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Via Overnight Mail and Electronic Mail

December 22, 2009

Mr. Jac Capp
Branch Chief, Air Protection Branch
Georgia Environmental Protection Division
4244 International Parkway, Suite 120
Atlanta, Georgia 30354

Subject: Public Comments to Draft Permit Amendment No. 4911-099-0030-P-01-1
Letter No.: LEA-EPD-0031

Dear Mr. Capp:

Enclosed with this letter are attachments that provide the responses from Longleaf Energy Associates, LLC (“Longleaf”) to comments made by Greenlaw on behalf of interested parties regarding the above-referenced Draft Permit Amendment. Substantial effort was invested by Longleaf to thoroughly understand, research and respond to all comments that could be considered applicable to Longleaf. As you will see from the details contained in the attachments, after evaluating this information, Longleaf has now proposed changes which will further reduce the emissions from its proposed plant.

With the proposed additional emission reductions outlined in the attachments, the Longleaf facility will not be a “major source” of hazardous air pollutants (“HAPs”). *See* 42 U.S.C. § 7412(a)(1); Ga. Comp. R. & Regs. r. 391-3-1-.02(9)(b)(16). Longleaf therefore is not subject to the case-by-case maximum available control technology (“MACT”) requirements set forth in Section 112(g)(2)(B) of the Clean Air Act, 42 U.S.C. § 7412. The analysis and data showing that Longleaf will not be a major source of HAPs are set forth in Attachment A. Attachment A also contains Longleaf’s proposed emission limitations and compliance assurance provisions to ensure that the Environmental Protection Division (“EPD”) will have a reliable method of enforcing Longleaf’s status as a minor source. Longleaf requests that EPD incorporate these proposed provisions into the Permit Amendment and acknowledge Longleaf’s status as a minor source of HAP emissions.

As you know, Longleaf will be required to submit an application for a Title V operating permit within one year after its begins operation. To the extent that any additional monitoring or other compliance assurance provisions may be appropriate, Longleaf will include them in its Title V application. Because the need for any additional compliance assurance provisions will depend to some extent on the testing that will be performed in accordance with this Permit Amendment, the Title V process is the means by which any additional monitoring requirements can best be established.

Attachment B contains Longleaf's response to those public comments received from Greenlaw that are applicable given that a case-by-case MACT analysis is not required.

Longleaf appreciates the effort that EPD has gone through in the previous review of its case-by-case analysis and looks forward to working with EPD in its review of the information to support the minor source designation.

If you have any questions about any of the enclosed materials, please do not hesitate to contact me.

Sincerely,

A handwritten signature in cursive script that reads "Kathy French". The signature is written in black ink and is positioned above the typed name.

Kathy French
Assistant Vice President, Environmental

Attachments

Cc: Anna Aponte, EPD

ATTACHMENT A

Longleaf Energy Associates, LLC's
Revised Estimates of HAP Emissions and Proposed Minor Source Permit Conditions

I. Introduction

On October 6, 2008, Longleaf submitted to EPD an Application for a Notice of MACT Approval (the "Application") for the Longleaf Energy Station. Although Longleaf is not certain it was legally required to do so, Longleaf submitted its Application in response to the D.C. Circuit's vacatur of EPA's de-listing rule, which suggested that Longleaf needed to satisfy the case-by-case maximum achievable control technology ("MACT") requirement of Section 112(g)(2)(B) of the Clean Air Act. Accordingly, Longleaf conducted a case-by-case MACT determination for the hazardous air pollutants ("HAPs") that the Longleaf facility may emit, and as a result, proposed to lower numerous limits that EPD had previously set in the Prevention of Significant Deterioration ("PSD") permit issued to Longleaf in May 2007. EPD adopted most of Longleaf's proposed MACT emission limits with the exception of the mercury limit while burning Powder River Basin ("PRB") coal, which EPD lowered. EPD issued a Draft Permit Amendment and Draft Notice of MACT Approval in June 2009.

An underlying assumption of Longleaf's Application was that the Longleaf facility would be a "major source" of HAPs. A "major source" of HAPs is one that will emit 10 tons per year or more of any single HAP, or 25 tons per year or more of any combination of HAPs. 42 U.S.C. § 7412(a)(1). Only "major sources" are required to comply with the case-by-case MACT requirement of Section 112(g)(2)(B). 42 U.S.C. § 7412(g)(2)(B).

Since EPD's issuance of a Draft Permit Amendment and Draft Notice of MACT Approval, the agency has received numerous comments from the interested public, many of which presented new data from similar facilities. Commenters noted that recent stack test data and other available information suggested that the HAP emissions from the Longleaf facility would be lower than Longleaf's or EPD's original estimates. These same commenters also suggested that additional stack testing and compliance measures should be required.

Longleaf has analyzed these comments and the new data on which they rely. Longleaf has also consulted coal suppliers, vendors, and other individuals with knowledge of HAP emissions at similar sources to verify the new data and obtain the latest information on emission reducing capabilities of available pollution controls. Longleaf has used this new information to update its initial HAP emission estimates for combustion while firing PRB coal. Based on this information, Longleaf proposes to accept more restrictive limitations than those contained in the Draft Permit Amendment, and with these proposed restrictions, the facility's HAP emissions will fall below the "major source" threshold. Included with these more restrictive conditions is a significant limitation on the quantity of Central Appalachian ("CAPP") coal which can be fired as a result of CAPP coal's higher chlorine content. Additionally, with the proposed compliance provisions, EPD will be able to ensure that the Longleaf facility will not exceed the minor source threshold. Longleaf's revised HAP emissions estimates and proposed compliance provisions are set forth in greater detail below.

Because Longleaf will not be a “major source” of HAPs, it is no longer required to comply with the case-by-case MACT requirements of Section 112(g)(2)(B). That said, Longleaf intends to voluntarily accept the MACT limits set forth in the Draft Permit Amendment in addition to the proposed conditions set forth below. Longleaf therefore requests that EPD finalize the terms proposed in the Draft Permit Amendment, approve and incorporate the emission limits and conditions proposed below, and issue the Permit Amendment.

II. Revised Estimates of HAP Emissions

A. Hydrogen Chloride (HCl)

In the Application, Longleaf identified 5 subbituminous (“PRB”) test results for HCl which ranged from 4×10^{-4} to 3.8×10^{-5} lb/MMBtu from which Longleaf proposed a limit of 6×10^{-4} lb/MMBtu. Since its Application was filed, Longleaf has consulted public comments received by EPD as well as new stack test data. Table 1 contains the results of available HCl stack tests (some of which were previously reported in Longleaf’s Application) from PRB-fired¹ facilities.

Table 1 – HCl Stack Test Data from PRB-Fired Plants

Plant	Stack Test Date	Reported Emissions Lb/MMBtu
Wygen I	June 13, 2005	1.72×10^{-5}
Neil Simpson II	June 13, 2005	1.63×10^{-6}
Hardin	May 31, 2006	5.67×10^{-5}
MidAmerican, Walter Scott, Jr.	May 8-12, 2007	3.81×10^{-5}
MidAmerican - Walter Scott, Jr.	Aug. 14-18, 2007	5.77×10^{-5}
Wygen II	Jan 31, 2008	3.76×10^{-4}
Newmont Nevada TS Power Plant	April 6 to 14, 2008	4×10^{-4}
Weston 4	July 10, 2008	8.00×10^{-5}
OPPD	April 9, 2009	$<2 \times 10^{-4}$ (below detection limit)
Newmont Nevada TS Power Plant	April 24, 2009	1.2×10^{-4}
Holcomb 1	August 5-6, 2009	2.60×10^{-5}

¹ Longleaf is not aware of additional data from bituminous-fired facilities that would allow for a similar reduction in expected emissions, thus the option of firing CAPP coal at the Longleaf facility 100% of the time would no longer be possible. Longleaf requests the continued ability to fire CAPP coal, however, to allow for short-term risk mitigation given the significant distance that PRB coal must travel to reach the Longleaf facility.

