Special Conditions

Permit Numbers 8576 and PSDTX371M5

Emission Standards

1. This permit covers only those sources of emissions listed in the attached table entitled "Emission Sources - Maximum Allowable Emission Rates" (MAERT), and those sources are limited to the emission limits and other conditions specified in that table. This permit authorizes routine maintenance, startup, and shutdown (MSS) activities which comply with the emission limits in the MAERT.

Maximum hourly emission rates are based on the highest emissions resulting from firing each boiler unit at 9,061 million British thermal units per hour (MMBtu/hr) with lignite only, coal only, a blend of lignite and coal, a blend of up to 20 percent petroleum (pet) coke (by weight) with coal, and a blend of up to 20 percent pet coke (by weight) with lignite.

Annual emission rate limits are based on 8,760 hours per year sustained full-load operation and 12-month rolling periods. **(10/12)**

2. Affected facilities shall comply with the applicable requirements of the U.S. Environmental Protection Agency (EPA) regulations as follows: **(12/13)**

    2. Standards of Performance for New Stationary Sources (NSPS) promulgated in Title 40 Code of Federal Regulations (40 CFR) Part 60:

        2. Subpart A - General Provisions, and

        2. Subpart Da - Standards of Performance for Electric Utility Steam Generating Units for Which Construction is Commenced After September 18, 1978.

    2. National Emission Standards for Hazardous Air Pollutants (NESHAPS) for Source Categories promulgated in 40 CFR Part 63:

        2. Subpart A - General Provisions, and

        2. Subpart UUUUU - National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units.

    2. If any condition of this permit is more stringent than the regulations so incorporated, then for the purposes of complying with this permit, the permit condition shall govern and be the standard by which compliance shall be demonstrated.

3. Particulate matter (PM) emissions from each boiler shall be controlled by a cold side electrostatic precipitator (ESP) and shall not exceed 0.03 pound (lb) per MMBtu of fired fuel, except during periods of routine MSS. During periods of MSS, particulate matter shall be controlled in accordance with Special Condition No. 20. **(10/12)**

4. Sulfur dioxide (SO_2) emissions from each boiler and vented through the ESP shall be controlled by a wet limestone flue gas desulfurization (FGD) system. The permit holder represents that the scrubbed flue gas is discharged through a mist eliminator that is composed of two stages, including the bulk entrainment separator (BES) and the fine entrainment separator. Both of these stages extend across the face area of the absorber spray tower, and two rows of vanes are used to assure droplet impingement and to minimize mist carryover. Any subsequent design changes to this system should not result in a significant decrease in scrubber performance and shall be documented on site and reported to the Texas Commission on Environmental Quality (TCEQ) Regional Office. Copies of revised system design characteristics and descriptions shall be

provided to the TCEQ Regional Office upon request. Liquid carryover past the demister is specified in FGD performance guarantees not to exceed 3.4 gallons per minute (gpm). **(12/13)**

Opacity/Visible Emission Limitations

5. Opacity of emissions from the utility boiler stacks shall be monitored in accordance with 40 CFR Part 60, Subpart Da and shall not exceed 15 percent when adjusted for uncombined water vapor averaged over a six-minute period, except during periods of routine MSS or as otherwise allowed by law. During periods of MSS, the opacity shall be controlled in accordance with Special Condition No. 20. **(12/13)**

Operational Limitations, Work Practices, and Plant Design

6. Chemical cleaning of Boiler Unit Nos. 1 and 2 generates spent cleaning solution and rinse water which is injected into Boiler Unit No. 1 windbox for incineration and shall not exceed a maximum rate of 150 gpm and 2.4 million gallons per year.

7. As represented by the applicant, the BES shall be inspected annually on each demister assembly and recorded. The vanes/chevrons shall be inspected for pluggage and damage. The vanes/chevrons shall be cleaned and deposits removed as necessary. Damaged vanes/chevrons shall be repaired and/or replaced as appropriate. In addition, the mist eliminators are equipped with an automatic on-line maintenance system to help maintain cleanliness and minimize pluggage. This system includes a series of water lances that are operated on an automatic cycle while the generating units are in operation.

