MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT
14306 Park Avenue Victorville, CA 92392-2310
760.245.1661 -- 800.635.4617 -- FAX 760.245.2022

AUTHORITY TO CONSTRUCT

B005267

If construction is not completed by the expiration date of this permit, it may be renewed for one additional year upon payment of applicable fees. Any additional extension will require the written approval of the Air Pollution Control Officer. This Authority to Construct may serve as a temporary Permit to Operate provided the APCO is given prior notice of intent to operate and the Permit to Operate is not specifically denied.

EXPIRES LAST DAY OF: JUNE 2026

OWNER OF OPERATOR (Co.#1047)

High Desert Power Project, LLC
19000 Perimeter Road
Victorville, CA 92394

EQUIPMENT LOCATION (Fac.#1849)

High Desert Power Project
19000 Perimeter Road
Victorville, CA 92394

Description:
COMBUSTION TURBINE GENERATOR 3F-2 consisting of: Natural gas fueled Westinghouse FD3X-ULN combustion turbine generator power block with a connected heat recovery steam generator and steam condensing turbine, maximum heat input of 2,037 MMBtu/hr and producing a nominal 272 MW(e).

CONDITIONS:

1. Operation of this equipment shall be conducted in compliance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.
[District Rule 1302(C)(2)(a)]
[PSD SE 98-01 3/10]

2. This stationary combustion turbine, air pollution control equipment, and monitoring equipment shall be operated and maintained in a manner consistent with good air pollution control practices for minimizing emissions at all times including during startup, shutdown, and malfunction.
[40 CFR 60.4333]

3. This equipment is exempt from the sulfur monitoring requirements under 40 CFR 60, Subpart KKKK (60.4365) as it shall be exclusively fueled with pipeline quality natural gas with a sulfur content not exceeding 0.2 grains per 100 dscf on a rolling twelve (12) month average basis and with potential sulfur emissions not exceeding 0.060 lb SO2 MMBtu heat input. The equipment shall be

Fee Schedule: 2 (f)	Rating: 2037000000 Btu	SIC: 4911	SCC: 20100201	Location/UTM(Km): 473E/3820N

This permit does not authorize the emission of air contaminants in excess of those allowed by law, including Division 26 of the Health and Safety Code of the State of California and the Rules and Regulations of the District. This permit cannot be construed as permission to violate existing laws, ordinances, statutes or regulations of this or other governmental agencies. This permit must be renewed by the expiration date above. If billing for renewal fee required by Rule 301(c) is not received by expiration date above, please contact the District.

High Desert Power Project, LLC
ATTN: Accounts Payable

Victorville, CA 92394

By: **COPY**
Eldon Heaston
Air Pollution Control Officer

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operated and maintained in strict accord with the recommendations of its manufacturer or supplier and/or sound engineering principles.
[District Rules 431 and 1303]
[40 CFR 60.4365]

4. Each combustion turbine generator at this facility is subject to the federal NSPS codified at 40 CFR Part 60, Subparts A (General Provisions) and KKKK (Standards of Performance for Stationary Combustion Turbines). This equipment is also subject to the Prevention of Significant Deterioration (40 CFR 51.166) and Federal Acid Rain (Title IV) programs. Compliance with all applicable provisions of these regulations is required.
[40 CFR 51]
[40 CFR 60 Subparts A and KKKK]
[40 CFR 76]
[PSD SE 98-01 3/10]

5. Emissions from each combustion turbine generator (including its associated duct burner) shall not exceed the following emission limits at any firing rate, except for CO, NOx, VOC and ammonia slip during periods of startup, shutdown and malfunction:
(a) Hourly rates, computed every 15 minutes, verified by CEMS and compliance tests:
(i) NOx as NO2 - 18.00 lb/hr (based on 2.5 ppmvd corrected to 15% oxygen and averaged over one hour) [PSD SE 98-01 3/10]
(ii) CO - 17.53 lb/hr (based on 4.0 ppmvd corrected to 15% oxygen and averaged over 24 hours) [PSD SE 98-01 3/10]
(iii) Ammonia Slip - 10 ppmvd (corrected to 15% oxygen and averaged over three hours)
(b) Hourly rates, verified by compliance tests or other compliance methods in the case of SOx:
(i) VOC as CH4 - 2.51 lb/hr (based on 1 ppmvd corrected to 15% oxygen)
(ii) SOx as SO2 - 1.11 lb/hr (based on LHV), 1.2 lb/hr (based on HHV)
(iii) PM10 - 18.14 lb/hr
[District Rule 1303(A)]
[40 CFR 70.6 (a)(3)(B) - Periodic Monitoring Requirements]

