

AMENDMENT TO AIR QUALITY PERMIT

Permit Amendment No.
4911-099-0033-P-01-2

Effective Date of Amendment

In accordance with The Georgia Air Quality Act, O.C.G.A. Section 12-9-1, et seq and the Rules, Chapter 391-3-1, adopted pursuant to or in effect under that Act, Permit No. 4911-099-0033-P-01-0 issued on May 14, 2007 to:

Facility Name: Longleaf Energy Associates, LLC

Mailing Address: Two Tower Center, 11th Floor
East Brunswick, New Jersey 08816

Facility Location: State Highway 370
Hilton, Georgia 31723 (Early County)

for the following: To construct and operate a nominal 1,200 MW coal fired generating station.

is hereby amended as follows: Add practically enforceable permit conditions making the facility a minor source for Hazardous Air Pollutants, reduce the allowable mercury emissions, and extend the commencement of construction deadline date and the completion of construction deadline date.

Reason for Amendment: Application No. 19706 (opening for cause) and Application No. 18499 dated October 7, 2008

This Permit is further subject to and conditioned upon the terms, conditions, limitations, standards, or schedules contained in or specified on the attached **16** page(s).

This Permit Amendment is effective from the date first above written and is hereby made a part of Permit No. 4911-099-0033-P-01-0 and compliance herewith is hereby ordered. Except as amended hereby, the above referenced Permit remains in full force and effect.

Director
Environmental Protection Division

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1.0 General Requirements

1.7 Deleted.

1.13 Deleted.

2.0 Allowable Emissions

Note: Except where an applicable requirement specifically states otherwise, the averaging times of any of the Emissions Limitations or Standards included in this permit are tied to or based on the run time(s) specified for the applicable reference test method(s) or procedures required for demonstrating compliance.

2.1 Approval to construct shall become invalid if construction is not commenced by October 1, 2011, if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable time. The Division may extend the deadline upon a satisfactory showing that an extension is justified. This provision does not apply to the time period between construction of the approved phases of a phased construction project; each phase must commence construction within 18 months of the projected and approved commencement date. For purposes of this Permit, the definition of “commence” is given in 40 CFR 52.21(b)(9).
[40 CFR 52.21(r)(2)]

2.2 The construction of PC-Fired Boilers S01 and S02, Auxiliary Boiler S03, Emergency Generator S42, Diesel Fire-water pump S43, Coal handling particulate sources (Emission Unit IDs S06 – S18), Ash management particulate sources (Emission Unit IDs S19 – S31), Lime management particulate sources (Emission Unit IDs S35 – S37), Cooling Towers (Emission Unit IDs S40 and S41), and Fuel Storage Tanks (Emission Unit IDs S44 – S48) shall be completed no later than December 31, 2015. Approval to construct shall become invalid if construction is not commenced by October 1, 2011, if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable time. The Division may extend the deadline upon a satisfactory showing that an extension is justified which shall not exceed an additional 12 months. This provision does not apply to the time period between construction of the approved phases of a phased construction project; each phase must commence construction within 18 months of the projected and approved commencement date.
[40 CFR 52.21(r)(2)]