8. The hot air recirculation system (HAR) shall not exceed 78,000 MMBtu per year per unit (MMBtu/unit/yr). **(5/14)**

Determination of Compliance and Continued Compliance

9. Sampling ports and platforms shall be incorporated into the design of all exhaust stacks according to the specifications set forth in the attachment entitled “Chapter 2, Stack Sampling Facilities.” Alternate sampling facility designs may be submitted for approval by the TCEQ Regional Director. **(12/13)**

10. The permit holder shall perform stack sampling and other testing to establish the actual quantities of air contaminants being emitted into the atmosphere from the boiler stacks (emission point numbers [EPNs] LMS1 and LMS2). Unless otherwise specified in this Special Condition No. 10, the sampling and testing shall be conducted in accordance with the methods and procedures specified in Special Condition No. 11. The permit holder is responsible for providing sampling and testing facilities and conducting the sampling and testing operations at his expense. The TCEQ Executive Director or his designated representative shall be afforded the opportunity to observe all such sampling. **(12/13)**

    A. Air contaminants and diluent from the boiler stacks to be sampled and analyzed include (but are not limited to) the following:

        10. volatile organic compounds (VOC) - after completion of the deep combustion tuning for the boilers, as specified in paragraph D(1) of this special condition;

10. PM (filterable and condensable), PM with diameters of 10 microns or less (PM_{10}), and PM with diameters of 2.5 microns or less ($PM_{2.5}$) - by the deadline specified in paragraph D(2) this special condition;

B. Requests to waive testing for any air contaminant specified in this condition shall be submitted to the TCEQ Air Permits Division. Test waivers and alternate or equivalent procedure proposals for NSPS testing which must have EPA approval shall be submitted to the EPA and copied to TCEQ Regional Director.

C. The boilers shall be tested at the maximum rates for the atmospheric conditions which exist during testing, and applicable controls shall be in operation during the testing.

D. Sampling as required by this condition shall occur as follows:

10. Sampling of each boiler for the air contaminants and diluents listed in paragraph A(1) of this special condition shall be performed within 12 months of completion of the deep combustion tuning. **(12/15)**

10. Sampling of each boiler for the air contaminants listed in paragraph A(2) of this special condition shall be performed no later than the deadline for the initial performance testing of the boiler as specified in 40 CFR Part 63, Subpart UUUUU.

10. Additional sampling shall be performed as may be required by the TCEQ or EPA.

11. Sampling Methods and Procedures. **(12/13)**

A. Sampling shall be conducted in accordance with the appropriate procedures of the TCEQ Sampling Procedures Manual and EPA Test Methods in 40 CFR Part 60, Appendix A.

B. The TCEQ Waco Regional Office shall be given notice as soon as testing is scheduled but not less than 30 days prior to sampling to schedule a pretest meeting.

(1) The notice shall include:

(a) Date for pretest meeting.

(b) Date sampling will occur.

(c) Name of firm conducting sampling.

(d) Type of sampling equipment to be used.

(e) Method of procedure to be used in sampling.

(2) The purpose of the pretest meeting is to review the necessary sampling and testing procedures, to provide the proper data forms for recording pertinent data, and to review the format procedures for submitting the test reports.

(3) Prior to the pretest meeting, a written proposed description of any deviation from sampling procedures specified in permit conditions or TCEQ or EPA sampling procedures shall be made available to the TCEQ. The TCEQ Regional Director shall approve or disapprove of any deviation from specified sampling procedures.

C. Two copies of the final sampling report shall be submitted within 60 days after the sampling is completed. Sampling reports shall comply with the attached conditions of Chapter 14 of the TCEQ Sampling Procedures Manual. The reports shall be distributed as follows:

(1) One copy to the EPA Region 6 Office, Dallas.

(2) One copy to the TCEQ Waco Regional Office.

12. The permit holder shall develop a report that describes the deep combustion tuning changes made to the boilers and the resulting effects on emissions of NO_x and CO. The report shall be submitted to the TCEQ Air Permits Division - Combustion/Coatings NSR Section (MC-163) and the TCEQ Waco Regional Office no later than the deadline for the final sampling report in paragraph 11C above. **(12/13)**

13. The permit holder shall install and shall operate continuous opacity, SO_2, NO_x, and CO_2 monitors in EPNs LMS1 and LMS2 as listed in the attached MAERT and in accordance with 40 CFR § 60.49Da. The CO_2 instrument shall continuously record the flue gas CO_2 concentrations, in parts per million by volume, as best available control technology for boiler lowest excess air operation. The permit holder shall report the opacity, SO_2, and NO_x monitoring data in the manner described in 40 CFR § 60.51Da.

