

**IN THE OFFICE OF STATE ADMINISTRATIVE HEARINGS
STATE OF GEORGIA**

FRIENDS OF THE CHATTAHOOCHEE, INC. and SIERRA CLUB,)	
)	
)	
Petitioners,)	
)	
v.)	
)	Docket No.
DR. CAROL COUCH, DIRECTOR,)	OSAH-BNR-AQ-0732139-60-Howells
ENVIRONMENTAL PROTECTION)	
DIVISION, GEORGIA DEPARTMENT OF)	
NATURAL RESOURCES)	
)	
Respondent,)	
)	
and)	
)	
LONGLEAF ENERGY)	
ASSOCIATES, LLC,)	
)	
)	
Intervenor.)	
)	

PETITIONERS’ PROPOSED FINDINGS OF FACT & CONCLUSIONS OF LAW

INTRODUCTION

Petitioners, Friends of the Chattahoochee, Inc. and Sierra Club, appeal the May 14, 2007 issuance of a Prevention of Significant Deterioration (“PSD”) air quality permit (the “Permit”) to Longleaf Energy Associates, LLC (“Longleaf”) by Dr. Carol Couch, Director of the Environmental Protection Division of the Georgia Department of Natural Resources (“EPD”). The Permit authorizes Longleaf to construct and operate a 1,200 megawatt (MW) coal fired electric generating station (hereinafter, “the plant” or “the facility”).

Petitioners oppose the issuance of the Permit because they assert that it violates provisions of the Georgia Air Quality Act, O.C.G.A. §§ 12-9-1, et seq., the Georgia Rules for Air

Quality Control, Ga. Comp. R. & Regs. r. 391-3-1-.01, et seq., the Georgia State Implementation Plan, 391-3-1-.01, et seq. and the federal Clean Air Act, 42 U.S.C. §§ 7401, et seq. Specifically, in their June 13, 2007 Petition, Petitioners asserted 17 counts of violations of these statutes and regulations. Several of those counts were resolved on pre-hearing motion or were abandoned, and they will not be discussed here. The remaining six counts were subject to an evidentiary hearing held intermittently between September 5, 2007 and October 30, 2007. These counts were as follows:

- (1) Petitioners assert that the emission limitations in the permit for sulfur dioxide (“SO₂”) are not reflective of Best Available Control Technology.
- (2) Petitioners assert that the emission limitations in the permit for nitrogen oxides (“NO_x”) are not reflective of Best Available Control Technology.
- (3) Petitioners assert that the emission limitations in the permit for particulate matter (“PM₁₀”) are not reflective of Best Available Control Technology.
- (4) Petitioners assert that the emission limitations in the permit for sulfuric acid mist (“H₂SO₄” or “SAM”) are not reflective of Best Available Control Technology.
- (5) Petitioners assert that EPD should not have issued the permit because Longleaf’s additional impacts analysis was inadequate.
- (6) Petitioners assert that the permit is invalid because it contains provisions that are not adequately enforceable.

For the reasons stated below, as to these six counts, the Petition is GRANTED, Permit No. 4911-099-0030-P-01-0, Ex. EPD File 104, is hereby VACATED, and this matter is REMANDED back to EPD for further action consistent with this order.

CONCLUSIONS OF LAW

JURISDICTION

1. This tribunal has jurisdiction over this matter pursuant to O.C.G.A. §§ 12-2-2(c)(2) and 12-9-15, and Ga. Comp. R. & Regs. r. 391-1-3-.02(1), authorizing any person who is aggrieved or adversely affected by any order or action of the Director to obtain review of the Director's order or action.

2. In an order issued November 6, 2007, this Tribunal found that Petitioners have standing to maintain this action. Furthermore, because the Petition in this matter was filed within thirty days of EPD's issuance of the Permit, the Petition was timely filed.

BACKGROUND: LEGAL FRAMEWORK

The Clean Air Act

3. The type of permit at issue in this case is known as a Prevention of Significant Deterioration ("PSD") permit.

4. The United States Congress created the PSD program in 1977 as part of an amendment to the Clean Air Act. 42 U.S.C. §§ 7470-79. The program ensures that new major emitting facilities do not unnecessarily degrade air quality in areas meeting national ambient air quality standards. To accomplish this goal, the PSD program creates a permitting system, and new major sources in attainment areas anywhere in the United States cannot be constructed without a PSD permit. 42 U.S.C. § 7479(1).

5. Applicants for PSD permits must show that "emissions from construction or operation of [their proposed] facility will not cause, or contribute to, air pollution" in excess of specified standards. 42 U.S.C. § 7475(a)(3). To make this showing, 42 U.S.C. § 7475 requires monitoring of the air quality in the area where the facility will be built and modeling to

demonstrate that the planned facility will not have proscribed adverse impacts. In addition, a PSD permit must contain emission limits that reflect best available control technology (“BACT”). As discussed more fully below, BACT is defined not as “technology,” but rather an emission limitation for each relevant pollutant. Georgia SIP, 391-3-1-.02(7)(a)(2), 40 C.F.R. § 52.21(b)(12).

6. The PSD program is administered in Georgia by the Environmental Protection Division of the Department of Natural Resources. The PSD regulations applicable in this case are found in Georgia’s State Implementation Plan (“SIP”). The Georgia SIP is a set of regulations first promulgated by the State and then submitted for approval to the United States Environmental Protection Agency (“EPA”). *See Alaska Department of Environmental Conservation v. Environmental Protection Agency*, 540 U.S. 461, 469-70 (2004). *See also* 42 U.S.C. § 7410(a)(1).