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- 2.15 The Permittee shall not discharge, or cause the discharge, into the atmosphere, from each PC-Fired Boiler, S01 and S02, any gases which
- a. Contain nitrogen oxides (NO_x) in excess of 0.07 lb/MMBtu on a 30-day rolling average.
[40 CFR 52.21(j); 40 CFR 60.44Da(e)(1) (subsumed)]
 - b. Contain nitrogen oxides (NO_x) in excess of 0.05 lb/MMBtu on a 12-month rolling average. This condition becomes effective 6 months after initial start-up of each PC-Fired boiler, S01 and S02, absent approval by the Division for an extension of this date.
[40 CFR 52.21(j); 40 CFR 60.44Da(e)(1) (subsumed)]
 - c. Contain carbon monoxide (CO) in excess of 0.10 lb/MMBtu on a 30-day rolling average and 0.30 lb/MMBtu on a 1-hour average.
[40 CFR 52.21(j)]
 - d. Contain particulate matter (PM) in excess of 0.010 lb/MMBtu for filterable particulate matter (PM) on a 3-hour average and 0.030 lb/MMBtu for total particulate matter on a 3-hour average.
[40 CFR 52.21(j); 391-3-1-.02(2)(d) (subsumed); 40 CFR 60.42Da(c) (subsumed)]
 - e. Contain sulfur dioxide in excess of 0.065 lb/MMBtu on a 30-day rolling average when the uncontrolled sulfur dioxide emission rate is less than or equal to 1 lb/MMBtu on a 30-day rolling average.
[40 CFR 52.21(j); 40 CFR 60.43Da(i)(1)(i) (subsumed); 391-3-1-.02(2)(d) (subsumed)]
 - f. Contain sulfur dioxide in excess of 0.08 lb/MMBtu on a 30-day rolling average when the uncontrolled sulfur dioxide emission rate is greater than 1 lb/MMBtu but less than 1.25 lb/MMBtu on a 30-day rolling average.
[40 CFR 52.21(j); 40 CFR 60.43Da(i)(1)(i) (subsumed); 391-3-1-.02(2)(d) (subsumed)]
 - g. Contain sulfur dioxide in excess of 0.105 lb/MMBtu on a 30-day rolling average when the uncontrolled sulfur dioxide emission rate is greater than 1.25 lb/MMBtu but less than 1.6 lb/MMBtu on a 30-day rolling average.
[40 CFR 52.21(j); 40 CFR 60.43Da(i)(1)(i) (subsumed); 391-3-1-.02(2)(d) (subsumed)]
 - h. Contain sulfur dioxide in excess of 0.12 lb/MMBtu on a 24-hour average.
[40 CFR 52.21(j); 40 CFR 60.43Da(i)(1)(i) (subsumed); 391-3-1-.02(2)(d) (subsumed)]
 - i. Contain volatile organic compounds (VOC) in excess of 3.6×10^{-3} lb/MMBtu, as methane.
[40 CFR 52.21(j)]
 - j. Contain lead (Pb) in excess of 1.8×10^{-5} lb/MMBtu.
[40 CFR 52.21(j)]
 - k. Contain fluorides (as HF) in excess of 2.0×10^{-4} lb/MMBtu.
[40 CFR 52.21(j); Georgia Air Toxic Guideline - 391-3-1-.02(2)(a)3]
 - l. Contain sulfuric acid mist (H₂SO₄) in excess of 0.005 lb/MMBtu.
[40 CFR 52.21(j)]

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- m. Contain mercury (Hg) in excess of 7.64×10^{-6} lb/MW-hr on an 12-month rolling average while firing PRB coal or 6.0×10^{-6} lb/MW-hr on an 12-month rolling average while firing CAPP coal, or a computed weighted average based on the proportion of energy output in gross MW output contributed by each coal rank burned during the compliance period and its applicable Hg emissions limit.
[40 CFR 63 Avoidance and 391-3-1-.03(2)(c)]
 - n. Contain mercury from clarifier sludge incineration in both PC-Fired Boilers, S01 and S02, in excess of 3.2 kg (7.1 lb) of mercury per 24-hour period.
[40 CFR 61.52(b)]
 - o. Contain hydrochloric acid (HCl) in excess of 6.0×10^{-4} lb/MMBtu while firing PRB coal or 2.4×10^{-3} lb/MMBtu while firing CAPP coal or a computed weighted average based on the proportion of energy output in MMBtu input contributed by each coal rank burned during the compliance period and its applicable HCl emissions limit.
[Georgia Air Toxic Guideline - 391-3-1-.02(2)(a)3]
 - p. Exhibit greater than 20 percent opacity.
[40 CFR 52.21(j); and 391-3-1-.02(2)(d) (subsumed); 40 CFR 60.42Da(b) (subsumed)]
- 2.16 The Permittee shall not discharge, or cause the discharge, into the atmosphere, from the Auxiliary Boiler, S03 any gases which
- a. Contain nitrogen oxides (NO_x) in excess of 0.1 lb/MMBtu.
[40 CFR 52.21(j)]
 - b. Contain carbon monoxide (CO) in excess of 0.04 lb/MMBtu.
[40 CFR 52.21(j); 40 CFR 63.7500 (subsumed)]
 - c. Contain particulate matter (PM) in excess of 0.01 lb/MMBtu for filterable particulate matter and 0.023 lb/MMBtu for total particulate matter.
[40 CFR 52.21(j); 391-3-1-.02(2)(d) (subsumed); 40 CFR 60.43b(h) (subsumed); 40 CFR 63.7500 (subsumed)]
 - d. Contain volatile organic compounds (VOC) in excess of 0.003 lb/MMBtu, as methane.
[40 CFR 52.21(j)]
 - e. Contain sulfuric acid mist (H₂SO₄) in excess of 6×10^{-5} lb/MMBtu.
[40 CFR 52.21(j)]
 - f. Exhibit greater than 10 percent opacity.
[40 CFR 52.21(j); 40 CFR 63.7500 and 391-3-1-.02(2)(d) (subsumed); 40 CFR 60.43b(f) (subsumed)]
 - g. Contain hydrochloric acid (HCl) in excess of 0.0009 lb/MMBtu.
[Georgia Air Toxic Guideline - 391-3-1-.02(2)(a)3]

