| DOCKETED | |
|---|---|
| **Docket Number:** | 99-AFC-04C |
| **Project Title:** | Duke Energy North American's Moss Landing Power Plant Modernization Project (Compliance) |
| **TN #:** | 231183 |
| **Document Title:** | Moss Landing Power Plant - 2018 Annual Compliance Report (Part 6) |
| **Description:** | N/A |
| **Filer:** | Mary Dyas |
| **Organization:** | California Energy Commission |
| **Submitter Role:** | Energy Commission |
| **Submission Date:** | 12/12/2019 9:55:00 AM |
| **Docketed Date:** | 12/12/2019 |

Department of Toxic Substances Control

*Jared Blumenfeld*
Secretary for
Environmental Protection

Meredith Williams, Ph.D.
Acting Director
8800 Cal Center Drive
Sacramento, California 95826-3200

*Gavin Newsom*
Governor

April 24, 2019

Mr. Kent Nelson
Managing Director
Dynegy Moss Landing, LLC
P.O. Box 690
Moss Landing, California 95039-0690

CLOSURE CERTIFICATION ACKNOWLEDGEMENT FOR THE DYNEGY MOSS LANDING, LLC, MOSS LANDING POWER PLANT, HIGHWAY 1 AND DOLAN ROAD, MOSS LANDING, EPA ID. NO. CAT080011653

Dear Mr. Nelson:

On February 21, 2018, Dynegy Moss Landing, LLC (Facility) notified the Department of Toxic Substances Control (DTSC) of its intent to close the Class I Surface Impoundments and Filter Press (HWMUs) by implementing the Closure Plan (CP) in the approved Hazardous Waste Part B Application dated March 9, 2017 and approved by DTSC on September 14, 2017. DTSC received the *Soil and Groundwater Assessment* on June 14, 2018. On January 22, 2019, DTSC received the *RCRA Closure Certification Report Dynegy Moss Landing Power Plant* (Closure Certification) dated January 18, 2019, signed by both the owner and an independent professional engineer registered in California certifying that the HWMUs were closed in accordance with the approved CP.

This letter is to inform you that DTSC now considers the Dynegy Moss Landing Power Plant surface impoundments and filter press system closed and acknowledges the Closure Certification submitted on January 18, 2019. This acknowledgement is based on the representation that the information submitted as well as any other information provided to DTSC to use as basis for this decision is true and accurate. Any inaccuracies found in such information may be grounds for subsequent nullification of the Closure Certification and potential enforcement action. Dynegy must inform DTSC of any deviations from or changes in the information provided which would affect the Closure Certification of these units. It is understood that future cleaning operations will be conducted without using the ponds for treatment and the units will be operating under generator status.

Please be advised that this acknowledgment of the above referenced closure is not a certification that your Facility does not pose any environmental or public health threat. This letter does not remove any liabilities associated with past hazardous waste management activities which occurred at the Facility.

This Closure Certification does not limit or preclude any future investigations of any other on-site operations by any agency, nor in resulting corrective action deemed necessary for closure and remediation of any solid waste management units at the Facility. The existing Corrective Action Consent Agreement Docket P2-03104-003 is still in effect and responsibility for implementation of corrective action tasks is retained by Pacific Gas and Electric Company.

By copy of this letter, the Hazardous Waste Management Permitting Division is also informing DTSC Financial Assurance of this acknowledgement and requesting that it send notification to the Facility's financial institution authorizing release of any financial mechanism for the Closure, Post-Closure , and Contingent Closure costs.

If you have any questions regarding this letter, please contact me at (916) 255-6416 or Gary.Hammond@dtsc.ca.gov.

Sincerely,

Gary L. Hammond
Hazardous Substances Engineer
Permitting Division
Department of Toxic Substances Control

cc: (cc via email)

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# Comparison of Actual Waste Management Methods
# to
# Planned Waste Management Methods

# For

# Combined Cycle Electrical Generation
# Units #1 and #2

## Moss Landing Power Plant
## Moss Landing, California

## July 1, 2018 – June 30, 2019

# MOSS LANDING POWER PLANT
# UNITS 1 AND 2
# ACTUAL WASTE MANAGEMENT METHODS

## GENERAL

Pursuant to condition of certification WASTE-2, Moss Landing Power Plant (MLPP) submitted its Operational Waste Management Plan for Combined Cycle Electrical Generation Units 1 and 2 to the California Energy Commission (CEC) on May 17, 2002. The CEC approved this Plan in a letter to MLPP, dated September 27, 2002. WASTE-2 requires MLPP to document the actual waste management methods used during the year compared to the planned management methods. MLPP reports that there is no variation between the actual waste management methods and the planned waste management methods. The following waste management review will describe the type of waste streams, frequency of disposal, and the methods used to dispose of the wastes generated during the July 1, 2017 through June 30, 2018 review period.

The waste streams addressed in this review (Appendix A) include hazardous, non-hazardous, and universal waste streams. Recycling and waste minimization has been accomplished whenever feasible. MLPP has developed and implemented a Hazardous Materials Business Plan (Volume 1, is now reported to the California Environmental Reporting System (CERS)), Facility Emergency Plan (Volume 2), a Spill Prevention Control and Countermeasures Plan and a Source Reduction Evaluation Review Plan. Units 1 and 2 have been incorporated into these plans. The following review is a synopsis of the waste handling procedures dictated by these plans and used during the July 2018 through June 2019 time frame for the combined cycle generating Unit 1 and 2, at MLPP.

## NON-HAZARDOUS WASTE

Non-hazardous waste consisting of metal, cardboard and wood is recycled with other non-hazardous waste such as packaging material, office waste, empty containers, and trash, disposed of in local Class II or Class III landfills.

## UNIVERSAL WASTE

Waste streams meeting the Universal Waste definitions contained in Title 22 of the California Code of Regulations Title 22 including, used batteries, fluorescent and mercury vapor lamps, electronic devices, cathode ray tubes (CRTs) and aerosol cans are collected in designated universal waste collection areas. In accordance with title 22 regulations, universal wastes are accumulated on-site in properly labeled containers for no more than one year. Prior to the elapse of the one year time limit, MLPP personnel or a licensed hazardous waste transporter is contracted to transport the waste to an EPA approved recycling/disposal site.

## HAZARDOUS WASTE

Waste generated as a result of the operation and maintenance of Combined Cycle Units 1 & 2 is analyzed and assessed to ensure compliance with all applicable state and federal hazardous waste regulations. Wastes determined to meet the definition of hazardous waste are accumulated at various formally identified satellite accumulation areas located throughout the facility or at the 90 Day Hazardous Waste Storage Area. All hazardous wastes are placed in containers appropriate for the material being placed in them that have been labeled in accordance with state and federal hazardous waste regulations and US Department of Transportation (DOT) regulations. The waste is transported by a registered hazardous waste transporter to a Class I landfill or recycled within 90 days.

## CONTINGENCY PLAN

This section outlines the general Contingency Plan for the Moss Landing Power Plant (MLPP). The MLPP Business Plan/Contingency Plan is formatted in two volumes, with Volume II - Facility Emergency Plan, containing policies and procedures for responding to actual emergencies. Divided into color coded sections, the FEP addresses response and notification to fire, earthquake, flood, medical and chemical spill events.

Note:

> **During an actual emergency situation, including Hazardous Materials Incidents, site personnel will reference Volume II of the Facility Business Plan/Contingency Plan - "Facility Emergency Response Plan" for incident specific information, and response policies and procedures.**

The following subheadings are organized to provide information required by the Monterey County Department of Health for compliance with state emergency response/contingency plan requirements for Hazardous Materials Incidents.

## INCIDENT COMMANDERS

The Primary Incident Commander at MLPP is the Plant Manager/Managing Director. The Secondary Incident Commander is the On-Shift Supervisor. 24-hour contact information for these Incident Commanders is maintained at the MLPP Energy Management Center and listed in the Teams & Contacts section of the Facility Emergency Plan. The Plant Manager, and Operations Shift Supervisors are trained in Plant emergency response policies and procedures, and have the authority required by regulation to act as site Incident Commander in the event of a hazardous material, waste or other emergency.

## REPORTING AND NOTIFICATION

All releases, or threatened releases, involving a hazardous material or waste, are reported immediately to the Incident Commander, who will immediately assess the scene of the emergency. The plant emergency response team and other key personnel

on the emergency contact list in Volume II - Facility Emergency Plan are notified as needed. The Incident Commander will determine if the spill, release, or threatened release is reportable.

Any release or threatened release of a hazardous material or waste that may pose a significant present or potential hazard to human health and safety, the environment, or property, will be immediately verbally reported to: (1) the Emergency Response Agency at "911" (Monterey County Communications Department), or the Monterey County Health Department – Division of Environmental Health; and (2) the California Office of Emergency Services. Immediate reporting will occur as soon as possible following knowledge of such a release, without impeding necessary immediate controls or emergency measures. Immediate reporting will include at least the following information:

- Name and telephone number of the reporter
- Name and address of the facility
- Time and type of incident (e.g., release, fire)
- Name and quantity of material(s) involved, to the extent known
- Extent of injuries, if any
- The possible hazards to human health or the environment outside of the facility
- Whether or not agency assistance is required

Certain types of releases such as releases in excess of Reportable Quantities specified in Title 40 Code of Federal Regulations 302.4 and 355, and releases to navigable waters, may require additional reporting to the U.S. Coast Guard, National Response Center, the Regional Water Quality Control Board, California Department of Toxic Substances Control, or other agencies. Verbal and written reports may be required. Following a release or other emergency, potential reporting requirements will be reviewed and MLPP will comply with reporting requirements, as applicable.

The Incident Commander or their designee will perform immediate reporting. The Incident Commander or designee will determine the need for outside assistance and contact other appropriate response organizations (e.g., medical providers, ambulance service, police and cleanup crews), as necessary.

Agency contact information necessary to make required notifications in the event of an emergency are provided in Volume II – Facility Emergency Plan. Forms to assist in collecting information and/or recording telephone notifications are also provided in Volume II.

## EMERGENCY RESPONSE ARRANGEMENTS

Arrangements have been made with local authorities to respond to an emergency that is beyond the capabilities of on-site resources. The local emergency services organizations listed below have been provided with information on the layout of the facility, properties of hazardous materials handled at the facility and associated hazards,

places where facility personnel would normally be working, entrances to and exits from the facility, roads inside the facility, and possible evacuation routes. The local health care providers listed below have been informed of the properties of hazardous materials handled at the facility and the general type of injuries or illnesses which could result from fires, explosions or releases at the facility.

- Local Authorities and Emergency Response Organizations
  - Monterey County Department of Health – Division of Environmental Health
  - North Monterey County Fire District
  - Monterey County Sheriff
- Health Care Providers
  - Selected local hospital
  - Selected local ambulance service

## EMERGENCY EQUIPMENT

Equipment that may be used to respond to emergencies is located throughout the facility. Emergency equipment locations are shown in the site plot plans in Section 3 of Volume II - Facility Emergency Plan. Emergency response equipment includes telephones, fire extinguishers, fire hose reels, fire hydrants, self-contained breathing apparatus, first aid kits, stretchers, eyewashes, safety showers, and spill containment/cleanup equipment.

## EVACUATION INFORMATION

Should it become necessary to evacuate the facility, the order will be given via the facility emergency notification system and emergency siren activated from the Energy Management Center.

Upon receiving the order to evacuate, and if safe to do so, employees are to shut down equipment and machines and immediately proceed to the nearest of three Evacuation Assembly Areas, formally identified in the Facility Emergency Plan.

In the event that it becomes necessary to evacuate personnel from locations on the plant site, or the public off the plant site, the plant evacuation plan is to be followed. A copy of this plan is included in Volume II of the Business Plan/Contingency Plan.

## EMERGENCY PROCEDURES

Telephone numbers and detailed emergency response procedures are provided in Volume II – Facility Emergency Plan to facilitate timely and effective implementation of emergency response actions. The Facility Emergency Plan includes procedures for fires, expositions, spills, releases, earthquakes, and other potential emergency

situations. **In an actual emergency, the Incident Commander and plant staff will reference Volume II – Facility Emergency Plan.**

Whenever there is an imminent or actual emergency situation such as an explosion, fire, or significant release, the Incident Commander (or his/her designee) will:

- Identify the character, exact source, amount, and areola extent of released hazardous materials, if any;
- Assess possible hazards to human health or the environment that may result from the explosion, fire, or release. This assessment will consider both direct and indirect effects of any toxic, irritating, or asphyxiating gases that are generated, the effects of hazardous surface water runoff from water or chemical agents used to control fire, etc.;
- Activate appropriate internal facility alarms or communications systems to notify appropriate personnel;
- Notify the State Office of Emergency Services ([800] 852-7550 or [916] 262-1621) and the Monterey County Communications Department (@911) or Division of Environmental Health ([831] 755-4540);
- Notify other appropriate local authorities and organizations with designated response roles, if their help is needed;
- Monitor for leaks, pressure buildup, gas generation, or ruptures in valves, pipes, or other equipment shut down in response to the incident;
- Take all reasonable measures necessary to ensure that fires, explosions, or releases do not occur, recur, or spread to other hazardous materials at the facility; and
- Take other reasonable measures necessary to abate hazards to persons, the environment, or property.

During an emergency, the Incident Commander or his/her designee will stand by to assist emergency response agencies and offer the benefit of site specific knowledge of the facility.

Following a major emergency, the Incident Commander or his/her designee will:

- Prepare a written summary of all significant actions taken due to the emergency;
- Disseminate appropriate information regarding the emergency and associated response actions to MLPP staff and corporate officers responsible for emergency planning and response activities, and to relevant external entities;

- Ensure that emergency response plans are reviewed to determine whether modifications should be made in light of the experience gained during the emergency; and
- Review regulatory requirements for follow-up and reporting and take actions necessary to respond to these requirements.

## EMERGENCY RESPONSE TRAINING

Moss Landing Power Plant provides training for all employees whose positions are related to hazardous materials management, and who may be involved in hazardous materials emergencies. The training consists of classroom instruction and on-the-job training aimed at providing employees with the knowledge and means to properly identify and safely handle hazardous materials.

Key aspects of MLPP employee training include general hazard communication, Material Safety Data Sheet (MSDS) utilization, proper use of personal protective equipment (PPE) to minimize or eliminate exposure when handling hazardous materials, and for non-administrative employees, emergency response training. Emergency response training includes instruction on the content, location, and use of the MLPP Business Plan/Contingency Plan (Volume II – Facility Emergency Plan), procedures for coordination with local emergency response organizations, use of emergency response equipment and supplies, and other appropriate topics. The training is designed to comply with requirements of 22 CCR Section 66264.16, 19 CCR Section 2732, and applicable portions of 8 CCR and other relevant regulations.

All applicable employee training documentation, including a full description of training content, presentation materials, and records of both initial employee training and annual refresher training, are maintained on-site at the MLPP.

# Appendix "A"

**Units 1 & 2 Combined Cycle Waste Streams**

| CA WASTE CODE | HAZARDOUS WASTE | Estimated Quantity Tons/year | Frequency Of disposal | Disposition Of Waste |
|---|---|---|---|---|
| | | | | |
| 121 | Alkaline solution with metals | 0.01 | Every 90 days | Treat |
| 122 | Alkaline solution without metals | 0.02 | Every 90 days | Recycle |
| 132 | Aqueous solutions with metals | 0.001 | Every 90 days | Treat |
| 181 | Inorganic solid waste | 3 | Every 90 days | Landfill |
| 213 | Hydrocarbon solvent | 0.01 | Every 90 days | Recycle |
| 214 | Unspecified solvent mixture | 0.3 | Every 90 days | Recycle |
| 221 | Waste oil and mixed oil | 50. | Every 90 days | Recycle |
| 223 | Oil containing waste | 1 | Every 90 days | Landfill |
| 291 | Latex waste | 0.2 | Every 90 days | Recycle |
| 331 | Paint waste solids | 0.07 | Every 90 days | Recycle/landfill |
| 343 | Organic liquid mixture | 0.50 | Every 90 days | Recycle |
| 352 | Other organic solids | 1 | Every 90 days | Landfill |
| 461 | Paint sludge | 0.7 | Every 90 days | Recycle |
| 512 | Empty drums >30 gal. | 0.03 | Every 90 days | Recycle |
| 513 | Empty containers <30 gal. | 1 | Every 90 days | Recycle |
| 551 | Laboratory waste materials | 0.5 | Every 90 days | Recycle |
| 611 | Contaminated soil | 0.1 | Every 90 days | Landfill |
| 791 | Waste acidic liquids, pH <2 | 0.06 | Every 90 days | Recycle |
| | | | | |
| | **NON_HAZARDOUS WASTE** | | | |
| | Wood pallets | 5 | Monthly | Recycle |
| | Shipping /packing material | 1 | Monthly | Landfill |
| | Paper/cardboard | 5 | Monthly | Recycle |
| | Scrap metal | 10 | Monthly | Recycle |
| | Waste liquids with non-hazardous chemicals | 50 | Monthly | Recycle |
| | Iron oxide from boilers | 3 | Monthly | Recycle |
| | | | | |
| | **UNIVERSAL WASTE** | | | |
| | Aerosol Cans | 0.2 | Yearly | Recycle |
| | Electronic Devices | 2 | Yearly | Recycle |
| | Cathode Ray Tubes (CRT) | 0.5 | Yearly | Recycle |
| | Fluorescent & Mercury Vapor Lamps | 0.05 | Yearly | Recycle |
| | Batteries (Non-Automotive) | 1 | Yearly | Recycle |

**California Energy Commission's Condition of Certification**

**VISUAL RESOURCES – 1**

# MOSS LANDING POWER PLANT
# STATUS REPORT REGARDING TREATMENT MAINTENANCE

California Energy Commission Condition of Certification Visual Resources – 1(d) requires Moss Landing Power Plant to submit in its Annual Compliance Report a status report regarding the treatment maintenance of the project structures. The project structures, which are visible to the public, have been painted with a CPM-approved and Monterey County-approved non-reflective color that minimizes contrast and harmonizes with the surrounding environment.

The Moss Landing Power Plant Maintenance Department has procedures to address all aspects of maintaining the power plant efficiently. Issues such as coating or painting are captured by staff's surveillance and utilization of checklists. Once an item is deemed in need of maintenance, Project Planners schedule and prioritize the maintenance through a work order process. Outside contractors are also utilized at Moss Landing Power Plant. A Supervisor inspects and signs off on the work once it is fully complete.

A copy of the checklists used to survey the coatings on Units 1 and 2 are attached to this summary.

# INSPECTION CHECKLIST
# of
# PAINT TREATMENT
# 2017-2018

**UNIT: Steam Turbine 1**

| | TURBINE/ GENERATOR | CONDENSER | SUPERSTRUCTURE |
|---|---|---|---|
| Chalking | 2 (1) | 2 | 1 |
| Erosion | 4 (1), 4(4), 4 (2) | 3 (5), 4(6) | 1 |
| Discoloration | 4 (1) | 3 | 1 |
| Fading | 4 (3) | 2 | 1 |
| Loss of Gloss | 2 | 2 | 2 |
| Mildew Defacement | 1 | 1 | 1 |
| Moisture Blushing | 1 | 1 | 1 |
| Orange Peel | 1 | 1 | 1 |
| Wrinkling | 1 | 1 | 1 |
| Chemical Attack | 1 | 1 | 1 |
| High Temperature Attack | 4 (2) | 1 | 1 |
| Mottling | 1 | 1 | 1 |
| Crackling | 1 | 1 | 1 |
| Saponification | 1 | 1 | 1 |
| Disbonding (peel/blister) | 1 | 1 | 1 |
| Crawling (fish eye) | 1 | 1 | 1 |

Comments:
(1) Turbine Compartment
(2) Air Ejector
(3) Closed Cooling Piping
(4)Cross Over
(5) Water Box Priming System
(6) L.P Piping
(7) Structure Base

Rating System: Mark a number from 1 through 5 in the appropriate box to indicate the condition of the coating:
**1 = No Problems; 2 = Minor Problems; 3 = Average Problems; 4 = Increased Problems; 5 = Major Problems.**

# INSPECTION CHECKLIST
# of
# PAINT TREATMENT
# 2017-2018

**UNIT: Steam Turbine 2**

| | TURBINE/ GENERATOR | CONDENSER | SUPERSTRUCTURE |
|---|---|---|---|
| Chalking | 4 | 2 | 1 |
| Erosion | 4 (2), 4,4 (5) | 4-5, 4 (3) | 1 |
| Discoloration | 4 | 4 (3), 4 | 1 |
| Fading | 4 (2) | 3 | 1 |
| Loss of Gloss | 3 | 3 | 2 |
| Mildew Defacement | 1 | 1 | 1 |
| Moisture Blushing | 1 | 1 | 1 |
| Orange Peel | 1 | 1 | 1 |
| Wrinkling | 1 | 1 | 1 |
| Chemical Attack | 1 | 1 | 1 |
| High Temperature Attack | 4 (2) | 1 | 1 |
| Mottling | 1 | 1 | 1 |
| Crackling | 1 | 1 | 1 |
| Saponification | 1 | 1 | 1 |
| Disbonding (peel/blister) | 1 | 4 (4) | 1 |
| Crawling (fish eye) | 1 | 1 | 1 |

Comments:
(1) Turbine Compartment
(2) Air Ejector
(3) Closed Cooling Piping
(4)Cross Over
(5) Water Box Priming System
(6) L.P Piping
(7) Structure Base

Rating System: Mark a number from 1 through 5 in the appropriate box to indicate the condition of the coating:
**1 = No Problems; 2 = Minor Problems; 3 = Average Problems; 4 = Increased Problems; 5 = Major Problems.**

# INSPECTION CHECKLIST
# of
# PAINT TREATMENT
# 2017-2018

**UNIT: HRSG & Gas Turbine 1**

| | HRSG | TURBINE/ GENERATOR | STACK | SUPERSTRUCTURE |
|---|---|---|---|---|
| Chalking | 1 | 4(3) | 2 | 1 |
| Erosion | 4(2) | 4(3), 4(4) | 3 | 1 |
| Discoloration | 4(1), 4(2) | 4(3), 4(4) | 3 | 1 |
| Fading | 4(1) | 4(3) | 2 | 2 |
| Loss of Gloss | 1 | 3 | 3 | 2 |
| Mildew Defacement | 1 | 1 | 1 | 1 |
| Moisture Blushing | 1 | 1 | 1 | 1 |
| Orange Peel | 1 | 1 | 1 | 1 |
| Wrinkling | 1 | 1 | 1 | 1 |
| Chemical Attack | 1 | 1 | 1 | 1 |
| High Temperature Attack | 4(1) | 1 | 3 | 1 |
| Mottling | 1 | 1 | 1 | 1 |
| Crackling | 1 | 1 | 1 | 1 |
| Saponification | 1 | 1 | 1 | 1 |
| Disbonding (peel/blister) | 4(1) | 1 | 1 | 1 |
| Crawling (fish eye) | 1 | 1 | 1 | 1 |

