IN THE OFFICE OF STATE ADMINISTRATIVE HEARINGS
STATE OF GEORGIA

Friends of the Chattahoochee, Inc. and Sierra Club, Petitioners, v. F. Allen Barnes, Environmental Protection Division, Georgia Department of Natural Resources Respondent, and Longleaf Energy Associates, LLC, Intervenor	)	Docket No. OSAH-BNR-AQ-1115319-60-Howells **PETITIONERS' CLOSING ARGUMENT**

Introduction

The parties agree that if a new coal-fired power plant has the "potential to emit" 10 tons or more of any single hazardous air pollutant ("HAP") or 25 tons of any combination of these pollutants, then the plant will be a "major source" and must obtain a permit with emission limits reflecting Maximum Achievable Control Technology ("MACT"). *See* Res-ST-2, ¶17; Int-ST-2, ¶ 6; Tr. at 557-8. The parties also agree that Longleaf has not obtained a MACT permit and that but for the Permit Amendment (hereinafter "the Permit") at issue, which imposes blanket limits on HAP emissions, the facility would be a major source. *See* Ex.'s J021-000041; J022-000001; J020-000030-31; Tr. at 18, 20, 504, 564; P-ST-5, ¶¶146, 147. As shown below, the blanket limits on HAP emissions contained in Condition 2.25, cannot be legally effective unless they are "practically enforceable." To be practically enforceable, emissions regulated by a limitation must be verifiable. Here, the monitoring scheme of the Permit will yield almost no information of what actual 12-month HAP emission totals will be. Instead, the monitoring scheme will only

generate estimates, potentially significantly inaccurate estimates, of such emissions. Because this monitoring scheme makes it impossible to verify that actual emissions of HAPs will comport with the blanket emission limitations in Condition 2.25, that condition is not practically enforceable. Consequently, under guidance issued by Georgia's Environmental Protection Division ("EPD"), Longleaf's potential to emit must be determined using the maximum hourly uncontrolled emission rate, which all parties acknowledge would be over the major source threshold. Therefore, a remand is in order so that Longleaf can obtain a proper MACT permit.

The Legal Framework

The key legal concept at work in this case is "potential to emit," which is defined as: "the maximum capacity of a stationary source to emit a pollutant under its physical and operational design." 40 C.F.R. §§ 63.2, 63.41, as incorporated by reference at Ga. Comp. R. & Regs. r. 391-3-1-.02(9)(a) and (b)(16). This regulation goes on to say that physical or operational limitations on capacity will be considered part of a source's design including the use of control equipment, restrictions on hours of operation, or restrictions on the type of material combusted stored or processed, but only if those restrictions are "federally enforceable." *Id*.

In 1995, the United States Environmental Protection Agency ("EPA") authorized EPD to issue synthetic minor permits like the one at issue to create "federally enforceable" restrictions to limit potential to emit. 60 Fed. Reg. 45048 (Aug. 30, 1995). Under EPD's rules approved by EPA, "federally enforceable" permits must be "enforceable as a practical matter." Ga. Comp. R. & Regs. r. 391-3-1-.03(2)(h). EPD has further amplified how potential to emit is to be determined through its own Guidance, Ex. J024, which all parties have recognized applies in this case. *See* Tr. at 514 (Aponte); Tr. at 564-66 (Capp); Int-ST-2 at ¶ 27 (French).

According to EPD's Guidance, to determine potential to emit, one should use allowable emission rates or the maximum hourly uncontrolled emission rate ("MHUER"), whichever is lower. Ex. J024-000004 (§ (C)(iii)). The Guidance goes on to say that "practically enforceable limits" can be used to limit potential to emit and refers one to Appendix F "to determine whether these limits exist." *Id*. (§ (C)(v)).

Appendix F of the Guidance stresses that emission limits will be considered "enforceable as a practical matter" if (1) there is a clear legal obligation, and (2) compliance can be verified:

> A permit limit is enforceable as a practical matter (or practically enforceable) if permit conditions establish a clear legal obligation for the source ***and allow compliance to be verified***. It is important that permit conditions be unambiguous and do not contain language which may intentionally or unintentionally prevent enforcement. *Permit limits or other applicable requirements must have associated monitoring, recordkeeping, and reporting to make it possible* ***to verify compliance*** *and provide for documentation of noncompliance.*

Ex. J024-000014 (emphasis added).