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- 2.25 The Permittee shall not discharge or cause the discharge into the atmosphere from the facility any single hazardous air pollutant (HAP) which is listed in Section 112 of the Clean Air Act, in an amount equal to or exceeding 10 tons during any twelve consecutive months, or any combination of such listed pollutants in an amount equal to or exceeding 25 tons during any twelve consecutive months.
[40 CFR 63 Avoidance and 391-3-1-.03(2)(c)]

4.0 Performance Testing

- 4.1 Performance and compliance tests shall be conducted and data reduced in accordance with applicable procedures and methods specified in the Division's **Procedures for Testing and Monitoring Sources of Air Pollutants**. The methods for the determination of compliance with emission limits listed under Section 2.0 which pertain to the emission units listed in Note B are as follows:

- a. Method 1 shall be used for the determination of sample point locations,
- b. Method 2 shall be used for the determination of stack gas flow rate,
- c. Method 3 or 3A shall be used for the determination of stack gas molecular weight,
- d. Method 3B shall be used for the determination of the emissions rate correction factor or excess air, Method 3A may be used as an alternative;
- e. Method 4 shall be used for the determination of stack gas moisture,
- f. Method 5 or Method 17, as applicable, for the determination of filterable Particulate Matter concentration, the sampling time for each run shall be two hours,
- g. Method 7 or 7E for the determination of Nitrogen Oxide concentration from the auxiliary boiler, SO₃, the sampling time for each run shall be a minimum of one hour,
- h. Method 8 shall be used for the determination of sulfur acid mist emissions, the sampling time for each run shall be a minimum of one hour,
- i. Method 9 and the procedures contained in Section 1.3 of the above reference document shall be used for the determination of opacity,
- j. Method 10 shall be used for the determination of carbon monoxide concentration, the sampling time for each run shall be a minimum of one hour,
- k. Method 19 shall be used for the determination of particulate matter (PM), carbon monoxide, and nitrogen oxides, and sulfur dioxide emission rates,
- l. Method 25A shall be used to determine total Hydrocarbons and to calculate Volatile Organic Compound emissions, the sampling time for each run shall be a minimum of one hour,

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- m. Method 26A shall be used for the determination of fluorine and chlorine at the inlet of the control device, hydrogen fluoride, and hydrochloric acid emission rates from the PC-Fired Boilers, S01 and S02; the sampling time for each run shall be a minimum of one hour. The percent removal of hydrogen chloride and hydrogen fluoride shall also be calculated at the time of the test. The Division may require the Permittee to determine the percent removal of hydrogen chloride and hydrogen fluoride when firing PRB or CAPP coal based on the results of the test.
- n. Method 29 shall be used for the determination of emission rates of lead and other non-mercury metals that are included in Section 112 of the Clean Air Act, while firing PRB or CAPP coal, from the PC-Fired Boilers, S01 and S02; the sampling time for each run shall be a minimum of one hour. The percent removal of selenium shall also be calculated based on the results of the test.
- o. Method 101A for a stack test or 105 for sludge sampling shall be used for the determination of mercury emissions while firing clarifier sludge unless an alternative method is approved by EPA, from the PC-Fired Boilers, S01 and S02,
- p. Method 202 shall be used for the determination of the condensible portion of total particulate matter.
- q. Compliance with the Hg limit in Condition 2.15.m. shall be determined according to the procedures in 40 CFR 60.50Da(h)(1) through (h)(3) using the CEMS required by Condition 5.2.
[40 CFR 52.21; 391-3-1-.02(6)(b)1; 40 CFR 60.13]
- r. Compliance with the NO_x limits in Condition 2.15.a. and 2.15.b. and the SO₂ limits in Condition 2.15.e., 2.15.f., 2.15.g., and 2.15.h. shall be determined using the CEMS required by Condition 5.2.
[40 CFR 52.21; 391-3-1-.02(6)(b)1; 40 CFR 60.13]
- s. Compliance with the CO limit in Condition 2.15.c. shall be determined using the CEMS required by Condition 5.2.
[40 CFR 52.21; 391-3-1-.02(6)(b)1; 40 CFR 60.13]
- t. Compliance with the filterable PM limit in Condition 2.15.d. shall be determined using the CEMS required by Condition 5.2.
[40 CFR 52.21; 391-3-1-.02(6)(b)1; 40 CFR 60.13]
- u. Compliance with the opacity limit in Condition 2.15.p. shall be determined using the COMS required by Condition 5.2.

