

# STATE OF MISSISSIPPI AIR POLLUTION CONTROL PERMIT

AND PREVENTION OF SIGNIFICANT  
DETERIORATION AUTHORITY  
TO CONSTRUCT AIR EMISSIONS EQUIPMENT  
**THIS CERTIFIES THAT**

TVA Magnolia Combined Cycle  
352 Highway 4 West  
Ashland, Mississippi  
Benton County

has been granted permission to construct air emissions equipment to comply with emission limitations, monitoring requirements and other conditions set forth herein. This permit is issued in accordance with the provisions of the Mississippi Air and Water Pollution Control Law (Section 49-17-1 et. seq., Mississippi Code of 1972), and the regulations and standards adopted and promulgated thereunder and under authority granted by the Environmental Protection Agency under 40 CFR 52.01 and 52.21.

**MISSISSIPPI ENVIRONMENTAL QUALITY PERMIT BOARD**

*Kristal Rudolph*

**AUTHORIZED SIGNATURE**

**MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY**

Issued: May 31, 2001

Permit No.: 0200-00019

Modified: June 13, 2005  
September 7, 2011  
May 24, 2012  
June 15, 2020

**Part I**

**A. GENERAL CONDITIONS**

1. This permit is for air pollution control purposes only. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.1.D.)
2. Any activities not identified in the application are not authorized by this permit. (Ref.: Miss. Code Ann. 49-17-29 1.b)
3. The knowing submittal of a permit application with false information may serve as the basis for the Permit Board to void the permit issued pursuant thereto or subject the applicant to penalties for operating without a valid permit pursuant to State Law. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B(5).)
4. It is the responsibility of the applicant/permittee to obtain all other approvals, permits, clearances, easements, agreements, etc., which may be required including, but not limited to, all required local government zoning approvals or permits. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.1.D(6).)
5. The issuance of a permit does not release the permittee from liability for constructing or operating air emissions equipment in violation of any applicable statute, rule, or regulation of state or federal environmental authorities. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B(7).)
6. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit, unless halting or reducing activity would create an imminent and substantial endangerment threatening the public health and safety of the lives and property of the people of this state. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B(15)(a).)
7. The permit and/or any part thereof may be modified, revoked, reopened, and reissued, or terminated for cause. Sufficient cause for a permit to be reopened shall exist when an air emissions stationary source becomes subject to Title V. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B(15)(b).)
8. The permit does not convey any property rights of any sort, or any exclusive privilege. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B(15)(c).)
9. The permittee shall furnish to the DEQ within a reasonable time any information the DEQ may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the DEQ copies of records required to be kept by the permit or, for information claimed to be confidential, the permittee shall furnish such records to the DEQ along with a claim of confidentiality. The permittee may furnish such records directly to the Administrator along with a claim of confidentiality. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B(15)(d).)
10. Design and Construction Requirements: The stationary source shall be designed and constructed so as to operate without causing a violation of an Applicable Rules and

Regulations, without interfering with the attainment and maintenance of State and National Ambient Air Quality Standards, and such that the emission of air toxics does not result in an ambient concentration sufficient to adversely affect human health and well-being or unreasonably and adversely affect plant or animal life beyond the stationary source boundaries. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.5.A.)

11. Solids Removal: The necessary facilities shall be constructed so that solids removed in the course of control of air emissions may be disposed of in a manner such as to prevent the solids from becoming windborne and to prevent the materials from entering State waters without the proper environmental permits. (Ref.: Miss. Code Ann. 49-17-29)
12. Diversion and Bypass of Air Pollution Controls: The air pollution control facilities shall be constructed such that diversion from or bypass of collection and control facilities is not needed except as provided for in 11 Miss. Admin. Code Pt. 2, R. 1.1.10, "Air Emission Regulations for the Prevention, Abatement, and Control of Air Contaminants", Section 10. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 1.10.)
13. Fugitive Dust Emissions from Construction Activities: The construction of the stationary source shall be performed in such a manner so as to reduce fugitive dust emissions from construction activities to a minimum. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.5.A(4).)
14. Right of Entry: The permittee shall allow the Mississippi Department of Environmental Quality Office of Pollution Control and the Mississippi Environmental Quality Permit Board and/or their representatives upon presentation of credentials:
  - a) To enter upon the permittee's premises where an air emission source is located or in which any records are required to be kept under the terms and conditions of this permit; and
  - b) At reasonable times to have access to and copy any records required to be kept under the terms and conditions of this permit; to inspect any monitoring equipment or monitoring method required in this permit; and to sample any air emissions. (Ref.: Miss. Code Ann. 49-17-21)
15. Permit Modification or Revocation: After notice and opportunity for a hearing, the Permit Board may modify the permit or revoke it in whole or in part for good cause shown including, but not limited to:
  - a) Persistent violation of any of the terms or conditions of this permit;
  - b) Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts; or
  - c) A change in federal, state, or local laws or regulations that require either a temporary or permanent reduction or elimination of previously authorized air emission.(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.C.)
16. Public Record and Confidential Information: Except for data determined to be confidential under the Mississippi Air & Water Pollution Control Law, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the