In the course of investigating public comments received by EPD, Longleaf has discovered several important facts that alter its previous HCl emission estimates. First, Longleaf learned that the facility with two of the highest recorded stack test results in Table 1, Newmont, adds CaCl₂ to the coal at the feeders to improve performance of the facility's activated carbon injection system. This additional CaCl₂ increases the effective chlorine content of the coal by 100 to 200 ppm, and thus skews the HCl stack test results. Second, Longleaf has recently learned that the operators of the facility with the second-highest recorded stack test result in Table 1, Wygen II at 3.76×10^{-4} lb/MMBtu, consider that test result to be an outlier, as it is not consistent with results recorded at the operators' similar facilities. For this reason, the Wygen II operators are considering a re-test of that facility. Third, the third-highest recorded stack test result in Table 1, OPPD at $<2 \times 10^{-4}$ lb/MMBtu, was recorded as a "non-detect" value.

With this new information, Longleaf revisited its original HCl emission estimates. Removing those results which are outliers (Wygen II), non-detect values (OPPD), and skewed by the addition of chlorine to the coal (Newmont), the reported results range from 8.00×10^{-5} to 1.63×10^{-6} lb/MMBtu. When Longleaf evaluates these lower values utilizing the same statistical approach it employed in its Application (specifically, a determination of the 97.5 percentile of the individual test runs), the revised HCl emission limit it derives is 9.56×10^{-5} lb/MMBtu. That limit, if achieved by both boilers at full load at 8,760 hours/year, is equivalent to 5.14 tons per year of HCl. The precise calculation is as follows:

$$9.56 \times 10^{-5} \text{ lb/MMBtu} * 6,139 \text{ MMBtu/hr} * 2 \text{ boilers} * 8,760 \text{ hr/yr} / 2000 \text{ lb/ton} = 5.14 \text{ tons/year}^2$$

As is evident from the foregoing analysis, Longleaf's revised estimate rests upon the assumption that it must burn PRB coal most, if not all, of the time that it operates. By accepting stringent, enforceable HAP emission limits in order to obtain minor source status, Longleaf acknowledges that it will necessarily forfeit some, but not all, of the flexibility to burn both PRB and CAPP coal that its PSD permit provides. Longleaf has always intended to burn primarily PRB coal, but requested (and was permitted) the flexibility to also burn CAPP coal in those instances where supplies of PRB coal are temporarily interrupted by rail logistics, etc. While Longleaf seeks to preserve that same flexibility, it does so with the understanding that it will only be able to operate on CAPP coal for a limited period of time and remain in compliance with the stringent HAP emission limits in its permit.

B. Hydrogen Fluoride (HF)

Longleaf also relied on public comments received by EPD and new stack test data to revisit its original estimates of HF emissions. In its Application, Longleaf identified 6 subbituminous test results for HF which ranged from 1.38×10^{-4} to 3.8×10^{-5} lb/MMBtu, from which Longleaf proposed a limit of 2×10^{-4} lb/MMBtu. Table 2 provides an updated record of available stack test results for HF at other PRB-fired facilities. As we discussed in Longleaf's case-by-case analysis, the variation in fluorine content between PRB and CAPP coals is not

² Longleaf has enclosed a CD that contains a copy of the Excel Spreadsheet its HCl emission calculations.

significant, such that Longleaf would not expect the HF emissions while firing CAPP coal to differ significantly from the data presented in Table 2.

Table 2 – HF Stack Test Data from PRB-Fired Plants

Plant	Stack Test Date	Reported Emissions Lb/MMBtu
Wygen I	June 13, 2005	1.35×10^{-6}
Neil Simpson II	June 13, 2005	5.58×10^{-7}
Hardin	May 31, 2006	4.67×10^{-5}
Tucson Electric - Springerville Unit 3	Aug. 24 & 25, 2006	6.30×10^{-5}
MidAmerican - Walter Scott, Jr.	May 8-12, 2007	$<1.08 \times 10^{-4}$ (below detection limit)
MidAmerican - Walter Scott, Jr.	Aug. 14-18, 2007	2.87×10^{-5}
Wygen II	Jan 31, 2008	$<3.76 \times 10^{-5}$ (2 of 3 runs below detection limit)
Newmont Nevada TS Power Plant	April 6 to 14, 2008	1.38×10^{-4}
Weston 4	July 10, 2008	4.00×10^{-5}
OPPD	April 9, 2009	$<2 \times 10^{-4}$ (below detection limit)
Newmont Nevada TS Power Plant	April 24, 2009	$<2.14 \times 10^{-4}$ (below detection limit)
Holcomb 1	August 5-6, 2009	$<2.8 \times 10^{-5}$ (below detection limit)

Removing those results that were below detection limits, the reported results range from 1.38×10^{-4} to 5.58×10^{-7} lb/MMBtu. When Longleaf evaluates these lower values utilizing the same statistical approach it employed in its Application (specifically, a determination of the 97.5 percentile of the individual test runs), the revised HF emission limit it derives is 1.55×10^{-4} lb/MMBtu. That limit, if achieved by both boilers at full load at 8,760 hours/year, is equivalent to 8.35 tons per year of HF. The precise calculation is as follows:

$$1.55 \times 10^{-4} \text{ lb/MMBtu} * 6,139 \text{ MMBtu/hr} * 2 \text{ boilers} * 8,760 \text{ hr/yr} / 2000 \text{ lb/ton} = 8.35 \text{ tons/year}^3$$

C. Organic HAPs

Longleaf primarily used AP-42 emission factors to estimate organic HAP emissions in its Application. More recent data on organic emissions was compiled by the Electric Power Research Institute (“EPRI”). EPA utilized this same EPRI data to generate the estimates of organic HAP emissions for the agency’s February 1998 “Study of Hazardous Air Pollutant

³ See the enclosed CD for an Excel spreadsheet with this calculation.

Emissions from Electric Utility Steam Generating Units – Final Report to Congress” (“Utility RTC”). Longleaf has revised its estimates of organic HAP emissions utilizing the EPRI data. Table 3 below shows the previous and updated emission factors and estimated organics emissions. Table 3 solely depicts the predicted emissions while firing subbituminous coal. The emission factors would remain the same for bituminous coal, yet because the heat input would decrease when firing bituminous coal, the estimated emissions while firing bituminous coal would be lower than those in Table 3.