However, the SO_2 monitoring data shall consist of 3-hour rolling averages considering each hour and the 2 preceding hours plus the SO_2 monitoring data shall consist of 24 rolling hour averages considering each hour and the preceding 23 hours. The permit holder shall report CO_2 monitoring which coincides with periods of excess NO_x emissions and during periods when the continuous nitrogen monitor is not in operation.

In addition, the permit holder shall install and operate a monitor accurate to ± 10 percent to continuously measure and record CO concentrations in EPNs LMS1 and LMS2. All continuous monitoring readings in excess of CO emission limitations referred to in the attached MAERT shall be reported in accordance with 40 CFR § 60.7(c) and (d).

14. Allowable emissions of NO_x are enforceable on a 30-day rolling average according to the standards, methods, procedures, and requirements of 40 CFR § 60.44Da(a). Allowable emissions of SO_2 are enforceable on a 3-hour and 24-hour rolling average.

15. The permit holder shall continuously monitor the SO_2 removal efficiency of the flue gas desulfurization system in accordance with the test methods and procedures as set out in 40 CFR § 60, Appendix A, Method 19, Determination of SO_2 Removal Efficiency and PM, SO_2, and NO_x emission rates from electric utility steam generators to determine the overall reduction of uncontrolled SO_2 from EPNs LMS1 and LMS2. The monitoring data indicating overall SO_2 removal less than that required as calculated from the attached "Maximum Allowable SO_2 Steam Generating Units" shall be reported in accordance with 40 CFR § 60.51Da and Special Condition No. 14.

The continuous monitoring data may, at the discretion of the TCEQ Regional Director be used to determine violations of the conditions in this permit. All continuous monitoring readings in excess of the emission limitations set forth in the attached MAERT shall be reported in accordance with 40 CFR § 60.51Da and Special Condition Nos. 12 and 14.

16. The permit holder shall monitor PM emissions from EPNs LMS1 and LMS2 or perform stack testing in accordance with the applicable requirements of 40 CFR Part 63, Subpart UUUUU to demonstrate compliance with Special Condition No. 3 and the MAERT. **(12/13)**

Recordkeeping

17. The following records, written or electronic, shall be maintained at the plant and shall be made available upon request by representatives of the TCEQ, EPA, or any local air pollution control program having jurisdiction. **(12/13)**

    17. A copy of this permit.

    17. Permit application dated February 1, 2013 and supplemental application information submitted.

    17. A complete copy of the testing reports and records of the performance testing completed pursuant to Special Condition Nos. 10-11 to demonstrate initial compliance.

    17. Stack sampling results for the most recent stack test (other than CEMS data) conducted on units authorized under this permit.

18. The following records, written or electronic, shall be maintained at the plant site on a five-year rolling basis and made readily available upon request by representatives of the TCEQ, EPA, or any local air pollution control program having jurisdiction. **(12/13)**

    18. Records to show compliance with relevant requirements of applicable federal NSPS and NESHAPS standards as required by Special Condition No. 2.

    18. Records of PM monitoring data or stack testing data pursuant to Special Condition No. 16 to demonstrate compliance with Special Condition No. 3 and the MAERT.

    18. Raw data files of all CEMS data including calibration checks and adjustments and maintenance performed on these systems.

    18. Records of SO_2, NO_x, CO, and diluent CEMS emissions data to demonstrate compliance with the emission rates listed in the MAERT.

    18. Records of continuous opacity monitoring system data.

    18. Records of all information resulting from monitoring activities and information indicating operating parameters as required in the special conditions of this permit.