Mississippi Department of Environmental Quality, Office of Pollution Control. (Ref.: Miss. Code Ann. 49-17-39)

17. Permit Transfer: This permit shall not be transferred except upon approval of the Permit Board. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.16.B.)
18. Severability: The provisions of this permit are severable. If any provision of the permit, or the application of any provision of the permit to any circumstances, is challenged or held invalid, the validity of the remaining permit provisions and/or portions thereof or their application to other persons or sets of circumstances, shall not be affected thereby. (Ref. 11 Miss. Admin. Code Pt. 2, R. 2.1.D(7).)
19. Permit Expiration: The permit to construct will expire if construction does not begin within eighteen (18) months from the date of issuance or if construction is suspended for eighteen (18) months or more. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.5.C(1).)
20. Certification of Construction: A new stationary source issued a Permit to Construct cannot begin operation until certification of construction by the permittee. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.5.D(3).)
21. Beginning Operation: Except as prohibited in Part I, Condition 24 of this permit, after certification of construction by the permittee, the Permit to Construct shall be deemed to satisfy the requirement for a permit to operate until the date the application for issuance or modification of the Title V Permit or the application for issuance or modification of the State Permit to Operate, whichever is applicable, is due. This provision is not applicable to a source excluded from the requirement for a permit to operate as provided by 11 Miss. Admin. Code Pt. 2, R. 2.13.G. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.5.D(4).)
22. Application for a Permit to Operate: Except as otherwise specified in Part I, Condition 24 of this permit, the application for issuance or modification of the State Permit to Operate or the Title V Permit, whichever is applicable, is due twelve (12) months after beginning operation or such earlier date or time as specified in the Permit to Construct. The Permit Board may specify an earlier date or time for submittal of the application. Beginning operation will be assumed to occur upon certification of construction, unless the permittee specifies differently in writing. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.5.D(5).)
23. Operating Under a Permit to Construct: Except as otherwise specified in Part I, Condition 24 of this permit, upon submittal of a timely and complete application for issuance or modification of a State Permit to Operate or a Title V Permit, whichever is applicable, the applicant may continue to operate under the terms and conditions of the Permit to Construct and in compliance with the submitted application until the Permit Board issues, modifies, or denies the Permit to Operate. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.5.D(6).)
24. Application Requirements for a Permit to Operate for Moderate Modifications: For moderate modifications that require contemporaneous enforceable emissions reductions from more than one emission point in order to “net” out of PSD/NSR, the applicable Title V Permit to Operate or State Permit to Operate must be modified prior to beginning operation of the modified facilities. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.5.D(7).)
25. Compliance Testing: Regarding compliance testing:

- a) The results of any emissions sampling and analysis shall be expressed both in units consistent with the standards set forth in any Applicable Rules and Regulations or this permit and in units of mass per time.
- b) Compliance testing will be performed at the expense of the permittee.
- c) Each emission sampling and analysis report shall include but not be limited to the following:
  - (1) detailed description of testing procedures;
  - (2) sample calculation(s);
  - (3) results; and
  - (4) comparison of results to all Applicable Rules and Regulations and to emission limitations in the permit.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.6.B(3), (4), & (6).)

**B. GENERAL NOTIFICATION REQUIREMENTS**

- 1. Within fifteen (15) days of beginning actual construction, the permittee must notify DEQ in writing that construction has begun. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.5.C(2).)
- 2. The permittee must notify DEQ in writing when construction does not begin within eighteen (18) months of issuance or if construction is suspended for eighteen (18) months or more. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.5.C(3).)
- 3. Upon the completion of construction or installation of an approved stationary source or modification, the applicant shall notify the Permit Board that construction or installation was performed in accordance with the approved plans and specifications on file with the Permit Board. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.5.D(1).)
- 4. The Permit Board shall be promptly notified in writing of any change in construction from the previously approved plans and specifications or permit. If the Permit Board determines the changes are substantial, it may require the submission of a new application to construct with “as built” plans and specifications. Notwithstanding any provision herein to the contrary, the acceptance of an “as built” application shall not constitute a waiver of the right to seek compliance penalties pursuant to State Law. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.5.D(2).)