Table 3 – Revised Organic HAP Emissions Estimates

Organics	Previous lb/MMBtu Emission Factor	Revised lb/MMBtu Emission Factor	Subbituminous (TPY)	Ref.
PAHs	1.3E-06	1.47E-06	7.90E-02	(1)
Acetaldehyde	3.50E-05	3.20E-06	1.72E-01	(1)
Acetophenone	9.10E-07	1.20E-06	6.45E-02	(1)
Acrolein	1.80E-05	1.90E-06	1.02E-01	(1)
Benzene	7.90E-05	3.90E-06	2.10E-01	(1)
Benzyl chloride	4.30E-05	2.80E-07	1.51E-02	(1)
Bis(2-ethylhexyl)phthalate	4.50E-06	3.60E-06	1.94E-01	(1)
Bromoform	2.40E-06	6.60E-06	3.55E-01	(2)
Carbon disulfide	7.90E-06	1.10E-06	5.92E-02	(1)
2-Chloroacetophenone	4.30E-07	2.90E-07	1.56E-02	(2)
Chlorobenzene	1.30E-06	3.18E-06	1.71E-01	(2)
Chloroform	3.60E-06	8.00E-07	4.30E-02	(1)
Cumene	3.20E-07	2.90E-07	1.56E-02	(2)
2,4-Dinitrotoluene	1.70E-08	2.00E-07	1.08E-02	(1)
Dimethyl sulfate	2.90E-06	2.93E-06	1.57E-01	(3)
Ethyl benzene	5.70E-06	8.00E-07	4.30E-02	(1)
Ethyl chloride	2.60E-06	2.40E-06	1.29E-01	(2)
Ethylene dichloride	2.40E-06	3.10E-06	1.67E-01	(2)
Ethylene dibromide	7.30E-08	2.60E-06	1.40E-01	(1)
Formaldehyde	1.50E-05	2.60E-06	1.40E-01	(1)
Hexane	4.10E-06	4.9E-07	2.64E-02	(1)
Isophorone	3.50E-05	1.20E-06	6.45E-02	(1)
Methyl bromide	9.80E-06	8.90E-07	4.79E-02	(1)
Methyl chloride	3.20E-05	1.10E-06	5.92E-02	(2)
Methyl hydrazine	1.00E-05	1.04E-05	5.57E-01	(3)
Methyl methacrylate	1.20E-06	1.10E-06	5.92E-02	(1)
Methyl tert butyl ether	2.10E-06	1.40E-06	7.53E-02	(2)
Methylene chloride	1.80E-05	3.60E-06	1.94E-01	(1)
Phenol	9.80E-07	3.30E-06	1.77E-01	(1)
Propionaldehyde	2.30E-05	1.90E-06	1.02E-01	(1)
Tetrachloroethylene	2.60E-06	4.20E-07	2.26E-02	(1)
Toluene	1.50E-05	1.70E-06	9.14E-02	(1)
1,1,1-Trichloroethane	1.20E-06	1.22E-06	6.56E-02	(3)

Organics	Previous lb/MMBtu Emission Factor	Revised lb/MMBtu Emission Factor	Subbituminous (TPY)	Ref.
Styrene	1.50E-06	7.00E-07	3.76E-02	(1)
Xylenes	2.30E-06	1.26E-06	6.78E-02	(1)
Vinyl acetate	4.60E-07	3.10E-07	1.67E-02	(1)
Dioxins	1.50E-08	1.50E-10	8.07E-06	(2)
Hexachlorobenzene	8.00E-08	8.00E-08	4.30E-03	(2)
Carbon tetrachloride	3.25E-06	3.25E-06	1.75E-01	(2)
Quinoline	5.30E-08	5.30E-08	2.85E-03	(2)
1,1-Dichloroethylene	9.70E-06	3.10E-06	1.67E-01	(2)
N-nitrosodimethylamine	6.80E-07	6.80E-07	3.66E-02	(2)
1,1,2-Trichloroethane	4.70E-06	4.70E-06	2.53E-01	(2)
Trichloroethylene	3.10E-06	3.10E-06	1.67E-01	(2)
Pentachlorophenol	8.00E-09	8.00E-09	4.30E-04	(2)
Trans 1,3 – Dichloropropene	4.70E-06	4.70E-06	2.53E-01	(2)
Cresols	2.65E-06	2.38E-06	1.28E-01	(2)
Dibutyl phthalate	2.80E-06	2.80E-06	1.51E-01	(2)
Methyl isobutyl ketone	4.90E-06	2.30E-06	1.24E-01	(1)
Phthalic anhydride	4.90E-06	4.90E-06	2.64E-01	(2)
Methyl iodine	4.00E-07	2.00E-06	1.08E-01	(1)
Total lb/MMBtu	4.65E-04	1.20E-04	--	
TOTAL TPY	25.0		5.78	

- (1) Emissions Factor Handbook: Guidelines for Estimating Trace Substance Emissions from Fossil Fuel Steam Electric Plants, EPRI Report #1005402, 2002.
- (2) Study of Hazardous Air Pollutant Emissions from Electric Utility Steam Generating Units -- Final Report to Congress, Volume 2. Appendices, Table A-4.
- (3) EPA WebFire Query (11/10/09): <http://cfpub.epa.gov/oarweb/index.cfm?action=fire.main>.

D. Non-Mercury Metal HAPs

The approach Longleaf utilized to estimate emissions of non-mercury metal HAPs in its Application was similar to its approach to estimating organic HAP emissions. Specifically, Longleaf combined conservative estimates of metal concentrations in the coal with an estimated removal factor to determine non-mercury metal emissions. Longleaf revisited these original estimates, and substituted the emission factors utilized in its Application with a more accurate methodology created through analysis of emissions data compiled by EPRI. As with organic HAP emission estimates, EPA relied on this same non-mercury metal HAP emission data from EPRI in the agency's Utility RTC and also used EPRI's equations as the means of estimating these emissions in Table 1.1-16 of AP-42.

Longleaf's revised estimates of non-mercury metal HAP emissions are set forth in Tables 4 through 7. Tables 4 and 5 derive the emission rates of non-mercury metal HAPs (except for selenium) for PRB and CAPP coal, respectively, from the concentration of each element in the coal, the coal ash concentration, and emissions of filterable particulate matter in the manner described in AP-42. The metal concentration and ash content data continue to be taken from the COALQUAL database as was used previously. For this analysis, the average values from the

COALQUAL database were used. For selenium, Longleaf relied on the published EPRI emission factor to estimate emissions. Tables 6 and 7 compare the original and revised emission factors and total annual emissions for non-mercury metal HAPs for PRB and CAPP coal, respectively.

Table 4 – Equation Components for Non-Mercury Metal Emission Rates - PRB

Metal	Coal Concentration (ppm)	“X” (Coal/Ash*PM)	Multiplier	Exponent	Emission Rates (lb/MMBtu)
Antimony (Sb)	0.53	0.087	0.92	0.63	1.97E-7
Arsenic (As)	5.27	0.86	3.1	0.85	2.73E-6
Beryllium (Be)	0.75	0.12	1.2	1.1	1.19E-7
Cadmium (Cd)	0.11	0.018	3.3	0.50	4.43E-7
Chromium (Cr)	5.45	0.89	3.7	0.58	3.46E-6
Cobalt (Co)	1.87	0.31	1.7	0.69	7.51E-7
Lead (Pb)	4.42	0.72	3.4	0.80	2.62E-6
Manganese (Mn)	50	8.18	3.8	0.60	1.34E-5
Nickel (Ni)	5.25	0.86	4.4	0.48	4.09E-6

Table 5 – Equation Components for Non-Mercury Metal Emission Rates - CAPP

Metal	Coal Concentration (ppm)	“X” (Coal/Ash*PM)	Multiplier	Exponent	Emission Rates (lb/MMBtu)
Antimony (Sb)	1.15	0.11	0.92	0.63	2.23E-7
Arsenic (As)	22	2.01	3.1	0.85	5.62E-6
Beryllium (Be)	2.80	0.26	1.2	1.1	2.69E-7
Cadmium (Cd)	0.081	0.0074	3.3	0.50	2.84E-7
Chromium (Cr)	14	1.28	3.7	0.58	4.27E-6
Cobalt (Co)	7.00	0.64	1.7	0.69	1.25E-6
Lead (Pb)	7.64	0.70	3.4	0.80	2.55E-6
Manganese (Mn)	20	1.83	3.8	0.60	5.46E-6
Nickel (Ni)	15	1.37	4.4	0.48	5.12E-6