Additionally, to demonstrate compliance with the emission limits of 40 CFR 60, Subpart KKKK each combustion turbine shall limit emissions of NOx to 15 ppm at 15 percent O2 (30 unit operating day rolling average basis). Compliance shall be determined with the use CEMS according to 40 CFR 60.4345 and 60.4350, as outlined by conditions 16 and 17, below.
[40 CFR 60.4320(a), 60.4345, 60.4350]

Furthermore, each combustion turbine must not cause to be discharged into the atmosphere any gases which contain SO2 in excess of 110 nanograms per Joule (ng/J) (0.90 pounds per megawatt-hour (lb/MWh)) gross output. Compliance is determined through the use of pipeline quality natural gas with fuel sulfur content as specified in condition 3.
[40 CFR 60.4330]

6. Emissions of CO and NOx from the power block (defined as B005266, B005267 and B005268 combined) may exceed the limits contained in Condition 5 during startup and shutdown periods as follows:
(a) Startup shall be defined as the period beginning with ignition and lasting until the power block has reached operating permit limits. Cold startup means a startup when the power block has not been in operation during the preceding 72 hours. Hot startup means a startup when the power block has been in operation during the preceding 8 hours. Warm startup means a startup that is not a hot or cold startup. Shutdown shall be defined as the period beginning with the lowering of the power block from normal operating load and lasting until fuel flow is completely off and combustion has ceased. [PSD SE 98-01 3/10]
(b) During a cold startup emissions shall not exceed the following, verified by CEMS:
(i) NOx - 549 lb
(ii) CO - 10,623 lb
(c) During a warm startup emissions shall not exceed the following, verified by CEMS:
(i) NOx - 504 lb
(ii) CO - 10,788 lb
(d) During a hot startup emissions shall not exceed the following, verified by CEMS:
(i) NOx - 414 lb
(ii) CO - 11,187 lb
(e) During a shutdown emissions shall not exceed the following, verified by CEMS:
(i) NOx - 291 lb
(ii) CO - 717 lb
Per turbine startup and shutdown emissions limits per PSD SE 98-01 3/10
Transient conditions shall not exceed the following durations: [PSD SE 98-01 3/10]
(i) Cold startup: 4.5 hours

(ii) Warm startup: 2.6 hours
(iii) Hot startup: 1.9 hours
(iv) Shutdown: 1 hour
Emissions during startup and shutdown, verified by CEMS, shall not
exceed the following: [PSD SE 98-01 3/10]
(f) During a cold startup emissions shall not exceed the following, verified by CEMS:
(i) NOx - 183 lb
(ii) CO - 3541 lb
(g) During a warm startup emissions shall not exceed the following, verified by CEMS:
(i) NOx - 168 lb
(ii) CO - 3596 lb
(h) During a hot startup emissions shall not exceed the following, verified by CEMS:
(i) NOx - 138 lb
(ii) CO - 3729 lb
(i) During a shutdown emission shall not exceed the following, verified by CEMS:
(i) NOx - 97 lb
(ii) CO - 239 lb
(j) Alternative Cold Startup Scenario [PSD SE 98-01 3/10]
The Permittee may use the following alternative startup scenario for cold starts: one combustion turbine ("warming turbine") is used to warm the components of the steam turbine generator and to bring the SCR online. The remaining two combustion turbines are then brought online quickly. Emissions during the alternative cold startup scenario shall not exceed the following:
Warming turbine - Startup Duration 9.5 hours
(i) NOx - 235 lb/event
(ii) CO - 4,394 lb/event
Combustion Turbine 2 - Startup Duration 1.9 hours
(i) NOx- 138 lb/event
(ii) CO - 2,391 lb/event
Combustion Turbine 3 - Startup Duration 1.9 hours
(i) NOx - 128 lb/event
(ii) CO - 2,391 lb/event
[District Rule 1303]
[40 CFR 70.6 (a)(3)(B) - Periodic Monitoring Requirements]
[PSD SE 98-01 3/10]