Comments:
(1) Blowdown Tanks
(2) Piping (HRH,CRH, Aux STM, LP STM, Main STM, Vent Piping)
(3) Lube Oil Compartment/PECC
(4) Turbine?Generator Piping
(5) G/T Shelter Siding
(6) HRSG Casing
(7) Closed Cooling Piping
(8) Collector/ Generator
(9) Filter House

Rating System: Mark a number from 1 through 5 in the appropriate box to indicate the condition of the coating:
**1 = No Problems; 2 = Minor Problems; 3 = Average Problems; 4 = Increased Problems; 5 = Major Problems.**

# INSPECTION CHECKLIST
# of
# PAINT TREATMENT
# 2017-2018

**UNIT: HRSG & Gas Turbine 2**

| | HRSG | TURBINE/ GENERATOR | STACK | SUPERSTRUCTURE |
|---|---|---|---|---|
| Chalking | 1 | 4(3) | 2 | 1 |
| Erosion | 3(2), 4(8), 4 | 3,4(3) | 2 | 1 |
| Discoloration | 4(2),4,4(1) | 4(7) | 3 | 1 |
| Fading | 2, 4(1) | 4(7), 4(3) | 4 | 1 |
| Loss of Gloss | 3 | 3(7), 4(3) | 3 | 2 |
| Mildew Defacement | 1 | 1 | 1 | 1 |
| Moisture Blushing | 1 | 1 | 1 | 1 |
| Orange Peel | 1 | 1 | 1 | 1 |
| Wrinkling | 1 | 1 | 1 | 1 |
| Chemical Attack | 1 | 1 | 1 | 1 |
| High Temperature Attack | 4, 4(1) | 1 | 4 | 1 |
| Mottling | 1 | 1 | 1 | 1 |
| Crackling | 1 | 1 | 1 | 1 |
| Saponification | 1 | 1 | 1 | 1 |
| Disbonding (peel/blister) | 1 | 4 | 1 | 1 |
| Crawling (fish eye) | 1 | 1 | 1 | 1 |

Comments:
(1) Blowdown Tanks
(2) Piping (HRH, CRH, Aux STM, LP STM, Main STM, Vent Piping)
(3) Lube Oil Compartment/PECC
(4) Turbine?Generator Piping
(5) G/T Shelter Siding
(6) HRSG Casing
(7) Closed Cooling Piping
(8) Collector/ Generator
(9) Filter House

Rating System: Mark a number from 1 through 5 in the appropriate box to indicate the condition of the coating:
**1 = No Problems; 2 = Minor Problems; 3 = Average Problems; 4 = Increased Problems; 5 = Major Problems.**

# INSPECTION CHECKLIST
# of
# PAINT TREATMENT
# 2017-2018

**UNIT: HRSG & Gas Turbine 3**

| | HRSG | TURBINE/ GENERATOR | STACK | SUPERSTRUCTURE |
|---|---|---|---|---|
| Chalking | 2 | 3(3) | 2 | 1 |
| Erosion | 4(2), 4 | 4, 4(3) | 1 | 1 |
| Discoloration | 4(1), 4(2) | 4, 4(3) | 3 | 1 |
| Fading | 4(2) | 4(4) | 3 | 1 |
| Loss of Gloss | 3 | 3 | 3 | 2 |
| Mildew Defacement | 1 | 1 | 1 | 1 |
| Moisture Blushing | 1 | 1 | 1 | 1 |
| Orange Peel | 1 | 1 | 1 | 1 |
| Wrinkling | 1 | 1 | 1 | 1 |
| Chemical Attack | 1 | 1 | 1 | 1 |
| High Temperature Attack | 4,4(1) | 2 | 1 | 1 |
| Mottling | 1 | 1 | 1 | 1 |
| Crackling | 1 | 1 | 1 | 1 |
| Saponification | 1 | 1 | 1 | 1 |
| Disbonding (peel/blister) | 4,4(1) | 4(5) | 1 | 1 |
| Crawling (fish eye) | 1 | 1 | 1 | 1 |

Comments:
(1) Blowdown Tanks
(2) Piping (HRH,CRH, Aux STM, LP STM, Main STM, Vent Piping)
(3) Lube Oil Compartment/PECC
(4) Turbine?Generator Piping
(5) G/T Shelter Siding
(6) HRSG Casing
(7) Closed Cooling Piping
(8) Collector/ Generator
(9) Filter House

Rating System: Mark a number from 1 through 5 in the appropriate box to indicate the condition of the coating: **1 = No Problems; 2 = Minor Problems; 3 = Average Problems; 4 = Increased Problems; 5 = Major Problems.**

# INSPECTION CHECKLIST
# of
# PAINT TREATMENT
# 2017-2018

**UNIT: HRSG & Gas Turbine 4**

| | HRSG | TURBINE/ GENERATOR | STACK | SUPERSTRUCTURE |
|---|---|---|---|---|
| Chalking | 2 | 4(4) | 2 | 1 |
| Erosion | 4(1), 4, 4(2) | 4(4),3(9),4 | 1 | 1 |
| Discoloration | 4(1), 4(2) | 3(4) | 4 | 1 |
| Fading | 3 | 3 | 3 | 1 |
| Loss of Gloss | 2 | 1 | 2 | 1 |
| Mildew Defacement | 1 | 1 | 1 | 1 |
| Moisture Blushing | 1 | 1 | 1 | 1 |
| Orange Peel | 1 | 1 | 1 | 1 |
| Wrinkling | 1 | 1 | 1 | 1 |
| Chemical Attack | 1 | 1 | 1 | 1 |
| High Temperature Attack | 4 | 1 | 1 | 1 |
| Mottling | 1 | 1 | 1 | 1 |
| Crackling | 1 | 1 | 1 | 1 |
| Saponification | 1 | 1 | 1 | 1 |
| Disbonding (peel/blister) | 4(1) | 4(5) | 1 | 1 |
| Crawling (fish eye) | 1 | 1 | 1 | 1 |

Comments:
(1) Blowdown Tanks
(2) Piping (HRH,CRH, Aux STM, LP STM, Main STM, Vent Piping)
(3) Lube Oil Compartment/PECC
(4) Turbine?Generator Piping
(5) G/T Shelter Siding
(6) HRSG Casing
(7) Closed Cooling Piping
(8) Collector/ Generator
(9) Filter House

Rating System: Mark a number from 1 through 5 in the appropriate box to indicate the condition of the coating: **1 = No Problems; 2 = Minor Problems; 3 = Average Problems; 4 = Increased Problems; 5 = Major Problems.**

# Exhibit 7

**DYNEGY MOSS LANDING, LLC** — **Cold Starts and Combustion Tuning Information**

| | Event | Hrs Since Last Oprtn | SU > 71 hrs ? * | Start Date/Time | End Date/Time | Hrs | Min | Pass under 240 min limit ? | CO lbs/hr | Pass Std SU (lbs/hr)? | NOx lbs/hr | Pass Std SU (lbs/hr) ? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PTO Condition 5 LIMITS | | | | | | | | | 3608 | | 320 |
| May '19 2A | Combustion Tuning | n/a | n/a | 5/18/19 12:59 | 5/18/19 13:25 | 0.45 hrs | 27 min | ok | 112 | ok | 26 | ok |
| 1A | Combustion Tuning | n/a | n/a | 5/19/19 12:15 | 5/19/19 12:39 | 0.42 hrs | 25 min | ok | 116 | ok | 23 | ok |

PTO = Permit To Operate

SU = Startup

* **PTO Condition 3**: Steam turbine cold start-up periods are start-up periods that last more than four (4) hours or exceed the start-up emission limits in Condition 5, and follow a shutdown of the steam turbine for at least 72 hours.

2 Steam Turbine Cold Start and Combustion Tuning events

| | | STCS | Comb Tuning | Total |
|---|---|---|---|---|
| 1A | Hrs used under NEW* defn. = | 0.00 hrs | 0.42 hrs | 0.42 hrs |
| 2A | Hrs used under NEW* defn. = | 0.00 hrs | 0.45 hrs | 0.45 hrs |
| 3A | Hrs used under NEW* defn. = | 0.00 hrs | 0.00 hrs | 0.00 hrs |
| 4A | Hrs used under NEW* defn. = | 0.00 hrs | 0.00 hrs | 0.00 hrs |

MONTEREY BAY AIR RESOURCES DISTRICT

# PERMIT TO OPERATE

GNR-0017598A

24580 SILVER CLOUD CT., MONTEREY, CA 93940 TELEPHONE (831) 647-9411 • FAX (831) 647-8501

OPERATION UNDER THIS PERMIT MUST BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS INCLUDED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED. THE EQUIPMENT MUST BE PROPERLY MAINTAINED AND KEPT IN GOOD CONDITION AT ALL TIMES. THIS PERMIT TO OPERATE MUST BE POSTED OR ACCESSIBLE.

| | |
|---|---|
| LEGAL OWNER OR OPERATOR: | DYNEGY MOSS LANDING, LLC |
| EQUIPMENT LOCATED AT: | Highway One & Dolan Road<br>Moss Landing, California |
| EQUIPMENT DESCRIPTION AND CONDITIONS: | THIS PERMIT TO OPERATE IS ISSSUED AND IS VALID FOR THIS EQUIPMENT ONLY WHILE IT IS IN THE CONFIGURATION SET FORTH IN THE FOLLOWING DESCRIPTION: |

COMBINED CYCLE GAS TURBINE GENERATOR UNIT 1A:

1. Gas Turbine Generator, General Electric Frame 7, Model PG7241, Serial #297602, Rated At 1,870 MMBtu/Hr Maximum Heat Input And 180 MW Nominal Electrical Output, Dry Low-$NO_x$ Combustor.

2. Water Tube Type Heat Recovery Steam Generator (HRSG), Nominal Ratings: High Pressure Steam Capacity: 409,900 Lbs/Hr @ 1,903 psia And 1,047°F, Intermediate Pressure Steam Capacity: 484,500 Lbs/Hr @ 358 psia And 1,022°F, Low Pressure Steam Capacity: 55,300 Lbs/Hr @ 71 psia And 499°F.

3. Steam Turbine Generator And Condenser Serving Gas Turbine Units 1A And 2A, Quadruple Admission, Triple Extraction, 196.8 MW Nominal Rated Electrical Output.

4. Selective Catalytic Reduction $NO_x$ Control System Consisting Of 2,244 $Ft^3$ Cormetech Type CM-21 Vanadium, Titanium, And Tungsten Oxide Honeycomb Catalyst Located Within The HRSG.

5. Ammonia Injection System.

6. CEM System Consisting Of:

    a. Sample Acquisition Probe As Described In The Monitoring And Reporting Protocol.

    b. Instrumentation Shelter, 8' x 10', Located Approximately 20 Feet From The Stack. Shelter Houses Sample Transport And Conditioning Systems, And Analyzers.

    c. Analyzers:

        i. Chemiluminescence Analyzer Measuring $NO_2$.



**THIS PERMIT BECOMES VOID UPON ANY CHANGE OF OWNERSHIP OR ADDRESS, OR ANY ALTERATION.**

THIS PERMIT DOES NOT AUTHORIZE THE EMISSIONS OF AIR CONTAMINANTS IN EXCESS OF THOSE ALLOWED BY ARTICLE 1, CHAPTER 3, PART 4, DIVISION 26 OF THE HEALTH & SAFETY CODE OF THE STATE OF CALIFORNIA OR THE RULES AND REGULATIONS OF THE AIR POLLUTION CONTROL DISTRICT. THIS PERMIT CANNOT BE CONSIDERED AS PERMISSION TO VIOLATE EXISTING LAWS, ORDINANCES, REGULATION OR STATUTES OF OTHER GOVERNMENTAL AGENCIES.

Mary Giraudo, For
AIR POLLUTION CONTROL OFFICER

DATE 6/08/2018

ii. Analyzer Measuring CO Via Non-Dispersive Infrared Measurement And $O_2$ Via Paramagnetic Measurement As Described In Monitoring And Reporting Protocol.

iii. Data Acquisition System, VIM Technologies, Installed On An IBM Compatible Computer Located In The Control Room.

THE EQUIPMENT FOR WHICH THIS PERMIT TO OPERATE IS ISSUED MAY BE OPERATED ONLY WHEN IN COMPLIANCE WITH THE FOLLOWING CONDITIONS:

Conditions:

1. The heat input rate to this gas turbine shall not exceed 1,870 MMBtu/hr.

2. The maximum daily combined emissions from the gas turbines, including start-ups and shutdowns and combustor tuning periods, shall not exceed the following limits:

| Pollutant | Lbs/Day |
|---|---|
| Oxides of Nitrogen ($NO_x$) | 2,589.4 |
| Carbon Monoxide (CO) | 17,301.8 |
| Particulate Matter <10 microns ($PM_{10}$) | 864.0 |
| Volatile Organic Compounds (VOC) | 620.0 |
| Ammonia ($NH_3$) | 1,224.0 |
| Sulfur Dioxide ($SO_2$) | 124.8 |

3. The pollutant mass emission rates in the exhaust discharged to the atmosphere from this gas turbine shall not exceed the following limits:

| Pollutant | Lbs/Hour | Lbs/Day |
|---|---|---|
| Oxides of Nitrogen ($NO_x$) | 17.23 | 413.5 |
| Carbon Monoxide (CO) | 37.76 | 906.2 |
| Particulate Matter <10 microns ($PM_{10}$) | 9.00 | 216.0 |
| Volatile Organic Compounds (VOC) | 4.79 | 115.0 |
| Ammonia ($NH_3$) | 12.75 | 306.0 |
| Sulfur Dioxide ($SO_2$) | 1.30 | 31.2 |

These limits shall not apply during start-up, which is not to exceed four (4) hours, during shutdown, which is not to exceed two (2) hours, or during steam turbine cold start-up or combustor tuning, which are not to exceed six (6) hours. SCR catalytic controls and good engineering practices shall be used to the fullest extent practical during start-up, shutdown, and combustor tuning to minimize pollutant emissions.

Steam turbine cold start-up periods are start-up periods that last more than four (4) hours or exceed the start-up emission limits in Condition 5, and follow a shutdown of the steam turbine for at least 72 hours.

Combustor tuning activities include all testing, adjustment, tuning, and calibration activities associated with combustor replacement and maintenance recommended by the gas turbine manufacturer to ensure

safe and reliable steady state operation of the gas turbines. This includes, but is not limited to, adjusting the amount of fuel distributed between the combustion turbine's staged fuel systems to simultaneously minimize $NO_x$, CO, and VOC production while ensuring combustor stability.

4. The pollutant concentrations discharged to the atmosphere from this gas turbine shall not exceed the following limits, calculated at 15 percent $O_2$ on a one-hour rolling average unless otherwise noted:

| Pollutant | Concentration (ppm) |
|---|---|
| Oxides of Nitrogen (as $NO_2$) | 2.5 (clock hour average) |
| Carbon Monoxide (CO) | 9.0 rolling three-hour average) |
| Ammonia ($NH_3$) | 5.0 (three 60 minute averages) |

These limits shall not apply: during start-up, which is not to exceed four (4) hours; during shutdown, which is not to exceed two (2) hours; or during steam turbine cold start-up or combustor tuning, which are not to exceed six (6) hours. SCR catalytic controls and good engineering practices shall be used to the fullest extent practical during start-up, shutdown, and combustor tuning to minimize pollutant emissions.

5. The pollutant emission rates discharged to the atmosphere from this gas turbine during start-up, shutdown, or combustor tuning activities shall not exceed the following limits. These limits apply to any start-up period which shall not exceed four (4) hours, to any shutdown, which shall not exceed two (2) hours, and to any steam turbine cold start-up or combustor tuning, which shall not exceed six (6) hours.

| Pollutant | Lbs/Start-up | Lbs/Cold Start-up or Combustor Tuning | Lbs/Shutdown |
|---|---|---|---|
| $NO_x$ (as $NO_2$) | 320.0 | 480.0 | 160.0 |
| CO | 3,608.0 | 5,412.0 | 1,804.0 |
| VOCs (as $CH_4$) | 64.0 | 214.0 | 32.0 |

6. Exceedance of the hourly $NO_x$ emission limits specified in Conditions 3 and 4 is allowed during short-term excursions which total less than 10 hours per rolling 12-month period.

   Short-term excursions are defined as 15-minute periods designated by Dynegy Moss Landing, LLC that are a direct result of a combustor mode switchover, not to exceed four consecutive 15-minute periods, when the 15-minute average $NO_x$ concentration exceeds 2.5 ppm corrected to 15% $O_2$.

   The maximum 1-hour $NO_x$ concentration for periods that include short-term excursions shall not exceed 30 ppmvd corrected to 15% $O_2$. All emissions during short-term excursions shall be included in all calculations of daily, quarterly, and annual mass emissions required by this permit.

7. The CEM system shall be operated on this gas turbine. This system shall be designed to continuously record the measured gaseous concentrations, and calculate and continuously monitor and record the CO, $CO_2$ or $O_2$, and $NO_x$ concentrations corrected to fifteen (15) percent oxygen ($O_2$) on a dry basis.

   The equipment for the continuous monitoring of CO shall be maintained and operated in accordance with 40 CFR Part 60 Appendix F, and the equipment for the continuous monitoring of $CO_2$ or $O_2$ and $NO_x$ shall be maintained and operated in accordance with 40 CFR Parts 72 and 75.

8. Cumulative emissions, including emissions generated during start-ups, shutdowns, and combustor tuning activities, from all power generation equipment at the Moss Landing Power Plant shall not exceed the following quarterly limits:

| Pollutant | Pounds Of Emissions Per Calendar Quarter | | | |
|---|---|---|---|---|
| | First | Second | Third | Fourth |
| $NO_x$ (as $NO_2$) | 169,840 | 169,840 | 169,840 | 169,840 |
| $SO_x$ | 10,920 | 10,920 | 10,920 | 10,920 |
| VOC | 44,720 | 44,720 | 44,720 | 44,720 |
| $PM_{10}$ | 75,600 | 75,600 | 75,600 | 75,600 |
| CO | 662,960 | 662,960 | 662,960 | 662,960 |

9. This equipment shall be abated by a properly operated and maintained Selective Catalytic Reduction System.

10. No more than one of the gas turbines shall be operated in support of a steam turbine cold start-up or undergo combustor tuning at any one time.

11. The total number of hours during which each gas turbine may be operated to support a steam turbine cold start-up or may undergo combustor tuning shall not exceed 30 hours per year.

12. To demonstrate compliance with Condition 11, Dynegy Moss Landing, LLC shall record the start time, end time, and duration of each steam turbine cold start-up and each combustor tuning period. On an annual basis, Dynegy Moss Landing, LLC shall report the total number of hours during which each gas turbine operated to support a steam turbine cold start-up or in combustor tuning mode during the year.

13. Dynegy Moss Landing, LLC shall demonstrate compliance by using properly operated and maintained continuous emission monitors (during all hours of operation including equipment start-up and shutdown periods and combustor tuning activities, except for periods of CEM maintenance performed in accordance with District requirements) for all of the following parameters:

    a) Firing hours and Fuel Flow Rates.

    b) Oxygen ($O_2$) Concentrations, Nitrogen Oxide ($NO_x$) Concentrations, and Carbon Monoxide (CO) Concentrations.

    c) Ammonia Injection Rates.

    Dynegy Moss Landing, LLC shall record all of the above parameters every 15 minutes (excluding normal calibration periods) and shall summarize all of the above parameters for each clock hour. For each calendar day, Dynegy Moss Landing, LLC shall calculate and record the total Firing Hours, the average hourly Fuel Flow Rates, and pollutant emission concentrations.

    Dynegy Moss Landing, LLC shall use the parameters measured above and District-approved calculation methods to calculate the following parameters:

    d) Heat Input Rate.

    e) Corrected $NO_x$ concentrations, $NO_x$ mass emissions (as $NO_2$), corrected CO concentrations, and CO mass emissions.

For each source, Dynegy Moss Landing, LLC shall record the parameters specified in Sections (d) and (e) of this condition every 15 minutes (excluding normal calibration periods). As specified below, Dynegy Moss Landing, LLC shall calculate and record the following data:

f) Total Heat Input Rate for every clock hour;

g) The $NO_x$ mass emissions (as $NO_2$), and corrected average $NO_x$ emission concentration for every clock hour;

h) The CO mass emissions, and corrected average CO emission concentration for every rolling three-hour period;

i) On an hourly basis, the cumulative total $NO_x$ mass emission (as $NO_2$) and the cumulative total CO mass emissions;

j) For each calendar day, the cumulative total $NO_x$ mass emission (as $NO_2$) and the cumulative total CO mass emissions;

k) For each calendar quarter, the cumulative total $NO_x$ mass emission (as $NO_2$) and the cumulative total CO mass emissions; and,

l) For each calendar year, the cumulative total $NO_x$ mass emission (as $NO_2$) and the cumulative total CO mass emissions.

14. Dynegy Moss Landing, LLC shall calculate and record on a daily basis, the volatile organic compound (VOC) mass emissions, fine particulate matter ($PM_{10}$) mass emissions, sulfur dioxide ($SO_2$) mass emissions, and ammonia ($NH_3$) mass emissions from each source. Dynegy Moss Landing, LLC shall use the actual heat input rates, actual start-up times, actual shutdown times, actual combustor tuning times and District-approved emission factors to calculate these emissions. The calculated emissions shall be presented as follows:

    a) For each calendar day, VOC, $PM_{10}$, $SO_2$, and $NH_3$ mass emissions shall be summarized for each source.

    b) On a daily basis, the cumulative total VOC, $PM_{10}$, $SO_2$ and $NH_3$ mass emissions shall be summarized for each calendar quarter and for the calendar year.

15. Instrumentation must be operated to measure the SCR catalyst inlet temperature and pressure differential across the SCR catalyst.

16. Dynegy Moss Landing, LLC shall submit monthly reports on the continuous emissions monitoring systems to the District in accordance to the Monitoring and Reporting Protocol for Monthly Reporting (Reporting Protocol) approved by the District. The written Monthly Report shall be submitted to the District within 30 days from the end of the month and shall include:

    a) time intervals, date, and magnitude of excess emissions; nature and cause of the excess (if known), corrective actions and preventive measures adopted;

    b) the averaging period used for data reporting, corresponding to averaging period specified in the emission test period used to determine compliance with an emission standard for the pollutant and source category in question;

c) time and date of each period during which the continuous monitoring system was inoperative, except for zero and span checks, and the nature of system repairs and adjustments;

d) a negative declaration when no excess emissions occurred; and,

e) a summary of actual monthly emissions, summarized and totaled on a quarterly basis, from the CEM for all subject equipment which operated during the month and/or quarter.