Table 6 – Previous and Revised Non-Mercury Metal Emission Rates and Emissions - PRB

Metal	Previous Emission Rate (lb/MMBtu)	Revised Emission Rate (lb/MMBtu)	Previous Estimated Emissions (TPY)	Revised Estimated Emissions (TPY)
Antimony (Sb)	2.05E-6	1.97E-7	0.11	0.011
Arsenic (As)	1.28E-5	2.73E-6	0.69	0.15
Beryllium (Be)	4.09E-6	1.19E-7	0.22	0.0064
Cadmium (Cd)	3.20E-7	4.43E-7	0.017	0.024
Chromium (Cr)	1.95E-5	3.46E-6	1.05	0.19
Cobalt (Co)	9.45E-6	7.51E-7	0.51	0.040
Lead (Pb)	6.70E-5	2.62E-6	3.60	0.14
Manganese (Mn)	1.30E-4	1.34E-5	6.99	0.72
Nickel (Ni)	2.26E-5	4.09E-6	1.21	0.22
Selenium (Se)	4.74E-6	7.32E-6	0.26	0.39
TOTAL TPY	--	--	14.66	1.89

Table 7 – Previous and Revised Non-Mercury Metal Emission Rates and Emissions - CAPP

Metal	Previous Emission Rate (lb/MMBtu)	Revised Emission Rate (lb/MMBtu)	Previous Estimated Emissions (TPY)	Revised Estimated Emissions (TPY)
Antimony (Sb)	2.15E-6	2.23E-7	0.11	0.011
Arsenic (As)	5.37E-5	5.62E-6	2.75	0.29
Beryllium (Be)	4.28E-6	2.69E-7	0.22	0.014
Cadmium (Cd)	1.79E-7	2.84E-7	0.0092	0.015
Chromium (Cr)	2.04E-5	4.27E-6	1.05	0.22
Cobalt (Co)	9.91E-6	1.25E-6	0.51	0.064
Lead (Pb)	1.25E-5	2.55E-6	0.64	0.13
Manganese (Mn)	6.26E-5	5.46E-6	3.21	0.28
Nickel (Ni)	2.37E-5	5.12E-6	1.22	0.26
Selenium (Se)	4.98E-6	7.32E-6	0.26	0.38
TOTAL TPY	--	--	9.97	1.66

E. Mercury

Longleaf does not believe that its original estimates of mercury emissions from the Longleaf facility warrant revisions. Accordingly, it estimates its mercury emissions utilizing the permitted emission rate to be 0.075 tons per year while burning PRB coal (13×10^{-6} lb/MWhr (gross)) and 0.035 tons per year while burning CAPP coal (6×10^{-6} lb/MWhr (gross)).

F. Other HAPs

Longleaf has also attempted to address other HAPs that were identified in public comments, but for which little attention has been given by EPA. Cyanide (and hydrogen cyanide) were addressed as part of the MACT application, but were included with the organics. Since cyanide and hydrogen cyanide do not necessarily behave like an organic, Longleaf has conducted an independent examination of the estimated emissions of these substances, which is presented in Table 8. The emission factor Longleaf previously used for cyanide remains unchanged. Additional test data identified in the September 1996 “A Comprehensive Assessment of Toxic Emissions From Coal-Fired Power Plants: Phase I Results From the U.S. Department of Energy Study” (Phase I Results), supports that emissions factor.⁴

In the Phase I Results, test results from radionuclide testing at the nine plants were provided. Since radionuclides are coal dependent, the test results of the two subbituminous units were reviewed and of the 14 radionuclides evaluated, only one was detected. That value is identified in Table 8 below. There were no CAPP coal plants tested as part of that study. Due to the miniscule quantity of estimated emissions of radionuclides (2×10^{-8} tons/year), Longleaf does not propose to monitor, test, or further account for these emissions in its HAP calculations. This approach is consistent with EPA’s recent decision not to require the gathering of radionuclides emission data as part of the agency’s Information Collection Request for New and Existing Coal- and Oil-Fired Electric Utility Steam Generating Units.

Longleaf has not been able to find any reported phosphorus emission factors or test results. As a means of estimating an emission factor, the EPA estimated emissions of phosphorus from 1990 coal plants in the Utility RTC was divided by the 1990 reported coal consumption in BTUs and a 95% removal was applied to account for the high efficiency fabric filter baghouse at the Longleaf facility and the expectation that any emissions of phosphorus will be emitted as particulate matter. Phosphorus emissions are also identified in Table 8.

Table 8 – Other HAPs

Substance	Emission Factor lb/MMBtu	Subbituminous (TPY)
Cyanide	1.30E-5	6.99E-01
Ra-226	3.2E-13	1.72E-8
Phosphorus	1.5E-6	8.08E-2
Total	--	0.78

⁴ A copy of the DOE Study is included in the attached CD.

G. Startup, Shutdown & Malfunction

Emissions during startup, shutdown and malfunction are expected to be slightly different than during normal operation. During shutdown, all the pollution control devices will be operating and the shutdown process is not expected to be lengthy. Accordingly, emissions during shutdown are not expected to deviate from the HAP emission estimates that would apply during normal hours of operation. It is impossible for Longleaf to predict the frequency or duration of malfunction events. When such events occur, however, Longleaf will be required to report them to EPD. In contrast to shutdown, the operating conditions during a portion of the startup process could cause HAP emission estimates to deviate from estimates during normal hours of operation. Longleaf conducted the following investigation of its HAP emission estimates during startup to discern just how significant any such deviation would be.

The duration of any particular startup event depends on the starting temperature of the unit. In general, the colder the unit, the longer the duration of the startup event. If the unit has only been down for a hour or two, the metal of the boiler will still be hot, and thus the startup event — referred to in these circumstances as a “hot start” — will be relatively short. In contrast, when the unit has been offline for greater than 15 hours, the facility will be conducting a “cold start.” A “cold start” consists of three phases: (1) an initial period of up to three hours during which fuel oil is fired; (2) an interim period of up to four hours where a combination of fuel oil and coal will be combusted; and (3) a final period during which the combustion process will have sufficiently stabilized such that only coal can be combusted to raise the unit up to its normal operating temperature.

The HAP emissions during a “cold start” were estimated using the general profile of startup reviewed by EPD as part of the PSD application. This profile has been slightly modified to account for the industry practice of utilizing the dry scrubber earlier into the startup sequence than was the practice in the early 2000’s when the PSD application startup profile was originally drafted. Longleaf conservatively assumed that HCl and HF will not be controlled for the first seven (7) hours of operation (three oil-fired hours + four oil/coal-fired hours). It should be noted, however, that the baghouse will be operating throughout the startup process. During the first four hours of startup when the unit is firing a combination of coal and fuel oil, the average chlorine and fluorine content of subbituminous samples from the COALQUAL database was utilized to estimate emissions. After the initial seven hours of the “cold start” are complete, the dry scrubber will be operational and the controlled emissions factor identified above was used. Table 9 sets forth Longleaf’s calculations regarding estimated startup emissions utilizing the above-mentioned assumptions. These values are compared to the emissions of the 15 hours of downtime plus the emissions that would result if the unit were run at full load for the entire startup. The values set forth in Table 9 demonstrate that HAP emissions during startup events are not likely to exceed HAP emissions during normal operating conditions.