The provision in Appendix F regarding the necessity for verifiable limitations is consistent with other authority regarding potential to emit going back over twenty years. In *United States v. Louisiana Pacific Corp*., 682 F. Supp. 1122 (D. Colo. 1987), the court addressed an EPA enforcement action alleging that the construction of a new waferboard unit triggered application of the Prevention of Significant Deterioration program. The company claimed that it could rely on permits issued by the state that attempted to create synthetic minor status for the facility. Similar to the permit conditions in this case, the permit conditions there placed "blanket" annual restrictions, *id*. at 1131, on the amount of pollutants that the facility could emit. The district court, interpreting essentially the same definition of potential to emit at issue here, noted that "compliance with blanket restrictions on actual emissions would be virtually

impossible to verify or enforce" and ruled that, while operational and fuel use limitations can be used to restrict potential to emit, blanket restrictions on actual emissions cannot. *Id*. at 1133.

Immediately in the aftermath of *Louisiana Pacific*, EPA issued guidance on limiting potential to emit. Hunt & Seitz, "Guidance on Limiting Potential to Emit in New Source Permitting," (June 13, 1989). This guidance discussed the *Louisiana Pacific* holding and stated that permits must include independently enforceable limits on production or operation in addition to emission limits in order to limit potential to emit of a pollutant. EPA noted two narrow exceptions to the prohibition stated in *Louisiana Pacific* on the use of blanket emission limits to limit potential to emit. *Id.* at 7-8. First, if setting operating parameters for control equipment is infeasible, then a blanket emission limit can be used, but only if emission limits are short term (e.g., pounds per hour) and a continuous emissions monitoring system ("CEM") will be used to verify compliance. The second exception is not applicable here: it applies to volatile organic compound ("VOC") surface coating operations. *Id.* The key point to be derived from this guidance is EPA's insistence on the use of CEMs to verify compliance if a blanket limitation is imposed. CEMs do not estimate emissions, they measure them all the time, providing verification that a limit is being met.

Significantly, when EPA approved Georgia's program for creating synthetic minor permits, it evaluated the adequacy of Georgia's program based on guidelines EPA had established in 1989. *See* 60 Fed. Reg. at 45048, *citing to* Requirements for the Preparation, Adoption, and Submittal of Implementation Plans; Air Quality, New Source Review, 54 Fed. Reg. 27274 (June 28, 1989). The fourth criteria (out of five) for evaluating such a program is that limitations must be "practically enforceable." *See* 60 Fed. Reg. at 45049 and 54 Fed. Reg. at

27283/2. In describing the practically enforceable criteria, EPA noted that: "an emissions limit expressed only in tons of pollution per year would not be considered practically enforceable." *Id*.

Turning to the Permit at issue, there is no dispute that the Permit does not restrict the plant's hours of operation or the quantity of fuel it may combust. *See* Ex. J023; *see also* Pet-ST-5, ¶32; Tr. at 509-10. Rather, the vehicle used by EPD in an attempt to give Longleaf "synthetic minor" status is a blanket emission limit, Condition 2.25 of the Permit. Ex. J023-000005. This condition provides that in any 12 consecutive months, the facility may not emit more than 10 tons of any one HAP or 25 tons of any combination of HAPs. This is the very type of limitation identified by EPA as not practically enforceable. *See* 54 Fed. Reg. at 27283/2.

EPD's Guidance on potential to emit, Ex. J024, makes clear that emissions subject to a limitation must be verifiable in order for the limitation to be "practically enforceable." As shown below, the blanket emission limit in Condition 2.25 fails this verification test. Thus, as Ms. Barmeyer acknowledged in her opening statement: "if the Permit does not contain federally and practically enforceable conditions that require Longleaf to operation below the limits of 10 and 25, Longleaf would be a major source of HAPS and could not commence construction." Tr. at 20:1-2. Indeed she is correct. The practical enforceability problems of Condition 2.25 render that provision a nullity. Consequently, potential to emit must be determined by reviewing the maximum hourly uncontrolled emission rate. Using this rate, as Longleaf acknowledges, the plant will be a major source.