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- v. Method 0031 shall be used for the determination of emission rates of volatile organic HAPs from the PC-fired Boilers, S01 and S02; Method 0010 shall be used for the determination of emission rates of semi-volatile organic HAPs from the PC-fired Boilers, S01 and S02; Method EPA CTM 033 shall be used for the determination of hydrogen cyanide emission rates from the PC-fired Boilers, S01 and S02; Method 29 shall be used for the determination of phosphorus emission rates from the PC-fired Boilers, S01 and S02; the sampling time for each run shall be a minimum of one hour.

Minor changes in methodology may be specified or approved by the Director or his/her designee when necessitated by process variables, changes in facility design, or improvement or corrections, which, in his opinion, render those methods or procedures, or portions thereof, more reliable.
[391-3-1-.02(3)(a)]

- 4.2 Within 60 days after achieving the maximum production rate on each coal type (PRB and CAPP) at which each PC-fired boiler, S01 and S02, will be operated, but not later than 180 days after the initial startup of each boiler for each coal type, the Permittee shall conduct the following performance tests and furnish to the Division a written report of the results of such performance tests:
 - a. Performance tests on each PC-fired boiler, S01 and S02, for volatile organic compounds at base load and at 50 percent load to verify compliance with Condition No. 2.15.i.
[40 CFR 52.21 and 391-3-1-.02(6)(b)1.(i)]
 - b. Performance tests on each PC-fired boiler, S01 and S02, for particulate emissions (PM) to verify compliance with Condition No. 2.15.d.
[40 CFR 52.21, 40 CFR 60.13, 40 CFR 60.42a(c) (subsumed), 391-3-1-.02(6)(b)1.(i)]
 - c. Performance tests on each PC-fired boiler, S01 and S02, for lead and other non-mercury metals that are listed in Section 112 of the Clean Air Act to verify compliance with Condition No. 2.15.j and Condition No. 2.25. The tests shall be conducted once every 3 years or as requested by the Division.
[40 CFR 52.21 and 391-3-1-.02(6)(b)1.(i)]
 - d. Performance tests on each PC-fired boiler, S01 and S02, for fluoride emissions (as HF) to verify compliance with Condition No. 2.15.k. The tests shall be conducted once every year or as requested by the Division.
[391-3-1-.02(6)(b)1.(i)]
 - e. Deleted.
 - f. Performance tests on each PC-fired boiler, S01 and S02, for sulfuric acid mist to verify compliance with Condition No. 2.15.l.
[40 CFR 52.21 and 391-3-1-.02(6)(b)1.(i)]
 - g. Performance tests on each PC-fired boiler, S01 and S02, for hydrochloric acid while firing PRB coal to verify compliance with Condition No. 2.15.o. The tests shall be conducted once every year or as requested by the Division.
[391-3-1-.02(6)(b)1.(i)]

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- h. Performance tests on each PC-fired boiler, S01 and S02, for hydrochloric acid while firing CAPP coal to verify compliance with Condition No. 2.15.o. The tests shall be conducted once every year or as requested by the Division.
[391-3-1-.02(6)(b)1.(i)]
- i. Performance test or sludge sampling on each PC-Fired Boilers, S01 and S02, shall be completed within 90 days of start up for mercury while firing clarifier sludge to very compliance with Condition No. 2.15.n, unless an alternative is approved by EPA. If the facilities emissions exceed 1.6 kg (3.5 lb) per 24-hour period, demonstrated either by stack sampling according to §61.53 or sludge sampling according to §61.54 or another alternative approved by EPA, shall monitor mercury emissions at intervals of at least once per year by use of Method 105, or an alternative approved by EPA.
- j. Performance tests on each PC-fired boiler, S01 and S02, for volatile organic HAPs, semi-volatile organic HAPs, hydrogen cyanide, and phosphorus to verify compliance with Condition No. 2.25. The tests shall be conducted once every 5 years or as requested by the Division.

