAAQMD (website).
The CCGS HRSGs are non-duct fired.

Evaporative Cooler BACT

The new evaporative condenser cells will be equipped with high efficiency drift eliminators achieving BACT at 0.003% drift.

Auxiliary Boiler

The proposed aux boiler is rated at 50.6 mmbtu/hr (HHV), and will be used for a maximum of 8 hours per day, and 403 hours per year. The aux boiler will be fired exclusively on natural gas, and will be equipped with SCR and a CO Catalyst. Exhaust concentrations of NO_x and CO will be limited to 9 and 50 ppmvd at 3% O₂ respectively. VOC emissions will be controlled to a level of 5 ppmvd, while PM₁₀ emissions are estimated to be 0.0045 lbs/mmbtu (HHV). These emissions levels meet the BAAQMD BACT limits for limited use small boilers firing clean fuels such as natural gas.

Fire Pump Engine

The fire pump engine will be fired exclusively on California certified ultra low sulfur diesel fuel, and will meet all the emissions standards as specified in; (1) CARB ATCM, (2) EPA/CARB Tier III, and (3) NSPS Subpart IIII. Due to the low use rate of the engine for testing and maintenance, as well as its intended use for emergency fire protection, the engine meets the current BACT requirements of the BAAQMD.