17. Dynegy Moss Landing, LLC shall monitor and report $SO_2$ emissions in accordance with 40 CFR Parts 72 and 75.

18. Dynegy Moss Landing, LLC shall hold Sulfur Dioxide Allowances in the compliance subaccounts not less than the total annual emissions of sulfur dioxide for the previous calendar year.

19. A written Quality Assurance program must be established in accordance with 40 CFR Part 75, Appendix B and 40 CFR Part 60, Appendix F which includes, but is not limited to procedures for daily calibration testing, quarterly linearity and leak testing, record keeping and reporting implementation, and relative accuracy testing.

20. Pursuant to Title IV, Part 75, Section 75.50, and District Rule 431, Section 4.3, permanent records shall be maintained for a period of five years after creation. The records at a minimum shall include all items specified in Section 75.50 and in District Rule 431.

21. Dynegy Moss Landing, LLC shall submit quarterly Electronic Data Reports (EDR) to EPA. These reports must be submitted within 30 days following the end of the calendar quarter. The reports must be in electronic format and at a minimum must include all items listed in 40 CFR Section 75.64.

22. Dynegy Moss Landing, LLC shall cause testing to be performed to verify compliance with the ammonia ($NH_3$) slip limit every EPA operating quarter, as defined in 40 CFR Part 72, or in the next EPA operating quarter if this unit cannot be tested in an EPA operating quarter due to the unit being non-operational at the time of scheduled testing. Dynegy Moss Landing, LLC shall conduct this testing in accordance with the collection method specified in BAAQMD Source Test Procedure ST-1B and the analysis specified in EPA method 350.3.

23. Annual performance tests shall be conducted in accordance with the District test procedures, and the written results of the performance tests shall be provided to the District within thirty (30) days after testing. A testing protocol shall be submitted to the District no later than thirty (30) days prior to the testing, and notification to the District at least ten (10) days prior to the actual date of testing shall be provided so that a District observer may be present. Changes to the test date made subsequent to the initial ten day notification may be communicated by telephone or other acceptable means no less than forty-eight (48) hours prior to the new test date.

    The performance tests shall include those parameters specified in the approved test protocol, and shall at a minimum include the following:

    a) Oxides of Nitrogen (as $NO_2$): ppmv dry at 15% $O_2$ and lbm/hr;

    b) Carbon Monoxide: ppmv dry at 15% $O_2$ and lbm/hr;

    c) Volatile Organic Compounds (as $CH_4$): ppmv dry at 15% $O_2$ and lbm/hr;

    d) Ammonia ($NH_3$): ppmv dry at 15% $O_2$ and lbm/hr;

and the following process parameters:

e) Natural gas consumption;

f) Electricity generated during the test; and,

g) Stack gas flow rate (SDCFM) calculated according to procedures in EPA method 19.

24. Dynegy Moss Landing, LLC shall report all breakdowns which result in the inability to comply with any emission standard or requirement contained on this permit to the Air Pollution Control Officer (APCO) within 1 hour or within one hour of the time the owner or operator knew, or reasonably should have known of the occurrence. The APCO may elect to take no enforcement action if Dynegy Moss Landing, LLC demonstrates to the APCO's satisfaction that a breakdown condition exists.

    The estimated time for repair of the breakdown shall be supplied to the APCO within 24 hours of the occurrence and a written report shall be supplied to the APCO within 5 working days after the occurrence has been corrected. This report shall include at a minimum:

    a) a statement that the condition or failure has been corrected and the date of correction;

    b) a description of the reasons for the occurrence;

    c) a description of the corrective measures undertaken and/or to be undertaken to avoid such an occurrence in the future; and,

    d) an estimate of the emissions caused by the condition or failure.

25. Dynegy Moss Landing, LLC shall maintain adequate stack sampling ports and platforms to enable the performance of source testing.

26. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three (3) minutes in any one (1) hour which is as dark or darker than Ringelmann 1, or equivalent 20% opacity.

27. Notwithstanding the requirements of Condition 26, no air contaminant shall be discharged into the atmosphere for a two (2) hour period from the gas turbine exhaust during start-up for a period or periods aggregating more than three (3) minutes in any one (1) hour which is as dark or darker than Ringelmann 2, or equivalent 40% opacity. Good engineering practices shall be used to the fullest extent practical during start-up to minimize pollutant emissions.

28. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as or darker than Ringelmann 1, or equivalent 20 percent opacity.

29. No emissions shall constitute a public nuisance.

30. Dynegy Moss Landing, LLC shall fund the operation of the "Stationary Source" percentage of the District's Salinas air monitoring station.

**Note:** The annual renewal date of this permit is 7/4.

MONTEREY BAY AIR RESOURCES DISTRICT

# PERMIT TO OPERATE

GNR-0017599A

24580 SILVER CLOUD CT., MONTEREY, CA 93940 TELEPHONE (831) 647-9411 • FAX (831) 647-8501

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| | |
|---|---|
| LEGAL OWNER OR OPERATOR: | DYNEGY MOSS LANDING, LLC |
| EQUIPMENT LOCATED AT: | Highway One & Dolan Road<br>Moss Landing, California |
| EQUIPMENT DESCRIPTION AND CONDITIONS: | THIS PERMIT TO OPERATE IS ISSSUED AND IS VALID FOR THIS EQUIPMENT ONLY WHILE IT IS IN THE CONFIGURATION SET FORTH IN THE FOLLOWING DESCRIPTION: |

COMBINED CYCLE GAS TURBINE GENERATOR UNIT 2A:

1. Gas Turbine Generator, General Electric Frame 7, Model PG7241, Serial #297603, Rated At 1,870 MMBtu/Hr Maximum Heat Input And 180 MW Nominal Electrical Output, Dry Low-$NO_x$ Combustor.

2. Water Tube Type Heat Recovery Steam Generator (HRSG), Nominal Ratings: High Pressure Steam Capacity: 409,900 Lbs/Hr @ 1,903 psia And 1,047°F, Intermediate Pressure Steam Capacity: 484,500 Lbs/Hr @ 358 psia And 1,022°F, Low Pressure Steam Capacity: 55,300 Lbs/Hr @ 71 psia And 499°F.

3. Steam Turbine Generator And Condenser Serving Gas Turbine Units 1A And 2A, Quadruple Admission, Triple Extraction, 196.8 MW Nominal Rated Electrical Output.

4. Selective Catalytic Reduction $NO_x$ Control System Consisting Of 2,244 $Ft^3$ Cormetech Type CM-21 Vanadium, Titanium, And Tungsten Oxide Honeycomb Catalyst Located Within The HRSG.

5. Ammonia Injection System.

6. CEM System Consisting Of:

    a. Sample Acquisition Probe As Described In The Monitoring And Reporting Protocol.

    b. Instrumentation Shelter, 8' x 10', Located Approximately 20 Feet From The Stack. Shelter Houses Sample Transport And Conditioning Systems, And Analyzers.

    c. Analyzers:

        i. Chemiluminescence Analyzer Measuring $NO_2$.



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THIS PERMIT DOES NOT AUTHORIZE THE EMISSIONS OF AIR CONTAMINANTS IN EXCESS OF THOSE ALLOWED BY ARTICLE 1, CHAPTER 3, PART 4, DIVISION 26 OF THE HEALTH & SAFETY CODE OF THE STATE OF CALIFORNIA OR THE RULES AND REGULATIONS OF THE AIR POLLUTION CONTROL DISTRICT. THIS PERMIT CANNOT BE CONSIDERED AS PERMISSION TO VIOLATE EXISTING LAWS, ORDINANCES, REGULATION OR STATUTES OF OTHER GOVERNMENTAL AGENCIES.

Mary Giraudo, For
AIR POLLUTION CONTROL OFFICER

DATE 6/08/2018

ii. Analyzer Measuring CO Via Non-Dispersive Infrared Measurement And $O_2$ Via Paramagnetic Measurement As Described In Monitoring And Reporting Protocol.

iii. Data Acquisition System, VIM Technologies, Installed On An IBM Compatible Computer Located In The Control Room.

THE EQUIPMENT FOR WHICH THIS PERMIT TO OPERATE IS ISSUED MAY BE OPERATED ONLY WHEN IN COMPLIANCE WITH THE FOLLOWING CONDITIONS:

Conditions:

1. The heat input rate to this gas turbine shall not exceed 1,870 MMBtu/hr.

2. The maximum daily combined emissions from the gas turbines, including start-ups and shutdowns and combustor tuning periods, shall not exceed the following limits:

| Pollutant | Lbs/Day |
|---|---|
| Oxides of Nitrogen ($NO_x$) | 2,589.4 |
| Carbon Monoxide (CO) | 17,301.8 |
| Particulate Matter <10 microns ($PM_{10}$) | 864.0 |
| Volatile Organic Compounds (VOC) | 620.0 |
| Ammonia ($NH_3$) | 1,224.0 |
| Sulfur Dioxide ($SO_2$) | 124.8 |

3. The pollutant mass emission rates in the exhaust discharged to the atmosphere from this gas turbine shall not exceed the following limits:

| Pollutant | Lbs/Hour | Lbs/Day |
|---|---|---|
| Oxides of Nitrogen ($NO_x$) | 17.23 | 413.5 |
| Carbon Monoxide (CO) | 37.76 | 906.2 |
| Particulate Matter <10 microns ($PM_{10}$) | 9.00 | 216.0 |
| Volatile Organic Compounds (VOC) | 4.79 | 115.0 |
| Ammonia ($NH_3$) | 12.75 | 306.0 |
| Sulfur Dioxide ($SO_2$) | 1.30 | 31.2 |

These limits shall not apply during start-up, which is not to exceed four (4) hours, during shutdown, which is not to exceed two (2) hours, or during steam turbine cold start-up or combustor tuning, which are not to exceed six (6) hours. SCR catalytic controls and good engineering practices shall be used to the fullest extent practical during start-up, shutdown, and combustor tuning to minimize pollutant emissions.

Steam turbine cold start-up periods are start-up periods that last more than four (4) hours or exceed the start-up emission limits in Condition 5, and follow a shutdown of the steam turbine for at least 72 hours.

Combustor tuning activities include all testing, adjustment, tuning, and calibration activities associated with combustor replacement and maintenance recommended by the gas turbine manufacturer to ensure

safe and reliable steady state operation of the gas turbines. This includes, but is not limited to, adjusting the amount of fuel distributed between the combustion turbine's staged fuel systems to simultaneously minimize $NO_x$, CO, and VOC production while ensuring combustor stability.

4. The pollutant concentrations discharged to the atmosphere from this gas turbine shall not exceed the following limits, calculated at 15 percent $O_2$ on a one-hour rolling average unless otherwise noted:

| Pollutant | Concentration (ppm) |
|---|---|
| Oxides of Nitrogen (as $NO_2$) | 2.5 (clock hour average) |
| Carbon Monoxide (CO) | 9.0 rolling three-hour average) |
| Ammonia ($NH_3$) | 5.0 (three 60 minute averages) |

These limits shall not apply: during start-up, which is not to exceed four (4) hours; during shutdown, which is not to exceed two (2) hours; or during steam turbine cold start-up or combustor tuning, which are not to exceed six (6) hours. SCR catalytic controls and good engineering practices shall be used to the fullest extent practical during start-up, shutdown, and combustor tuning to minimize pollutant emissions.

5. The pollutant emission rates discharged to the atmosphere from this gas turbine during start-up, shutdown, or combustor tuning activities shall not exceed the following limits. These limits apply to any start-up period which shall not exceed four (4) hours, to any shutdown, which shall not exceed two (2) hours, and to any steam turbine cold start-up or combustor tuning, which shall not exceed six (6) hours.

| Pollutant | Lbs/Start-up | Lbs/Cold Start-up or Combustor Tuning | Lbs/Shutdown |
|---|---|---|---|
| $NO_x$ (as $NO_2$) | 320.0 | 480.0 | 160.0 |
| CO | 3,608.0 | 5,412.0 | 1,804.0 |
| VOCs (as $CH_4$) | 64.0 | 214.0 | 32.0 |

6. Exceedance of the hourly $NO_x$ emission limits specified in Conditions 3 and 4 is allowed during short-term excursions which total less than 10 hours per rolling 12-month period.

   Short-term excursions are defined as 15-minute periods designated by Dynegy Moss Landing, LLC that are a direct result of a combustor mode switchover, not to exceed four consecutive 15-minute periods, when the 15-minute average $NO_x$ concentration exceeds 2.5 ppm corrected to 15% $O_2$.

   The maximum 1-hour $NO_x$ concentration for periods that include short-term excursions shall not exceed 30 ppmvd corrected to 15% $O_2$. All emissions during short-term excursions shall be included in all calculations of daily, quarterly, and annual mass emissions required by this permit.

7. The CEM system shall be operated on this gas turbine. This system shall be designed to continuously record the measured gaseous concentrations, and calculate and continuously monitor and record the CO, $CO_2$ or $O_2$, and $NO_x$ concentrations corrected to fifteen (15) percent oxygen ($O_2$) on a dry basis.

   The equipment for the continuous monitoring of CO shall be maintained and operated in accordance with 40 CFR Part 60 Appendix F, and the equipment for the continuous monitoring of $CO_2$ or $O_2$ and $NO_x$ shall be maintained and operated in accordance with 40 CFR Parts 72 and 75.

8. Cumulative emissions, including emissions generated during start-ups, shutdowns, and combustor tuning activities, from all power generation equipment at the Moss Landing Power Plant shall not exceed the following quarterly limits:

| Pollutant | Pounds Of Emissions Per Calendar Quarter | | | |
|---|---|---|---|---|
| | First | Second | Third | Fourth |
| $NO_x$ (as $NO_2$) | 169,840 | 169,840 | 169,840 | 169,840 |
| $SO_x$ | 10,920 | 10,920 | 10,920 | 10,920 |
| VOC | 44,720 | 44,720 | 44,720 | 44,720 |
| $PM_{10}$ | 75,600 | 75,600 | 75,600 | 75,600 |
| CO | 662,960 | 662,960 | 662,960 | 662,960 |

9. This equipment shall be abated by a properly operated and maintained Selective Catalytic Reduction System.

10. No more than one of the gas turbines shall be operated in support of a steam turbine cold start-up or undergo combustor tuning at any one time.

11. The total number of hours during which each gas turbine may be operated to support a steam turbine cold start-up or may undergo combustor tuning shall not exceed 30 hours per year.

12. To demonstrate compliance with Condition 11, Dynegy Moss Landing, LLC shall record the start time, end time, and duration of each steam turbine cold start-up and each combustor tuning period. On an annual basis, Dynegy Moss Landing, LLC shall report the total number of hours during which each gas turbine operated to support a steam turbine cold start-up or in combustor tuning mode during the year.

13. Dynegy Moss Landing, LLC shall demonstrate compliance by using properly operated and maintained continuous emission monitors (during all hours of operation including equipment start-up and shutdown periods and combustor tuning activities, except for periods of CEM maintenance performed in accordance with District requirements) for all of the following parameters:

    a) Firing hours and Fuel Flow Rates.

    b) Oxygen ($O_2$) Concentrations, Nitrogen Oxide ($NO_x$) Concentrations, and Carbon Monoxide (CO) Concentrations.

    c) Ammonia Injection Rates.

    Dynegy Moss Landing, LLC shall record all of the above parameters every 15 minutes (excluding normal calibration periods) and shall summarize all of the above parameters for each clock hour. For each calendar day, Dynegy Moss Landing, LLC shall calculate and record the total Firing Hours, the average hourly Fuel Flow Rates, and pollutant emission concentrations.

    Dynegy Moss Landing, LLC shall use the parameters measured above and District-approved calculation methods to calculate the following parameters:

    d) Heat Input Rate.

    e) Corrected $NO_x$ concentrations, $NO_x$ mass emissions (as $NO_2$), corrected CO concentrations, and CO mass emissions.

For each source, Dynegy Moss Landing, LLC shall record the parameters specified in Sections (d) and (e) of this condition every 15 minutes (excluding normal calibration periods). As specified below, Dynegy Moss Landing, LLC shall calculate and record the following data:

f) Total Heat Input Rate for every clock hour;

g) The $NO_x$ mass emissions (as $NO_2$), and corrected average $NO_x$ emission concentration for every clock hour;

h) The CO mass emissions, and corrected average CO emission concentration for every rolling three-hour period;

i) On an hourly basis, the cumulative total $NO_x$ mass emission (as $NO_2$) and the cumulative total CO mass emissions;

j) For each calendar day, the cumulative total $NO_x$ mass emission (as $NO_2$) and the cumulative total CO mass emissions;

k) For each calendar quarter, the cumulative total $NO_x$ mass emission (as $NO_2$) and the cumulative total CO mass emissions; and,

l) For each calendar year, the cumulative total $NO_x$ mass emission (as $NO_2$) and the cumulative total CO mass emissions.

14. Dynegy Moss Landing, LLC shall calculate and record on a daily basis, the volatile organic compound (VOC) mass emissions, fine particulate matter ($PM_{10}$) mass emissions, sulfur dioxide ($SO_2$) mass emissions, and ammonia ($NH_3$) mass emissions from each source. Dynegy Moss Landing, LLC shall use the actual heat input rates, actual start-up times, actual shutdown times, actual combustor tuning times and District-approved emission factors to calculate these emissions. The calculated emissions shall be presented as follows:

    a) For each calendar day, VOC, $PM_{10}$, $SO_2$, and $NH_3$ mass emissions shall be summarized for each source.

    b) On a daily basis, the cumulative total VOC, $PM_{10}$, $SO_2$ and $NH_3$ mass emissions shall be summarized for each calendar quarter and for the calendar year.

15. Instrumentation must be operated to measure the SCR catalyst inlet temperature and pressure differential across the SCR catalyst.

16. Dynegy Moss Landing, LLC shall submit monthly reports on the continuous emissions monitoring systems to the District in accordance to the Monitoring and Reporting Protocol for Monthly Reporting (Reporting Protocol) approved by the District. The written Monthly Report shall be submitted to the District within 30 days from the end of the month and shall include:

    a) time intervals, date, and magnitude of excess emissions; nature and cause of the excess (if known), corrective actions and preventive measures adopted;

    b) the averaging period used for data reporting, corresponding to averaging period specified in the emission test period used to determine compliance with an emission standard for the pollutant and source category in question;

c) time and date of each period during which the continuous monitoring system was inoperative, except for zero and span checks, and the nature of system repairs and adjustments;

d) a negative declaration when no excess emissions occurred; and,

e) a summary of actual monthly emissions, summarized and totaled on a quarterly basis, from the CEM for all subject equipment which operated during the month and/or quarter.

17. Dynegy Moss Landing, LLC shall monitor and report $SO_2$ emissions in accordance with 40 CFR Parts 72 and 75.

18. Dynegy Moss Landing, LLC shall hold Sulfur Dioxide Allowances in the compliance subaccounts not less than the total annual emissions of sulfur dioxide for the previous calendar year.

19. A written Quality Assurance program must be established in accordance with 40 CFR Part 75, Appendix B and 40 CFR Part 60, Appendix F which includes, but is not limited to procedures for daily calibration testing, quarterly linearity and leak testing, record keeping and reporting implementation, and relative accuracy testing.

20. Pursuant to Title IV, Part 75, Section 75.50, and District Rule 431, Section 4.3, permanent records shall be maintained for a period of five years after creation. The records at a minimum shall include all items specified in Section 75.50 and in District Rule 431.

21. Dynegy Moss Landing, LLC shall submit quarterly Electronic Data Reports (EDR) to EPA. These reports must be submitted within 30 days following the end of the calendar quarter. The reports must be in electronic format and at a minimum must include all items listed in 40 CFR Section 75.64.

22. Dynegy Moss Landing, LLC shall cause testing to be performed to verify compliance with the ammonia ($NH_3$) slip limit every EPA operating quarter, as defined in 40 CFR Part 72, or in the next EPA operating quarter if this unit cannot be tested in an EPA operating quarter due to the unit being non-operational at the time of scheduled testing. Dynegy Moss Landing, LLC shall conduct this testing in accordance with the collection method specified in BAAQMD Source Test Procedure ST-1B and the analysis specified in EPA method 350.3.

23. Annual performance tests shall be conducted in accordance with the District test procedures, and the written results of the performance tests shall be provided to the District within thirty (30) days after testing. A testing protocol shall be submitted to the District no later than thirty (30) days prior to the testing, and notification to the District at least ten (10) days prior to the actual date of testing shall be provided so that a District observer may be present. Changes to the test date made subsequent to the initial ten day notification may be communicated by telephone or other acceptable means no less than forty-eight (48) hours prior to the new test date.

    The performance tests shall include those parameters specified in the approved test protocol, and shall at a minimum include the following:

    a) Oxides of Nitrogen (as $NO_2$): ppmv dry at 15% $O_2$ and lbm/hr;

    b) Carbon Monoxide: ppmv dry at 15% $O_2$ and lbm/hr;

    c) Volatile Organic Compounds (as $CH_4$): ppmv dry at 15% $O_2$ and lbm/hr;

    d) Ammonia ($NH_3$): ppmv dry at 15% $O_2$ and lbm/hr;

and the following process parameters:

e) Natural gas consumption;

f) Electricity generated during the test; and,

g) Stack gas flow rate (SDCFM) calculated according to procedures in EPA method 19.

24. Dynegy Moss Landing, LLC shall report all breakdowns which result in the inability to comply with any emission standard or requirement contained on this permit to the Air Pollution Control Officer (APCO) within 1 hour or within one hour of the time the owner or operator knew, or reasonably should have known of the occurrence. The APCO may elect to take no enforcement action if Dynegy Moss Landing, LLC demonstrates to the APCO's satisfaction that a breakdown condition exists.

    The estimated time for repair of the breakdown shall be supplied to the APCO within 24 hours of the occurrence and a written report shall be supplied to the APCO within 5 working days after the occurrence has been corrected. This report shall include at a minimum:

    a) a statement that the condition or failure has been corrected and the date of correction;

    b) a description of the reasons for the occurrence;

    c) a description of the corrective measures undertaken and/or to be undertaken to avoid such an occurrence in the future; and,

    d) an estimate of the emissions caused by the condition or failure.

25. Dynegy Moss Landing, LLC shall maintain adequate stack sampling ports and platforms to enable the performance of source testing.

26. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three (3) minutes in any one (1) hour which is as dark or darker than Ringelmann 1, or equivalent 20% opacity.

27. Notwithstanding the requirements of Condition 26, no air contaminant shall be discharged into the atmosphere for a two (2) hour period from the gas turbine exhaust during start-up for a period or periods aggregating more than three (3) minutes in any one (1) hour which is as dark or darker than Ringelmann 2, or equivalent 40% opacity. Good engineering practices shall be used to the fullest extent practical during start-up to minimize pollutant emissions.

28. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as or darker than Ringelmann 1, or equivalent 20 percent opacity.