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5.0 Monitoring Requirements

5.2 The Permittee shall install, calibrate, maintain, and operate a system to continuously monitor and record the indicated pollutants on the following equipment. Each system shall meet the applicable performance specification(s) of the Division's monitoring requirements.

- a. A Continuous Emissions Monitoring System (CEMS) for measuring NO_x emissions discharged to the atmosphere from each PC-fired boiler stack, S01 and S02. The one-hour average nitrogen oxides emissions rates shall also be recorded in pound per million Btu heat input.
[40 CFR 52.21; 391-3-1-.02(6)(b)1; 40 CFR 60.13]
- b. A Continuous Emissions Monitoring System (CEMS) for measuring carbon monoxide emissions discharged to the atmosphere from each PC-fired boiler stack, S01 and S02. The one-hour average carbon monoxide emissions rates shall also be recorded in pound per million Btu heat input.
[40 CFR 52.21 and 391-3-1-.02(6)(b)1]
- c. A Continuous Emissions Monitoring System (CEMS) for measuring SO₂ emissions at both the inlet and outlet of the SO₂ control device. The one-hour average sulfur dioxides emissions rates shall be recorded in pound per million Btu heat input.
[40 CFR 52.21; 391-3-1-.02(6)(b)1; 40 CFR 60.13]
- d. A Continuous Emissions Monitoring Systems (CEMS) to measure and record the concentration of Hg in the exhaust gases from each PC-fired boiler stack according to the requirements in 40 CFR 60.49a(p)(1) through (p)(3). Alternatively, for an affected facility that is also subject to the requirements of 40 CFR 75 Subpart I, the Permittee may install, certify, maintain, operate and quality-assure the data from a Hg CEMS according to 40 CFR 75.10 and appendices A and B to 40 CFR 75, in lieu of following the procedures in 40 CFR 60.49a(p)(1) through (p)(3).
[40 CFR 52.21; 391-3-1-.02(6)(b)1; 40 CFR 60.13]
- e. A Continuous Opacity Monitoring System (COMS) on each PC-fired Boiler stack, S01 and S02.
- f. A Continuous Emissions Monitoring System (CEMS) for measuring filterable particulate matter emissions discharged to the atmosphere from each PC-fired boiler stack, S01 and S02. The system shall meet the requirements in 40 CFR 60.48a(p)(2) through (p)(8).
- g. A continuous monitoring system for measuring oxygen or carbon dioxide at each location where SO₂, PM, CO or NO_x emission monitors are required.

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- h. If at any time prior to the commencement of operations of the facility, the Division determines that a Continuous Emissions Monitoring System (CEMS) exists that can reliably and accurately measure hydrochloric acid and/or hydrogen fluoride emissions from the PC-fired boilers in the operating concentrations required by this permit, then the Permittee shall install such device(s) no later than 12 months following receipt of written notice from the Division or prior to the startup of each PC-fired boiler, whichever is later. Any written notice from the Division shall include the basis (e.g., example installations) supporting the Division's determination. The CEMS(s) shall measure and record the hydrochloric acid and/or hydrogen fluoride emissions discharged to the atmosphere from each PC-fired boiler stack, S01 and S02. The one-hour average hydrochloric acid emissions and/or hydrogen fluoride rates shall also be recorded in pound per million Btu heat input.
[391-3-1-.02(6)(b)1]

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8.0 Notification, Reporting, and Record Keeping

Record Keeping Requirements

- 8.3 The Permittee shall obtain a representative sample of the coal as-fired on a daily basis for analysis for sulfur content (%S), moisture content, ash content, chlorine content, fluorine content, antimony content, arsenic content, beryllium content, cadmium content, chromium content, cobalt content, lead content, manganese content, nickel content, selenium content, and Gross Caloric Value (GCV). The sample shall be acquired and analyzed using the procedures of Section 12.5.2.1 in Method 19 of the Division's **Procedures for Testing and Monitoring Sources of Air Pollutants**. These records shall be kept available for inspection by or submittal to the Division for five years from the date of record.
[391-3-1-.02(6)(b)1(i)]

Reporting Requirements

- 8.25 For the purpose of reporting excess emissions, exceedances or excursions in the report required in Condition No. 8.24, the following excess emissions, exceedances, and excursions shall be reported:
[40 CFR 52.21 and 391-3-1-.02(6)(b)1]

- a. Excess emissions: (means for the purpose of this Condition and Condition No. 8.24, any condition that is detected by monitoring or record keeping which is specifically defined, or stated to be, excess emissions by an applicable requirement)

None required to be reported in accordance with Condition No. 8.24.