Under the Permit's Monitoring Scheme, Actual Emission Levels of Pollutants Covered by Condition 2.25 Cannot Be Verified; Therefore, the Condition is Not Practically Enforceable.

Review of the Permit on its face as well as review of the evidence elicited through the hearing shows that the monitoring scheme for the pollutants covered by Condition 2.25 will yield hardly *any* information about what actual emissions of hazardous air pollutants will truly be. To bring this issue into focus, it is helpful to look at terms and conditions in the Permit, *see* Ex. J023, unrelated to HAPs. For example, Condition 2.15(b) establishes a 12-month rolling average for NOx, and Condition 4.1(r) provides that compliance with this 12-month rolling average for NOx will be determined using CEMs. Here, assuming the monitors are on-line and working, these monitors will provide information of what NOx emissions actually are 100% of the time the plant is in operation. If such monitoring were in place to verify compliance with Condition 2.25, Petitioners agree that the restriction would be practically enforceable.

However, contrast the monitoring scheme for NOx with the scheme the Permit creates for hazardous air pollutants. As Dr. Sahu testified in the case, the HAPs that will be emitted by Longleaf can be divided into six broad categories: Mercury, HCl (an acid gas), HF (an acid gas), Organics plus Cyanide, Non-Mercury Metals, and Other. Pet-ST-5, ¶ 146. The table below lists each of these categories, the monitoring provision associated with that provision, and the total amount of time emissions of that pollutant will actually be measured every five years, as opposed to estimated, both in terms of total number of hours and as a percentage of total possible hours of operation. Because the Permit does not limit hours of operation, and EPD's Guidance requires an estimation based on the assumption that the facility will operate all the time, the total number of hours the plant can operate every five years is: (24 hours/day)x(365 days/year)x(five years) +

(one leap day) = 43,824 hours. As one can see, like NOx, mercury emissions will be measured 100% of time. HCl and HF emissions, however, will only be measured during stack tests, which typically consist of three 1-hour runs. Thus, at most, actual emissions of HCl and HF will be tested through four tests per year, or 12 hours per year, and it could be as little as one test or 3 hours per year. Non-mercury metal hazardous air pollutants are required to be tested once every three years, which would be a total of 6 hours over a five-year period. The organic and "other" hazardous air pollutants will actually be measured, to the extent they are measured at all, only once every five years.

Amount of Time Categories of HAPS Will Be Actually Measured Under the Permit			
HAP	*Permit Condition re Monitoring Frequency*	*Amount of Time of Actual Measurement (Hours out of 5 Years)*	*Amount of Time of Actual Measurement (% of Hours out of 5 Years)*
Mercury (Hg)	4.1(q)	43,824	100%
HCl	4.2(g), (h), or (k)	60	0.137%
HF	4.2(d) or (l)	60	0.137%
Non-Hg Metals	4.2(c)	6	0.0137%
Organics & Cyanide	4.2(j)	3	0.0068%
Other	4.2(j)	3	0.0068%

As one can see from reviewing this table above, but for mercury, actual measurement of hazardous air pollutant emissions will occur between around a tenth of a percent of operating time, or less. In other words, under the Permit, 99.8% of the time, levels of most hazardous air pollutant emissions will merely be estimated, not actually measured. The Longleaf facility will be required to monitor mercury emissions continuously which, under the mercury-specific limit of

the Permit will only contribute 0.075 tons per year (or about 0.3% of the 25 ton per year total emissions cap). Yet, Longleaf will only be required to test once every five years for organic HAPs, which could contribute 25% to 100% of the 25 ton-per-year emissions cap based on Longleaf's emission estimates. *See* Ex.J014-000009 and -000011. Except for mercury, such a scheme in no way meets the standard set out in EPA's 1989 guidance on potential to emit that allows blanket, annual emission limits, but only when actual emissions are monitored by CEMs.

Furthermore, the estimation scheme set up in the Permit is neither conservative nor likely to be accurate for two reasons. First, the Permit essentially requires an emission factor to be generated using the stack testing to be performed, yet the Permit does not require that a margin of compliance or margin of safety be added to that emission factor, even though the emission rate of these pollutants could vary significantly from the rates determined through stack testing. Second, some HAPs will not be measured under the Permit's monitoring scheme at all.