    18. Records of the annual heat input resulting from the operation of the HAR system in accordance with Special Condition No. 8. **(5/14)**

Routine Maintenance, Startup, and Shutdown

19. This permit authorizes the emissions from the planned MSS activities listed in Attachment A, Attachment B, or the MAERT attached to this permit. Attachment A identifies the inherently low emitting (ILE) planned maintenance activities that this permit authorizes to be performed. Attachment B identifies the planned MSS activities that are non-ILE planned maintenance activities that this permit authorizes to be performed. **(10/12)**

20. Opacity greater than 15 percent from either EPN LMS1 or LMS2 is authorized when the permit holder complies with the MSS duration limitations and other applicable work practices identified below. **(10/20)**

    20. Emissions during planned startup and shutdown activities shall be minimized by limiting the duration of operation in planned startup and shutdown mode as follows:

20. A planned startup of the EGF with EPN LMS1 or LMS2 is defined as the period that begins when the forced draft fans start operation and ends when the utility boiler reaches 400 megawatts (MW) and maintains that load (or greater load) for 60 consecutive minutes and ESP operations have been fully optimized. **(10/20)**

    20. A planned startup of the EGF shall not exceed 2,880 minutes, except as allowed in Special Condition No. 20A(1)(b).

    20. An extended planned startup is defined as a startup that lasts more than 48 hours. The total amount of incremental time the extended startups exceed 48 hours shall not exceed 600 hours per unit on an annual calendar year basis.

20. A planned shutdown of the EGF with EPN LMS1 or LMS2 is defined as the period that begins when load drops below lowest sustainable load (LSL) following dispatch request for a shutdown and ends when the drum metal temperature reaches 200 degrees F.

    20. A planned shutdown of the EGF shall not exceed 2,880 minutes, except as allowed in Special Condition No. 20A(2)(b).

    20. An extended planned shutdown is defined as a shutdown that lasts more than 48 hours. The total amount of incremental time the extended shutdowns exceed 48 hours shall not exceed 600 per unit hours on an annual calendar year basis.

20. Emissions during planned startup and shutdown activities shall be minimized by employing the following work practices. The EGF with EPN LMS1 or LMS2 will comply with the boiler and ESP manufacturer's operating procedures or the permit holder's written Standard Operating Procedures manual during planned MSS, and will operate in a manner consistent with those procedures to minimize opacity by placing the ESP into service as soon as practical during planned startups or removing the ESP from service as late as possible during planned shutdowns, once the air heater outlet temperature is between 200 and 300 degrees F, but not longer than the durations identified in Special Condition No. 20A. The manufacturer's operating procedures or written Standard Operating Procedure manual shall be located on-site and available to the TCEQ regional investigator.

20. Periods of opacity greater than 15 percent from EPN LMS1 or LMS2 from planned online and offline maintenance activities identified in Attachment A or B is authorized for no more than 535 hours in a calendar year.

20. The permit holder shall keep records to identify periods of planned MSS, the opacity measured by the COMS for the duration of the planned MSS activities, and the work practices in Special Condition No. 20B are followed during the planned MSS activities for the purpose of demonstrating compliance with this permit special condition.

20. For periods of maintenance, startup, and shutdown other than those subject to Paragraphs A - C of this condition, 30 TAC § 111.111, 111.153, and Chapter 101, Subchapter F apply.

21. When a planned maintenance activity identified in Attachment B is associated with a VOC liquid storage facility and may result in VOC emissions from that facility, the permit holder shall not open that facility to the atmosphere in connection with the planned maintenance activity until the VOC liquids are removed from that facility to the maximum extent practicable. **(10/12)**

22. No vacuum pump on a vacuum truck that is used to move solids (such as ash) during planned maintenance activities shall be operated unless the vacuum system exhaust is routed to a filtering system. **(10/12)**

23. Vacuum trucks that are used to move liquids with a vapor pressure greater than 0.5 psia during planned maintenance activities shall utilize submerged loading. **(10/12)**

24. Compliance with the emissions limits for planned MSS activities identified in the MAERT attached to this permit may be demonstrated as follows. **(10/12)**

    24. For each pollutant emitted during ILE planned maintenance activities, the permit holder shall annually confirm the continued validity of the estimated potential to emit represented in the permit application for all ILE planned maintenance activities. The total emissions from all ILE planned maintenance activities (See Attachment A) shall be considered to be no more than the estimated potential to emit for those activities that are represented in the permit application.