- b. Exceedances: (means for the purpose of this Condition and Condition No. 8.24, any condition that is detected by monitoring or record keeping that provides data in terms of an emission limitation or standard and that indicates that emissions (or opacity) do not meet the applicable emission limitation or standard consistent with the averaging period specified for averaging the results of the monitoring)
- i. Any 30-day rolling average NO_x emission rate which exceeds 0.07 lb/MMBtu for each PC-Fired Boiler, S01 and S02,
 - ii. Any 12-month rolling average NO_x emission rate which exceeds 0.05 lb/MMBtu for each PC-Fired Boiler, S01 and S02, this condition becomes effective 6 months after initial start-up of each PC-Fired boiler, S01 and S02, absent approval by the Division for an extension of this date.
 - iii. Any 1-hour average CO emission rate which exceeds 0.30 lb/MMBtu for each PC-Fired Boiler, S01 and S02,
 - iv. And 30-day rolling average CO emission rate which exceeds 0.10 lb/MMBtu for each PC-Fired Boiler, S01 and S02,
 - v. Any 3-hour block average for filterable PM emission rate which exceeds 0.010 lb/MMBtu for each PC-Fired Boiler, S01 and S02,

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- vi. Any 24-hour average sulfur dioxide emission rate which exceeds 0.12 lb/MMBtu for each PC-Fired Boiler, S01 and S02,
- vii. Any 30-day rolling average sulfur dioxide emission rate exceeds 0.065 lb/MMBtu when the uncontrolled sulfur dioxide emission rate is less than or equal to 1 lb/MMBtu on a 30-day rolling average for each PC-Fired Boiler, S01 and S02,
- viii. Any 30-day rolling average sulfur dioxide emission rate exceeds 0.08 lb/MMBtu when the uncontrolled sulfur dioxide emission rate is greater than 1 lb/MMBtu but less than 1.25 lb/MMBtu on a 30-day rolling average for each PC-Fired Boiler, S01 and S02,
- ix. Any 30-day rolling average sulfur dioxide emission rate exceeds 0.105 lb/MMBtu when the uncontrolled sulfur dioxide emission rate is greater than 1.25 lb/MMBtu but less than 1.6 lb/MMBtu on a 30-day rolling average for each PC-Fired Boiler, S01 and S02,
- x. Any 12-month rolling average mercury emission rate that exceeds 7.64×10^{-6} lb/MW-hr while firing PRB coal or 6.0×10^{-6} lb/MW-hr on an 12-month rolling average while firing CAPP coal, or a computed weighted average based on the proportion of energy output in gross MW output contributed by each coal rank burned during the compliance period and its applicable Hg emissions limit as per Condition 2.15.m for each PC-Fired Boiler, S01 and S02,
- xi. [Reserved]
- xii. Any 24-hour average mercury emissions rate while firing clarifier sludge that exceeds 7.1 lb.
- xiii. Any six-minute period during which the average opacity, as measured by a continuous opacity monitoring system for either PC-Fired boiler, S01 and S02, exceeds 20 percent.
- xiv. Any time fuel fired in any PC-Fired Boiler, S01 and S02, has a sulfur content which exceeds 3.0 percent sulfur, by weight.
- xv. Any time ultra low sulfur fuel oil combusted for startup in PC-Fired boilers, S01 and S02, in auxiliary boiler, S03, in emergency generator S42 and firewater pump S43 exceeds 0.0015 percent sulfur by weight.
- xvi. Any twelve consecutive month period during which hours of operation of the auxiliary boiler exceeds 500 hours.
- xvii. Any twelve consecutive month period during which hours of operation of emergency generator S42 or firewater pump S43 exceed 500 and 150 hours respectively.
- xviii. Any hour that either PC-Fired boiler, S01 and S02, has a heat input rate that exceeds 6,139 MMBtu/hr.
- xix. Any calendar day that clarifier sludge combustion in either PC-Fired boiler, S01 and S02, exceeds 1.0 percent of the total heat input rate to the boiler, or 61.4 MMBtu/hr.