**Part II.**  
**EMISSION LIMITATIONS AND MONITORING REQUIREMENTS**

**Beginning June 15, 2020, the permittee is authorized to construct air emissions equipment and emit air contaminants from the following:**

**General Electric Model 7FA Combustion Turbine Generator Sets**

Number of units:	3
Modes of Operation	Combined Cycle
Natural gas operation:	(at 63°F, 60% RH, 14.52 psia)
Duct Firing Energy Input (one HRSG):	610.5 mmBtu/hr
Electrical Capacity (one CTG):	170,300 KW
Total Energy Input-HHV (one CTG/HRSG):	2,336 mmBtu/hr

**Part II (Continued)**

**EMISSION LIMITATIONS AND MONITORING REQUIREMENTS**

Beginning **June 15, 2020**, the permittee is authorized to construct air emissions equipment for the emission of air contaminants from Emission Points AA-001, AA-002, and AA-003, the 2,336 MMBTU/hr (HHV) natural gas-fired combined cycle combustion turbine generators (CTG), each with a heat recovery steam generator (HRSG) and dry low NO<sub>x</sub> burners combined with a selective catalytic reduction (SCR) reactor for control of NO<sub>x</sub> emissions.

Selective catalytic reduction (SCR) will be included for control of NO<sub>x</sub> emissions and operated as soon as and as long as the unit operating conditions are amenable to its effective use, or when the unit is operating in normal operating conditions, whichever condition is attainable first. Normal operating conditions shall be defined at the point when the turbine combustion system has reached stable combustion dynamics in Mode 6Q and thirty (30) minutes after ammonia flow to the SCR system has commenced. Reduced load operation is authorized to accommodate periods of reduced demands provided the maximum lbs/hr emission limitations below are not exceeded.

These emission points are subject to the Acid Rain Program Regulations as specified in 40 CFR 72-78, and the permittee must comply with all applicable requirements of said standards.

EMISSION LIMITATIONS At All Times

The permittee shall comply with the following limitations at all times, based on a 12-month rolling total:

Pollutant	Limitation/Standard Requirement
Particulate Matter (PM)	351 tpy, as determined by EPA Reference Methods 1-5, 40 CFR 60, Appendix A.
Particulate Matter diameter less than 10 microns (PM <sub>10</sub> )	351 tpy, as determined by EPA Reference Methods 201 or 201A in conjunction with Reference Method 202, 40 CFR 51, Appendix M.
Particulate Matter diameter less than 2.5 microns (PM <sub>2.5</sub> )	351 tpy, as determined by EPA Reference Methods 201 or 201A in conjunction with Reference Method 202, 40 CFR 51, Appendix M.
Sulfur Dioxide (SO <sub>2</sub> )	15.5 tpy, as determined by EPA Reference Method 6, 40 CFR 60, Appendix A.
Nitrogen Oxides (NO <sub>x</sub> )	530 tpy, as determined by EPA Reference Method 7E and 3A, 40 CFR 60, Appendix A.
Carbon Monoxide (CO)	1,792 tpy, as determined by EPA Reference Method 10, 40 CFR 60, Appendix A.
Non-methane VOC (NMVOC)	227 tpy, as determined by EPA Reference Method 25, 40 CFR 60, Appendix A.

(Ref.: PSD Permit to Construct issued May 31, 2001 and modified June 13, 2005, September 7, 2011, May 24, 2012, and June 15, 2020)

EMISSION LIMITATIONS With Duct Firing (Case 1)

Pollutant	Limitation/Standard Requirement
PM	27.3 lbs/hr, as determined by EPA Reference Methods 1-5, 40 CFR 60, Appendix A.
PM <sub>10</sub>	27.3 lbs/hr, as determined by EPA Reference Methods 201 or 201A in conjunction with Reference Method 202, 40 CFR 51, Appendix M.
PM <sub>2.5</sub>	27.3 lbs/hr, as determined by EPA Reference Methods 201 or 201A in conjunction with Reference Method 202, 40 CFR 51, Appendix M.
SO <sub>2</sub>	7.4 lb/hr, as determined by EPA Reference Method 6, 40 CFR 60, Appendix A.
NO <sub>x</sub>	3.5 PPM at 15% oxygen on a dry basis, not to exceed 34.3 lbs/hr, both limits are based on a 3-hr rolling average, as determined by EPA Reference Method 7E and 3A, 40 CFR 60, Appendix
CO	10 PPM at 15% oxygen on a dry basis, not to exceed 97.9 lbs/hr, both limits are based on a 3-hr rolling average, as determined by EPA Reference Method 10, 40 CFR 60, Appendix A.
NMVOC	16.4 lbs/hr, as determined by EPA Reference Method 25, 40 CFR 60, Appendix A.
GHG	12-month rolling average of 1,000 lbs CO <sub>2</sub> per MW-hr (gross) based on combustion design and practices.