29. No emissions shall constitute a public nuisance.

30. Dynegy Moss Landing, LLC shall fund the operation of the "Stationary Source" percentage of the District's Salinas air monitoring station.

**Note:** The annual renewal date of this permit is 7/4.

MONTEREY BAY AIR RESOURCES DISTRICT

# PERMIT TO OPERATE

GNR-0017600A

24580 SILVER CLOUD CT., MONTEREY, CA 93940 TELEPHONE (831) 647-9411 • FAX (831) 647-8501

OPERATION UNDER THIS PERMIT MUST BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS INCLUDED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED. THE EQUIPMENT MUST BE PROPERLY MAINTAINED AND KEPT IN GOOD CONDITION AT ALL TIMES. THIS PERMIT TO OPERATE MUST BE POSTED OR ACCESSIBLE.

| | |
|---|---|
| LEGAL OWNER OR OPERATOR: | DYNEGY MOSS LANDING, LLC |
| EQUIPMENT LOCATED AT: | Highway One & Dolan Road<br>Moss Landing, California |
| EQUIPMENT DESCRIPTION AND CONDITIONS: | THIS PERMIT TO OPERATE IS ISSSUED AND IS VALID FOR THIS EQUIPMENT ONLY WHILE IT IS IN THE CONFIGURATION SET FORTH IN THE FOLLOWING DESCRIPTION: |

COMBINED CYCLE GAS TURBINE GENERATOR UNIT 3A:

1. Gas Turbine Generator, General Electric Frame 7, Model PG7241, Serial #297604, Rated At 1,870 MMBtu/Hr Maximum Heat Input And 180 MW Nominal Electrical Output, Dry Low-$NO_x$ Combustor.

2. Water Tube Type Heat Recovery Steam Generator (HRSG), Nominal Ratings: High Pressure Steam Capacity: 409,900 Lbs/Hr @ 1,903 psia And 1,047°F, Intermediate Pressure Steam Capacity: 484,500 Lbs/Hr @ 358 psia And 1,022°F, Low Pressure Steam Capacity: 55,300 Lbs/Hr @ 71 psia And 499°F.

3. Steam Turbine Generator And Condenser Serving Gas Turbine Units 3A And 4A, Quadruple Admission, Triple Extraction, 196.8 MW Nominal Rated Electrical Output.

4. Selective Catalytic Reduction $NO_x$ Control System Consisting Of 2,244 $Ft^3$ Cormetech Type CM-21 Vanadium, Titanium, And Tungsten Oxide Honeycomb Catalyst Located Within The HRSG.

5. Ammonia Injection System.

6. CEM System Consisting Of:

    a. Sample Acquisition Probe As Described In The Monitoring And Reporting Protocol.

    b. Instrumentation Shelter, 8' x 10', Located Approximately 20 Feet From The Stack. Shelter Houses Sample Transport And Conditioning Systems, And Analyzers.

    c. Analyzers:

        i. Chemiluminescence Analyzer Measuring $NO_2$.



**THIS PERMIT BECOMES VOID UPON ANY CHANGE OF OWNERSHIP OR ADDRESS, OR ANY ALTERATION.**

THIS PERMIT DOES NOT AUTHORIZE THE EMISSIONS OF AIR CONTAMINANTS IN EXCESS OF THOSE ALLOWED BY ARTICLE 1, CHAPTER 3, PART 4, DIVISION 26 OF THE HEALTH & SAFETY CODE OF THE STATE OF CALIFORNIA OR THE RULES AND REGULATIONS OF THE AIR POLLUTION CONTROL DISTRICT. THIS PERMIT CANNOT BE CONSIDERED AS PERMISSION TO VIOLATE EXISTING LAWS, ORDINANCES, REGULATION OR STATUTES OF OTHER GOVERNMENTAL AGENCIES.

Mary Giraudo

AIR POLLUTION CONTROL OFFICER

DATE 6/08/2018

ii. Analyzer Measuring CO Via Non-Dispersive Infrared Measurement And $O_2$ Via Paramagnetic Measurement As Described In Monitoring And Reporting Protocol.

iii. Data Acquisition System, VIM Technologies, Installed On An IBM Compatible Computer Located In The Control Room.

THE EQUIPMENT FOR WHICH THIS PERMIT TO OPERATE IS ISSUED MAY BE OPERATED ONLY WHEN IN COMPLIANCE WITH THE FOLLOWING CONDITIONS:

Conditions:

1. The heat input rate to this gas turbine shall not exceed 1,870 MMBtu/hr.

2. The maximum daily combined emissions from the gas turbines, including start-ups and shutdowns and combustor tuning periods, shall not exceed the following limits:

| Pollutant | Lbs/Day |
|---|---|
| Oxides of Nitrogen ($NO_x$) | 2,589.4 |
| Carbon Monoxide (CO) | 17,301.8 |
| Particulate Matter <10 microns ($PM_{10}$) | 864.0 |
| Volatile Organic Compounds (VOC) | 620.0 |
| Ammonia ($NH_3$) | 1,224.0 |
| Sulfur Dioxide ($SO_2$) | 124.8 |

3. The pollutant mass emission rates in the exhaust discharged to the atmosphere from this gas turbine shall not exceed the following limits:

| Pollutant | Lbs/Hour | Lbs/Day |
|---|---|---|
| Oxides of Nitrogen ($NO_x$) | 17.23 | 413.5 |
| Carbon Monoxide (CO) | 37.76 | 906.2 |
| Particulate Matter <10 microns ($PM_{10}$) | 9.00 | 216.0 |
| Volatile Organic Compounds (VOC) | 4.79 | 115.0 |
| Ammonia ($NH_3$) | 12.75 | 306.0 |
| Sulfur Dioxide ($SO_2$) | 1.30 | 31.2 |

These limits shall not apply during start-up, which is not to exceed four (4) hours, during shutdown, which is not to exceed two (2) hours, or during steam turbine cold start-up or combustor tuning, which are not to exceed six (6) hours. SCR catalytic controls and good engineering practices shall be used to the fullest extent practical during start-up, shutdown, and combustor tuning to minimize pollutant emissions.

Steam turbine cold start-up periods are start-up periods that last more than four (4) hours or exceed the start-up emission limits in Condition 5, and follow a shutdown of the steam turbine for at least 72 hours.

Combustor tuning activities include all testing, adjustment, tuning, and calibration activities associated with combustor replacement and maintenance recommended by the gas turbine manufacturer to ensure

safe and reliable steady state operation of the gas turbines. This includes, but is not limited to, adjusting the amount of fuel distributed between the combustion turbine's staged fuel systems to simultaneously minimize $NO_x$, CO, and VOC production while ensuring combustor stability.

4. The pollutant concentrations discharged to the atmosphere from this gas turbine shall not exceed the following limits, calculated at 15 percent $O_2$ on a one-hour rolling average unless otherwise noted:

| Pollutant | Concentration (ppm) |
|---|---|
| Oxides of Nitrogen (as $NO_2$) | 2.5 (clock hour average) |
| Carbon Monoxide (CO) | 9.0 rolling three-hour average) |
| Ammonia ($NH_3$) | 5.0 (three 60 minute averages) |

These limits shall not apply: during start-up, which is not to exceed four (4) hours; during shutdown, which is not to exceed two (2) hours; or during steam turbine cold start-up or combustor tuning, which are not to exceed six (6) hours. SCR catalytic controls and good engineering practices shall be used to the fullest extent practical during start-up, shutdown, and combustor tuning to minimize pollutant emissions.

5. The pollutant emission rates discharged to the atmosphere from this gas turbine during start-up, shutdown, or combustor tuning activities shall not exceed the following limits. These limits apply to any start-up period which shall not exceed four (4) hours, to any shutdown, which shall not exceed two (2) hours, and to any steam turbine cold start-up or combustor tuning, which shall not exceed six (6) hours.

| Pollutant | Lbs/Start-up | Lbs/Cold Start-up or Combustor Tuning | Lbs/Shutdown |
|---|---|---|---|
| $NO_x$ (as $NO_2$) | 320.0 | 480.0 | 160.0 |
| CO | 3,608.0 | 5,412.0 | 1,804.0 |
| VOCs (as $CH_4$) | 64.0 | 214.0 | 32.0 |

6. Exceedance of the hourly $NO_x$ emission limits specified in Conditions 3 and 4 is allowed during short-term excursions which total less than 10 hours per rolling 12-month period.

   Short-term excursions are defined as 15-minute periods designated by Dynegy Moss Landing, LLC that are a direct result of a combustor mode switchover, not to exceed four consecutive 15-minute periods, when the 15-minute average $NO_x$ concentration exceeds 2.5 ppm corrected to 15% $O_2$.

   The maximum 1-hour $NO_x$ concentration for periods that include short-term excursions shall not exceed 30 ppmvd corrected to 15% $O_2$. All emissions during short-term excursions shall be included in all calculations of daily, quarterly, and annual mass emissions required by this permit.

7. The CEM system shall be operated on this gas turbine. This system shall be designed to continuously record the measured gaseous concentrations, and calculate and continuously monitor and record the CO, $CO_2$ or $O_2$, and $NO_x$ concentrations corrected to fifteen (15) percent oxygen ($O_2$) on a dry basis.

   The equipment for the continuous monitoring of CO shall be maintained and operated in accordance with 40 CFR Part 60 Appendix F, and the equipment for the continuous monitoring of $CO_2$ or $O_2$ and $NO_x$ shall be maintained and operated in accordance with 40 CFR Parts 72 and 75.

8. Cumulative emissions, including emissions generated during start-ups, shutdowns, and combustor tuning activities, from all power generation equipment at the Moss Landing Power Plant shall not exceed the following quarterly limits:

| Pollutant | Pounds Of Emissions Per Calendar Quarter | | | |
|---|---|---|---|---|
| | First | Second | Third | Fourth |
| $NO_x$ (as $NO_2$) | 169,840 | 169,840 | 169,840 | 169,840 |
| $SO_x$ | 10,920 | 10,920 | 10,920 | 10,920 |
| VOC | 44,720 | 44,720 | 44,720 | 44,720 |
| $PM_{10}$ | 75,600 | 75,600 | 75,600 | 75,600 |
| CO | 662,960 | 662,960 | 662,960 | 662,960 |

9. This equipment shall be abated by a properly operated and maintained Selective Catalytic Reduction System.

10. No more than one of the gas turbines shall be operated in support of a steam turbine cold start-up or undergo combustor tuning at any one time.

11. The total number of hours during which each gas turbine may be operated to support a steam turbine cold start-up or may undergo combustor tuning shall not exceed 30 hours per year.

12. To demonstrate compliance with Condition 11, Dynegy Moss Landing, LLC shall record the start time, end time, and duration of each steam turbine cold start-up and each combustor tuning period. On an annual basis, Dynegy Moss Landing, LLC shall report the total number of hours during which each gas turbine operated to support a steam turbine cold start-up or in combustor tuning mode during the year.

13. Dynegy Moss Landing, LLC shall demonstrate compliance by using properly operated and maintained continuous emission monitors (during all hours of operation including equipment start-up and shutdown periods and combustor tuning activities, except for periods of CEM maintenance performed in accordance with District requirements) for all of the following parameters:

    a) Firing hours and Fuel Flow Rates.

    b) Oxygen ($O_2$) Concentrations, Nitrogen Oxide ($NO_x$) Concentrations, and Carbon Monoxide (CO) Concentrations.

    c) Ammonia Injection Rates.

    Dynegy Moss Landing, LLC shall record all of the above parameters every 15 minutes (excluding normal calibration periods) and shall summarize all of the above parameters for each clock hour. For each calendar day, Dynegy Moss Landing, LLC shall calculate and record the total Firing Hours, the average hourly Fuel Flow Rates, and pollutant emission concentrations.

    Dynegy Moss Landing, LLC shall use the parameters measured above and District-approved calculation methods to calculate the following parameters:

    d) Heat Input Rate.

    e) Corrected $NO_x$ concentrations, $NO_x$ mass emissions (as $NO_2$), corrected CO concentrations, and CO mass emissions.

For each source, Dynegy Moss Landing, LLC shall record the parameters specified in Sections (d) and (e) of this condition every 15 minutes (excluding normal calibration periods). As specified below, Dynegy Moss Landing, LLC shall calculate and record the following data:

f) Total Heat Input Rate for every clock hour;

g) The $NO_x$ mass emissions (as $NO_2$), and corrected average $NO_x$ emission concentration for every clock hour;

h) The CO mass emissions, and corrected average CO emission concentration for every rolling three-hour period;

i) On an hourly basis, the cumulative total $NO_x$ mass emission (as $NO_2$) and the cumulative total CO mass emissions;

j) For each calendar day, the cumulative total $NO_x$ mass emission (as $NO_2$) and the cumulative total CO mass emissions;

k) For each calendar quarter, the cumulative total $NO_x$ mass emission (as $NO_2$) and the cumulative total CO mass emissions; and,

l) For each calendar year, the cumulative total $NO_x$ mass emission (as $NO_2$) and the cumulative total CO mass emissions.

14. Dynegy Moss Landing, LLC shall calculate and record on a daily basis, the volatile organic compound (VOC) mass emissions, fine particulate matter ($PM_{10}$) mass emissions, sulfur dioxide ($SO_2$) mass emissions, and ammonia ($NH_3$) mass emissions from each source. Dynegy Moss Landing, LLC shall use the actual heat input rates, actual start-up times, actual shutdown times, actual combustor tuning times and District-approved emission factors to calculate these emissions. The calculated emissions shall be presented as follows:

    a) For each calendar day, VOC, $PM_{10}$, $SO_2$, and $NH_3$ mass emissions shall be summarized for each source.

    b) On a daily basis, the cumulative total VOC, $PM_{10}$, $SO_2$ and $NH_3$ mass emissions shall be summarized for each calendar quarter and for the calendar year.

15. Instrumentation must be operated to measure the SCR catalyst inlet temperature and pressure differential across the SCR catalyst.

16. Dynegy Moss Landing, LLC shall submit monthly reports on the continuous emissions monitoring systems to the District in accordance to the Monitoring and Reporting Protocol for Monthly Reporting (Reporting Protocol) approved by the District. The written Monthly Report shall be submitted to the District within 30 days from the end of the month and shall include:

    a) time intervals, date, and magnitude of excess emissions; nature and cause of the excess (if known), corrective actions and preventive measures adopted;

    b) the averaging period used for data reporting, corresponding to averaging period specified in the emission test period used to determine compliance with an emission standard for the pollutant and source category in question;

c) time and date of each period during which the continuous monitoring system was inoperative, except for zero and span checks, and the nature of system repairs and adjustments;

d) a negative declaration when no excess emissions occurred; and,

e) a summary of actual monthly emissions, summarized and totaled on a quarterly basis, from the CEM for all subject equipment which operated during the month and/or quarter.

17. Dynegy Moss Landing, LLC shall monitor and report $SO_2$ emissions in accordance with 40 CFR Parts 72 and 75.

18. Dynegy Moss Landing, LLC shall hold Sulfur Dioxide Allowances in the compliance subaccounts not less than the total annual emissions of sulfur dioxide for the previous calendar year.

19. A written Quality Assurance program must be established in accordance with 40 CFR Part 75, Appendix B and 40 CFR Part 60, Appendix F which includes, but is not limited to procedures for daily calibration testing, quarterly linearity and leak testing, record keeping and reporting implementation, and relative accuracy testing.

20. Pursuant to Title IV, Part 75, Section 75.50, and District Rule 431, Section 4.3, permanent records shall be maintained for a period of five years after creation. The records at a minimum shall include all items specified in Section 75.50 and in District Rule 431.

21. Dynegy Moss Landing, LLC shall submit quarterly Electronic Data Reports (EDR) to EPA. These reports must be submitted within 30 days following the end of the calendar quarter. The reports must be in electronic format and at a minimum must include all items listed in 40 CFR Section 75.64.

22. Dynegy Moss Landing, LLC shall cause testing to be performed to verify compliance with the ammonia ($NH_3$) slip limit every EPA operating quarter, as defined in 40 CFR Part 72, or in the next EPA operating quarter if this unit cannot be tested in an EPA operating quarter due to the unit being non-operational at the time of scheduled testing. Dynegy Moss Landing, LLC shall conduct this testing in accordance with the collection method specified in BAAQMD Source Test Procedure ST-1B and the analysis specified in EPA method 350.3.

23. Annual performance tests shall be conducted in accordance with the District test procedures, and the written results of the performance tests shall be provided to the District within thirty (30) days after testing. A testing protocol shall be submitted to the District no later than thirty (30) days prior to the testing, and notification to the District at least ten (10) days prior to the actual date of testing shall be provided so that a District observer may be present. Changes to the test date made subsequent to the initial ten day notification may be communicated by telephone or other acceptable means no less than forty-eight (48) hours prior to the new test date.

    The performance tests shall include those parameters specified in the approved test protocol, and shall at a minimum include the following:

    a) Oxides of Nitrogen (as $NO_2$): ppmv dry at 15% $O_2$ and lbm/hr;

    b) Carbon Monoxide: ppmv dry at 15% $O_2$ and lbm/hr;

    c) Volatile Organic Compounds (as $CH_4$): ppmv dry at 15% $O_2$ and lbm/hr;

    d) Ammonia ($NH_3$): ppmv dry at 15% $O_2$ and lbm/hr;

and the following process parameters:

e) Natural gas consumption;

f) Electricity generated during the test; and,

g) Stack gas flow rate (SDCFM) calculated according to procedures in EPA method 19.

24. Dynegy Moss Landing, LLC shall report all breakdowns which result in the inability to comply with any emission standard or requirement contained on this permit to the Air Pollution Control Officer (APCO) within 1 hour or within one hour of the time the owner or operator knew, or reasonably should have known of the occurrence. The APCO may elect to take no enforcement action if Dynegy Moss Landing, LLC demonstrates to the APCO's satisfaction that a breakdown condition exists.

    The estimated time for repair of the breakdown shall be supplied to the APCO within 24 hours of the occurrence and a written report shall be supplied to the APCO within 5 working days after the occurrence has been corrected. This report shall include at a minimum:

    a) a statement that the condition or failure has been corrected and the date of correction;

    b) a description of the reasons for the occurrence;

    c) a description of the corrective measures undertaken and/or to be undertaken to avoid such an occurrence in the future; and,

    d) an estimate of the emissions caused by the condition or failure.

25. Dynegy Moss Landing, LLC shall maintain adequate stack sampling ports and platforms to enable the performance of source testing.

26. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three (3) minutes in any one (1) hour which is as dark or darker than Ringelmann 1, or equivalent 20% opacity.

27. Notwithstanding the requirements of Condition 26, no air contaminant shall be discharged into the atmosphere for a two (2) hour period from the gas turbine exhaust during start-up for a period or periods aggregating more than three (3) minutes in any one (1) hour which is as dark or darker than Ringelmann 2, or equivalent 40% opacity. Good engineering practices shall be used to the fullest extent practical during start-up to minimize pollutant emissions.

28. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as or darker than Ringelmann 1, or equivalent 20 percent opacity.

29. No emissions shall constitute a public nuisance.

30. Dynegy Moss Landing, LLC shall fund the operation of the "Stationary Source" percentage of the District's Salinas air monitoring station.

**Note:** The annual renewal date of this permit is 7/4.

MONTEREY BAY AIR RESOURCES DISTRICT

# PERMIT TO OPERATE

GNR-0017601A

24580 SILVER CLOUD CT., MONTEREY, CA 93940 TELEPHONE (831) 647-9411 • FAX (831) 647-8501

OPERATION UNDER THIS PERMIT MUST BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS INCLUDED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED. THE EQUIPMENT MUST BE PROPERLY MAINTAINED AND KEPT IN GOOD CONDITION AT ALL TIMES. THIS PERMIT TO OPERATE MUST BE POSTED OR ACCESSIBLE.

| | |
|---|---|
| LEGAL OWNER OR OPERATOR: | DYNEGY MOSS LANDING, LLC |
| EQUIPMENT LOCATED AT: | Highway One & Dolan Road<br>Moss Landing, California |
| EQUIPMENT DESCRIPTION AND CONDITIONS: | THIS PERMIT TO OPERATE IS ISSSUED AND IS VALID FOR THIS EQUIPMENT ONLY WHILE IT IS IN THE CONFIGURATION SET FORTH IN THE FOLLOWING DESCRIPTION: |

COMBINED CYCLE GAS TURBINE GENERATOR UNIT 4A:

1. Gas Turbine Generator, General Electric Frame 7, Model PG7241, Serial #297605, Rated At 1,870 MMBtu/Hr Maximum Heat Input And 180 MW Nominal Electrical Output, Dry Low-$NO_x$ Combustor.

2. Water Tube Type Heat Recovery Steam Generator (HRSG), Nominal Ratings: High Pressure Steam Capacity: 409,900 Lbs/Hr @ 1,903 psia And 1,047°F, Intermediate Pressure Steam Capacity: 484,500 Lbs/Hr @ 358 psia And 1,022°F, Low Pressure Steam Capacity: 55,300 Lbs/Hr @ 71 psia And 499°F.

3. Steam Turbine Generator And Condenser Serving Gas Turbine Units 3A And 4A, Quadruple Admission, Triple Extraction, 196.8 MW Nominal Rated Electrical Output.

4. Selective Catalytic Reduction $NO_x$ Control System Consisting Of 2,244 $Ft^3$ Cormetech Type CM-21 Vanadium, Titanium, And Tungsten Oxide Honeycomb Catalyst Located Within The HRSG.

5. Ammonia Injection System.

6. CEM System Consisting Of:

    a. Sample Acquisition Probe As Described In The Monitoring And Reporting Protocol.

    b. Instrumentation Shelter, 8' x 10', Located Approximately 20 Feet From The Stack. Shelter Houses Sample Transport And Conditioning Systems, And Analyzers.

    c. Analyzers:

        i. Chemiluminescence Analyzer Measuring $NO_2$.



**THIS PERMIT BECOMES VOID UPON ANY CHANGE OF OWNERSHIP OR ADDRESS, OR ANY ALTERATION.**

THIS PERMIT DOES NOT AUTHORIZE THE EMISSIONS OF AIR CONTAMINANTS IN EXCESS OF THOSE ALLOWED BY ARTICLE 1, CHAPTER 3, PART 4, DIVISION 26 OF THE HEALTH & SAFETY CODE OF THE STATE OF CALIFORNIA OR THE RULES AND REGULATIONS OF THE AIR POLLUTION CONTROL DISTRICT. THIS PERMIT CANNOT BE CONSIDERED AS PERMISSION TO VIOLATE EXISTING LAWS, ORDINANCES, REGULATION OR STATUTES OF OTHER GOVERNMENTAL AGENCIES.