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- xx. Any twelve-consecutive month period where emissions of any individual HAP from the facility is equal to or greater than 10 tons.
- xxi. Any twelve-consecutive month period where combined HAP emissions from the facility is equal to or greater than 25 tons.
- c. Excursions: (means for the purpose of this Condition and Condition No. 8.24, any departure from an indicator range or value established for monitoring consistent with any averaging period specified for averaging the results of the monitoring).
 - i. Any exceedance of the filterable PM emission limit and/or SO₂ limits in Condition 2.15 are an excursion for HF and HCl.

8.27 The Permittee shall use the following equations to calculate the monthly HCl, HF and Total HAP emissions from each PC-fired boiler, S01 and S02. All calculations shall be kept as part of the monthly record. These records shall be kept available for inspection by or submittal to the Division for five years from the date of record.

[391-3-1-.02(6)(b)1]

- a. Calculation of monthly HCl emissions from the PC-fired boilers:

$$HCl = \frac{1 \text{ ton}}{2000 \text{ lb}} \sum_{i=1}^n (EF) \times HI_i$$

Where,

HCl = Monthly HCl emissions from each PC-fired boiler in tons per month.

HI_i = Heat input in MMBtu/hr for the ith operating hour in the month as calculated from the Part 75-certified CEMS.

n = Number of operating hours in the month.

EF = (CC/GCV)(1-HCl_R)(HCl/Cl)

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where,

CC = Monthly average chlorine content as computed from data obtained pursuant to Condition No. 8.3.

GCV = Monthly average Gross Caloric Value as computed from data obtained pursuant to Condition No. 8.3.

HCl_R = Percent removal of hydrogen chloride from stack testing results in Condition No. 4.1(m) and approved by the Division.

HCl/Cl = HCl-to-Cl conversion factor = 36.45/35.45.

- b. Calculation of monthly HF emissions from the PC-fired boilers:

$$HF = \frac{1 \text{ ton}}{2000 \text{ lb}} \sum_{i=1}^n (EF) \times HI_i$$

Where,

HF = Monthly HF emissions from each PC-fired boiler in tons per month.

HI_i = Heat input in MMBtu/hr for the ith operating hour in the month as calculated from the Part 75-certified CEMS.

n = Number of operating hours in the month.

EF = (FC/GCV)(1-HF_R)(HF/F)

where,

FC = Monthly average fluorine content as computed from data obtained pursuant to Condition No. 8.3.

GCV = Monthly average Gross Caloric Value as computed from data obtained pursuant to Condition No. 8.3.

HF_R = Percent removal of hydrogen fluoride from stack testing results in Condition No. 4.1(m) and approved by the Division.

HF/F = HF-to-F conversion factor = 20/19

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- c. Calculation of monthly emissions of non-mercury metals (other than selenium) that are included in Section 112 of the Clean Air Act from the PC-fired boilers:

$$Metal_j = \frac{1 \text{ ton}}{2000 \text{ lb}} \sum_{i=1}^n (EF)_j \times \frac{HI_i}{1 \times 10^6}$$

Where,

$Metal_j$ = Monthly emissions of the j^{th} non-mercury metal (antimony, arsenic, beryllium, cadmium, chromium, cobalt, lead, manganese, and nickel) from each PC-fired boiler in tons per month.

HI_i = Heat input in MMBtu/hr for the i^{th} operating hour in the month as calculated from the Part 75-certified CEMS.

n = Number of operating hours in the month.

EF: Emission Factor in pounds of pollutant per trillion Btu heat input (lb/TBtu), derived utilizing the following equations:

Element	Equation
Antimony (Sb)	$(0.92) X^{0.63}$
Arsenic (As)	$(3.1) X^{0.85}$
Beryllium (Be)	$(1.2) X^{1.1}$
Cadmium (Cd)	$(3.3) X^{0.50}$
Chromium (Cr)	$(3.7) X^{0.58}$
Cobalt (Co)	$(1.7) X^{0.69}$
Lead (Pb)	$(3.4) X^{0.80}$
Manganese (Mn)	$(3.8) X^{0.60}$
Nickel (Ni)	$(4.4) X^{0.48}$

where $X = (MC_j/AC * PM)$

where,

MC_j = Monthly average of the j^{th} metal content as computed from data obtained pursuant to Condition No. 8.3, expressed in parts per million.