(Ref.: PSD Permit to Construct issued May 31, 2001 and modified June 13, 2005, September 7, 2011, May 24, 2012, and June 15, 2020, 40 CFR 60.330(a)(1) and (b), Subpart GG))



EMISSION LIMITATIONS Without Duct Firing (Case 2)

Pollutant	Limitation/Standard Requirement
PM	20.5 lbs/hr, as determined by EPA Reference Methods 1-5, 40 CFR 60, Appendix A.
PM <sub>10</sub>	20.5 lbs/hr as determined by EPA Reference Methods 201 or 201A in conjunction with Reference Method 202, 40 CFR 51, Appendix M.
PM <sub>2.5</sub>	20.5 lbs/hr as determined by EPA Reference Methods 201 or 201A in conjunction with Reference Method 202, 40 CFR 51, Appendix M.
SO <sub>2</sub>	5.9 lb/hr, as determined by EPA Reference Method 6, 40 CFR 60, Appendix A.
NO <sub>x</sub>	3.5 ppm at 15% oxygen on a dry basis, not to exceed 34.3 lbs/hr, both limits are based on a 3-hr rolling average, as determined by EPA Reference Method 7E, 40 CFR 60, Appendix A.
CO	7.6 PPM at 15% oxygen on a dry basis, not to exceed 33.5 lbs/hr, both limits are based on a 3-hr rolling average, as determined by EPA Reference Method 10, 40 CFR 60, Appendix A.
NM VOC	3.2 lbs/hr, as determined by EPA Reference Method 25, 40 CFR 60, Appendix A.
GHG	12-month rolling average of 1,000 lbs CO <sub>2</sub> per MW-hr (gross) based on combustion design and practices.

(Ref.: PSD Permit to Construct issued May 31, 2001 and modified June 13, 2005, September 7, 2011, May 24, 2012, and June 15, 2020, 40 CFR Part 60.330(a)(1) and (b), Subpart GG))

The hourly limits above apply to each combustion turbine (Emission Points AA-001, AA-002, and AA-003) separately. The permittee shall comply with the short-term lb/hr emission limitations except during periods of startup, shutdown and tuning. The permittee is allowed to exclude from the three (3) hour rolling average any hour in which duct burners startup within the last 15 minutes of any hour. The permittee shall comply with the GHG emission limitations except during periods of startup, shutdown, and tuning. However, emissions generated during these periods shall be used to demonstrate compliance with the tons/year emission limits. The ton per year limit is for all combustion turbines (Emission Points AA-001, AA-002, and AA-003) combined and should include all methods of operation.

A startup event shall not exceed 6.0 hour duration and a shutdown event shall not exceed a 1.0 hour duration. A period of startup is defined as commencing when fuel is first combusted in the combustion turbine, and ending when the turbine combustion system has reached stable combustion dynamics in Mode 6Q and thirty (30) minutes after ammonia flow to the SCR system has commenced. Shutdown shall be defined as the period beginning when the combustion turbine leaves operational Mode 6Q and ending when combustion has ceased. The permittee shall monitor and maintain records of the duration of time each emission point engages in periods of both startups and shutdowns. Tuning sessions will normally occur because of required seasonal tuning, after a combustor change-out, after a major repair or maintenance to a combustor, or other similar maintenance circumstance. Tuning sessions are completed periodically to optimize combustion or emission reductions from the turbine. Tuning sessions must be performed in accordance with the manufacturer's recommendations. During the tuning session, all reasonable steps to minimize levels of emissions that exceed the limits of this permit shall be taken. The permittee shall submit notice of tuning events to the DEQ within five (5) working days of the time the tuning event began.

All test methods specified above shall be those versions, or their approved equivalents, which are in effect **June 15, 2020**.

