

Title V Permit Evaluation

Site Number: B1887

Site Name: Duke Energy Power Services

Site Address: 50 Martin Luther King Jr. Way, Oakland CA

Periodic Monitoring:

Summary Tables

NOX Sources

| S# & Description | Federally Enforceable Emission Limit Citation | Federally Enforceable Emission Limit | Potential to Emit: tpy | Monitoring |
|------------------|---|--|-------------------------------|---|
| S1-S6, Turbines | BAAQMD 9-9-302 | 65 ppmv, dry @ 15% O ₂ , 3-hr average | 228 for all turbines combined | water-to-fuel monitoring, source test for every 2000 hours of operation |
| | BAAQMD condition #2571, part 1 | 75 ppmv, dry @ 15% O ₂ , 3-hr average | 228 for all turbines combined | water-to-fuel monitoring, source test for every 2000 hours of operation |

SO2 Sources

| S# & Description | Federally Enforceable Emission Limit Citation | Federally Enforceable Emission Limit | Potential to Emit: tpy | Monitoring |
|------------------|---|--|-------------------------------|---|
| S1-S6, Turbines | BAAQMD 9-1-301 | GLC 0.5 ppm (3 min ave.) 0.25 ppm (60 min ave.) 0.05 ppm (24 hr ave.) | 280 for all turbines combined | None recommended. Modeling for NAAQS was done during original authority to construct and found acceptable |
| | BAAQMD 9-1-304 | Sulfur content of fuel < 0.5% by weight | 280 for all turbines combined | fuel analysis and certification |
| | BAAQMD condition #2571, part 2 | <ul style="list-style-type: none"> • Sulfur content of fuel < 0.3% by weight | 280 for all turbines combined | fuel analysis and certification |

TSP Sources

| S# & Description | Federally Enforceable Emission Limit Citation | Federally Enforceable Emission Limit | Potential to Emit: tpy | Monitoring |
|-----------------------------|--|---|-------------------------------|--|
| S1-S6, Turbines | BAAQMD Regulation 6-301 | Ringelmann No. 1 | 173 | visible emissions check for each 1 million gallons of distillate oil combusted |
| | BAAQMD Regulation 6-310 | 0.15 grain/dscf | 173 | Not recommended |

NMOC Sources

| S# & Description | Federally Enforceable Emission Limit Citation | Federally Enforceable Emission Limit | Potential to Emit: tpy | Monitoring |
|-----------------------------|--|---|-------------------------------|---|
| S1-S6, Turbines | BAAQMD condition #2571, part 3 | < 40 lb/hr for all turbines combined | 26 | source test for every 2000 hours of operation |

Lead Sources

| S# & Description | Federally Enforceable Emission Limit Citation | Federally Enforceable Emission Limit | Potential to Emit: tpy | Monitoring |
|-----------------------------|--|---|-------------------------------|-------------------|
| S1-S6, Turbines | BAAQMD 11- | < 15 lb/day per emission point | 0.010 | Not recommended |

Discussion

The potential-to-emit calculations for the turbines are based on the following assumptions:
 Turbines: 6

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Distillate oil combusted per hour: 2,610 gal

Hours of operation per year: 877 for each turbine, 5000 total

Fuel density: 7.2 lb/gal

Sulfur content: 0.3% by weight

NOX concentration: 65 ppmv @ 15% O₂

NMOC emission rate: 40 lb/hr for all turbines combined

TSP emission factor: 26.56 lb/mgal based on 1996 source test data

TOC emission factor (AP-42): 0.0048 lb/mmbtu for large turbines with water injection

Lead emission factor (AP-42, draft): 0.0015 lb/mgal

PM:

The turbines are subject to the TSP limit in Regulation 6-310 of 0.15 grain per dry standard cubic foot. Based on a probable O₂ concentration of 15% at the outlet, and the 26.56 lb/mgal fuel emission factor, above, the actual grain loading is calculated to be 0.015 grains per dry standard cubic foot, or one-tenth of the standard. Therefore, the margin of compliance is high and monitoring is not recommended to ensure compliance.

NMOC:

The turbines have a limit of 40 lb/hr total for all six turbines. Based on this limit and the hours of operation limit, the annual limit is 100 tons per year. No testing for NMOC has been done on these units. The AP-42 factor in Table 3.1-3 (Emission Factor Rating: E) is 0.0048 lb TOC/mmbtu for distillate oil-fired turbines controlled with water injection. At this rate, all six turbines together would emit 10.5 lbs per hour. Since the actual emissions are probably low, in spite of the emission factor rating, the turbines operate intermittently, and generally all of the turbines do not operate together, additional periodic monitoring for NMOC is not recommended. However, if source testing is required for NO_x, the facility will be required to use the opportunity to test for NMOC also.

Lead:

The limit is 15 lb per day per emission point. Using the emission factor in the draft AP-42 chapter (Rating: C), the maximum amount of lead that could be emitted by the facility is 0.56 lb per day. The margin of compliance is so great that monitoring is not recommended.

Permit Shield:

The facility did not request a permit shield.

Alternate Operating Scenario:

The facility did not request an alternate operating scenario.

Compliance Status:

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The facility is considered to be in compliance.

Alignment of Information in Application and Proposed Permit:

There are no discrepancies between the content of the application and the proposed permit.