Table 9 – Startup Conditions

Category	Oil Firing (TPY)	Coal Firing (TPY)	Total Startup (TPY)	Total if at Full Load (TPY)
HCl	2.51E-3	1.04E-2	1.29E-2	9.10E-3
HF	<2.51E-3	7.33E-3	<9.84E-3	1.47E-2
Organics	8.22E-4	1.61E-3	2.44E-3	1.14E-2
Metals	1.64E-4	4.72E-4	6.37E-4	3.34E-3
TOTAL			<2.58E-2	3.86E-2

In sum, to the extent HAP emissions during startup events deviate from HAP emissions during normal operating conditions, Longleaf’s investigation reveals that such HAP emissions will be lower than HAP emission during normal operating hours. Nevertheless, Longleaf proposes its normal operating condition HF and HCl emissions estimates even during “cold startups.” Finally, while the number of cold startups in any 12-month period cannot be predicted with certainty, because Longleaf is planned as a baseload facility, the number of cold startups is not expected to exceed more than a few in a typical year.

H. Summary: Revised HAP Emission Estimates

Table 10 summarizes the revised expected annual HAP emissions from the Longleaf facility.

Table 10 – Facility Total HAP Emissions - PRB

Category	PC Boilers (TPY)	Aux Boiler (TPY)	Total (TPY)
HCl	5.14	0.039	5.18
HF	8.35	<0.039	<8.39
Organics	5.78	0.22	6.00
Non-mercury metals	1.89	1.01	2.90
Mercury	0.075	--	0.075
Other HAPs	0.78	--	0.78
Overall Total	22.02	<1.31	<23.33

As Table 10 demonstrates, the emissions of no single HAP is expected to be greater than 10 tons per year, and the combined total of all HAP emissions is not expected to exceed 25 tons per year. It should be noted that the estimates set forth in Table 10 are conservative, as Longleaf has not revised the estimated for organic HAP and non-mercury metal HAP emissions from the auxiliary boiler. Based on these revised estimates, all of which are consistent with the most recent stack test data and the public comments received by EPD, the Longleaf facility meets the definition of a minor source of HAP emissions.

III. Proposed Minor Source Permit Conditions

Longleaf proposes to ensure its status as a minor source of HAP emissions with the following emissions limits, compliance testing, and monitoring provisions. Longleaf proposes to adopt these proposed conditions in addition to the terms and conditions that EPD has already proposed in the Draft Permit Amendment.

A. Emission Limits

1. Emission Limits Applicable to all HAPs

To maintain its status as a minor source of HAPs, Longleaf requests that EPD incorporate a new condition to the Draft Permit Amendment which would place general limits on all HAP emissions from the Longleaf facility. The proposed condition, Condition 2.15(q), should read as follows:

2.15.q: 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)]

2. Emission Limits Specific to Other HAPs

a. *Hydrogen Fluoride (HF)*

Pursuant to the terms of the PSD permit that EPD issued to Longleaf in May 2007, Longleaf would be prohibited from discharging gases from the PC-fired boilers which:

2.15.k: Contain fluorides (as HF) in excess of 9.5×10^{-4} lb/MMBtu on a 3-hour average while firing PRB coal or 1.4×10^{-3} lb/MMBtu on a 3-hour average 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 HF emissions limit.

In the Draft Permit Amendment, EPD lowered Longleaf's permitted HF emissions such that the facility would be prohibited from discharging gases from the PC-fired boilers which:

2.15.k: Contain fluorides (as HF) in excess of 2.0×10^{-4} lb/MMBtu on a 3-hour average.

Although the lower limit in the Draft Permit Amendment was derived through a case-by-case MACT determination — a requirement that does not apply if Longleaf is a minor source of HAPs — Longleaf nevertheless proposes to accept this lower limit (2.0×10^{-4} lb/MMBtu) during periods of normal operation.

b. *Hydrogen Chloride (HCl)*

In the PSD permit that EPD issued to Longleaf in May 2007, Longleaf would be prohibited from discharging gases from the PC-fired boilers which:

2.15.o: Contain hydrochloric acid (HCl) in excess of 0.0013 lb/MMBtu on a 3-hour average while firing PRB coal or 0.0083 lb/MMBtu on a 3-hour average 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.

In the Draft Permit Amendment, EPD lowered Longleaf's permitted HCl emissions such that the facility would be prohibited from discharging gases from the PC-fired boilers which:

2.15.o: Contain hydrochloric acid (HCl) in excess of 6×10^{-4} lb/MMBtu on a 3-hour average while firing PRB coal or 2.4×10^{-3} lb/MMBtu on a 3-hour average 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.

Although the lower limit was derived through a case-by-case MACT determination — a requirement that does not apply if Longleaf is a minor source of HAPs — Longleaf nevertheless proposes to accept the lower HCl emission limits in the Draft Permit Amendment (6.0×10^{-4} lb/MMBtu while firing PRB; 2.4×10^{-3} lb/MMBtu while firing CAPP) during periods of normal operation.

c. *Mercury*

In the PSD permit that EPD issued to Longleaf in May 2007, Longleaf would be prohibited from discharging gases from the PC-fired boilers which:

2.15.m: Contain mercury (Hg) in excess of 15×10^{-6} lb/MWhr on an annual average while firing PRB coal or 6×10^{-6} lb/MWhr on an annual 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.

In the Draft Permit Amendment, EPD lowered Longleaf's permitted mercury emissions while firing PRB coal such that the facility would be prohibited from discharging gases from the PC-fired boilers which:

2.15.m: Contain mercury (Hg) in excess of 13×10^{-6} lb/MW-hr on an 12-month rolling average while firing PRB coal or 6×10^{-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 with the HF and HCl limits discussed above, Longleaf similarly proposes to adopt the lower mercury emission limit proposed in the Draft Permit Amendment notwithstanding the fact that the case-by-case MACT requirement would no longer apply to the facility.

B. Performance Testing Requirements

1. Test Methods

The performance test methods required for HAPs in the PSD permit and the Draft Permit Amendment are identical, and read as follows:

4.1.1: Method 25A shall be used to determine total Hydrocarbons and to calculate Volatile Organic Compound emissions, the sampling time for each run shall be one hour.

4.1.m: Method 26A shall be used for the determination of Fluorine and hydrochloric acid emission rates from the PC-fired Boilers, S01 and S02, the sampling time for each run shall be one hour,

4.1.n: Method 29 shall be used for the determination of lead emission rates, while firing PRB or CAPP coal, from the PC-fired Boilers, S01 and S02, the sampling time for each run shall be one hour.

Longleaf proposes several revisions to the prescribed test methods. First, as a general revision, Longleaf proposes to modify the sampling times to add "a minimum of" one hour. In some instances, increasing the sampling time may lower the detection limit, and thus this additional language will ensure the flexibility needed to conduct the most accurate test.