### Part III

#### OTHER REQUIREMENTS

- (1) The turbines are subject to and shall comply with all applicable requirements of the New Source Performance Standards, as described in 40 CFR 60, Subpart A - General Provisions, and the specific requirements outlined in 60.330, Subpart GG - Standards of Performance for Stationary Gas Turbines.

#### Standards

- (a) The permittee shall comply with the requirements listed in 40 CFR 60, Subpart GG, Section 60.332.

#### Monitoring Requirements

- (b) The permittee shall comply with the requirements listed in 40 CFR 60, Subpart GG, Section 60.334.

#### Test Methods and Procedures

- (c) The permittee shall comply with the requirements listed in 40 CFR 60, Subpart GG, Section 60.335.
- (2) For each turbine, the permittee shall not burn any fuel which contains sulfur in excess of 0.8 percent by weight.
- (3) For each turbine, the permittee shall only combust natural gas.
- (4) For each turbine, the permittee shall install, calibrate, maintain, and operate continuous monitoring systems for NO<sub>x</sub> (as specified in 40 CFR 60.334, Appendix B and 40 CFR Part 75), CO (as specified in 40 CFR 60, Appendix B, and 40 CFR Part 75) and O<sub>2</sub> (as specified in 40 CFR 60, Appendix B, and 40 CFR Part 75). These monitoring systems must comply with all applicable requirements specified in 60.334, 60.13 and Appendix B of 40 CFR 60

and 40 CFR Part 75. In addition, the permittee must comply with the reporting and recordkeeping requirements specified in 40 CFR Part 60 and 40 CFR Part 75.

- (5) The duct burners, associated with Emission Points AA-001 through AA-003, are subject to and shall comply with all applicable requirements of the New Source Performance Standards, as described in 40 CFR 60, Subpart A - General Provisions and Subpart Da - Standards of Performance for Electric Utility Steam Generating Units.

### **Standards**

The permittee shall comply with all applicable standards for particulate matter listed in 40 CFR 60, Subpart Da, Section 60.42Da.

- (a) The permittee shall comply with all applicable standards for sulfur dioxide listed in 40 CFR 60, Subpart Da, Section 60.43Da.
- (b) The permittee shall comply with all applicable standards for nitrogen oxides listed in 40 CFR 60, Subpart Da, Section 60.44Da.

### **Monitoring Requirements**

- (c) The permittee shall comply with all applicable requirements listed in 40 CFR 60, Subpart Da, Section 60.47Da.

**Reporting Requirements**

- (d) The permittee shall comply with all applicable requirements listed in 40 CFR 60, Subpart A, Section 60.7 and 40 CFR 60, Subpart Da, Section 60.49Da.
- (6) The combustion turbines and duct burners associated with Emission Points AA-001, AA-002, and AA-003 shall be operated in a manner consistent with good air pollution control practices to minimize emissions during startups, shutdowns and tuning sessions including:
  - (a) Operation in accordance with the manufacturer's written instructions or other written instructions developed and maintained by the permittee, which shall include at a minimum the following measures:
    - (i) Review of operating parameters of the unit during startups or shutdowns as necessary to make adjustments to reduce or eliminate excess emissions;
    - (ii) Operation of the SCR system as soon as and as long as the unit operating conditions are amenable to its effective use.
  - (b) Maintenance of the SCR systems in accordance with written procedures developed and maintained by the permittee, which procedures shall be reviewed at least annually.
- (7) For Emission Points AA-001, AA-002, and AA-003, a record of all startups, shutdowns or tuning sessions of the associated combustion turbines, duct burners, and SCR systems shall be kept and retained for a period of three (3) years and shall be made available to the Mississippi Department of Environmental Quality Office of Pollution Control, the Mississippi Environmental Quality Permit Board and/or their authorized representatives upon request. Such records shall include the time and date of each startups, shutdowns and tuning sessions and confirmation that good air pollution control practices, as provided in paragraph (6) above, were followed.

- (8) The permittee shall submit semiannual reports providing the summary of emissions in tons/year of NO<sub>x</sub> and CO based on CEM data for each consecutive 365-day rolling total. This report is due by January 31<sup>st</sup> and July 31<sup>st</sup> of each calendar year. All records required by this permit shall be maintained for review for at least five years from the date the report was generated.
- (9) For Emission Points AA-001, AA-002, and AA-003, the permittee shall submit semiannual reports showing the hours of operation during periods of startup, shutdown and tuning sessions. Each report is due by January 31<sup>st</sup> and July 31<sup>st</sup> of each calendar year. All records required by this permit shall be maintained for review for at least five years from the date of the sampling, measuring, or report.