Turning to the first point, estimates of 12-month totals of organic and "other" hazardous air pollutants are to be derived from an emission factor determined by one stack test conducted every five years, multiplied by the facility's hourly heat input; estimated hourly emissions are then summed over to derive 12-month totals. *See* Permit Condition 8.27.e.; Pet-St-5, ¶41. When establishing emission limits, EPD always adds a "margin of compliance" or "safety factor" to account for variability. *See* Tr. at 595-6; *see also Friends of the Chattahoochee, Inc. v. Couch*, Docket No: OSAH-BNR-AQ-0732139-60 Howells, slip op. at 69-70 (April 2, 2010) (In this final decision on remand, the Court noted that one reason for adding such a factor is to account for inevitable variability). Under the monitoring scheme of the Permit, however, EPD provides no mechanism for adding such a margin of compliance or safety factor when establishing an emission

factor from a once-per-five year stack test.

That EPD would fail to account for this variability is surprising, because the Permit's author, Ms. Aponte, testified that emissions recorded during a stack test would not necessarily be indicative of actual emissions during other periods. *See* Tr. at 523-4. Ms. Aponte's testimony on this point was consistent with the testimony of Dr. Sahu, who noted that emissions of organic HAPs could vary significantly from hour-to-hour and over longer periods of time. Pet-St-5 ¶ 45.

Hour-to-hour variability can be caused by combustion conditions in the boiler, including changes in the air-fuel ratio, temperatures and temperature profiles, and residence time of the gases in the boiler. *Id*. ¶¶ 45, 51. Such variability can be caused by the composition of the fuel and the operating conditions of the pollution control devices. *Id*. Consequently, even when the boilers appear to be running at the same heat input or steam output conditions, the emissions of hazardous air pollutants from the boiler can and will vary. *Id.*

Recalling that a coal-fired power plant like Longleaf could be in operation upward of 60 years, Tr. at 646 (Capp), combustion conditions in the boiler can also change over longer periods of time, again causing variability. For example, if Longleaf tests for these pollutants immediately after a boiler overhaul or boiler tuning, Dr. Sahu expects more complete combustion conditions then than at a point in time more removed from the test. Another contributor to this type of variability is the buildup over time of coal ash or slag inside the boiler, which can alter heat release patterns and temperature profiles, which will in turn affect the organic HAP emission rates. Also over time, air leakage can occur, and that in turn can affect air/fuel ratios and combustion conditions (such as the degree of mixing and gas path residence times). The plant's pulverizers will also deteriorate, affecting the fineness of the coal and its resulting combustibility.

Burner efficiency may also decline, again lowering combustion efficiency. *Id.* ¶ *48.*

Dr. Sahu also observed that stack tests on the boiler are typically done at close or to maximum load, when the combustion of the fuel (coal) will result in more complete destruction of volatile organic HAPs than the destruction achieved when the unit is operating at lower loads. Even the most highly utilized electric utility steam generating units have periods of lower load, typically during the nighttime hours when electricity demand is low. Therefore, during these lower load periods, Dr. Sahu expects a more elevated emission rate for these types of pollutants from the boiler than under maximum load conditions. *Id*. ¶ 46. Dr. Sahu noted that the Permit actually requires volatile organic compounds to be tested at 50% load to assess compliance with the best available control technology limit for the volatile organic compounds, but the Permit does not require testing under that scenario for organic HAPs. *Id*. ¶ 47.

For all of these reasons, EPD's assumption, which is built into the Permit's hazardous air pollutant emission estimation formula, that the hourly rate at which these pollutants will be emitted will be constant is fundamentally flawed. Even if this type of emission estimation approach was acceptable (in lieu of actual measurement by CEMs), a significant safety factor would have to be added to the emission factor before one could be comfortable that the emissions estimate for organic HAPs yielded by the formula in Condition 8.27(e) is at or above the levels at which these pollutants will actually be emitted. (To be able to verify that total HAP emissions are under the 25 ton-per-year limits of Condition 2.25, EPD must insure that the emission factor it uses for organic HAPs never underestimates the emission rate of these pollutants.)