Second, Condition 4.1.m should be revised to substitute “hydrogen fluoride” in place of “Fluorine.” Method 26A can measure HF just as well as it can measure fluorine. Longleaf believes it makes more sense to have the test method focus on the regulated HAP (HF) as opposed to fluorine. Longleaf also proposes to require a calculation of percent removal. The revised Condition 4.1.m of the Draft Permit Amendment should read as follows:

4.1.m: Method 26A shall be used for the determination of *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.*

Third, Longleaf proposes to specify a particular test method, Method 29, for the performance testing that it will conduct for non-mercury metal HAPs. Longleaf therefore proposes to revise Condition 4.1.n of the Draft Permit Amendment as follows:

4.1.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 at the time of the test.*

Longleaf also proposes to prescribe a new test method for the performance testing of emissions of other HAPs. Longleaf proposes a new condition to read as follows:

4.1.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.*

2. Timing of Performance Tests

The timing of the performance test methods required for HAPs in the PSD permit and the Draft Permit Amendment are also identical, and read as follows:

- 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)]
 - ...
 - c. Performance tests on each PC-fired boiler, S01 and S02, for lead to verify compliance with Condition No. 2.15.j. [40 CFR 52.21 and 39131.02(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. [40 CFR 63, Subpart B, 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. [40 CFR 52.21 and 391-3-1-.02(6)(b)1.(i)]
 - 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. [40 CFR 52.21 and 391-3-1-.02(6)(b)1.(i)]

Longleaf proposes to amend the language of Condition 4.2(c) of the Draft Permit Amendment to address non-mercury metal HAPs as follows:

- 4.2.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 Nos. 2.15.j and 2.15q. [40 CFR 52.21 and 391-3-1.02(6)(b)1.(i)]

Longleaf also proposes to add a new permit condition, Condition 4.2(j), to address organic HAPs as follows:

- 4.2.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. 2.15q.

C. Monitoring Requirements

Condition No. 5.2 of the PSD permit requires Longleaf to “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.” The condition then enumerates the continuous emission monitoring system (“CEMS”) and continuous opacity monitoring system (“COMS”) requirements for various pollutants.

Longleaf has investigated whether CEMS devices could be installed to accurately monitor HAP emissions from the Longleaf facility. Other than a CEMS for mercury emissions (which the PSD permit already requires at Condition 5.2(d)), Longleaf does not believe it is currently feasible to accurately and reliably utilize a CEMS to monitor HAP emissions from a facility of the size and type as Longleaf intends to construct and operate. In particular, Longleaf understands from CEMS experts that the current state-of-the-art HCl CEMS is not capable of detecting HCl emissions at the low levels that Longleaf will emit. Similarly, Longleaf is unaware of the installation and use of an HF CEMS at any facility similar to the Longleaf facility. Longleaf recognizes that CEMS technology continues to improve, however, and therefore proposes to add a permit condition to the Draft Permit Amendment that will enable EPD to require the installation and operation of CEMS devices at the Longleaf facility in the future. Proposed Condition No. 5.2(h) would read as follows:

5.2.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 for reliably and accurately measuring hydrochloric acid and/or hydrogen fluoride emissions from the PC-fired boilers in the anticipated 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]

D. Notification, Reporting and Record Keeping Requirements

1. Coal Sampling Requirements

Longleaf proposes to expand the coal sampling requirements set forth in Condition No. 8.3 of the PSD permit to include additional HAP-related substances. The current Condition No. 8.3 reads as follows:

- 8.3 The Permittee shall obtain a sample of from each coal shipment for analysis for sulfur content (%S), moisture content, ash 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**. [391-3-1-.02(6)(b)1(i)] (emphasis in original)

Longleaf proposes to amend this provision to read as follows:

- 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**. [391-3-1-.02(6)(b)1(i)] (emphasis in original). *These records shall be kept available for inspection by or submittal to the Division for five years from the date of record.*

2. Monthly Monitoring Requirements

Longleaf also proposes to add a new condition to the Draft Permit Amendment that would establish a mechanism for monitoring compliance with the HAP emissions limitations in new Condition No. 2.15(q) on a monthly basis. Longleaf proposes the following provision:

- 8.27 *The Permittee shall use the following equations to calculate the monthly HCl, HF and Total HAP emissions from each PC-fired boiler, SO1 and SO2. 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 *i*th operating hour in the month as calculated from the Part 75-certified CEMS.

n = Number of operating hours in the month.

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

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.

$$HCl/Cl = HCl\text{-to-Cl conversion factor} = 36.45/35.45.$$

- 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 *i*th 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

- 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:

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

Where,

Metal_j = Monthly emissions of the *jth* 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 *ith* 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) <i>X</i> ^{0.63}
Arsenic (As)	(3.1) <i>X</i> ^{0.85}
Beryllium (Be)	(1.2) <i>X</i> ^{1.1}
Cadmium (Cd)	(3.3) <i>X</i> ^{0.50}

<i>Element</i>	<i>Equation</i>
<i>Chromium (Cr)</i>	<i>(3.7) X^{0.58}</i>
<i>Cobalt (Co)</i>	<i>(1.7) X^{0.69}</i>
<i>Lead (Pb)</i>	<i>(3.4) X^{0.80}</i>
<i>Manganese (Mn)</i>	<i>(3.8) X^{0.60}</i>
<i>Nickel (Ni)</i>	<i>(4.4) X^{0.48}</i>

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.

- 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 i^{th} 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.

- 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 jth 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. *Total HAPs emitted each month shall be calculated by adding the individual HAP emissions from Condition No. 8.27 (a)-(f).*

3. Record Keeping Requirements

Longleaf proposes a new condition to the Draft Permit Amendment that will require Longleaf to demonstrate to EPD how Longleaf will track its HAP emissions on an ongoing basis. The proposed condition would read as follows:

- 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)]*

4. Reporting Requirements

Finally, Longleaf proposes a new reporting provision that will govern the facility's HAP emissions. The proposed provision would read as follows:

- 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 an emission of any individual HAP exceeds 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. 2.15(q). [391-3-1-.02(6)(b)1] Notifications made pursuant to this condition of the Permit shall not be deemed to be violations unless the notice also indicates that emissions of any single HAP emitted from the facility exceeded 10 tons or the emissions of all HAPs emitted from the facility exceeded 25 tons in that month.*

E. Additional Compliance Assurance Requirements to Demonstrate that Longleaf Will No Be a Major Source of HAPs

Under the federal Clean Air Act and Georgia law, Longleaf will be required to submit an application for a Title V operating permit within one year after it begins operation. At that time, Longleaf and EPD will have the results of the required performance tests and 12 months of coal sampling and monitoring data. Because Longleaf has been conservative in calculating HAP emissions from the proposed facility, it is expected that the data from these performance tests, coal sampling, and monitoring will demonstrate that the facility is well below the major source threshold for HAPs and that no additional compliance assurance provisions are necessary. To the extent that any additional testing, monitoring, or other compliance assurance provisions may be appropriate, the Title V process is the proper means for establishing any such requirements.

ATTACHMENT B

Longleaf Energy Associates, LLC
Response to Comments Received from Greenlaw

I. Comments Concerning the Sufficiency of EPD’s Public Notice

A. The Public Notice

Greenlaw claims that EPD’s public notice was deficient because the notice itself did not explicitly reference the proposed extension of the construction schedule. This comment lacks merit for several reasons. First, this argument rests on a fundamental misunderstanding — or perhaps mischaracterization — of what the law requires. Under both the federal Clean Air Act and Georgia law, a person or company that receives a Prevention of Significant Deterioration (“PSD”) permit must generally commence construction on the permitted facility within 18 months of receiving the permit, unless the permitting authority determines that an extension of this 18-month period is justified. As discussed in numerous cases and guidance documents, the basic purpose of this 18-month requirement is to ensure that a company cannot obtain a permit and then simply “sit on it” by failing to move forward with the proposed project.