Mary Giraudo

AIR POLLUTION CONTROL OFFICER

DATE 6/08/2018

ii. Analyzer Measuring CO Via Non-Dispersive Infrared Measurement And $O_2$ Via Paramagnetic Measurement As Described In Monitoring And Reporting Protocol.

iii. Data Acquisition System, VIM Technologies, Installed On An IBM Compatible Computer Located In The Control Room.

THE EQUIPMENT FOR WHICH THIS PERMIT TO OPERATE IS ISSUED MAY BE OPERATED ONLY WHEN IN COMPLIANCE WITH THE FOLLOWING CONDITIONS:

Conditions:

1. The heat input rate to this gas turbine shall not exceed 1,870 MMBtu/hr.

2. The maximum daily combined emissions from the gas turbines, including start-ups and shutdowns and combustor tuning periods, shall not exceed the following limits:

| Pollutant | Lbs/Day |
|---|---|
| Oxides of Nitrogen ($NO_x$) | 2,589.4 |
| Carbon Monoxide (CO) | 17,301.8 |
| Particulate Matter <10 microns ($PM_{10}$) | 864.0 |
| Volatile Organic Compounds (VOC) | 620.0 |
| Ammonia ($NH_3$) | 1,224.0 |
| Sulfur Dioxide ($SO_2$) | 124.8 |

3. The pollutant mass emission rates in the exhaust discharged to the atmosphere from this gas turbine shall not exceed the following limits:

| Pollutant | Lbs/Hour | Lbs/Day |
|---|---|---|
| Oxides of Nitrogen ($NO_x$) | 17.23 | 413.5 |
| Carbon Monoxide (CO) | 37.76 | 906.2 |
| Particulate Matter <10 microns ($PM_{10}$) | 9.00 | 216.0 |
| Volatile Organic Compounds (VOC) | 4.79 | 115.0 |
| Ammonia ($NH_3$) | 12.75 | 306.0 |
| Sulfur Dioxide ($SO_2$) | 1.30 | 31.2 |

These limits shall not apply during start-up, which is not to exceed four (4) hours, during shutdown, which is not to exceed two (2) hours, or during steam turbine cold start-up or combustor tuning, which are not to exceed six (6) hours. SCR catalytic controls and good engineering practices shall be used to the fullest extent practical during start-up, shutdown, and combustor tuning to minimize pollutant emissions.

Steam turbine cold start-up periods are start-up periods that last more than four (4) hours or exceed the start-up emission limits in Condition 5, and follow a shutdown of the steam turbine for at least 72 hours.

Combustor tuning activities include all testing, adjustment, tuning, and calibration activities associated with combustor replacement and maintenance recommended by the gas turbine manufacturer to ensure

safe and reliable steady state operation of the gas turbines. This includes, but is not limited to, adjusting the amount of fuel distributed between the combustion turbine's staged fuel systems to simultaneously minimize $NO_x$, CO, and VOC production while ensuring combustor stability.

4. The pollutant concentrations discharged to the atmosphere from this gas turbine shall not exceed the following limits, calculated at 15 percent $O_2$ on a one-hour rolling average unless otherwise noted:

| Pollutant | Concentration (ppm) |
|---|---|
| Oxides of Nitrogen (as $NO_2$) | 2.5 (clock hour average) |
| Carbon Monoxide (CO) | 9.0 rolling three-hour average) |
| Ammonia ($NH_3$) | 5.0 (three 60 minute averages) |

These limits shall not apply: during start-up, which is not to exceed four (4) hours; during shutdown, which is not to exceed two (2) hours; or during steam turbine cold start-up or combustor tuning, which are not to exceed six (6) hours. SCR catalytic controls and good engineering practices shall be used to the fullest extent practical during start-up, shutdown, and combustor tuning to minimize pollutant emissions.

5. The pollutant emission rates discharged to the atmosphere from this gas turbine during start-up, shutdown, or combustor tuning activities shall not exceed the following limits. These limits apply to any start-up period which shall not exceed four (4) hours, to any shutdown, which shall not exceed two (2) hours, and to any steam turbine cold start-up or combustor tuning, which shall not exceed six (6) hours.

| Pollutant | Lbs/Start-up | Lbs/Cold Start-up or Combustor Tuning | Lbs/Shutdown |
|---|---|---|---|
| $NO_x$ (as $NO_2$) | 320.0 | 480.0 | 160.0 |
| CO | 3,608.0 | 5,412.0 | 1,804.0 |
| VOCs (as $CH_4$) | 64.0 | 214.0 | 32.0 |

6. Exceedance of the hourly $NO_x$ emission limits specified in Conditions 3 and 4 is allowed during short-term excursions which total less than 10 hours per rolling 12-month period.

   Short-term excursions are defined as 15-minute periods designated by Dynegy Moss Landing, LLC that are a direct result of a combustor mode switchover, not to exceed four consecutive 15-minute periods, when the 15-minute average $NO_x$ concentration exceeds 2.5 ppm corrected to 15% $O_2$.

   The maximum 1-hour $NO_x$ concentration for periods that include short-term excursions shall not exceed 30 ppmvd corrected to 15% $O_2$. All emissions during short-term excursions shall be included in all calculations of daily, quarterly, and annual mass emissions required by this permit.

7. The CEM system shall be operated on this gas turbine. This system shall be designed to continuously record the measured gaseous concentrations, and calculate and continuously monitor and record the CO, $CO_2$ or $O_2$, and $NO_x$ concentrations corrected to fifteen (15) percent oxygen ($O_2$) on a dry basis.

   The equipment for the continuous monitoring of CO shall be maintained and operated in accordance with 40 CFR Part 60 Appendix F, and the equipment for the continuous monitoring of $CO_2$ or $O_2$ and $NO_x$ shall be maintained and operated in accordance with 40 CFR Parts 72 and 75.

8. Cumulative emissions, including emissions generated during start-ups, shutdowns, and combustor tuning activities, from all power generation equipment at the Moss Landing Power Plant shall not exceed the following quarterly limits:

| Pollutant | Pounds Of Emissions Per Calendar Quarter | | | |
|---|---|---|---|---|
| | First | Second | Third | Fourth |
| $NO_x$ (as $NO_2$) | 169,840 | 169,840 | 169,840 | 169,840 |
| $SO_x$ | 10,920 | 10,920 | 10,920 | 10,920 |
| VOC | 44,720 | 44,720 | 44,720 | 44,720 |
| $PM_{10}$ | 75,600 | 75,600 | 75,600 | 75,600 |
| CO | 662,960 | 662,960 | 662,960 | 662,960 |

9. This equipment shall be abated by a properly operated and maintained Selective Catalytic Reduction System.

10. No more than one of the gas turbines shall be operated in support of a steam turbine cold start-up or undergo combustor tuning at any one time.

11. The total number of hours during which each gas turbine may be operated to support a steam turbine cold start-up or may undergo combustor tuning shall not exceed 30 hours per year.

12. To demonstrate compliance with Condition 11, Dynegy Moss Landing, LLC shall record the start time, end time, and duration of each steam turbine cold start-up and each combustor tuning period. On an annual basis, Dynegy Moss Landing, LLC shall report the total number of hours during which each gas turbine operated to support a steam turbine cold start-up or in combustor tuning mode during the year.

13. Dynegy Moss Landing, LLC shall demonstrate compliance by using properly operated and maintained continuous emission monitors (during all hours of operation including equipment start-up and shutdown periods and combustor tuning activities, except for periods of CEM maintenance performed in accordance with District requirements) for all of the following parameters:

    a) Firing hours and Fuel Flow Rates.

    b) Oxygen ($O_2$) Concentrations, Nitrogen Oxide ($NO_x$) Concentrations, and Carbon Monoxide (CO) Concentrations.

    c) Ammonia Injection Rates.

    Dynegy Moss Landing, LLC shall record all of the above parameters every 15 minutes (excluding normal calibration periods) and shall summarize all of the above parameters for each clock hour. For each calendar day, Dynegy Moss Landing, LLC shall calculate and record the total Firing Hours, the average hourly Fuel Flow Rates, and pollutant emission concentrations.

    Dynegy Moss Landing, LLC shall use the parameters measured above and District-approved calculation methods to calculate the following parameters:

    d) Heat Input Rate.

    e) Corrected $NO_x$ concentrations, $NO_x$ mass emissions (as $NO_2$), corrected CO concentrations, and CO mass emissions.

For each source, Dynegy Moss Landing, LLC shall record the parameters specified in Sections (d) and (e) of this condition every 15 minutes (excluding normal calibration periods). As specified below, Dynegy Moss Landing, LLC shall calculate and record the following data:

f) Total Heat Input Rate for every clock hour;

g) The $NO_x$ mass emissions (as $NO_2$), and corrected average $NO_x$ emission concentration for every clock hour;

h) The CO mass emissions, and corrected average CO emission concentration for every rolling three-hour period;

i) On an hourly basis, the cumulative total $NO_x$ mass emission (as $NO_2$) and the cumulative total CO mass emissions;

j) For each calendar day, the cumulative total $NO_x$ mass emission (as $NO_2$) and the cumulative total CO mass emissions;

k) For each calendar quarter, the cumulative total $NO_x$ mass emission (as $NO_2$) and the cumulative total CO mass emissions; and,

l) For each calendar year, the cumulative total $NO_x$ mass emission (as $NO_2$) and the cumulative total CO mass emissions.

14. Dynegy Moss Landing, LLC shall calculate and record on a daily basis, the volatile organic compound (VOC) mass emissions, fine particulate matter ($PM_{10}$) mass emissions, sulfur dioxide ($SO_2$) mass emissions, and ammonia ($NH_3$) mass emissions from each source. Dynegy Moss Landing, LLC shall use the actual heat input rates, actual start-up times, actual shutdown times, actual combustor tuning times and District-approved emission factors to calculate these emissions. The calculated emissions shall be presented as follows:

    a) For each calendar day, VOC, $PM_{10}$, $SO_2$, and $NH_3$ mass emissions shall be summarized for each source.

    b) On a daily basis, the cumulative total VOC, $PM_{10}$, $SO_2$ and $NH_3$ mass emissions shall be summarized for each calendar quarter and for the calendar year.

15. Instrumentation must be operated to measure the SCR catalyst inlet temperature and pressure differential across the SCR catalyst.

16. Dynegy Moss Landing, LLC shall submit monthly reports on the continuous emissions monitoring systems to the District in accordance to the Monitoring and Reporting Protocol for Monthly Reporting (Reporting Protocol) approved by the District. The written Monthly Report shall be submitted to the District within 30 days from the end of the month and shall include:

    a) time intervals, date, and magnitude of excess emissions; nature and cause of the excess (if known), corrective actions and preventive measures adopted;

    b) the averaging period used for data reporting, corresponding to averaging period specified in the emission test period used to determine compliance with an emission standard for the pollutant and source category in question;

c) time and date of each period during which the continuous monitoring system was inoperative, except for zero and span checks, and the nature of system repairs and adjustments;

d) a negative declaration when no excess emissions occurred; and,

e) a summary of actual monthly emissions, summarized and totaled on a quarterly basis, from the CEM for all subject equipment which operated during the month and/or quarter.

17. Dynegy Moss Landing, LLC shall monitor and report $SO_2$ emissions in accordance with 40 CFR Parts 72 and 75.

18. Dynegy Moss Landing, LLC shall hold Sulfur Dioxide Allowances in the compliance subaccounts not less than the total annual emissions of sulfur dioxide for the previous calendar year.

19. A written Quality Assurance program must be established in accordance with 40 CFR Part 75, Appendix B and 40 CFR Part 60, Appendix F which includes, but is not limited to procedures for daily calibration testing, quarterly linearity and leak testing, record keeping and reporting implementation, and relative accuracy testing.

20. Pursuant to Title IV, Part 75, Section 75.50, and District Rule 431, Section 4.3, permanent records shall be maintained for a period of five years after creation. The records at a minimum shall include all items specified in Section 75.50 and in District Rule 431.

21. Dynegy Moss Landing, LLC shall submit quarterly Electronic Data Reports (EDR) to EPA. These reports must be submitted within 30 days following the end of the calendar quarter. The reports must be in electronic format and at a minimum must include all items listed in 40 CFR Section 75.64.

22. Dynegy Moss Landing, LLC shall cause testing to be performed to verify compliance with the ammonia ($NH_3$) slip limit every EPA operating quarter, as defined in 40 CFR Part 72, or in the next EPA operating quarter if this unit cannot be tested in an EPA operating quarter due to the unit being non-operational at the time of scheduled testing. Dynegy Moss Landing, LLC shall conduct this testing in accordance with the collection method specified in BAAQMD Source Test Procedure ST-1B and the analysis specified in EPA method 350.3.

23. Annual performance tests shall be conducted in accordance with the District test procedures, and the written results of the performance tests shall be provided to the District within thirty (30) days after testing. A testing protocol shall be submitted to the District no later than thirty (30) days prior to the testing, and notification to the District at least ten (10) days prior to the actual date of testing shall be provided so that a District observer may be present. Changes to the test date made subsequent to the initial ten day notification may be communicated by telephone or other acceptable means no less than forty-eight (48) hours prior to the new test date.

    The performance tests shall include those parameters specified in the approved test protocol, and shall at a minimum include the following:

    a) Oxides of Nitrogen (as $NO_2$): ppmv dry at 15% $O_2$ and lbm/hr;

    b) Carbon Monoxide: ppmv dry at 15% $O_2$ and lbm/hr;

    c) Volatile Organic Compounds (as $CH_4$): ppmv dry at 15% $O_2$ and lbm/hr;

    d) Ammonia ($NH_3$): ppmv dry at 15% $O_2$ and lbm/hr;

and the following process parameters:

e) Natural gas consumption;

f) Electricity generated during the test; and,

g) Stack gas flow rate (SDCFM) calculated according to procedures in EPA method 19.

24. Dynegy Moss Landing, LLC shall report all breakdowns which result in the inability to comply with any emission standard or requirement contained on this permit to the Air Pollution Control Officer (APCO) within 1 hour or within one hour of the time the owner or operator knew, or reasonably should have known of the occurrence. The APCO may elect to take no enforcement action if Dynegy Moss Landing, LLC demonstrates to the APCO's satisfaction that a breakdown condition exists.

    The estimated time for repair of the breakdown shall be supplied to the APCO within 24 hours of the occurrence and a written report shall be supplied to the APCO within 5 working days after the occurrence has been corrected. This report shall include at a minimum:

    a) a statement that the condition or failure has been corrected and the date of correction;

    b) a description of the reasons for the occurrence;

    c) a description of the corrective measures undertaken and/or to be undertaken to avoid such an occurrence in the future; and,

    d) an estimate of the emissions caused by the condition or failure.

25. Dynegy Moss Landing, LLC shall maintain adequate stack sampling ports and platforms to enable the performance of source testing.

26. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three (3) minutes in any one (1) hour which is as dark or darker than Ringelmann 1, or equivalent 20% opacity.

27. Notwithstanding the requirements of Condition 26, no air contaminant shall be discharged into the atmosphere for a two (2) hour period from the gas turbine exhaust during start-up for a period or periods aggregating more than three (3) minutes in any one (1) hour which is as dark or darker than Ringelmann 2, or equivalent 40% opacity. Good engineering practices shall be used to the fullest extent practical during start-up to minimize pollutant emissions.

28. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as or darker than Ringelmann 1, or equivalent 20 percent opacity.

29. No emissions shall constitute a public nuisance.

30. Dynegy Moss Landing, LLC shall fund the operation of the "Stationary Source" percentage of the District's Salinas air monitoring station.

**Note:** The annual renewal date of this permit is 7/4.

MONTEREY BAY AIR RESOURCES DISTRICT

# PERMIT TO OPERATE

GNR-0017598A

24580 SILVER CLOUD CT., MONTEREY, CA 93940 TELEPHONE (831) 647-9411 • FAX (831) 647-8501

OPERATION UNDER THIS PERMIT MUST BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS INCLUDED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED. THE EQUIPMENT MUST BE PROPERLY MAINTAINED AND KEPT IN GOOD CONDITION AT ALL TIMES. THIS PERMIT TO OPERATE MUST BE POSTED OR ACCESSIBLE.

| | |
|---|---|
| LEGAL OWNER OR OPERATOR: | DYNEGY MOSS LANDING, LLC |
| EQUIPMENT LOCATED AT: | Highway One & Dolan Road<br>Moss Landing, California |
| EQUIPMENT DESCRIPTION AND CONDITIONS: | THIS PERMIT TO OPERATE IS ISSSUED AND IS VALID FOR THIS EQUIPMENT ONLY WHILE IT IS IN THE CONFIGURATION SET FORTH IN THE FOLLOWING DESCRIPTION: |

COMBINED CYCLE GAS TURBINE GENERATOR UNIT 1A:

1. Gas Turbine Generator, General Electric Frame 7, Model PG7241, Serial #297602, Rated At 1,870 MMBtu/Hr Maximum Heat Input And 180 MW Nominal Electrical Output, Dry Low-$NO_x$ Combustor.

2. Water Tube Type Heat Recovery Steam Generator (HRSG), Nominal Ratings: High Pressure Steam Capacity: 409,900 Lbs/Hr @ 1,903 psia And 1,047°F, Intermediate Pressure Steam Capacity: 484,500 Lbs/Hr @ 358 psia And 1,022°F, Low Pressure Steam Capacity: 55,300 Lbs/Hr @ 71 psia And 499°F.

3. Steam Turbine Generator And Condenser Serving Gas Turbine Units 1A And 2A, Quadruple Admission, Triple Extraction, 196.8 MW Nominal Rated Electrical Output.

4. Selective Catalytic Reduction $NO_x$ Control System Consisting Of 2,244 $Ft^3$ Cormetech Type CM-21 Vanadium, Titanium, And Tungsten Oxide Honeycomb Catalyst Located Within The HRSG.

5. Ammonia Injection System.

6. CEM System Consisting Of:

    a. Sample Acquisition Probe As Described In The Monitoring And Reporting Protocol.

    b. Instrumentation Shelter, 8' x 10', Located Approximately 20 Feet From The Stack. Shelter Houses Sample Transport And Conditioning Systems, And Analyzers.

    c. Analyzers:

        i. Chemiluminescence Analyzer Measuring $NO_2$.



**THIS PERMIT BECOMES VOID UPON ANY CHANGE OF OWNERSHIP OR ADDRESS, OR ANY ALTERATION.**

THIS PERMIT DOES NOT AUTHORIZE THE EMISSIONS OF AIR CONTAMINANTS IN EXCESS OF THOSE ALLOWED BY ARTICLE 1, CHAPTER 3, PART 4, DIVISION 26 OF THE HEALTH & SAFETY CODE OF THE STATE OF CALIFORNIA OR THE RULES AND REGULATIONS OF THE AIR POLLUTION CONTROL DISTRICT. THIS PERMIT CANNOT BE CONSIDERED AS PERMISSION TO VIOLATE EXISTING LAWS, ORDINANCES, REGULATION OR STATUTES OF OTHER GOVERNMENTAL AGENCIES.

Mary Giraudo, For
AIR POLLUTION CONTROL OFFICER

DATE 6/08/2018

ii. Analyzer Measuring CO Via Non-Dispersive Infrared Measurement And $O_2$ Via Paramagnetic Measurement As Described In Monitoring And Reporting Protocol.

iii. Data Acquisition System, VIM Technologies, Installed On An IBM Compatible Computer Located In The Control Room.

THE EQUIPMENT FOR WHICH THIS PERMIT TO OPERATE IS ISSUED MAY BE OPERATED ONLY WHEN IN COMPLIANCE WITH THE FOLLOWING CONDITIONS:

Conditions:

1. The heat input rate to this gas turbine shall not exceed 1,870 MMBtu/hr.

2. The maximum daily combined emissions from the gas turbines, including start-ups and shutdowns and combustor tuning periods, shall not exceed the following limits:

| Pollutant | Lbs/Day |
|---|---|
| Oxides of Nitrogen ($NO_x$) | 2,589.4 |
| Carbon Monoxide (CO) | 17,301.8 |
| Particulate Matter <10 microns ($PM_{10}$) | 864.0 |
| Volatile Organic Compounds (VOC) | 620.0 |
| Ammonia ($NH_3$) | 1,224.0 |
| Sulfur Dioxide ($SO_2$) | 124.8 |

3. The pollutant mass emission rates in the exhaust discharged to the atmosphere from this gas turbine shall not exceed the following limits:

| Pollutant | Lbs/Hour | Lbs/Day |
|---|---|---|
| Oxides of Nitrogen ($NO_x$) | 17.23 | 413.5 |
| Carbon Monoxide (CO) | 37.76 | 906.2 |
| Particulate Matter <10 microns ($PM_{10}$) | 9.00 | 216.0 |
| Volatile Organic Compounds (VOC) | 4.79 | 115.0 |
| Ammonia ($NH_3$) | 12.75 | 306.0 |
| Sulfur Dioxide ($SO_2$) | 1.30 | 31.2 |

These limits shall not apply during start-up, which is not to exceed four (4) hours, during shutdown, which is not to exceed two (2) hours, or during steam turbine cold start-up or combustor tuning, which are not to exceed six (6) hours. SCR catalytic controls and good engineering practices shall be used to the fullest extent practical during start-up, shutdown, and combustor tuning to minimize pollutant emissions.

Steam turbine cold start-up periods are start-up periods that last more than four (4) hours or exceed the start-up emission limits in Condition 5, and follow a shutdown of the steam turbine for at least 72 hours.

Combustor tuning activities include all testing, adjustment, tuning, and calibration activities associated with combustor replacement and maintenance recommended by the gas turbine manufacturer to ensure

safe and reliable steady state operation of the gas turbines. This includes, but is not limited to, adjusting the amount of fuel distributed between the combustion turbine's staged fuel systems to simultaneously minimize $NO_x$, CO, and VOC production while ensuring combustor stability.

4. The pollutant concentrations discharged to the atmosphere from this gas turbine shall not exceed the following limits, calculated at 15 percent $O_2$ on a one-hour rolling average unless otherwise noted:

| Pollutant | Concentration (ppm) |
|---|---|
| Oxides of Nitrogen (as $NO_2$) | 2.5 (clock hour average) |
| Carbon Monoxide (CO) | 9.0 rolling three-hour average) |
| Ammonia ($NH_3$) | 5.0 (three 60 minute averages) |

These limits shall not apply: during start-up, which is not to exceed four (4) hours; during shutdown, which is not to exceed two (2) hours; or during steam turbine cold start-up or combustor tuning, which are not to exceed six (6) hours. SCR catalytic controls and good engineering practices shall be used to the fullest extent practical during start-up, shutdown, and combustor tuning to minimize pollutant emissions.