The second major reason that the Permit's monitoring scheme will not yield an accurate estimate of actual emissions of organic and "other" hazardous air pollutants is that it will not

actually test for at least five of those pollutants. The test methods specified in the Permit will not capture at least the following hazardous air pollutants: Acetaldehyde, Acrolein, Formaldehyde, Methyl chloride, and Dioxins. *See* Pet-St-5 ¶¶ 54-66 (Sahu). Dr. Sahu's testimony on this point was never controverted by either Mr. Roberson or Mr. Capp, both of whom have considerable experience with monitoring and testing, or by any other testimony. The potential emissions of just these five pollutants could be 5.34 tons per year. (*Id*. at 65 & Table 1). In other words, the emissions monitoring scheme established by the Permit could easily underestimate emissions of organic HAPs by up to 5.34 tons per year.

Given these two major flaws in the Permit's estimation methodology for organic and other hazardous pollutants, the estimates of emissions yielded by the Permit's scheme could be significantly inaccurate. This potential for inaccuracy raises a fundamental point on the practical enforceability issue that Respondent and Intervenor either misunderstood or attempted to minimize throughout the hearing: The problem is not whether Longleaf will be able to react to reduce emissions if the Permit's emission estimation scheme shows Longleaf trending out of compliance. Rather, the problem is that the estimates yielded by the Permit may indicate that the facility is in compliance, when in fact actual HAP emissions will be over major source thresholds. Longleaf will bear no burden when this happens. Only the public will.

As Ms. Aponte conceded, actual organic HAP emissions could exceed the levels predicted by the once-per-five year stack test, and neither EPD nor the public would know. Tr. at 524. This is a stunning, dispositive admission, and it comes not from Petitioners' experts, but from the very author of Condition 2.25. This concession acknowledges that it is impossible, with the monitoring scheme in the Permit, to "verify" compliance with the blanket emission limits in

Condition 2.25. Consequently, those blanket limits are not practically enforceable.

EPD's estimation methodology for the acid gases, HCl and HF, is defective in some of the same ways identified above. To estimate the emission of these pollutants, the Permit calls for the use of a formula that multiplies the hourly heat input by a value for the content of the element in the coal (either Chlorine or Fluorine) by the assumed removal efficiency for the pollutant. *See* Ex. J023, Conditions 8.27(a) and (b); *see also* Pet-St-5 ¶ 98-105 (Sahu). Heat input will be measured by a continuous monitor. Chlorine and Fluorine content in the coal will be estimated by daily grab samples. Assumed removal efficiency will be determined by the latest stack test, which, as mentioned above, will be done one to, at most, four times per year. *Id*.

The main reason this estimation scheme may be inaccurate is that it assumes the removal efficiency of the pollution controls will be constant between stack tests. Yet, as Dr. Sahu testified, there is no reasoned basis for that conclusion. Indeed, a more reasonable conclusion is that removal efficiency of the spray dryer, the main device for capturing the acid gases, could vary hour by hour or day by day. *Id*. ¶ 110. As Dr. Sahu explained, a number of factors can influence the removal efficiency of the spray dryer, including the temperature of the gas, the ratio of the slurry injection rate and the gas flow rate, the pH of the slurry, the relative concentration of the pollutant and other pollutants that may be present in the gas, the concentration of particulates in the gas, the manner in which the slurry is atomized, the mean diameter of the slurry droplets, the degree to which the droplets avoid coalescing (thereby reducing available surface area), the details of competing reactions (such as between HCl, SO_2, HF, and other gases present), and the degree to which there are any leakage paths that may be present or that may develop (thereby allowing for less slurry gas contact). *Id*. ¶ 112.

Dr. Sahu acknowledged that the Permit's requirement to monitor the mass of slurry or absorbent that is fed to the scrubber "is a good idea," *id*. at ¶ 114, but because of all of the other factors mentioned above that could impact removal efficiency, monitoring that one parameter will not guarantee constant removal efficiency. *Id*. ¶ 114. There is no documentation in the record to support that monitoring the sorbent injection rate ensures any level of HCl removal efficiency, and Ms. Aponte testified she was not aware of any studies establishing a link between sorbent injection rate and control of HCl. Tr. at 527. Indeed, because the removal mechanism for HCl in a spray dryer absorber differs from the removal mechanism for sulfur dioxide, for which the spray dryer absorber is primarily designed and operated, the Permit's requirement to monitor sulfur dioxide emissions cannot provide any assurance that a certain level of HCl removal efficiency is being obtained. *See* Ex. RI056-000016-17.