In this case, the 18-month clock has not yet started because Longleaf does not have a legally valid PSD permit and will not have such a permit until the Office of State Administrative Hearings (“OSAH”) responds to a decision by the Georgia Court of Appeals. If, as Longleaf hopes and assumes, OSAH upholds the permit, the 18-month clock will begin to run and will continue to run unless there is another legal challenge that causes the permit to be remanded again. If that were to happen, the 18-month clock would stop and then begin after EPD issues (and OSAH upholds) a permit that responds to the court. The 18-month clock does not begin to run until a permit that meets all legal requirements — including any requirements imposed by a reviewing court — is issued.

As discussed further below, Greenlaw is trying to seize upon a provision in the original permit that included a construction schedule on the date the permit was originally issued. There is no legal requirement that such a provision be included in the permit and no requirement that a change to such a provision be subject to notice and comment. The 18-month requirement applies regardless of whether a construction schedule is mentioned in the permit.

All that EPA has done in this case is to clarify the 18-month “commence construction” requirement by aligning this date with the current state of the permitting process. Again, there is no requirement in either federal or Georgia law that EPD must provide public notice of such a change. Indeed, the Director of EPD may extend the 18-month time limit provided for in Condition 2.1 of the Permit “upon a satisfactory showing that an extension is justified.” Ga. Comp. R. & Reg. r. 391-3-1-.02(7)(b)(15) (incorporating by reference 40 C.F.R. § 52.21(r)(2)).

Even though, in this case, a construction schedule was included in the original permit, there is no requirement under federal or Georgia law that a change to such provision in a PSD permit be subject to public notice. Greenlaw’s citation to the requirements of 40 C.F.R. § 70.7(h) is misplaced, as that regulation sets forth the EPA’s public notice requirements for Title V permits, not the Prevention of Significant Deterioration (“PSD”) permit amendment at issue.

here. As noted above, Longleaf is not required even to apply for a Title V permit until it has constructed the facility and operated it for a year.

Moreover, even if public notice requirement for a PSD permit amendment did exist under Georgia law (which it does not), the relevant legal standards governing such notice would be PSD permitting standards, not the Title V permitting standards cited by Greenlaw. A review of those PSD permitting standards demonstrates that the notice and comment period provided by EPD in this instance clearly satisfied those PSD standards.

The Clean Air Act simply states that PSD permits should be issued only “after adequate procedural opportunities for informed public participation in the decisionmaking process.” 42 U.S.C. § 7470(5). In this instance, there is no question that the public have been afforded ample opportunity to participate in EPD’s decision concerning the proposed extension of the construction schedule.

Similarly, the regulations governing public notice of PSD permits provide that the notice must contain (1) the name and address of the facility at issue; (2) a brief description of the business conducted at the facility; (3) contact information for an individual from whom interested persons may obtain additional information; (4) a description of the comment procedures and the time and place of the public hearing; and (5) any additional information considered necessary or proper. 40 C.F.R. § 124.10(d).⁵ EPD’s public notice clearly includes the elements listed above and thus satisfies these legal standards. To the extent Greenlaw or any other interested member of the public wanted additional information concerning EPD’s permitting action, the agency’s public notice provided a link to a website maintained by EPD that contains all of the filings and correspondence related to the action.

If there was any doubt as to the whether the public had sufficient notice of the proposed extension of the construction schedule, the extensive comments EPD received from Greenlaw and others in this case regarding the construction schedule extension demonstrate that the interested public had notice and ample opportunity to critique EPD’s proposed permitting action.

B. The Narrative

Greenlaw also challenges the sufficiency of EPD’s Narrative. Greenlaw’s comments appear to be based on its mistaken belief that EPD has proposed to extend Longleaf’s commencement of construction deadline to July 21, 2011. Greenlaw incorrectly states that the Narrative “purports to describe EPD’s rationale for extending the construction commencement date of the Longleaf Plant until July 21, 2009. However, the permit amendment states that the extension shall be until July 21, 2011.” (emphasis in original comments). In fact, the Narrative provides that EPD’s extension will be “18 months from July 21, 2009.” That is entirely consistent with the terms of the Draft Permit Amendment, which requires Longleaf to commence construction “by January 21, 2011.” *See* Draft Permit Amendment, Condition 2.1. Greenlaw’s

⁵ The public notice procedures of 40 C.F.R. § 124.10(d) have been incorporated by reference by 40 C.F.R. § 52.21(q), which in turn has been incorporated by reference at Ga. Comp. R. & Regs. r. 391-3-1-.02(7)(b)(14).

challenge to the sufficiency of EPD's Narrative is therefore misplaced, as EPD has not proposed to extend the commencement of construction deadline until July 21, 2011.

In sum, the combination of a public notice, detailed Narrative, and the repeated references to and availability of EPD's on-line docket of filings and correspondence concerning Longleaf's case-by-case MACT determination together provided public with more than sufficient notice and opportunity to investigate and comment on EPD's proposed construction schedule extension.

II. Comments Concerning EPD's Rationale for Extending the Construction Schedule

Greenlaw offers several comments in an attempt to undermine the well-founded basis for extending Longleaf's construction schedule. Initially, Greenlaw contends that the ongoing litigation concerning the Longleaf PSD permit cannot provide a basis for extending the permit. If this were the case, it is unlikely that any large facility requiring a PSD permit would ever be built, as project opponents could simply file lawsuits and force protracted appeals for no reason other than to consume the permittee's 18-month time period for commencing construction. The integrity of the PSD program would be compromised if filing an appeal and thereby delaying construction until after the permit's expiration could invalidate a lengthy and costly permitting process. In fact, it would invite a litigation strategy whereby the mere act of filing a petition would ensure victory (project delay), regardless of the merits of the appeal. Longleaf has been prevented from commencing construction on its facility due to an appeal that, to date, has yet to expose a flaw in EPD's permitting actions.

A review of the events that have transpired since the issuance of Longleaf's PSD permit in May of 2007 demonstrate that Longleaf has yet to be afforded 18 months to commence construction of the facility. The permit was issued in May 2007, and was appealed to the Office of State Administrative Hearings ("OSAH") thirty days later. While the permit appeal was pending before OSAH, the permit was stayed by operation of law such that Longleaf had no legal authority to commence construction. *See* O.C.G.A. § 12-2-2(c)(2)(B); Ga. Comp. R. & Regs. r. 391-1-2-.07. On January 21, 2008, ten days after the OSAH Administrative Law Judge's Final Decision affirming the issuance of the permit, Longleaf again retained the legal authority to commence construction. That authority, however, was withdrawn when the Fulton County Superior Court invalidated the permit and remanded the case back to OSAH on June 30, 2008. The remand has yet to be completed. As noted above, the 18-month period for commencing construction does not begin until there is a permit that meets all the applicable legal requirements, including requirement imposed by a reviewing court. Under these circumstances, EPD certainly has a reasonable basis for extending the construction schedule set forth in the permit.

Greenlaw also cites to several factors that other tribunals and permitting authorities have considered when deciding whether to grant an extension of the construction schedule in a PSD permit. These factors have not been adopted in Georgia, and the administrative decisions and policies cited in support of these factors are not binding on EPD. As noted above, the Director of EPD may extend the 18-month time limit provided for in Condition 2.1 of the Permit "upon a satisfactory showing that an extension is justified." Ga. Comp. R. & Regs. r. 391-3-1-.02(7)(b)(15) (incorporating by reference 40 C.F.R. § 52.21(r)(2)). Nevertheless, even if the

factors discussed by Greenlaw were considered in the present case, they would not undermine EPD's proposed construction schedule extension for several reasons.