7. Emissions from each combustion turbine generator, including the duct burner, may not exceed the following emission limits, based on a calendar day summary:
(a) NOx - 848 lb/day, verified by CEMS
(b) CO - 8072 lb/day, verified by CEMS
(c) VOC as CH4 - 1448 lb/day, verified by compliance tests and hours of operation in mode
(d) SOx as SO2 - 26.7 lb/day (based on LHV), 28.8 lb/day (based on HHV), verified by fuel sulfur content and fuel use data
(e) PM10 - 435 lb/day, verified by compliance tests and hours of operation
[District Rule 1303]
[PSD SE 98-01 3/10]
[40 CFR 70.6 (a)(3)(B) - Periodic Monitoring Requirements]

8. Emissions from this facility, including the cooling towers, may not exceed the following emission limits, based on a rolling 12-month summary:
(a) NOx - 204.5 tons/year, verified by CEMS [40 CFR 51.21(r)(6)] [PSD SE 98-01 3/10]
(b) CO - 192.8 tons/year, verified by CEMS [PSD SE 98-01 3/10]
(c) VOC as CH4 - 128.5 tons/year, verified by compliance tests and hours of operation in mode
(d) SOx as SO2 - 14 tons/year (based on LHV), 15.8 tons/year (based on HHV), verified by fuel sulfur content and fuel use data [PSD SE 98-01 3/10]
(e) PM10 - 232.7 tons/year, verified by compliance tests and hours of operation
[District Rule 1303]
[40 CFR 70.6 (a)(3)(B) - Periodic Monitoring Requirements]

9. Each combustion turbine generator shall exhaust through a stack at a minimum height of 130 feet.
[District Rule 1303]

10. The owner/operator shall not operate each combustion turbine generator without the selective catalytic NOx reduction system and a VOC and CO oxidation catalyst system with valid District permits installed and fully functional.
[District Rule 1303]
[PSD SE 98-01 3/10]

11. Emissions of NOx, CO, and oxygen shall be monitored using a Continuous Emissions Monitoring System (CEMS). Turbine fuel consumption shall be monitored using a continuous monitoring system. The operator shall install, calibrate, maintain and operate these monitoring systems according to a District-approved monitoring plan and Rule 218, and they shall be installed prior to initial equipment startup. Six (6) months prior to installation the operator shall submit a monitoring plan for District review and approval. Ammonia slip is monitored by source tests coupled with parametric monitoring per conditions 12, 13(f), 14(f), and 15(d).
[District Rules 1159 and 1303]
[40 CFR 60 Subpart KKKK]
[40 CFR 51.21(r)(6)]
[PSD SE 98-01 3/10]
[40 CFR 70.6 (a)(3)(B) - Periodic Monitoring Requirements]

12. The owner/operator must conduct all required compliance/certification tests in accordance with a District-approved test protocol. The owner/operator must notify the District a minimum of ten (10) days prior to the compliance/source test date so that an observer may be present. The final compliance/source test results must be submitted to the District within forty-five (45) days of completion of the test. All compliance/source test notifications, protocols, and results may be submitted electronically to reporting@mdaqmd.ca.gov.
[District Compliance Test Procedural Manual; District Rules 1303 and Rule 1159]
[PSD SE 98-01 3/10]

13. POST TURBINE IMPROVEMENT PROJECT INITIAL COMPLIANCE TESTS:
The owner/operator shall perform initial test within 180 days of completion of the turbine improvement project.
(a) NOx as NO2 in ppmvd at 15% oxygen and lb/hr Method 7E performed with Method 3 or 3A to determine NOx and diluent concentration in accordance with the requirements specified 40 CFR 60.4400 or the alternative manner specified in40 CFR 60.4405
(b) VOC as CH4 in ppmvd at 15% oxygen and lb/hr (measured per USEPA Reference Methods 25A and 18)
(c) SOx in accordance with the requirements specified 40 CFR 60.4415
(d) CO in ppmvd at 15% oxygen and lb/hr (measured per USEPA Reference Method 10)
(e) PM10 and PM2.5 in lb/hr at 15% O2 (measured per USEPA Reference Methods 5 and 202 or CARB Method 5).
(f) Ammonia slip in ppmvd at 15% O2
(g) Flue gas flow rate in scfmd
[District Rules 1159 and 1303]
[40 CFR 60.4405 and 60.4415]
[PSD SE 98-01 3/10]