AC = Monthly average of the ash content of the coal as computed from data obtained pursuant to Condition No. 8.3.

PM = Monthly average particulate matter concentration as measured by the PM CEMS, expressed in lb/MMBtu.

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- d. Calculation of monthly emissions of selenium from the PC-fired boilers:

$$Se = \frac{1 \text{ ton}}{2000 \text{ lb}} \sum_{i=1}^n (EF) \times HI_i$$

Where,

Se = Monthly selenium emissions from each PC-fired boiler in tons per month.

HI_i = Heat input in MMBtu/hr for the ith operating hour in the month as calculated from the Part 75-certified CEMS.

n = Number of operating hours in the month.

$$EF = (SeC/GCV)(1-Se_R)$$

where,

SeC = Monthly average selenium content as computed from data obtained pursuant to Condition No. 8.3.

GCV = Monthly average Gross Caloric Value as computed from data obtained pursuant to Condition No. 8.3.

Se_R = Percent removal of selenium from stack testing results in Condition No. 4.1(n) and approved by the Division.

- e. Calculation of monthly emissions of all other substances that are listed in Section 112 of the Clean Air Act from the PC-fired boilers:

$$HAP_j = \frac{1 \text{ ton}}{2000 \text{ lb}} \sum_{i=1}^n (EF)_j \times HI_i$$

Where,

HAP_j = Monthly emissions of the jth HAP of all other substances included in section 112 of the Clean Air Act from each PC-fired boiler in tons per month.

HI_i = Heat input in MMBtu/hr for the ith operating hour in the month as calculated from the Part 75-certified CEMS.

n = Number of operating hours in the month.

EF = Tested Emission Factor in lbs/MMBtu from stack testing results in Condition No. 4.1(v) and approved by the Division.

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- f. Calculation of monthly emissions of all HAPs that are listed in Section 112 of the Clean Air Act from the auxiliary boiler:

$$AB_j = (EF)_j \times FO$$

Where,

AB_j = Monthly emissions of the j^{th} HAP of all HAPs listed in section 112 of the Clean Air Act from the auxiliary boiler in tons per month.

EF = Emission Factor in lbs/MMBtu from factors presented in Longleaf's auxiliary boiler MACT application.

FO = Gallons of fuel oil fired in the auxiliary boiler in the month.

- g. Monthly mercury emissions using data acquired by the Mercury CEMS.
- h. Total HAPs emitted each month shall be calculated by adding the individual HAP emissions from Condition No. 8.27 (a)-(g).
- 8.28 Within 180 days of the facility initial startup, the Permittee shall submit a detailed example of the records required by Condition No. 8.27. This report shall provide the information (including calculations) necessary to demonstrate how the Permittee will track and record emissions of HAPs from the facility.
[391-3-1-.02(6)(b)1 and 391-3-1-.03(2)(c)]
- 8.29 The Permittee shall use the records required in Condition No. 8.27 to determine the total monthly emissions of each HAP and the total monthly emissions of all HAPs emitted from the facility. All calculations, including any Division approved emission factor or CEMS data, shall be kept as part of the records required in Condition No. 8.27. The Permittee shall notify the Division in writing if emissions of any individual HAP exceed 0.83 tons from the facility, or if emissions of all listed HAPs combined exceed 2.08 tons from the facility, during any calendar month. This notification shall be postmarked by the fifteenth day of the following month and shall include an explanation of how the Permittee intends to maintain compliance with the applicable emissions limits in Condition No. 2.25.
[391-3-1-.02(6)(b)1 and 391-3-1-.02(2)(c)]
- 8.30 The Permittee shall use the calculations required by Condition No. 8.27 to determine the twelve-month rolling total emissions of each individual HAP from each month and the twelve-month rolling total combined HAP emissions for each month from the entire facility for each calendar month. The Permittee shall notify the division in writing if the combined HAP emissions from the entire facility equal or exceed 25 tons and/or any individual HAP emissions equal or exceed 10 tons during any consecutive twelve-month period. This notification shall be postmarked by the fifteenth day of the following month and shall include an explanation of how the Permittee intends to maintain compliance with the emission limit in Condition No. 2.25.
[391-3-1-.02(6)(b)1 and 391-3-1-.02(2)(c)]