First, as others have recognized, one of the primary purposes of the 18-month clock is to ensure that the PSD increment earmarked for a permitted project is actually consumed through the construction of a project that contributes to the local economy. Several tribunals have relied on this consideration to deny extensions to permittees who could not demonstrate that the permitted project would ever be constructed.⁶ The record for this project clearly establishes that Longleaf is committed to commencing construction of the facility as expeditiously as possible as soon as the litigation ends and it has the necessary permits. Longleaf has vigorously defended the validity of its PSD permit through a lengthy appeal, proposed to impose more restrictive emission limits and compliance provisions related to hazardous air pollutants ("HAPs") in response to a recent court decision, and maintained its option contracts for the land upon which the facility will be built. There is nothing in the record to suggest that Longleaf does not intend to construct the facility as soon as it has the legal authority to do so.

Furthermore, contrary to Greenlaw's suggestion, an extension of Longleaf's construction schedule will not impede economic growth in the region. Greenlaw contends that an extension of the Longleaf construction schedule will come at the cost of green energy jobs, yet ignores the fact that two biomass-fired power projects — a 49.8 MW facility and a 110 MW facility — have recently been permitted in the vicinity of the Longleaf facility in the time period since EPD issued a PSD permit to Longleaf.⁷ Greenlaw's claim that an extension of Longleaf's construction schedule will hamper economic development in the region, and in particular, the development of alternative energy projects, therefore lacks merit.

Second, EPD's proposed construction schedule extension will not enable Longleaf to be constructed using anything less than state-of-the-art pollution control technologies. Because Longleaf's construction extension request was accompanied by a review of its pollution control technologies and HAP emissions, Longleaf was required to re-visit, and in many cases lower, the emissions limits previously set in Longleaf's PSD permit. For example, in the Draft Permit Amendment, EPD proposes to lower Longleaf's emissions limits for filterable particulate matter, hydrogen chloride, hydrogen fluoride, mercury (while burning subbituminous coal), and carbon monoxide. Now Longleaf proposes to lower those proposed limits even further to ensure that the Longleaf facility will be a minor source of HAP emissions. The significant reduction in emissions and more rigorous monitoring and reporting provisions that Longleaf now proposes to accompany the proposed construction schedule extension confirm that the suite of pollution control technologies that Longleaf will be required to use will remain state-of-the-art. For these

⁶ See, e.g., *In re: West Suburban Recycling & Energy Center, L.P.*, PSD Appeal No. 97-12, 1999 EPA App. LEXIS 39, at *6 (E.A.B. March 10, 1999) (remanding with instructions to deny the permit extension request where there was "no realistic prospect" that the permitted facility would be constructed).

⁷ Longleaf is specifically referring to permits issued to (a) Yellow Pine Energy Company, LLC, for the construction of a 110-MW biomass-fired power plant in Clay County, Georgia; and (b) Greenway Renewable Power, LLC, for the construction of a 49.8 MW biomass-fired power plant in Troup County, Georgia.

reasons, Greenlaw has no basis to claim that the proposed extension of the construction schedule will allow Longleaf's pollution control technologies to become outdated.

Finally, it is worth noting that EPD has imposed aggressive, multi-pollutant control regulations on electric generating units throughout Georgia, all of which will force drastic reductions in emissions of sulfur dioxide, mercury, and nitrogen oxides throughout the State. These reductions will dwarf Longleaf's emissions of these same pollutants, such that the overall air quality in Georgia will be drastically improved even with the construction and operation of the Longleaf facility. In sum, all of these factors support the fact that EPD's decision to grant an extension of Longleaf's construction schedule to account for the pending litigation is fully justified under Longleaf's unique set of circumstances described above, and will not frustrate the purposes behind the construction schedule set forth in the applicable PSD requirements.

III. Comments Concerning Emission Limits and Compliance Provisions

The vast majority of Greenlaw's comments concern whether the emission limits proposed in the Draft Permit Amendment are representative of MACT and whether adequate compliance provisions were included. The general critique of the proposed emissions limitations consists of challenges to the methodology employed by Longleaf and EPD to conduct a case-by-case MACT analysis, the sufficiency of the data, the appropriateness of using surrogates in place of direct HAP emission limits, and whether the proposed emission limits will be "achievable" as that concept is understood in Section 112 of the Clean Air Act. Longleaf's proposed minor source approach renders all of these comments inapplicable, as a minor source is not subject to the legal standards governing case-by-case MACT determinations.

Although the legal standards underlying the majority of Greenlaw's comments are no longer applicable, that does not mean that Longleaf has ignored Greenlaw's comments concerning the emission limits in the Draft Permit Amendment. To the contrary, Longleaf's minor source proposal addresses many of Greenlaw's comments. In those instances where Greenlaw suggested that additional data should have been considered, Longleaf examined that additional data and relied on that data to conclude that its HAP emissions would be lower than originally estimated. Similarly, Longleaf's minor source proposal will include a compliance plan for organic HAPs and non-mercury metal HAPs that will include direct measurement of those individual HAPs as opposed to the surrogate approach proposed in the Draft Permit Amendment and opposed by Greenlaw in its comments.

Most importantly, the primary thrust of Greenlaw's comments is that Longleaf's emissions of HAPs should be lower than the level allowed under the Draft Permit Amendment conditions. Longleaf's minor source proposal includes more stringent emission limits for HAPs such that Longleaf's HAP emission will be lower than the levels provided for in the Draft Permit Amendment. To be clear, Longleaf proposes to accept the lower emission limits proposed in the Draft Permit Amendment *in addition to* more stringent restrictions on HAP emissions and more rigorous compliance monitoring and reporting plan. In sum, although the majority of Greenlaw's comments rest on a legal framework (case-by-case MACT determinations under Section 112 of the Clean Air Act) that is no longer applicable, in fact Longleaf's minor source proposal nevertheless addresses many of the concerns raised in the comments.

IV. Comments Regarding Professional Engineer Licensure Requirements

Greenlaw contends that the MACT determinations made by Longleaf and EPD must be performed by professional engineers registered in Georgia. Longleaf does not believe that any such requirement exists for MACT determinations, and at least one administrative law judge has agreed with Longleaf's position.⁸ Whether or not such a requirement exists, however, is irrelevant for several reasons.

First, Greenlaw's comment assumes that the Permit Amendment will consist of a MACT determination made by Longleaf and EPD. Greenlaw argues that because meeting minutes from Georgia's Professional Engineering Board suggest that BACT determinations constitute the practice of professional engineering, and that because MACT determinations are similar to BACT determinations, then MACT determinations must also constitute the practice of professional engineering. Even assuming this line of reasoning was persuasive (which Longleaf denies), it is not applicable here because Longleaf's proposed minor source designation does not consist of a MACT determination, nor will EPD be required to complete a MACT determination in order to finalize the Draft Permit Amendment conditions Longleaf proposes. The meeting minutes cited by Greenlaw therefore are not applicable to the Permit Amendment at issue.

Second, even if such a requirement existed, it should be noted that the engineer responsible for submitting Longleaf's comments and proposals for the Draft Permit Amendment, Kathy French, is a registered professional engineer in Georgia.

⁸ See Order Denying Motion for Leave to Amend the Petition, for Leave to File a Motion for Summary Determination, and for Summary Determination Based on Newly-Discovered Evidence at 7-9, *Friends of the Chattahoochee, et al. v. Dr. Carol Couch, et al.*, Docket No. OSAH-BNR-AQ-0732139-60-Howells (Office of State Admin. Hearings, November 30, 2007).