14. The owner/operator shall perform the following compliance tests in accordance with the MDAQMD Compliance Test Procedural Manual. The test report shall be submitted to the District no later and six weeks prior to the expiration date of this permit. The following compliance tests are required on the specified schedule:
(a) NOx as NO2 in ppmvd at 15% oxygen and lb/hr (measured per USEPA Reference Method 20 or Method 7E performed with Method 3 or 3A to determine NOx and diluent concentration), at least once every fourteen (14) months in accordance with the requirements specified 40 CFR 60.4400
(b) VOC as CH4 in ppmvd at 15% oxygen and lb/hr (measured per USEPA Reference Methods 25A and 18), at least once every thirty six (36) months
(c) SOx at least once every fourteen (14) months in accordance with the requirements specified 40 CFR 60.4415
(d) CO in ppmvd at 15% oxygen and lb/hr (measured per USEPA Reference Method 10), at least once every sixty (60) months
(e) PM10 and PM2.5 in lb/hr at 15% O2 at least once every twelve (12) months (measured per USEPA Reference Methods 5 and 202 or CARB Method 5).
(f) Ammonia slip in ppmvd at 15% O2 at least once every sixty (60) months
(g) Flue gas flow rate in scfmd, at least once every sixty (60) months
(h) Characterization of cold startup VOC emissions, at least once every sixty (60) months
(i) Characterization of warm startup VOC emissions, at least once every sixty (60) months
(j) Characterization of hot startup VOC emissions; and, at least once every sixty (60) months
(k) Characterization of shutdown VOC emissions, at least once every sixty (60) months
[District Rules 1159 and Rule 1303]
[PSD SE 98-01 3/10]

15. Continuous monitoring systems shall meet the following acceptability testing requirements from 40 CFR 60, Appendix B (or applicable requirements and procedures from 40 CFR 75):
(a) For NOx, Performance Specification 2.
(b) For oxygen, Performance Specification 3.
(c) For CO, Performance Specification 4 or 4a.
(d) For ammonia, a District-approved procedure that is to be submitted by the owner/operator.
[District Rules 218 and 1159]
[40CFR 60.4345(a)]
[PSD SE 98-01 3/10]

16. The owner/operator must ensure that the Continuous Emissions Monitoring Systems (CEMS) equipment meets the requirements specified in 40 CFR 60.4345, as outlined below:
(a) Each NOX diluent CEMS must be installed and certified according to Performance Specification 2 (PS 2) in appendix B to 40 CFR 60, Subpart KKKK, except the 7-day calibration drift is based on unit operating days, not calendar days. With District approval, Procedure 1 in appendix F is not required. Alternatively, a NOX diluent CEMS that is installed and certified according to appendix A of 40 CFR 75 is acceptable for use under 40 CFR 60, Subpart KKKK. The relative accuracy test audit (RATA) of the CEMS shall be performed on a lb/MMBtu basis.
(b) As specified in 40 CFR 60.13(e)(2), during each full unit operating hour, both the NOX monitor and the diluent monitor must complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each 15-minute quadrant of the hour, to validate the hour. For partial unit operating hours, at least one valid data point must be obtained with each monitor for each quadrant of the hour in which the unit operates. For unit operating hours in which required quality assurance and maintenance activities are performed on the CEMS, a minimum of two valid data points (one in each of two quadrants) are required for each monitor to validate the NOX emission rate for the hour.
(c) Each fuel flowmeter shall be installed, calibrated, maintained, and operated according to the manufacturer's instructions. Alternatively, with District approval, fuel flowmeters that meet the installation, certification, and quality assurance requirements of appendix D to 40 CFR 75 are acceptable for use 40 CFR 60, Subpart KKKK.
(d) Each watt meter, steam flow meter, and each pressure or temperature measurement device shall be installed, calibrated, maintained, and operated according to manufacturer's instructions.
(e) The owner/operator shall develop and keep on-site a quality assurance (QA) plan for all of the continuous monitoring equipment described in paragraphs (a), (c), and (d) of this condition. For the CEMS and fuel flow meters, the owner or operator may, with District approval, satisfy the requirements of this condition by implementing the QA program and plan described in section 1 of Appendix B to 40 CFR 75.
[40 CFR 60.4345]
[PSD SE 98-01 3/10]