Crucially, here again, Ms. Aponte was in agreement with Petitioners: Ms. Aponte agreed that the removal efficiency could vary, and that if it went down, HCl and HF emissions would go up, and because there is no CEM for HCl and HF, no one would ever know. Tr. at 524-525.[1]

Consequently, as shown above with respect to the organic and "other" hazardous air pollutants, the Permit's estimation scheme for the acid gases could be substantially inaccurate. Accordingly, the estimates generated under the Permit's requirements could indicate that Longleaf

[1] In addition, if the Longleaf boilers burn Central Appalachian coal, as the Permit allows, Dr. Sahu's testimony demonstrated that the total emissions of HCl could exceed 10 tons per year within 2 to 41 days, a period so short that it could elapse before the Permit even requires a new stack test to be conducted. *See* Pet-Ex-5, ¶¶ 137, 138 and 140; Pet. Ex. 07. When asked how much time the Longleaf facility could burn Central Appalachian coal, Mr. Vogt answered "[i]t all depends on how well the facility does when we test it." Tr. at 232. However, under the monitoring scheme of the Permit, by the time Longleaf tests the HCl removal efficiency achieved with Central Appalachian coal in the boilers, the facility may have already exceeded the 10 ton per year limit.

is operating within the blanket limitations of Condition 2.25, when in fact, it is not. Here, then, is another instance when the monitoring scheme will fail to produce verifiable information about what actual emissions of hazardous air pollutants (other than mercury) will be. These verification problems make the Permit unenforceable as a practical matter.

Reasonable Estimates Show that Longleaf's Potential to Emit Hazardous Air Pollutants Under the Permit Will Be Over Major Source Thresholds.

Construction of Longleaf has not yet begun, of course, and review of the most reasonable current estimates show that its potential to emit of HAPs will be over the major source threshold. Such a review is helpful for two reasons. First, given that Condition 2.25 is not enforceable as practical matter, EPD's Guidance dictates that potential to emit be evaluated based upon the maximum hourly uncontrolled emission rate. Ex. J024-00004. Second, the review shows that any expectation that Longleaf will have the potential to emit of a minor source is unreasonable.

It is clear that if EPA's AP-42 emission factors are used, in conjunction with a few other reasonable assumptions, to estimate the facility's potential to emit, then the facility's emissions will be far over the major source threshold. *See* Pet-St-5 ¶ 146 (Sahu). Indeed, Longleaf's own original estimate for organic HAPs alone, based mostly on AP-42, pegged emissions from the boilers at 25 tons per year. *See* J014-000008-9 (Table 3 - Previous lb/MMBtu Emission Factor).

Longleaf's main estimate that the facility's emissions could be under the major source threshold was made in its December 2009 submission to EPD. Ex. J014. This estimate is unreliable for two reasons. First, the estimate for acid gases is based on a flawed and biased methodology. Second, the estimate for organic hazardous air pollutants is improperly based on emission factors from the EPRI Emission Factor Handbook in lieu of AP-42.

First, in putting together the acid gas estimate, Ex. J014-000005-7, Longleaf's engineer, Ms. French, tossed out high values as outliers after making calls to the plants where those test occurred. Tr. at 295-300. Ms. French, did not, however, make calls regarding every other source tested in her survey. Tr. at 299-300. Such a methodology is inherently biased and unreliable. Similarly, when a test recorded a non-detect value, Ms. French threw it out, Ex. J014-000005-7, even though, as Ms. French acknowledged on cross-examination, a non-detect value does not mean the pollutant is not present. Tr. at 302-3. Finally, Ms. French attempted no estimate for acid gas emissions when Longleaf burns Central Appalachian coal. Consequently, the HF and HCl estimates in the December 2009 letter are not reliable.

Second, as for the estimate in the December 2009 letter for organics and "other" pollutants, this estimate is flawed and unreliable for a number of reasons. Ms. French based the estimates on the EPRI Emission Factor Handbook for most of the organic HAPs. *See* J014-000008-9. As a matter of law, estimates based on the Handbook should not be considered. Under the Georgia Air Regulations, it is illegal for the State to even possess, much less rely upon, emissions information that the State is not at liberty to release:

> Information relating to secret processes, devices, or methods of manufacture or production obtained by the Division shall be kept confidential. Provided, however, ***reports on the nature and amounts of stationary source emissions obtained by the Division shall be available for public inspections from the Division.***

Ga. Comp. R. & Regs. 391-3-1-.08 (emphasis added). This provision was incorporated into the Georgia State Implementation Plan in 1976. 42 Fed. Reg. 35184 (Aug. 20, 1976).