    24. For each pollutant emitted during non-ILE planned MSS activities (See Attachment B) whose emissions are measured using a CEMS, as per Special Condition No. 25A, the permit holder shall compare the pollutant's short-term (hourly) emissions during planned MSS activities as measured by the CEMS to the applicable short-term planned MSS emissions limit in the MAERT.

    24. For each pollutant emitted during non-ILE planned MSS activities (See Attachment B) whose emissions occur through a stack, but are not measured using CEMS as per Special Condition No. 25A, the permit holder shall determine the total emissions of the pollutant through the stack that result from such non-ILE planned MSS activities in accordance with Special Condition No. 25B.

    24. For each pollutant emitted during non-ILE planned MSS activities (See Attachment B) whose emissions do not occur through a stack, the permit holder shall do the following for each calendar month.

        24. Determine the total emissions of the pollutant from such non-ILE planned MSS activities in accordance with Special Condition No. 25B.

        24. Once monthly emissions have been determined in accordance with Special Condition No. 24D(1) for 12 months after the MSS permit amendment has been issued, the permit holder shall compare the sum of the rolling 12-month emissions for the pollutant for all non-ILE planned MSS activities and the annual potential to emit for the pollutant from all ILE planned MSS activities (as referenced in Special Condition 24A), to the annual emissions limit for the pollutant in the MAERT.

25. The permit holder shall determine the emissions during planned MSS activities for use in Special Condition No. 24 as follows. **(10/12)**

    25. For each pollutant whose emissions during normal facility operations are measured with a CEMS that has been certified to measure the pollutant's emissions over the entire range of a planned MSS activity, the permit holder shall measure the emissions of the pollutant during the planned MSS activity using the CEMS.

    25. For each pollutant not described in Special Condition No. 25A, the permit holder shall calculate the pollutant's emissions during all occurrences of each type of planned MSS activity for each calendar month using the frequency of the planned MSS activity identified in work orders or equivalent records and the emissions of the pollutant during the planned MSS activity as represented in the planned MSS permit application. In lieu of using the emissions of the pollutant during the planned MSS activity as represented in the planned MSS permit application to calculate such emissions, the permit holder may determine the emissions of the pollutant during the planned MSS activity using an appropriate method, including but not limited to, any of the methods described in paragraphs 1 through 4 below, provided that the permit holder maintains appropriate records supporting such determination:

25. Use of emission factor(s), facility-specific parameter(s), and/or engineering knowledge of the facility's operations.

25. Use of emissions data measured (by a CEMS or during emissions testing) during the same type of planned MSS activity occurring at or on a similar facility, and correlation of that data with the facility's relevant operating parameters, including, but not limited to, electric load, temperature, fuel input, and fuel sulfur content.

25. Use of emissions testing data collected during a planned MSS activity occurring at or on the facility, and correlation of that data with the facility's relevant operating parameters, including, but not limited to, electric load, temperature, fuel input, and fuel sulfur content.

25. Use of parametric monitoring system (PEMS) data applicable to the facility.

26. With the exception of the emission limits in the MAERT attached to this permit, the permit conditions relating to planned MSS activities do not become effective until 180 days after issuance of the permit amendment that added such conditions. **(10/12)**

Permits by Rule

27. The following maintenance activities at the site are currently authorized by permits by rule (PBR) under 30 TAC Chapter 106 or PBR predecessor standard exemptions (SE) to 30 TAC Chapter 116. This list is not intended to be all inclusive and can be altered at the site without modification to this permit. **(10/12)**

Description	SE/PBR No.
Comfort Heating System Maintenance and Repair	SE 003, PBR 106.102
Bench Scale Laboratory Equipment	SE 034, PBR 106.122
Brazing, Soldering, and Welding	SE 039, PBR 106.227
Enclosed and Outdoor Dry Abrasive Blasting	PBR 106.263
Miscellaneous Surface Coating	PBR 106.263
Hand-Held Equipment for Buffing, Polishing, Cutting, Drilling, Sawing, Grinding, Turning, or Machining Wood, Metal or Plastic	SE 040, PBR 106.265
Refrigeration System Maintenance and Repair	SE 103, PBR 106.373
Solvent Cleaning-Parts Degreaser	SE 107, PBR 106.454
Portable Engines	SE 005, PBR 106.511
Water and Wastewater treatment	SE 061, PBR 106.532