17. The owner/operator must use the Continuous Emissions Monitoring System (CEMS) data to identify excess emissions pursuant to the criteria specified in 40 CFR 60.4350, as outlined below:
(a) All CEMS data must be reduced to hourly averages as specified in 40 CFR 60.13(h).
(b) For each unit operating hour in which a valid hourly average, as described in 40 CFR 60.4345(b), is obtained for both NOX and diluent monitors, the data acquisition and handling system must calculate and record the hourly NOX emission rate in units of ppm or lb/MMBtu, using the appropriate equation from method 19 in appendix A of this part. For any hour in which the hourly average O2 concentration exceeds 19.0 percent O2 (or the hourly average CO2 concentration is less than 1.0 percent CO2), a diluent cap value of 19.0 percent O2 or 1.0 percent CO2 (as applicable) may be used in the emission calculations.
(c) Correction of measured NOX concentrations to 15 percent O2 is not allowed.
(d) If you have installed and certified a NOX diluent CEMS to meet the requirements of part 75 of this chapter, Districts can approve that only quality assured data from the CEMS shall be used to identify excess emissions under this subpart. Periods where the missing data substitution procedures in subpart D of 40 CFR 75 are applied are to be reported as monitor downtime in the excess emissions and monitoring performance report required under 40 CFR 60.7(c).
(e) All required fuel flow rate, steam flow rate, temperature, pressure, and megawatt data must be reduced to hourly averages.
(f) Calculate the hourly average NOX emission rates, in units of the emission standards under 40 CFR 60.4320, using either ppm for units complying with the concentration limit or the following equation under 40 CFR 60.4350(f) for units complying with the output based standard.
(g) [reserved]
(h) For combined cycle and combined heat and power units with heat recovery, use the calculated hourly average emission rates from paragraph (f) of this condition to assess excess emissions on a 30 unit operating day rolling average basis, as described in 40 CFR 60.4380(b)(1).
[40 CFR 60.4350]

18. The owner/operator shall submit to the APCO and USEPA Region IX the following information for the preceding calendar quarter by January 30, April 30, July 30 and October 30 of each year this permit is in effect. Each January 30 submittal shall include a summary of the reported information for the previous year. This information shall be maintained on site for a minimum of five (5) years and shall be provided to District personnel on request:
(a) Operating parameters of emission control equipment, including but not limited to ammonia injection rate, NOx emission rate and ammonia slip.
(b) Total plant operation time (hours), hours in cold startup, hours in warm startup, hours in hot startup, and hours in shutdown.
(c) Average plant operation schedule (hours per day, days per week, weeks per year).
(d) All continuous emissions data reduced and reported in accordance with the District-approved CEMS protocol.
(e) Maximum hourly, maximum daily, total quarterly, and total calendar year emissions of NOx, CO, PM10, VOC and SOx (including calculation protocol).
(f) A log of all excess emissions, including the information regarding malfunctions/breakdowns required by Rule 430.
(g) Any permanent changes made in the plant process or production, which would affect air pollutant emissions, and indicate when changes were made.
(h) Any maintenance to any pollutant control system (recorded on an as-performed basis).
[District Rules 430, 431, 1303 and 1159]
[40 CFR 60.4375]
[PSD SE 98-01 3/10]
[40 CFR 70.6 (a)(3)(B) - Periodic Monitoring Requirements]

19. The owner/operator shall provide sampling ports and platforms necessary to perform source tests required to verify compliance with District rules, regulations and permit conditions. The location of these ports and platforms shall be subject to District approval.
[District Compliance Test Procedural Manual; District Rules 217 and 1303]
[PSD SE 98-01 3/10]

20. The Owner/Operator shall monitor the emissions of PM2.5, NOX, and GHGs from each of the three combustion turbines for a period of 10 years following resumption of regular operations after the Turbine Upgrade Project (defined as the modifications to the combustion turbines (B005266, B005267, B005268) that increase the heat input rate for each unit to 2,037 MMBtu/hr).
[40 CFR 52.21(r)(6)(iii)]
[PSD SE 98-01 3/10]

21. The Owner/Operator shall submit a report to EPA Region 9 within 60 days after the end of each year during which records must be generated pursuant to condition 20 setting out the units' annual emissions during the calendar year that preceded submission of the report. This report may be submitted with the annual compliance certification.
[40 CFR 52.21(r)(6)(iv)]
[PSD SE 98-01 3/10]

22. The Owner/Operator of the facility shall make the information required to be documented and maintained pursuant to condition 20 for the Turbine Upgrade Project available for review upon a request for inspection by the EPA or the general public consistent with 40 CFR 70.4(b)(3)(viii).
[40 CFR 52.21(r)(7)]
[PSD SE 98-01 3/10]

23. A facility wide Comprehensive Emission Inventory (CEI) for all emitted criteria and toxic air pollutants must be submitted to the District, in a format approved by the District, upon District request.
[District Rule 107(b); H&S Code 39607 & 44341-44342; and 40 CFR 51, Subpart A]
[PSD SE 98-01 3/10]