5. The pollutant emission rates discharged to the atmosphere from this gas turbine during start-up, shutdown, or combustor tuning activities shall not exceed the following limits. These limits apply to any start-up period which shall not exceed four (4) hours, to any shutdown, which shall not exceed two (2) hours, and to any steam turbine cold start-up or combustor tuning, which shall not exceed six (6) hours.

| Pollutant | Lbs/Start-up | Lbs/Cold Start-up or Combustor Tuning | Lbs/Shutdown |
|---|---|---|---|
| $NO_x$ (as $NO_2$) | 320.0 | 480.0 | 160.0 |
| CO | 3,608.0 | 5,412.0 | 1,804.0 |
| VOCs (as $CH_4$) | 64.0 | 214.0 | 32.0 |

6. Exceedance of the hourly $NO_x$ emission limits specified in Conditions 3 and 4 is allowed during short-term excursions which total less than 10 hours per rolling 12-month period.

   Short-term excursions are defined as 15-minute periods designated by Dynegy Moss Landing, LLC that are a direct result of a combustor mode switchover, not to exceed four consecutive 15-minute periods, when the 15-minute average $NO_x$ concentration exceeds 2.5 ppm corrected to 15% $O_2$.

   The maximum 1-hour $NO_x$ concentration for periods that include short-term excursions shall not exceed 30 ppmvd corrected to 15% $O_2$. All emissions during short-term excursions shall be included in all calculations of daily, quarterly, and annual mass emissions required by this permit.

7. The CEM system shall be operated on this gas turbine. This system shall be designed to continuously record the measured gaseous concentrations, and calculate and continuously monitor and record the CO, $CO_2$ or $O_2$, and $NO_x$ concentrations corrected to fifteen (15) percent oxygen ($O_2$) on a dry basis.

   The equipment for the continuous monitoring of CO shall be maintained and operated in accordance with 40 CFR Part 60 Appendix F, and the equipment for the continuous monitoring of $CO_2$ or $O_2$ and $NO_x$ shall be maintained and operated in accordance with 40 CFR Parts 72 and 75.

8. Cumulative emissions, including emissions generated during start-ups, shutdowns, and combustor tuning activities, from all power generation equipment at the Moss Landing Power Plant shall not exceed the following quarterly limits:

| Pollutant | Pounds Of Emissions Per Calendar Quarter | | | |
|---|---|---|---|---|
| | First | Second | Third | Fourth |
| $NO_x$ (as $NO_2$) | 169,840 | 169,840 | 169,840 | 169,840 |
| $SO_x$ | 10,920 | 10,920 | 10,920 | 10,920 |
| VOC | 44,720 | 44,720 | 44,720 | 44,720 |
| $PM_{10}$ | 75,600 | 75,600 | 75,600 | 75,600 |
| CO | 662,960 | 662,960 | 662,960 | 662,960 |

9. This equipment shall be abated by a properly operated and maintained Selective Catalytic Reduction System.

10. No more than one of the gas turbines shall be operated in support of a steam turbine cold start-up or undergo combustor tuning at any one time.

11. The total number of hours during which each gas turbine may be operated to support a steam turbine cold start-up or may undergo combustor tuning shall not exceed 30 hours per year.

12. To demonstrate compliance with Condition 11, Dynegy Moss Landing, LLC shall record the start time, end time, and duration of each steam turbine cold start-up and each combustor tuning period. On an annual basis, Dynegy Moss Landing, LLC shall report the total number of hours during which each gas turbine operated to support a steam turbine cold start-up or in combustor tuning mode during the year.

13. Dynegy Moss Landing, LLC shall demonstrate compliance by using properly operated and maintained continuous emission monitors (during all hours of operation including equipment start-up and shutdown periods and combustor tuning activities, except for periods of CEM maintenance performed in accordance with District requirements) for all of the following parameters:

    a) Firing hours and Fuel Flow Rates.

    b) Oxygen ($O_2$) Concentrations, Nitrogen Oxide ($NO_x$) Concentrations, and Carbon Monoxide (CO) Concentrations.

    c) Ammonia Injection Rates.

    Dynegy Moss Landing, LLC shall record all of the above parameters every 15 minutes (excluding normal calibration periods) and shall summarize all of the above parameters for each clock hour. For each calendar day, Dynegy Moss Landing, LLC shall calculate and record the total Firing Hours, the average hourly Fuel Flow Rates, and pollutant emission concentrations.

    Dynegy Moss Landing, LLC shall use the parameters measured above and District-approved calculation methods to calculate the following parameters:

    d) Heat Input Rate.

    e) Corrected $NO_x$ concentrations, $NO_x$ mass emissions (as $NO_2$), corrected CO concentrations, and CO mass emissions.

For each source, Dynegy Moss Landing, LLC shall record the parameters specified in Sections (d) and (e) of this condition every 15 minutes (excluding normal calibration periods). As specified below, Dynegy Moss Landing, LLC shall calculate and record the following data:

f) Total Heat Input Rate for every clock hour;

g) The $NO_x$ mass emissions (as $NO_2$), and corrected average $NO_x$ emission concentration for every clock hour;

h) The CO mass emissions, and corrected average CO emission concentration for every rolling three-hour period;

i) On an hourly basis, the cumulative total $NO_x$ mass emission (as $NO_2$) and the cumulative total CO mass emissions;

j) For each calendar day, the cumulative total $NO_x$ mass emission (as $NO_2$) and the cumulative total CO mass emissions;

k) For each calendar quarter, the cumulative total $NO_x$ mass emission (as $NO_2$) and the cumulative total CO mass emissions; and,

l) For each calendar year, the cumulative total $NO_x$ mass emission (as $NO_2$) and the cumulative total CO mass emissions.

14. Dynegy Moss Landing, LLC shall calculate and record on a daily basis, the volatile organic compound (VOC) mass emissions, fine particulate matter ($PM_{10}$) mass emissions, sulfur dioxide ($SO_2$) mass emissions, and ammonia ($NH_3$) mass emissions from each source. Dynegy Moss Landing, LLC shall use the actual heat input rates, actual start-up times, actual shutdown times, actual combustor tuning times and District-approved emission factors to calculate these emissions. The calculated emissions shall be presented as follows:

    a) For each calendar day, VOC, $PM_{10}$, $SO_2$, and $NH_3$ mass emissions shall be summarized for each source.

    b) On a daily basis, the cumulative total VOC, $PM_{10}$, $SO_2$ and $NH_3$ mass emissions shall be summarized for each calendar quarter and for the calendar year.

15. Instrumentation must be operated to measure the SCR catalyst inlet temperature and pressure differential across the SCR catalyst.

16. Dynegy Moss Landing, LLC shall submit monthly reports on the continuous emissions monitoring systems to the District in accordance to the Monitoring and Reporting Protocol for Monthly Reporting (Reporting Protocol) approved by the District. The written Monthly Report shall be submitted to the District within 30 days from the end of the month and shall include:

    a) time intervals, date, and magnitude of excess emissions; nature and cause of the excess (if known), corrective actions and preventive measures adopted;

    b) the averaging period used for data reporting, corresponding to averaging period specified in the emission test period used to determine compliance with an emission standard for the pollutant and source category in question;

c) time and date of each period during which the continuous monitoring system was inoperative, except for zero and span checks, and the nature of system repairs and adjustments;

d) a negative declaration when no excess emissions occurred; and,

e) a summary of actual monthly emissions, summarized and totaled on a quarterly basis, from the CEM for all subject equipment which operated during the month and/or quarter.

17. Dynegy Moss Landing, LLC shall monitor and report $SO_2$ emissions in accordance with 40 CFR Parts 72 and 75.

18. Dynegy Moss Landing, LLC shall hold Sulfur Dioxide Allowances in the compliance subaccounts not less than the total annual emissions of sulfur dioxide for the previous calendar year.

19. A written Quality Assurance program must be established in accordance with 40 CFR Part 75, Appendix B and 40 CFR Part 60, Appendix F which includes, but is not limited to procedures for daily calibration testing, quarterly linearity and leak testing, record keeping and reporting implementation, and relative accuracy testing.

20. Pursuant to Title IV, Part 75, Section 75.50, and District Rule 431, Section 4.3, permanent records shall be maintained for a period of five years after creation. The records at a minimum shall include all items specified in Section 75.50 and in District Rule 431.

21. Dynegy Moss Landing, LLC shall submit quarterly Electronic Data Reports (EDR) to EPA. These reports must be submitted within 30 days following the end of the calendar quarter. The reports must be in electronic format and at a minimum must include all items listed in 40 CFR Section 75.64.

22. Dynegy Moss Landing, LLC shall cause testing to be performed to verify compliance with the ammonia ($NH_3$) slip limit every EPA operating quarter, as defined in 40 CFR Part 72, or in the next EPA operating quarter if this unit cannot be tested in an EPA operating quarter due to the unit being non-operational at the time of scheduled testing. Dynegy Moss Landing, LLC shall conduct this testing in accordance with the collection method specified in BAAQMD Source Test Procedure ST-1B and the analysis specified in EPA method 350.3.

23. Annual performance tests shall be conducted in accordance with the District test procedures, and the written results of the performance tests shall be provided to the District within thirty (30) days after testing. A testing protocol shall be submitted to the District no later than thirty (30) days prior to the testing, and notification to the District at least ten (10) days prior to the actual date of testing shall be provided so that a District observer may be present. Changes to the test date made subsequent to the initial ten day notification may be communicated by telephone or other acceptable means no less than forty-eight (48) hours prior to the new test date.

    The performance tests shall include those parameters specified in the approved test protocol, and shall at a minimum include the following:

    a) Oxides of Nitrogen (as $NO_2$): ppmv dry at 15% $O_2$ and lbm/hr;

    b) Carbon Monoxide: ppmv dry at 15% $O_2$ and lbm/hr;

    c) Volatile Organic Compounds (as $CH_4$): ppmv dry at 15% $O_2$ and lbm/hr;

    d) Ammonia ($NH_3$): ppmv dry at 15% $O_2$ and lbm/hr;

and the following process parameters:

e) Natural gas consumption;

f) Electricity generated during the test; and,

g) Stack gas flow rate (SDCFM) calculated according to procedures in EPA method 19.

24. Dynegy Moss Landing, LLC shall report all breakdowns which result in the inability to comply with any emission standard or requirement contained on this permit to the Air Pollution Control Officer (APCO) within 1 hour or within one hour of the time the owner or operator knew, or reasonably should have known of the occurrence. The APCO may elect to take no enforcement action if Dynegy Moss Landing, LLC demonstrates to the APCO's satisfaction that a breakdown condition exists.

    The estimated time for repair of the breakdown shall be supplied to the APCO within 24 hours of the occurrence and a written report shall be supplied to the APCO within 5 working days after the occurrence has been corrected. This report shall include at a minimum:

    a) a statement that the condition or failure has been corrected and the date of correction;

    b) a description of the reasons for the occurrence;

    c) a description of the corrective measures undertaken and/or to be undertaken to avoid such an occurrence in the future; and,

    d) an estimate of the emissions caused by the condition or failure.

25. Dynegy Moss Landing, LLC shall maintain adequate stack sampling ports and platforms to enable the performance of source testing.

26. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three (3) minutes in any one (1) hour which is as dark or darker than Ringelmann 1, or equivalent 20% opacity.

27. Notwithstanding the requirements of Condition 26, no air contaminant shall be discharged into the atmosphere for a two (2) hour period from the gas turbine exhaust during start-up for a period or periods aggregating more than three (3) minutes in any one (1) hour which is as dark or darker than Ringelmann 2, or equivalent 40% opacity. Good engineering practices shall be used to the fullest extent practical during start-up to minimize pollutant emissions.

28. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as or darker than Ringelmann 1, or equivalent 20 percent opacity.

29. No emissions shall constitute a public nuisance.

30. Dynegy Moss Landing, LLC shall fund the operation of the "Stationary Source" percentage of the District's Salinas air monitoring station.

**Note:** The annual renewal date of this permit is 7/4.

MONTEREY BAY AIR RESOURCES DISTRICT

# PERMIT TO OPERATE

GNR-0017599A

24580 SILVER CLOUD CT., MONTEREY, CA 93940 TELEPHONE (831) 647-9411 • FAX (831) 647-8501

OPERATION UNDER THIS PERMIT MUST BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS INCLUDED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED. THE EQUIPMENT MUST BE PROPERLY MAINTAINED AND KEPT IN GOOD CONDITION AT ALL TIMES. THIS PERMIT TO OPERATE MUST BE POSTED OR ACCESSIBLE.

| | |
|---|---|
| LEGAL OWNER OR OPERATOR: | DYNEGY MOSS LANDING, LLC |
| EQUIPMENT LOCATED AT: | Highway One & Dolan Road<br>Moss Landing, California |
| EQUIPMENT DESCRIPTION AND CONDITIONS: | THIS PERMIT TO OPERATE IS ISSSUED AND IS VALID FOR THIS EQUIPMENT ONLY WHILE IT IS IN THE CONFIGURATION SET FORTH IN THE FOLLOWING DESCRIPTION: |

COMBINED CYCLE GAS TURBINE GENERATOR UNIT 2A:

1. Gas Turbine Generator, General Electric Frame 7, Model PG7241, Serial #297603, Rated At 1,870 MMBtu/Hr Maximum Heat Input And 180 MW Nominal Electrical Output, Dry Low-$NO_x$ Combustor.

2. Water Tube Type Heat Recovery Steam Generator (HRSG), Nominal Ratings: High Pressure Steam Capacity: 409,900 Lbs/Hr @ 1,903 psia And 1,047°F, Intermediate Pressure Steam Capacity: 484,500 Lbs/Hr @ 358 psia And 1,022°F, Low Pressure Steam Capacity: 55,300 Lbs/Hr @ 71 psia And 499°F.

3. Steam Turbine Generator And Condenser Serving Gas Turbine Units 1A And 2A, Quadruple Admission, Triple Extraction, 196.8 MW Nominal Rated Electrical Output.

4. Selective Catalytic Reduction $NO_x$ Control System Consisting Of 2,244 $Ft^3$ Cormetech Type CM-21 Vanadium, Titanium, And Tungsten Oxide Honeycomb Catalyst Located Within The HRSG.

5. Ammonia Injection System.

6. CEM System Consisting Of:

    a. Sample Acquisition Probe As Described In The Monitoring And Reporting Protocol.

    b. Instrumentation Shelter, 8' x 10', Located Approximately 20 Feet From The Stack. Shelter Houses Sample Transport And Conditioning Systems, And Analyzers.

    c. Analyzers:

        i. Chemiluminescence Analyzer Measuring $NO_2$.



**THIS PERMIT BECOMES VOID UPON ANY CHANGE OF OWNERSHIP OR ADDRESS, OR ANY ALTERATION.**

THIS PERMIT DOES NOT AUTHORIZE THE EMISSIONS OF AIR CONTAMINANTS IN EXCESS OF THOSE ALLOWED BY ARTICLE 1, CHAPTER 3, PART 4, DIVISION 26 OF THE HEALTH & SAFETY CODE OF THE STATE OF CALIFORNIA OR THE RULES AND REGULATIONS OF THE AIR POLLUTION CONTROL DISTRICT. THIS PERMIT CANNOT BE CONSIDERED AS PERMISSION TO VIOLATE EXISTING LAWS, ORDINANCES, REGULATION OR STATUTES OF OTHER GOVERNMENTAL AGENCIES.

Mary Giraudo, For
AIR POLLUTION CONTROL OFFICER

DATE 6/08/2018

ii. Analyzer Measuring CO Via Non-Dispersive Infrared Measurement And $O_2$ Via Paramagnetic Measurement As Described In Monitoring And Reporting Protocol.

iii. Data Acquisition System, VIM Technologies, Installed On An IBM Compatible Computer Located In The Control Room.

THE EQUIPMENT FOR WHICH THIS PERMIT TO OPERATE IS ISSUED MAY BE OPERATED ONLY WHEN IN COMPLIANCE WITH THE FOLLOWING CONDITIONS:

Conditions:

1. The heat input rate to this gas turbine shall not exceed 1,870 MMBtu/hr.

2. The maximum daily combined emissions from the gas turbines, including start-ups and shutdowns and combustor tuning periods, shall not exceed the following limits:

| Pollutant | Lbs/Day |
|---|---|
| Oxides of Nitrogen ($NO_x$) | 2,589.4 |
| Carbon Monoxide (CO) | 17,301.8 |
| Particulate Matter <10 microns ($PM_{10}$) | 864.0 |
| Volatile Organic Compounds (VOC) | 620.0 |
| Ammonia ($NH_3$) | 1,224.0 |
| Sulfur Dioxide ($SO_2$) | 124.8 |

3. The pollutant mass emission rates in the exhaust discharged to the atmosphere from this gas turbine shall not exceed the following limits:

| Pollutant | Lbs/Hour | Lbs/Day |
|---|---|---|
| Oxides of Nitrogen ($NO_x$) | 17.23 | 413.5 |
| Carbon Monoxide (CO) | 37.76 | 906.2 |
| Particulate Matter <10 microns ($PM_{10}$) | 9.00 | 216.0 |
| Volatile Organic Compounds (VOC) | 4.79 | 115.0 |
| Ammonia ($NH_3$) | 12.75 | 306.0 |
| Sulfur Dioxide ($SO_2$) | 1.30 | 31.2 |

These limits shall not apply during start-up, which is not to exceed four (4) hours, during shutdown, which is not to exceed two (2) hours, or during steam turbine cold start-up or combustor tuning, which are not to exceed six (6) hours. SCR catalytic controls and good engineering practices shall be used to the fullest extent practical during start-up, shutdown, and combustor tuning to minimize pollutant emissions.

Steam turbine cold start-up periods are start-up periods that last more than four (4) hours or exceed the start-up emission limits in Condition 5, and follow a shutdown of the steam turbine for at least 72 hours.

Combustor tuning activities include all testing, adjustment, tuning, and calibration activities associated with combustor replacement and maintenance recommended by the gas turbine manufacturer to ensure

safe and reliable steady state operation of the gas turbines. This includes, but is not limited to, adjusting the amount of fuel distributed between the combustion turbine's staged fuel systems to simultaneously minimize $NO_x$, CO, and VOC production while ensuring combustor stability.

4. The pollutant concentrations discharged to the atmosphere from this gas turbine shall not exceed the following limits, calculated at 15 percent $O_2$ on a one-hour rolling average unless otherwise noted:

| Pollutant | Concentration (ppm) |
|---|---|
| Oxides of Nitrogen (as $NO_2$) | 2.5 (clock hour average) |
| Carbon Monoxide (CO) | 9.0 rolling three-hour average) |
| Ammonia ($NH_3$) | 5.0 (three 60 minute averages) |

These limits shall not apply: during start-up, which is not to exceed four (4) hours; during shutdown, which is not to exceed two (2) hours; or during steam turbine cold start-up or combustor tuning, which are not to exceed six (6) hours. SCR catalytic controls and good engineering practices shall be used to the fullest extent practical during start-up, shutdown, and combustor tuning to minimize pollutant emissions.

5. The pollutant emission rates discharged to the atmosphere from this gas turbine during start-up, shutdown, or combustor tuning activities shall not exceed the following limits. These limits apply to any start-up period which shall not exceed four (4) hours, to any shutdown, which shall not exceed two (2) hours, and to any steam turbine cold start-up or combustor tuning, which shall not exceed six (6) hours.

| Pollutant | Lbs/Start-up | Lbs/Cold Start-up or Combustor Tuning | Lbs/Shutdown |
|---|---|---|---|
| $NO_x$ (as $NO_2$) | 320.0 | 480.0 | 160.0 |
| CO | 3,608.0 | 5,412.0 | 1,804.0 |
| VOCs (as $CH_4$) | 64.0 | 214.0 | 32.0 |

6. Exceedance of the hourly $NO_x$ emission limits specified in Conditions 3 and 4 is allowed during short-term excursions which total less than 10 hours per rolling 12-month period.

   Short-term excursions are defined as 15-minute periods designated by Dynegy Moss Landing, LLC that are a direct result of a combustor mode switchover, not to exceed four consecutive 15-minute periods, when the 15-minute average $NO_x$ concentration exceeds 2.5 ppm corrected to 15% $O_2$.

   The maximum 1-hour $NO_x$ concentration for periods that include short-term excursions shall not exceed 30 ppmvd corrected to 15% $O_2$. All emissions during short-term excursions shall be included in all calculations of daily, quarterly, and annual mass emissions required by this permit.

7. The CEM system shall be operated on this gas turbine. This system shall be designed to continuously record the measured gaseous concentrations, and calculate and continuously monitor and record the CO, $CO_2$ or $O_2$, and $NO_x$ concentrations corrected to fifteen (15) percent oxygen ($O_2$) on a dry basis.

   The equipment for the continuous monitoring of CO shall be maintained and operated in accordance with 40 CFR Part 60 Appendix F, and the equipment for the continuous monitoring of $CO_2$ or $O_2$ and $NO_x$ shall be maintained and operated in accordance with 40 CFR Parts 72 and 75.

8. Cumulative emissions, including emissions generated during start-ups, shutdowns, and combustor tuning activities, from all power generation equipment at the Moss Landing Power Plant shall not exceed the following quarterly limits:

| Pollutant | Pounds Of Emissions Per Calendar Quarter | | | |
|---|---|---|---|---|
| | First | Second | Third | Fourth |
| $NO_x$ (as $NO_2$) | 169,840 | 169,840 | 169,840 | 169,840 |
| $SO_x$ | 10,920 | 10,920 | 10,920 | 10,920 |
| VOC | 44,720 | 44,720 | 44,720 | 44,720 |
| $PM_{10}$ | 75,600 | 75,600 | 75,600 | 75,600 |
| CO | 662,960 | 662,960 | 662,960 | 662,960 |

9. This equipment shall be abated by a properly operated and maintained Selective Catalytic Reduction System.

10. No more than one of the gas turbines shall be operated in support of a steam turbine cold start-up or undergo combustor tuning at any one time.

11. The total number of hours during which each gas turbine may be operated to support a steam turbine cold start-up or may undergo combustor tuning shall not exceed 30 hours per year.

12. To demonstrate compliance with Condition 11, Dynegy Moss Landing, LLC shall record the start time, end time, and duration of each steam turbine cold start-up and each combustor tuning period. On an annual basis, Dynegy Moss Landing, LLC shall report the total number of hours during which each gas turbine operated to support a steam turbine cold start-up or in combustor tuning mode during the year.

13. Dynegy Moss Landing, LLC shall demonstrate compliance by using properly operated and maintained continuous emission monitors (during all hours of operation including equipment start-up and shutdown periods and combustor tuning activities, except for periods of CEM maintenance performed in accordance with District requirements) for all of the following parameters:

    a) Firing hours and Fuel Flow Rates.

    b) Oxygen ($O_2$) Concentrations, Nitrogen Oxide ($NO_x$) Concentrations, and Carbon Monoxide (CO) Concentrations.

    c) Ammonia Injection Rates.

    Dynegy Moss Landing, LLC shall record all of the above parameters every 15 minutes (excluding normal calibration periods) and shall summarize all of the above parameters for each clock hour. For each calendar day, Dynegy Moss Landing, LLC shall calculate and record the total Firing Hours, the average hourly Fuel Flow Rates, and pollutant emission concentrations.