Projected Actuals

28. The increase in firing rate for the HAR system related to pollution control project modifications addressed in the amendment application submitted March 6, 2014 were determined not to be subject to major new source review for CO, Pb, VOC, NO_x, SO_2, PM, PM_{10}, and $PM_{2.5}$ by identifying projected actual emission rates for the facilities potentially affected by the project. Actual emissions of these pollutants from those facilities shall be monitored or calculated, recorded, and reports

made in accordance with 30 TAC § 116.127 for five years as specified in 30 TAC § 116.127(b)(1). **(5/14)**

Date: October 9, 2020

Attachment A

Permit Numbers 8576 and PSDTX371M5

Inherently Low Emitting (ILE) Planned Maintenance Activities

Table 1: ILE Planned Maintenance Activities and Associated Pollutants

Planned Maintenance Activity	NH_3/Urea	VOC	NO_x	CO	PM	SO_2
Water-based washing		x				
Boiler general maintenance[1]					x	
Inspection, repair, replacement, adjusting, testing, and calibration of analytical equipment, process instruments including sight glasses, meters, gauges, CEMS, PEMS.		x	x	x		x
Deslagging of boiler[2]	x	x	x	x	x	
Gaseous fuel venting (pipe length <100 feet)		x				
Small equipment and fugitive component repair/replacement in VOC and inorganic service[3]	x	x				

Date: December 20, 2013

[1] Includes pre-heater basket handling and maintenance, refractory change-out, fan maintenance and balancing, damper, air heater, and soot blower maintenance, and any other general boiler maintenance that does not exceed the worst-case emissions representation in the application.

[2] Includes, but is not limited to, explosive blasting, clinker shooting, and other boiler deslagging activities; does not include dry abrasive blasting that may occur in boilers.

[3] Includes, but is not limited to, (i) repair/replacement of pumps, compressors, valves, pipes, flanges, transport lines, filters and screens in natural gas, fuel oil, diesel oil, ammonia, lube oil, and gasoline service, (ii) vehicle and mobile equipment maintenance that may involve small VOC emissions, such as oil changes, transmission service, and hydraulic system service, and (iii) off-line NOx control device maintenance (including maintenance of the anhydrous ammonia systems and aqueous ammonia systems associated with SCR systems and SNCR systems).

Attachment B

Permit Numbers 8576 and PSDTX371M5

Non-Inherently Low Emitting Planned MSS Activities

Table 2: Non-ILE Planned Maintenance Activities and Associated Pollutants

Planned Maintenance Activity	EPN[4]	NH_3/Urea	VOC	NO_X	CO	PM	SO_2
Combustion optimization and maintenance reliability testing[5]	LMS1, LMS2		x	x	x	x	x
PM control device maintenance - unit online	LMS1, LMS2					x	
SO2 control device maintenance - unit online	LMS1, LMS2						x
Use of fans during maintenance - unit offline	LMS1, LMS2					x	
Main unit Planned Startup and Planned Shutdown	LMS1, LMS2		x	x	x	x	x
Mercury control device maintenance – unit online	LMS1, LMS2					x	
Induced Draft (ID) fans in and out of service – unit online	LMS1, LMS2					x	
Ambient reheat fans in and out of service, control valve calibration – unit online	LMS1, LMS2					x	

Date: October 9, 2020

[4] Planned maintenance activity emissions not vented through EPN LMS1 or LMS2 are quantified as EPN MSSFUG in the maximum allowable emissions rate table in Permit Nos. 8579 and PSDTX371M5. EPN MSSFUG quantifies permitted planned site-wide MSS emissions at the Limestone Electric Generating Station for activities identified in Attachment A above, and activities listed in Attachment A and B in Permit Nos. 8579 and PSDTX371M5. **(12/13)**

[5] Includes, but is not limited to, (i) leak and operability checks (e.g., turbine over-speed tests, troubleshooting), (ii) balancing, and (iii) tuning activities that occur during seasonal tuning or after the completion of initial construction, a combustor change-out, a major repair, maintenance to a combustor, or other similar circumstances.