Based on this provision, EPD should have either required Longleaf to make the Handbook and its basis available for public inspection, or EPD should have refused to consider it. Likewise,

because the Court is here standing in the shoes of the agency and is similarly bound by the rules in the SIP, it should refuse to consider the information from the Handbook.

In addition to being contrary to EPD's own regulations, any reliance on the EPRI Handbook, in lieu of AP-42 emission factors, is also contrary to EPD's own guidance. *See* Ex. J024-000013 (providing that AP-42 "shall" be used ahead of any emission factors developed by industry). EPD's decision to disregard its own guidance when it had never reviewed the Handbook was ill-advised. Given the presumption in EPD's Guidance against such use, and based on the evidence, the Court should not repeat this mistake. First, review of the EPRI Handbook itself, Ex. I00-1, reveals that it does not contain the data underlying the creation of the factors. Specifically, one cannot tell from a review of the Handbook which facilities were tested, how they were tested, or when. Mr. Roberson testified that the data in the Handbook may be the same as the data underlying Section 1.1 of AP-42, J-25, but he does not know for sure, despite having participated in creating the original version of the Handbook. Tr. at 429-30.

Jim Southerland, who is an expert in the creation and use of emission factors, testified that he would not use industry-created emission factors, even from EPRI, unless there was an opportunity to review the underlying test reports. We know that EPA relied on EPRI data in creating AP-42's set of emission factors for organic hazardous air pollutants, Ex. J025-000032-35, 000048-49, but we do not know if the data cited to by EPA in AP-42, Ex. J025-000048-49, is the same data underlying the version of the Handbook Longleaf introduced into evidence. Consequently, despite the best efforts of the Petitioners to obtain the underlying data for the Handbook in evidence from EPD and Longleaf, that information simply was not available. Here, then, is another reason the Handbook should not be relied upon.

Another reason to reject use of the Handbook is that in developing emission factors for the organic hazardous air pollutant subset, the Handbook used a methodology based on the geometric mean. Ex. I001 at -000012. Mr. Roberson testified that when data fit a log-normal distribution, then the geometric mean can indicate a "central tendency." Dr. Sahu agreed with this point, but only when the distribution is truly log-normal. Tr. at 603-604. The Handbook indicates that data for some of the pollutants it analyzed fit a log-normal distribution, Ex. I001 at -000010, but it did not say which ones, and it is obviously not all. Mr. Roberson testified he could not say that EPRI verified that all of the emissions data fit a log-normal distribution. Tr. at 445.

Mr. Southerland testified that in creating thousands of emission factors in his career, he had never used the geometric mean, and more important, that there was nothing about a collection of emission data that warranted a comparison based on the geometric mean. In other words, given the reasons why a set of data might be susceptible to an analysis based on the geometric mean (such as situations where one would expect a rate of change or growth from one test to the next), there was no reason why an analysis based on the geometric mean would provide any insight into the data. However, because the geometric mean is always less than or equal to the arithmetic mean, Tr. at 599-600, it provides a means for lowering an emissions estimate, regardless of whether it makes sense. Thus, it is very instructive that, in the 1990's, EPA rejected EPRI's suggestion of using the geometric mean to develop emission factors for organic HAPs. Ex. P01-000014-15.[2]

[2] EPD and Longleaf may argue that the Handbook should be used because Petitioners provided an excerpt (all they had) of an earlier version to EPD in a comment letter. Ex. RI008-000035. Petitioners have never argued, however, that the Handbook's organic HAP factors should be used. Rather, the Petitioners cited the Handbook only for information on the level of HCl that could be removed in spray dryers and in no way relied on EPRI's emission factors for

If the Court were to elect to use the EPRI Handbook to evaluate whether Longleaf's emissions are likely to be below major source thresholds, it must take into account a number of cautionary statements in the EPRI Handbook, EPD's Guidance on potential to emit, and the testimony of Mr. Roberson. Analyzing these points leads one to the conclusion that the 95% upper confidence interval for each factor should be used to estimate potential to emit. First, the Handbook notes that its emission factors have "a 95% confidence interval spanning one to two orders of magnitude." Ex. I001-000008. Furthermore, "actual measurements of HAPs emissions can vary from estimated levels by several orders of magnitude." Consequently, "emission estimates developed from such data distributions may differ significantly from measured values." *Id*. at I001-000009. In addition, the Handbook states that: "there is some probability that any given value will be exceeded some of the time. Therefore, the emission factors suggested in this document may or may not be appropriate for a particular unit." Ex. I001-000011.