    Dynegy Moss Landing, LLC shall use the parameters measured above and District-approved calculation methods to calculate the following parameters:

    d) Heat Input Rate.

    e) Corrected $NO_x$ concentrations, $NO_x$ mass emissions (as $NO_2$), corrected CO concentrations, and CO mass emissions.

For each source, Dynegy Moss Landing, LLC shall record the parameters specified in Sections (d) and (e) of this condition every 15 minutes (excluding normal calibration periods). As specified below, Dynegy Moss Landing, LLC shall calculate and record the following data:

f) Total Heat Input Rate for every clock hour;

g) The $NO_x$ mass emissions (as $NO_2$), and corrected average $NO_x$ emission concentration for every clock hour;

h) The CO mass emissions, and corrected average CO emission concentration for every rolling three-hour period;

i) On an hourly basis, the cumulative total $NO_x$ mass emission (as $NO_2$) and the cumulative total CO mass emissions;

j) For each calendar day, the cumulative total $NO_x$ mass emission (as $NO_2$) and the cumulative total CO mass emissions;

k) For each calendar quarter, the cumulative total $NO_x$ mass emission (as $NO_2$) and the cumulative total CO mass emissions; and,

l) For each calendar year, the cumulative total $NO_x$ mass emission (as $NO_2$) and the cumulative total CO mass emissions.

14. Dynegy Moss Landing, LLC shall calculate and record on a daily basis, the volatile organic compound (VOC) mass emissions, fine particulate matter ($PM_{10}$) mass emissions, sulfur dioxide ($SO_2$) mass emissions, and ammonia ($NH_3$) mass emissions from each source. Dynegy Moss Landing, LLC shall use the actual heat input rates, actual start-up times, actual shutdown times, actual combustor tuning times and District-approved emission factors to calculate these emissions. The calculated emissions shall be presented as follows:

    a) For each calendar day, VOC, $PM_{10}$, $SO_2$, and $NH_3$ mass emissions shall be summarized for each source.

    b) On a daily basis, the cumulative total VOC, $PM_{10}$, $SO_2$ and $NH_3$ mass emissions shall be summarized for each calendar quarter and for the calendar year.

15. Instrumentation must be operated to measure the SCR catalyst inlet temperature and pressure differential across the SCR catalyst.

16. Dynegy Moss Landing, LLC shall submit monthly reports on the continuous emissions monitoring systems to the District in accordance to the Monitoring and Reporting Protocol for Monthly Reporting (Reporting Protocol) approved by the District. The written Monthly Report shall be submitted to the District within 30 days from the end of the month and shall include:

    a) time intervals, date, and magnitude of excess emissions; nature and cause of the excess (if known), corrective actions and preventive measures adopted;

    b) the averaging period used for data reporting, corresponding to averaging period specified in the emission test period used to determine compliance with an emission standard for the pollutant and source category in question;

c) time and date of each period during which the continuous monitoring system was inoperative, except for zero and span checks, and the nature of system repairs and adjustments;

d) a negative declaration when no excess emissions occurred; and,

e) a summary of actual monthly emissions, summarized and totaled on a quarterly basis, from the CEM for all subject equipment which operated during the month and/or quarter.

17. Dynegy Moss Landing, LLC shall monitor and report $SO_2$ emissions in accordance with 40 CFR Parts 72 and 75.

18. Dynegy Moss Landing, LLC shall hold Sulfur Dioxide Allowances in the compliance subaccounts not less than the total annual emissions of sulfur dioxide for the previous calendar year.

19. A written Quality Assurance program must be established in accordance with 40 CFR Part 75, Appendix B and 40 CFR Part 60, Appendix F which includes, but is not limited to procedures for daily calibration testing, quarterly linearity and leak testing, record keeping and reporting implementation, and relative accuracy testing.

20. Pursuant to Title IV, Part 75, Section 75.50, and District Rule 431, Section 4.3, permanent records shall be maintained for a period of five years after creation. The records at a minimum shall include all items specified in Section 75.50 and in District Rule 431.

21. Dynegy Moss Landing, LLC shall submit quarterly Electronic Data Reports (EDR) to EPA. These reports must be submitted within 30 days following the end of the calendar quarter. The reports must be in electronic format and at a minimum must include all items listed in 40 CFR Section 75.64.

22. Dynegy Moss Landing, LLC shall cause testing to be performed to verify compliance with the ammonia ($NH_3$) slip limit every EPA operating quarter, as defined in 40 CFR Part 72, or in the next EPA operating quarter if this unit cannot be tested in an EPA operating quarter due to the unit being non-operational at the time of scheduled testing. Dynegy Moss Landing, LLC shall conduct this testing in accordance with the collection method specified in BAAQMD Source Test Procedure ST-1B and the analysis specified in EPA method 350.3.

23. Annual performance tests shall be conducted in accordance with the District test procedures, and the written results of the performance tests shall be provided to the District within thirty (30) days after testing. A testing protocol shall be submitted to the District no later than thirty (30) days prior to the testing, and notification to the District at least ten (10) days prior to the actual date of testing shall be provided so that a District observer may be present. Changes to the test date made subsequent to the initial ten day notification may be communicated by telephone or other acceptable means no less than forty-eight (48) hours prior to the new test date.

    The performance tests shall include those parameters specified in the approved test protocol, and shall at a minimum include the following:

    a) Oxides of Nitrogen (as $NO_2$): ppmv dry at 15% $O_2$ and lbm/hr;

    b) Carbon Monoxide: ppmv dry at 15% $O_2$ and lbm/hr;

    c) Volatile Organic Compounds (as $CH_4$): ppmv dry at 15% $O_2$ and lbm/hr;

    d) Ammonia ($NH_3$): ppmv dry at 15% $O_2$ and lbm/hr;

and the following process parameters:

e) Natural gas consumption;

f) Electricity generated during the test; and,

g) Stack gas flow rate (SDCFM) calculated according to procedures in EPA method 19.

24. Dynegy Moss Landing, LLC shall report all breakdowns which result in the inability to comply with any emission standard or requirement contained on this permit to the Air Pollution Control Officer (APCO) within 1 hour or within one hour of the time the owner or operator knew, or reasonably should have known of the occurrence. The APCO may elect to take no enforcement action if Dynegy Moss Landing, LLC demonstrates to the APCO's satisfaction that a breakdown condition exists.

    The estimated time for repair of the breakdown shall be supplied to the APCO within 24 hours of the occurrence and a written report shall be supplied to the APCO within 5 working days after the occurrence has been corrected. This report shall include at a minimum:

    a) a statement that the condition or failure has been corrected and the date of correction;

    b) a description of the reasons for the occurrence;

    c) a description of the corrective measures undertaken and/or to be undertaken to avoid such an occurrence in the future; and,

    d) an estimate of the emissions caused by the condition or failure.

25. Dynegy Moss Landing, LLC shall maintain adequate stack sampling ports and platforms to enable the performance of source testing.

26. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three (3) minutes in any one (1) hour which is as dark or darker than Ringelmann 1, or equivalent 20% opacity.

27. Notwithstanding the requirements of Condition 26, no air contaminant shall be discharged into the atmosphere for a two (2) hour period from the gas turbine exhaust during start-up for a period or periods aggregating more than three (3) minutes in any one (1) hour which is as dark or darker than Ringelmann 2, or equivalent 40% opacity. Good engineering practices shall be used to the fullest extent practical during start-up to minimize pollutant emissions.

28. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as or darker than Ringelmann 1, or equivalent 20 percent opacity.

29. No emissions shall constitute a public nuisance.

30. Dynegy Moss Landing, LLC shall fund the operation of the "Stationary Source" percentage of the District's Salinas air monitoring station.

**Note:** The annual renewal date of this permit is 7/4.

MONTEREY BAY AIR RESOURCES DISTRICT

# PERMIT TO OPERATE

GNR-0017600A

24580 SILVER CLOUD CT., MONTEREY, CA 93940 TELEPHONE (831) 647-9411 • FAX (831) 647-8501

OPERATION UNDER THIS PERMIT MUST BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS INCLUDED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED. THE EQUIPMENT MUST BE PROPERLY MAINTAINED AND KEPT IN GOOD CONDITION AT ALL TIMES. THIS PERMIT TO OPERATE MUST BE POSTED OR ACCESSIBLE.

| | |
|---|---|
| LEGAL OWNER OR OPERATOR: | DYNEGY MOSS LANDING, LLC |
| EQUIPMENT LOCATED AT: | Highway One & Dolan Road<br>Moss Landing, California |
| EQUIPMENT DESCRIPTION AND CONDITIONS: | THIS PERMIT TO OPERATE IS ISSSUED AND IS VALID FOR THIS EQUIPMENT ONLY WHILE IT IS IN THE CONFIGURATION SET FORTH IN THE FOLLOWING DESCRIPTION: |

COMBINED CYCLE GAS TURBINE GENERATOR UNIT 3A:

1. Gas Turbine Generator, General Electric Frame 7, Model PG7241, Serial #297604, Rated At 1,870 MMBtu/Hr Maximum Heat Input And 180 MW Nominal Electrical Output, Dry Low-$NO_x$ Combustor.

2. Water Tube Type Heat Recovery Steam Generator (HRSG), Nominal Ratings: High Pressure Steam Capacity: 409,900 Lbs/Hr @ 1,903 psia And 1,047°F, Intermediate Pressure Steam Capacity: 484,500 Lbs/Hr @ 358 psia And 1,022°F, Low Pressure Steam Capacity: 55,300 Lbs/Hr @ 71 psia And 499°F.

3. Steam Turbine Generator And Condenser Serving Gas Turbine Units 3A And 4A, Quadruple Admission, Triple Extraction, 196.8 MW Nominal Rated Electrical Output.

4. Selective Catalytic Reduction $NO_x$ Control System Consisting Of 2,244 $Ft^3$ Cormetech Type CM-21 Vanadium, Titanium, And Tungsten Oxide Honeycomb Catalyst Located Within The HRSG.

5. Ammonia Injection System.

6. CEM System Consisting Of:

    a. Sample Acquisition Probe As Described In The Monitoring And Reporting Protocol.

    b. Instrumentation Shelter, 8' x 10', Located Approximately 20 Feet From The Stack. Shelter Houses Sample Transport And Conditioning Systems, And Analyzers.

    c. Analyzers:

        i. Chemiluminescence Analyzer Measuring $NO_2$.



**THIS PERMIT BECOMES VOID UPON ANY CHANGE OF OWNERSHIP OR ADDRESS, OR ANY ALTERATION.**

THIS PERMIT DOES NOT AUTHORIZE THE EMISSIONS OF AIR CONTAMINANTS IN EXCESS OF THOSE ALLOWED BY ARTICLE 1, CHAPTER 3, PART 4, DIVISION 26 OF THE HEALTH & SAFETY CODE OF THE STATE OF CALIFORNIA OR THE RULES AND REGULATIONS OF THE AIR POLLUTION CONTROL DISTRICT. THIS PERMIT CANNOT BE CONSIDERED AS PERMISSION TO VIOLATE EXISTING LAWS, ORDINANCES, REGULATION OR STATUTES OF OTHER GOVERNMENTAL AGENCIES.

Mary Giraudo

AIR POLLUTION CONTROL OFFICER

DATE 6/08/2018

ii. Analyzer Measuring CO Via Non-Dispersive Infrared Measurement And $O_2$ Via Paramagnetic Measurement As Described In Monitoring And Reporting Protocol.

iii. Data Acquisition System, VIM Technologies, Installed On An IBM Compatible Computer Located In The Control Room.

THE EQUIPMENT FOR WHICH THIS PERMIT TO OPERATE IS ISSUED MAY BE OPERATED ONLY WHEN IN COMPLIANCE WITH THE FOLLOWING CONDITIONS:

Conditions:

1. The heat input rate to this gas turbine shall not exceed 1,870 MMBtu/hr.

2. The maximum daily combined emissions from the gas turbines, including start-ups and shutdowns and combustor tuning periods, shall not exceed the following limits:

| Pollutant | Lbs/Day |
|---|---|
| Oxides of Nitrogen ($NO_x$) | 2,589.4 |
| Carbon Monoxide (CO) | 17,301.8 |
| Particulate Matter <10 microns ($PM_{10}$) | 864.0 |
| Volatile Organic Compounds (VOC) | 620.0 |
| Ammonia ($NH_3$) | 1,224.0 |
| Sulfur Dioxide ($SO_2$) | 124.8 |

3. The pollutant mass emission rates in the exhaust discharged to the atmosphere from this gas turbine shall not exceed the following limits:

| Pollutant | Lbs/Hour | Lbs/Day |
|---|---|---|
| Oxides of Nitrogen ($NO_x$) | 17.23 | 413.5 |
| Carbon Monoxide (CO) | 37.76 | 906.2 |
| Particulate Matter <10 microns ($PM_{10}$) | 9.00 | 216.0 |
| Volatile Organic Compounds (VOC) | 4.79 | 115.0 |
| Ammonia ($NH_3$) | 12.75 | 306.0 |
| Sulfur Dioxide ($SO_2$) | 1.30 | 31.2 |

These limits shall not apply during start-up, which is not to exceed four (4) hours, during shutdown, which is not to exceed two (2) hours, or during steam turbine cold start-up or combustor tuning, which are not to exceed six (6) hours. SCR catalytic controls and good engineering practices shall be used to the fullest extent practical during start-up, shutdown, and combustor tuning to minimize pollutant emissions.

Steam turbine cold start-up periods are start-up periods that last more than four (4) hours or exceed the start-up emission limits in Condition 5, and follow a shutdown of the steam turbine for at least 72 hours.

Combustor tuning activities include all testing, adjustment, tuning, and calibration activities associated with combustor replacement and maintenance recommended by the gas turbine manufacturer to ensure

safe and reliable steady state operation of the gas turbines. This includes, but is not limited to, adjusting the amount of fuel distributed between the combustion turbine's staged fuel systems to simultaneously minimize $NO_x$, CO, and VOC production while ensuring combustor stability.

4. The pollutant concentrations discharged to the atmosphere from this gas turbine shall not exceed the following limits, calculated at 15 percent $O_2$ on a one-hour rolling average unless otherwise noted:

| Pollutant | Concentration (ppm) |
|---|---|
| Oxides of Nitrogen (as $NO_2$) | 2.5 (clock hour average) |
| Carbon Monoxide (CO) | 9.0 rolling three-hour average) |
| Ammonia ($NH_3$) | 5.0 (three 60 minute averages) |

These limits shall not apply: during start-up, which is not to exceed four (4) hours; during shutdown, which is not to exceed two (2) hours; or during steam turbine cold start-up or combustor tuning, which are not to exceed six (6) hours. SCR catalytic controls and good engineering practices shall be used to the fullest extent practical during start-up, shutdown, and combustor tuning to minimize pollutant emissions.

5. The pollutant emission rates discharged to the atmosphere from this gas turbine during start-up, shutdown, or combustor tuning activities shall not exceed the following limits. These limits apply to any start-up period which shall not exceed four (4) hours, to any shutdown, which shall not exceed two (2) hours, and to any steam turbine cold start-up or combustor tuning, which shall not exceed six (6) hours.

| Pollutant | Lbs/Start-up | Lbs/Cold Start-up or Combustor Tuning | Lbs/Shutdown |
|---|---|---|---|
| $NO_x$ (as $NO_2$) | 320.0 | 480.0 | 160.0 |
| CO | 3,608.0 | 5,412.0 | 1,804.0 |
| VOCs (as $CH_4$) | 64.0 | 214.0 | 32.0 |

6. Exceedance of the hourly $NO_x$ emission limits specified in Conditions 3 and 4 is allowed during short-term excursions which total less than 10 hours per rolling 12-month period.

   Short-term excursions are defined as 15-minute periods designated by Dynegy Moss Landing, LLC that are a direct result of a combustor mode switchover, not to exceed four consecutive 15-minute periods, when the 15-minute average $NO_x$ concentration exceeds 2.5 ppm corrected to 15% $O_2$.

   The maximum 1-hour $NO_x$ concentration for periods that include short-term excursions shall not exceed 30 ppmvd corrected to 15% $O_2$. All emissions during short-term excursions shall be included in all calculations of daily, quarterly, and annual mass emissions required by this permit.

7. The CEM system shall be operated on this gas turbine. This system shall be designed to continuously record the measured gaseous concentrations, and calculate and continuously monitor and record the CO, $CO_2$ or $O_2$, and $NO_x$ concentrations corrected to fifteen (15) percent oxygen ($O_2$) on a dry basis.

   The equipment for the continuous monitoring of CO shall be maintained and operated in accordance with 40 CFR Part 60 Appendix F, and the equipment for the continuous monitoring of $CO_2$ or $O_2$ and $NO_x$ shall be maintained and operated in accordance with 40 CFR Parts 72 and 75.

8. Cumulative emissions, including emissions generated during start-ups, shutdowns, and combustor tuning activities, from all power generation equipment at the Moss Landing Power Plant shall not exceed the following quarterly limits:

| Pollutant | Pounds Of Emissions Per Calendar Quarter | | | |
|---|---|---|---|---|
| | First | Second | Third | Fourth |
| $NO_x$ (as $NO_2$) | 169,840 | 169,840 | 169,840 | 169,840 |
| $SO_x$ | 10,920 | 10,920 | 10,920 | 10,920 |
| VOC | 44,720 | 44,720 | 44,720 | 44,720 |
| $PM_{10}$ | 75,600 | 75,600 | 75,600 | 75,600 |
| CO | 662,960 | 662,960 | 662,960 | 662,960 |

9. This equipment shall be abated by a properly operated and maintained Selective Catalytic Reduction System.

10. No more than one of the gas turbines shall be operated in support of a steam turbine cold start-up or undergo combustor tuning at any one time.

11. The total number of hours during which each gas turbine may be operated to support a steam turbine cold start-up or may undergo combustor tuning shall not exceed 30 hours per year.

12. To demonstrate compliance with Condition 11, Dynegy Moss Landing, LLC shall record the start time, end time, and duration of each steam turbine cold start-up and each combustor tuning period. On an annual basis, Dynegy Moss Landing, LLC shall report the total number of hours during which each gas turbine operated to support a steam turbine cold start-up or in combustor tuning mode during the year.

13. Dynegy Moss Landing, LLC shall demonstrate compliance by using properly operated and maintained continuous emission monitors (during all hours of operation including equipment start-up and shutdown periods and combustor tuning activities, except for periods of CEM maintenance performed in accordance with District requirements) for all of the following parameters:

    a) Firing hours and Fuel Flow Rates.

    b) Oxygen ($O_2$) Concentrations, Nitrogen Oxide ($NO_x$) Concentrations, and Carbon Monoxide (CO) Concentrations.

    c) Ammonia Injection Rates.

    Dynegy Moss Landing, LLC shall record all of the above parameters every 15 minutes (excluding normal calibration periods) and shall summarize all of the above parameters for each clock hour. For each calendar day, Dynegy Moss Landing, LLC shall calculate and record the total Firing Hours, the average hourly Fuel Flow Rates, and pollutant emission concentrations.

    Dynegy Moss Landing, LLC shall use the parameters measured above and District-approved calculation methods to calculate the following parameters:

    d) Heat Input Rate.

    e) Corrected $NO_x$ concentrations, $NO_x$ mass emissions (as $NO_2$), corrected CO concentrations, and CO mass emissions.

For each source, Dynegy Moss Landing, LLC shall record the parameters specified in Sections (d) and (e) of this condition every 15 minutes (excluding normal calibration periods). As specified below, Dynegy Moss Landing, LLC shall calculate and record the following data:

f) Total Heat Input Rate for every clock hour;

g) The $NO_x$ mass emissions (as $NO_2$), and corrected average $NO_x$ emission concentration for every clock hour;

h) The CO mass emissions, and corrected average CO emission concentration for every rolling three-hour period;

i) On an hourly basis, the cumulative total $NO_x$ mass emission (as $NO_2$) and the cumulative total CO mass emissions;

j) For each calendar day, the cumulative total $NO_x$ mass emission (as $NO_2$) and the cumulative total CO mass emissions;

k) For each calendar quarter, the cumulative total $NO_x$ mass emission (as $NO_2$) and the cumulative total CO mass emissions; and,

l) For each calendar year, the cumulative total $NO_x$ mass emission (as $NO_2$) and the cumulative total CO mass emissions.

14. Dynegy Moss Landing, LLC shall calculate and record on a daily basis, the volatile organic compound (VOC) mass emissions, fine particulate matter ($PM_{10}$) mass emissions, sulfur dioxide ($SO_2$) mass emissions, and ammonia ($NH_3$) mass emissions from each source. Dynegy Moss Landing, LLC shall use the actual heat input rates, actual start-up times, actual shutdown times, actual combustor tuning times and District-approved emission factors to calculate these emissions. The calculated emissions shall be presented as follows:

    a) For each calendar day, VOC, $PM_{10}$, $SO_2$, and $NH_3$ mass emissions shall be summarized for each source.

    b) On a daily basis, the cumulative total VOC, $PM_{10}$, $SO_2$ and $NH_3$ mass emissions shall be summarized for each calendar quarter and for the calendar year.

15. Instrumentation must be operated to measure the SCR catalyst inlet temperature and pressure differential across the SCR catalyst.

16. Dynegy Moss Landing, LLC shall submit monthly reports on the continuous emissions monitoring systems to the District in accordance to the Monitoring and Reporting Protocol for Monthly Reporting (Reporting Protocol) approved by the District. The written Monthly Report shall be submitted to the District within 30 days from the end of the month and shall include:

    a) time intervals, date, and magnitude of excess emissions; nature and cause of the excess (if known), corrective actions and preventive measures adopted;

    b) the averaging period used for data reporting, corresponding to averaging period specified in the emission test period used to determine compliance with an emission standard for the pollutant and source category in question;

c) time and date of each period during which the continuous monitoring system was inoperative, except for zero and span checks, and the nature of system repairs and adjustments;

d) a negative declaration when no excess emissions occurred; and,

e) a summary of actual monthly emissions, summarized and totaled on a quarterly basis, from the CEM for all subject equipment which operated during the month and/or quarter.

17. Dynegy Moss Landing, LLC shall monitor and report $SO_2$ emissions in accordance with 40 CFR Parts 72 and 75.

18. Dynegy Moss Landing, LLC shall hold Sulfur Dioxide Allowances in the compliance subaccounts not less than the total annual emissions of sulfur dioxide for the previous calendar year.

19. A written Quality Assurance program must be established in accordance with 40 CFR Part 75, Appendix B and 40 CFR Part 60, Appendix F which includes, but is not limited to procedures for daily calibration testing, quarterly linearity and leak testing, record keeping and reporting implementation, and relative accuracy testing.