As confirmed by Mr. Roberson, a 95% upper confidence interval means that if all of the tests underlying a particular factor were performed 100 times, 95 out of 100 times, the mean will lie somewhere in the confidence interval range. Tr. at 438-440. Furthermore, if the confidence interval spans two orders of magnitude, the upper end of the range could be 50 times higher than the mean emission factor itself.

The warnings contained in the Handbook should be considered in light of EPD's Potential to Emit Guidance, which provides that: "potential to emit must be calculated under **worst case conditions**." Ex. J024-000003 (emphasis added). Furthermore, Mr. Roberson noted that the Handbook's cautions apply "in double" when estimating short-term emissions. *See* Tr. 443:8 -

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organic HAPs. Tr. at 580-81 (Capp).

444:7. The estimation methodology that is used to determine potential to emit is not a 12-month rolling average. Rather, it is a sum of the maximum *hourly* uncontrolled emission rate over each hour of operation in one year (i.e., 8,760 hours). *See* J024-000012. Therefore, to ensure that "worst case" assumptions are made, when using the Handbook to make potential to emit calculations, Dr. Sahu concluded that one should, at a minimum, use upper confidence interval values, not the emission factor values themselves. Tr. at 610-611. Dr. Sahu recalculated Longleaf's potential to emit, making his suggested substitution for organic hazardous air pollutants only. P-32, Tr. at 611-613. The resulting estimate shows Longleaf has the potential to emit of a major source. P-32; Tr. at 617.

Finally, the only other evidence offered in the case regarding the reasonableness of Longleaf's December 2009 estimate comes from the testimony of Ms. French. Fundamentally, not much can be made of this testimony. First, the entire premise of the testimony is flawed because Ms. French attempts to validate conclusions based on one set of data (that is, the unavailable data underlying the EPRI Handbook) by evaluating a completely different set of data (the draft data collected by EPA pursuant to its ICR) that is not yet in final form. What is more important, Ms. French never attempted to derive an estimate for Longleaf's potential to emit HAPs from the ICR data. Nevertheless, despite this lack of quantification, Ms. French offers a qualitative opinion that Longleaf will probably stay under the major source threshold. Because the question of whether a source is major is very much a quantitative exercise, qualitative opinions carry little weight.

In the evidence presented to the Court, Petitioners calculated potential to emit of the hazardous air pollutants to be emitted by the Longleaf facility in several ways, and all of them

show that the Longleaf facility will be a major source of hazardous air pollutants. These approaches included minor revisions to Longleaf's "estimate" of hazardous air pollutant emissions from its December 22, 2009 minor source application, such as replacing the EPRI organic hazardous air pollutant emission factors with the AP-42 emission factors, replacing the EPRI emission factors with only the A-rated AP-42 emission factors, determining potential to emit of HCl and HF based on the specific HCl and HF emission limits identified in the Permit, and using the upper confidence interval values for the organic hazardous air pollutants from the EPRI Emission Factor Handbook. *See* Pet-ST-5, ¶¶34, 35, 89, 93, 144, 146; P-32; Tr. at 617. It is little wonder, then, that both EPD and Longleaf acknowledge that unless Condition 2.25 is deemed practically enforceable, Longleaf should be considered a major source.

Conclusion

For the reasons stated herein, Petitioners respectfully request that this Court grant the Petition, vacate the Permit Amendment, and remand it back to EPD.

Respectfully submitted, this 23rd day of February 2011

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CERTIFICATE OF SERVICE

I do hereby certify that I have this day served a copy of the foregoing by email and by depositing a copy thereof, postage prepaid, in the United States Mail, first class, properly addressed upon:

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