20. Pursuant to Title IV, Part 75, Section 75.50, and District Rule 431, Section 4.3, permanent records shall be maintained for a period of five years after creation. The records at a minimum shall include all items specified in Section 75.50 and in District Rule 431.

21. Dynegy Moss Landing, LLC shall submit quarterly Electronic Data Reports (EDR) to EPA. These reports must be submitted within 30 days following the end of the calendar quarter. The reports must be in electronic format and at a minimum must include all items listed in 40 CFR Section 75.64.

22. Dynegy Moss Landing, LLC shall cause testing to be performed to verify compliance with the ammonia ($NH_3$) slip limit every EPA operating quarter, as defined in 40 CFR Part 72, or in the next EPA operating quarter if this unit cannot be tested in an EPA operating quarter due to the unit being non-operational at the time of scheduled testing. Dynegy Moss Landing, LLC shall conduct this testing in accordance with the collection method specified in BAAQMD Source Test Procedure ST-1B and the analysis specified in EPA method 350.3.

23. Annual performance tests shall be conducted in accordance with the District test procedures, and the written results of the performance tests shall be provided to the District within thirty (30) days after testing. A testing protocol shall be submitted to the District no later than thirty (30) days prior to the testing, and notification to the District at least ten (10) days prior to the actual date of testing shall be provided so that a District observer may be present. Changes to the test date made subsequent to the initial ten day notification may be communicated by telephone or other acceptable means no less than forty-eight (48) hours prior to the new test date.

    The performance tests shall include those parameters specified in the approved test protocol, and shall at a minimum include the following:

    a) Oxides of Nitrogen (as $NO_2$): ppmv dry at 15% $O_2$ and lbm/hr;

    b) Carbon Monoxide: ppmv dry at 15% $O_2$ and lbm/hr;

    c) Volatile Organic Compounds (as $CH_4$): ppmv dry at 15% $O_2$ and lbm/hr;

    d) Ammonia ($NH_3$): ppmv dry at 15% $O_2$ and lbm/hr;

and the following process parameters:

e) Natural gas consumption;

f) Electricity generated during the test; and,

g) Stack gas flow rate (SDCFM) calculated according to procedures in EPA method 19.

24. Dynegy Moss Landing, LLC shall report all breakdowns which result in the inability to comply with any emission standard or requirement contained on this permit to the Air Pollution Control Officer (APCO) within 1 hour or within one hour of the time the owner or operator knew, or reasonably should have known of the occurrence. The APCO may elect to take no enforcement action if Dynegy Moss Landing, LLC demonstrates to the APCO's satisfaction that a breakdown condition exists.

    The estimated time for repair of the breakdown shall be supplied to the APCO within 24 hours of the occurrence and a written report shall be supplied to the APCO within 5 working days after the occurrence has been corrected. This report shall include at a minimum:

    a) a statement that the condition or failure has been corrected and the date of correction;

    b) a description of the reasons for the occurrence;

    c) a description of the corrective measures undertaken and/or to be undertaken to avoid such an occurrence in the future; and,

    d) an estimate of the emissions caused by the condition or failure.

25. Dynegy Moss Landing, LLC shall maintain adequate stack sampling ports and platforms to enable the performance of source testing.

26. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three (3) minutes in any one (1) hour which is as dark or darker than Ringelmann 1, or equivalent 20% opacity.

27. Notwithstanding the requirements of Condition 26, no air contaminant shall be discharged into the atmosphere for a two (2) hour period from the gas turbine exhaust during start-up for a period or periods aggregating more than three (3) minutes in any one (1) hour which is as dark or darker than Ringelmann 2, or equivalent 40% opacity. Good engineering practices shall be used to the fullest extent practical during start-up to minimize pollutant emissions.

28. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as or darker than Ringelmann 1, or equivalent 20 percent opacity.

29. No emissions shall constitute a public nuisance.

30. Dynegy Moss Landing, LLC shall fund the operation of the "Stationary Source" percentage of the District's Salinas air monitoring station.

**Note:** The annual renewal date of this permit is 7/4.

MONTEREY BAY AIR RESOURCES DISTRICT

# PERMIT TO OPERATE

GNR-0017601A

24580 SILVER CLOUD CT., MONTEREY, CA 93940 TELEPHONE (831) 647-9411 • FAX (831) 647-8501

OPERATION UNDER THIS PERMIT MUST BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS INCLUDED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED. THE EQUIPMENT MUST BE PROPERLY MAINTAINED AND KEPT IN GOOD CONDITION AT ALL TIMES. THIS PERMIT TO OPERATE MUST BE POSTED OR ACCESSIBLE.

| | |
|---|---|
| LEGAL OWNER OR OPERATOR: | DYNEGY MOSS LANDING, LLC |
| EQUIPMENT LOCATED AT: | Highway One & Dolan Road<br>Moss Landing, California |
| EQUIPMENT DESCRIPTION AND CONDITIONS: | THIS PERMIT TO OPERATE IS ISSSUED AND IS VALID FOR THIS EQUIPMENT ONLY WHILE IT IS IN THE CONFIGURATION SET FORTH IN THE FOLLOWING DESCRIPTION: |

COMBINED CYCLE GAS TURBINE GENERATOR UNIT 4A:

1. Gas Turbine Generator, General Electric Frame 7, Model PG7241, Serial #297605, Rated At 1,870 MMBtu/Hr Maximum Heat Input And 180 MW Nominal Electrical Output, Dry Low-$NO_x$ Combustor.

2. Water Tube Type Heat Recovery Steam Generator (HRSG), Nominal Ratings: High Pressure Steam Capacity: 409,900 Lbs/Hr @ 1,903 psia And 1,047°F, Intermediate Pressure Steam Capacity: 484,500 Lbs/Hr @ 358 psia And 1,022°F, Low Pressure Steam Capacity: 55,300 Lbs/Hr @ 71 psia And 499°F.

3. Steam Turbine Generator And Condenser Serving Gas Turbine Units 3A And 4A, Quadruple Admission, Triple Extraction, 196.8 MW Nominal Rated Electrical Output.

4. Selective Catalytic Reduction $NO_x$ Control System Consisting Of 2,244 $Ft^3$ Cormetech Type CM-21 Vanadium, Titanium, And Tungsten Oxide Honeycomb Catalyst Located Within The HRSG.

5. Ammonia Injection System.

6. CEM System Consisting Of:

    a. Sample Acquisition Probe As Described In The Monitoring And Reporting Protocol.

    b. Instrumentation Shelter, 8' x 10', Located Approximately 20 Feet From The Stack. Shelter Houses Sample Transport And Conditioning Systems, And Analyzers.

    c. Analyzers:

        i. Chemiluminescence Analyzer Measuring $NO_2$.



**THIS PERMIT BECOMES VOID UPON ANY CHANGE OF OWNERSHIP OR ADDRESS, OR ANY ALTERATION.**

THIS PERMIT DOES NOT AUTHORIZE THE EMISSIONS OF AIR CONTAMINANTS IN EXCESS OF THOSE ALLOWED BY ARTICLE 1, CHAPTER 3, PART 4, DIVISION 26 OF THE HEALTH & SAFETY CODE OF THE STATE OF CALIFORNIA OR THE RULES AND REGULATIONS OF THE AIR POLLUTION CONTROL DISTRICT. THIS PERMIT CANNOT BE CONSIDERED AS PERMISSION TO VIOLATE EXISTING LAWS, ORDINANCES, REGULATION OR STATUTES OF OTHER GOVERNMENTAL AGENCIES.

Mary Giraudo

AIR POLLUTION CONTROL OFFICER

DATE 6/08/2018

ii. Analyzer Measuring CO Via Non-Dispersive Infrared Measurement And $O_2$ Via Paramagnetic Measurement As Described In Monitoring And Reporting Protocol.

iii. Data Acquisition System, VIM Technologies, Installed On An IBM Compatible Computer Located In The Control Room.

THE EQUIPMENT FOR WHICH THIS PERMIT TO OPERATE IS ISSUED MAY BE OPERATED ONLY WHEN IN COMPLIANCE WITH THE FOLLOWING CONDITIONS:

Conditions:

1. The heat input rate to this gas turbine shall not exceed 1,870 MMBtu/hr.

2. The maximum daily combined emissions from the gas turbines, including start-ups and shutdowns and combustor tuning periods, shall not exceed the following limits:

| Pollutant | Lbs/Day |
|---|---|
| Oxides of Nitrogen ($NO_x$) | 2,589.4 |
| Carbon Monoxide (CO) | 17,301.8 |
| Particulate Matter <10 microns ($PM_{10}$) | 864.0 |
| Volatile Organic Compounds (VOC) | 620.0 |
| Ammonia ($NH_3$) | 1,224.0 |
| Sulfur Dioxide ($SO_2$) | 124.8 |

3. The pollutant mass emission rates in the exhaust discharged to the atmosphere from this gas turbine shall not exceed the following limits:

| Pollutant | Lbs/Hour | Lbs/Day |
|---|---|---|
| Oxides of Nitrogen ($NO_x$) | 17.23 | 413.5 |
| Carbon Monoxide (CO) | 37.76 | 906.2 |
| Particulate Matter <10 microns ($PM_{10}$) | 9.00 | 216.0 |
| Volatile Organic Compounds (VOC) | 4.79 | 115.0 |
| Ammonia ($NH_3$) | 12.75 | 306.0 |
| Sulfur Dioxide ($SO_2$) | 1.30 | 31.2 |

These limits shall not apply during start-up, which is not to exceed four (4) hours, during shutdown, which is not to exceed two (2) hours, or during steam turbine cold start-up or combustor tuning, which are not to exceed six (6) hours. SCR catalytic controls and good engineering practices shall be used to the fullest extent practical during start-up, shutdown, and combustor tuning to minimize pollutant emissions.

Steam turbine cold start-up periods are start-up periods that last more than four (4) hours or exceed the start-up emission limits in Condition 5, and follow a shutdown of the steam turbine for at least 72 hours.

Combustor tuning activities include all testing, adjustment, tuning, and calibration activities associated with combustor replacement and maintenance recommended by the gas turbine manufacturer to ensure

safe and reliable steady state operation of the gas turbines. This includes, but is not limited to, adjusting the amount of fuel distributed between the combustion turbine's staged fuel systems to simultaneously minimize $NO_x$, CO, and VOC production while ensuring combustor stability.

4. The pollutant concentrations discharged to the atmosphere from this gas turbine shall not exceed the following limits, calculated at 15 percent $O_2$ on a one-hour rolling average unless otherwise noted:

| Pollutant | Concentration (ppm) |
|---|---|
| Oxides of Nitrogen (as $NO_2$) | 2.5 (clock hour average) |
| Carbon Monoxide (CO) | 9.0 rolling three-hour average) |
| Ammonia ($NH_3$) | 5.0 (three 60 minute averages) |

These limits shall not apply: during start-up, which is not to exceed four (4) hours; during shutdown, which is not to exceed two (2) hours; or during steam turbine cold start-up or combustor tuning, which are not to exceed six (6) hours. SCR catalytic controls and good engineering practices shall be used to the fullest extent practical during start-up, shutdown, and combustor tuning to minimize pollutant emissions.

5. The pollutant emission rates discharged to the atmosphere from this gas turbine during start-up, shutdown, or combustor tuning activities shall not exceed the following limits. These limits apply to any start-up period which shall not exceed four (4) hours, to any shutdown, which shall not exceed two (2) hours, and to any steam turbine cold start-up or combustor tuning, which shall not exceed six (6) hours.

| Pollutant | Lbs/Start-up | Lbs/Cold Start-up or Combustor Tuning | Lbs/Shutdown |
|---|---|---|---|
| $NO_x$ (as $NO_2$) | 320.0 | 480.0 | 160.0 |
| CO | 3,608.0 | 5,412.0 | 1,804.0 |
| VOCs (as $CH_4$) | 64.0 | 214.0 | 32.0 |

6. Exceedance of the hourly $NO_x$ emission limits specified in Conditions 3 and 4 is allowed during short-term excursions which total less than 10 hours per rolling 12-month period.

   Short-term excursions are defined as 15-minute periods designated by Dynegy Moss Landing, LLC that are a direct result of a combustor mode switchover, not to exceed four consecutive 15-minute periods, when the 15-minute average $NO_x$ concentration exceeds 2.5 ppm corrected to 15% $O_2$.

   The maximum 1-hour $NO_x$ concentration for periods that include short-term excursions shall not exceed 30 ppmvd corrected to 15% $O_2$. All emissions during short-term excursions shall be included in all calculations of daily, quarterly, and annual mass emissions required by this permit.

7. The CEM system shall be operated on this gas turbine. This system shall be designed to continuously record the measured gaseous concentrations, and calculate and continuously monitor and record the CO, $CO_2$ or $O_2$, and $NO_x$ concentrations corrected to fifteen (15) percent oxygen ($O_2$) on a dry basis.

   The equipment for the continuous monitoring of CO shall be maintained and operated in accordance with 40 CFR Part 60 Appendix F, and the equipment for the continuous monitoring of $CO_2$ or $O_2$ and $NO_x$ shall be maintained and operated in accordance with 40 CFR Parts 72 and 75.

8. Cumulative emissions, including emissions generated during start-ups, shutdowns, and combustor tuning activities, from all power generation equipment at the Moss Landing Power Plant shall not exceed the following quarterly limits:

| Pollutant | Pounds Of Emissions Per Calendar Quarter | | | |
|---|---|---|---|---|
| | First | Second | Third | Fourth |
| $NO_x$ (as $NO_2$) | 169,840 | 169,840 | 169,840 | 169,840 |
| $SO_x$ | 10,920 | 10,920 | 10,920 | 10,920 |
| VOC | 44,720 | 44,720 | 44,720 | 44,720 |
| $PM_{10}$ | 75,600 | 75,600 | 75,600 | 75,600 |
| CO | 662,960 | 662,960 | 662,960 | 662,960 |

9. This equipment shall be abated by a properly operated and maintained Selective Catalytic Reduction System.

10. No more than one of the gas turbines shall be operated in support of a steam turbine cold start-up or undergo combustor tuning at any one time.

11. The total number of hours during which each gas turbine may be operated to support a steam turbine cold start-up or may undergo combustor tuning shall not exceed 30 hours per year.

12. To demonstrate compliance with Condition 11, Dynegy Moss Landing, LLC shall record the start time, end time, and duration of each steam turbine cold start-up and each combustor tuning period. On an annual basis, Dynegy Moss Landing, LLC shall report the total number of hours during which each gas turbine operated to support a steam turbine cold start-up or in combustor tuning mode during the year.

13. Dynegy Moss Landing, LLC shall demonstrate compliance by using properly operated and maintained continuous emission monitors (during all hours of operation including equipment start-up and shutdown periods and combustor tuning activities, except for periods of CEM maintenance performed in accordance with District requirements) for all of the following parameters:

    a) Firing hours and Fuel Flow Rates.

    b) Oxygen ($O_2$) Concentrations, Nitrogen Oxide ($NO_x$) Concentrations, and Carbon Monoxide (CO) Concentrations.

    c) Ammonia Injection Rates.

    Dynegy Moss Landing, LLC shall record all of the above parameters every 15 minutes (excluding normal calibration periods) and shall summarize all of the above parameters for each clock hour. For each calendar day, Dynegy Moss Landing, LLC shall calculate and record the total Firing Hours, the average hourly Fuel Flow Rates, and pollutant emission concentrations.

    Dynegy Moss Landing, LLC shall use the parameters measured above and District-approved calculation methods to calculate the following parameters:

    d) Heat Input Rate.

    e) Corrected $NO_x$ concentrations, $NO_x$ mass emissions (as $NO_2$), corrected CO concentrations, and CO mass emissions.

For each source, Dynegy Moss Landing, LLC shall record the parameters specified in Sections (d) and (e) of this condition every 15 minutes (excluding normal calibration periods). As specified below, Dynegy Moss Landing, LLC shall calculate and record the following data:

f) Total Heat Input Rate for every clock hour;

g) The $NO_x$ mass emissions (as $NO_2$), and corrected average $NO_x$ emission concentration for every clock hour;

h) The CO mass emissions, and corrected average CO emission concentration for every rolling three-hour period;

i) On an hourly basis, the cumulative total $NO_x$ mass emission (as $NO_2$) and the cumulative total CO mass emissions;

j) For each calendar day, the cumulative total $NO_x$ mass emission (as $NO_2$) and the cumulative total CO mass emissions;

k) For each calendar quarter, the cumulative total $NO_x$ mass emission (as $NO_2$) and the cumulative total CO mass emissions; and,

l) For each calendar year, the cumulative total $NO_x$ mass emission (as $NO_2$) and the cumulative total CO mass emissions.

14. Dynegy Moss Landing, LLC shall calculate and record on a daily basis, the volatile organic compound (VOC) mass emissions, fine particulate matter ($PM_{10}$) mass emissions, sulfur dioxide ($SO_2$) mass emissions, and ammonia ($NH_3$) mass emissions from each source. Dynegy Moss Landing, LLC shall use the actual heat input rates, actual start-up times, actual shutdown times, actual combustor tuning times and District-approved emission factors to calculate these emissions. The calculated emissions shall be presented as follows:

    a) For each calendar day, VOC, $PM_{10}$, $SO_2$, and $NH_3$ mass emissions shall be summarized for each source.

    b) On a daily basis, the cumulative total VOC, $PM_{10}$, $SO_2$ and $NH_3$ mass emissions shall be summarized for each calendar quarter and for the calendar year.

15. Instrumentation must be operated to measure the SCR catalyst inlet temperature and pressure differential across the SCR catalyst.

16. Dynegy Moss Landing, LLC shall submit monthly reports on the continuous emissions monitoring systems to the District in accordance to the Monitoring and Reporting Protocol for Monthly Reporting (Reporting Protocol) approved by the District. The written Monthly Report shall be submitted to the District within 30 days from the end of the month and shall include:

    a) time intervals, date, and magnitude of excess emissions; nature and cause of the excess (if known), corrective actions and preventive measures adopted;

    b) the averaging period used for data reporting, corresponding to averaging period specified in the emission test period used to determine compliance with an emission standard for the pollutant and source category in question;

c) time and date of each period during which the continuous monitoring system was inoperative, except for zero and span checks, and the nature of system repairs and adjustments;

d) a negative declaration when no excess emissions occurred; and,

e) a summary of actual monthly emissions, summarized and totaled on a quarterly basis, from the CEM for all subject equipment which operated during the month and/or quarter.

17. Dynegy Moss Landing, LLC shall monitor and report $SO_2$ emissions in accordance with 40 CFR Parts 72 and 75.

18. Dynegy Moss Landing, LLC shall hold Sulfur Dioxide Allowances in the compliance subaccounts not less than the total annual emissions of sulfur dioxide for the previous calendar year.

19. A written Quality Assurance program must be established in accordance with 40 CFR Part 75, Appendix B and 40 CFR Part 60, Appendix F which includes, but is not limited to procedures for daily calibration testing, quarterly linearity and leak testing, record keeping and reporting implementation, and relative accuracy testing.

20. Pursuant to Title IV, Part 75, Section 75.50, and District Rule 431, Section 4.3, permanent records shall be maintained for a period of five years after creation. The records at a minimum shall include all items specified in Section 75.50 and in District Rule 431.

21. Dynegy Moss Landing, LLC shall submit quarterly Electronic Data Reports (EDR) to EPA. These reports must be submitted within 30 days following the end of the calendar quarter. The reports must be in electronic format and at a minimum must include all items listed in 40 CFR Section 75.64.

22. Dynegy Moss Landing, LLC shall cause testing to be performed to verify compliance with the ammonia ($NH_3$) slip limit every EPA operating quarter, as defined in 40 CFR Part 72, or in the next EPA operating quarter if this unit cannot be tested in an EPA operating quarter due to the unit being non-operational at the time of scheduled testing. Dynegy Moss Landing, LLC shall conduct this testing in accordance with the collection method specified in BAAQMD Source Test Procedure ST-1B and the analysis specified in EPA method 350.3.

23. Annual performance tests shall be conducted in accordance with the District test procedures, and the written results of the performance tests shall be provided to the District within thirty (30) days after testing. A testing protocol shall be submitted to the District no later than thirty (30) days prior to the testing, and notification to the District at least ten (10) days prior to the actual date of testing shall be provided so that a District observer may be present. Changes to the test date made subsequent to the initial ten day notification may be communicated by telephone or other acceptable means no less than forty-eight (48) hours prior to the new test date.

    The performance tests shall include those parameters specified in the approved test protocol, and shall at a minimum include the following:

    a) Oxides of Nitrogen (as $NO_2$): ppmv dry at 15% $O_2$ and lbm/hr;

    b) Carbon Monoxide: ppmv dry at 15% $O_2$ and lbm/hr;

    c) Volatile Organic Compounds (as $CH_4$): ppmv dry at 15% $O_2$ and lbm/hr;

    d) Ammonia ($NH_3$): ppmv dry at 15% $O_2$ and lbm/hr;

and the following process parameters:

e) Natural gas consumption;

f) Electricity generated during the test; and,

g) Stack gas flow rate (SDCFM) calculated according to procedures in EPA method 19.

24. Dynegy Moss Landing, LLC shall report all breakdowns which result in the inability to comply with any emission standard or requirement contained on this permit to the Air Pollution Control Officer (APCO) within 1 hour or within one hour of the time the owner or operator knew, or reasonably should have known of the occurrence. The APCO may elect to take no enforcement action if Dynegy Moss Landing, LLC demonstrates to the APCO's satisfaction that a breakdown condition exists.

    The estimated time for repair of the breakdown shall be supplied to the APCO within 24 hours of the occurrence and a written report shall be supplied to the APCO within 5 working days after the occurrence has been corrected. This report shall include at a minimum:

    a) a statement that the condition or failure has been corrected and the date of correction;

    b) a description of the reasons for the occurrence;

    c) a description of the corrective measures undertaken and/or to be undertaken to avoid such an occurrence in the future; and,

    d) an estimate of the emissions caused by the condition or failure.

25. Dynegy Moss Landing, LLC shall maintain adequate stack sampling ports and platforms to enable the performance of source testing.

26. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three (3) minutes in any one (1) hour which is as dark or darker than Ringelmann 1, or equivalent 20% opacity.

27. Notwithstanding the requirements of Condition 26, no air contaminant shall be discharged into the atmosphere for a two (2) hour period from the gas turbine exhaust during start-up for a period or periods aggregating more than three (3) minutes in any one (1) hour which is as dark or darker than Ringelmann 2, or equivalent 40% opacity. Good engineering practices shall be used to the fullest extent practical during start-up to minimize pollutant emissions.

28. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as or darker than Ringelmann 1, or equivalent 20 percent opacity.

29. No emissions shall constitute a public nuisance.

30. Dynegy Moss Landing, LLC shall fund the operation of the "Stationary Source" percentage of the District's Salinas air monitoring station.

**Note:** The annual renewal date of this permit is 7/4.