7. In the case of the PSD program, however, Georgia has simply incorporated by reference regulations originally promulgated by EPA. *See* Georgia SIP, 391-3-1-.02(7), available at: <http://www.epa.gov/region4/air/sips/ga/391-3-1.02.pdf> (last visited November 20, 2007).¹

8. The portion of Georgia’s State Implementation Plan (“SIP”) implementing the Prevention of Significant Deterioration program was first approved by the EPA on September

¹ Once promulgated, SIP rules cannot be changed without going through a formal revision process whereby the State proposes changes and then EPA approves them. Thus, if the state has changed its own rules, and those rules conflict with the SIP, those rules have no force and effect until those rules are approved as a SIP revision. *See Sierra Club v. Tennessee Valley Authority*, 430 F.3d 1337 (11th Cir. 2005). The Eleventh Circuit has ruled that if a SIP rule tracks the language of the Clean Air Act and is so “intertwined with the administration of the CAA,” then “it can be considered part of the federal law of air pollution control.” *Sierra Club v. Leavitt*, 368 F.3d 1300, 1304 n. 9 (11th Cir. 2004) (citing *Montgomery Nat’l Bank v. Clarke*, 882 F.2d 87, 92 (3rd Cir. 1989) and *Ohio Valley Env’tl. Coalition v. Horinko*, 279 F. Supp. 2d 732, 754-56 (S.D.W.V. 2003)).

18, 1979, and it has been revised five times since then. *See* Georgia SIP, 391-3-1-.02(7) and 44 Fed. Reg. 54047 (Sept. 18, 1979), 47 Fed. Reg. 6017 (Feb. 10, 1982), 57 Fed. Reg. 24371 (June 9, 1992), 57 Fed. Reg. 58989 (Dec. 14, 1992), 61 Fed. Reg. 3817 (Feb. 2, 1994), and 64 Fed. Reg. 67491 (Dec. 2, 1999), *see also* Georgia SIP, 391-3-1-.03(1).

9. Pursuant to the Georgia SIP, “[n]o person shall construct or operate any facility from which air contaminants are or may be emitted in such a manner as to fail to comply with . . . [a]ny applicable increment, precondition for permit, or other requirement established for the Prevention of Significant Deterioration pursuant to Part C, Title I of the Federal Act.” Georgia SIP, 391-3-1-.02 (1)(c).

10. Because the Longleaf Energy Station will be a major source located in an area presently in attainment of the National Ambient Air Quality Standards it is subject to PSD regulations. Preliminary Determination, Ex. EPD File 84, at 5.

Best Available Control Technology

11. The key regulations at issue in this case are those defining BACT and the additional impacts analysis.

12. The regulation defines BACT as:

Best available control technology means an emissions limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under Act which would be emitted from any proposed major stationary source or major modification which the Administrator, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant. In no event shall application of best available control technology result in emissions of any pollutant which would exceed the emissions allowed by any applicable standard under 40 CFR parts 60 and 61. If the Administrator determines that technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emissions standard infeasible, a design, equipment, work practice, operational standard, or combination

thereof, may be prescribed instead to satisfy the requirement for the application of best available control technology. Such standard shall, to the degree possible, set forth the emissions reduction achievable by implementation of such design, equipment, work practice or operation, and shall provide for compliance by means which achieve equivalent results.

40 C.F.R. § 52.21(b)(12).²

13. To assist regulators in the issuance of PSD Permits, including BACT determinations, EPA produced the Draft New Source Review Workshop Manual (October 1990) (“NSR Manual”), which has become Georgia’s primary guidance document for PSD permitting. *See* Ex. EPD File 860 (in returning Longleaf’s initial permit application, EPD requests that Longleaf should redo its BACT analysis and ensure that it follows “each of the detailed ‘top down’ steps that are described in the NSR manual.”). Additionally, throughout the hearing, EPD staff responsible for drafting and supervising the issuance of the PSD Permit at issue (Michelle Keith, Anna Aponte, and Jac Capp) confirmed that the NSR Manual is followed by EPD in issuing PSD Permits. Tran. 73, 76, 77, 90-99, 2027, 2049-2051, 2292, 2396, 2598, 2600. *See also* Ex. EPD File 84, at LSEPD005874. Although this guidance is not a rule, since the state purports to follow it, it must do so “in a reasoned and justified manner.” *Alaska v. United States EPA*, 298 F.3d 814, 822 (9th Cir. 2002), *aff’d* 540 U.S. 461 (2004).

14. In processing PSD permit applications and conducting BACT determinations, EPD acknowledges that it follows the “top down” process laid out in the NSR Manual. Tran. 73, 2050-2051, 2598. *See also* Ex. EPD File 84, at LSEPD005874; Ex. EPD File 860. In addition to being discussed at length in the NSR Manual itself, the process has been routinely relied upon by

² Pursuant to an editorial note in the Georgia SIP, 391-3-1-.02(7), “the word ‘Administrator’ as used in regulations . . . should be read as the ‘Director of EPD.’”

EPA's Environmental Appeals Board. *See, e.g., In re Maui Electric Co.*, 8 E.A.D. 1, 5-6 (EAB 1998), appended hereto as Attachment 1.

15. The top-down process has five steps.

16. The first step is to identify all "available" control options. The term "available" in this context means those air pollution control technologies or techniques with a practical potential for application to the unit and pollutant in question.

17. The second step is to eliminate "technically infeasible" options. This involves first determining for each technology whether it is "demonstrated," which means that it has been installed and operated successfully elsewhere, and if not demonstrated, then whether it is "available" and "applicable." *Id.* The term "available" in this context refers to whether the technology is commercially available. *Id.* An available technology is considered to be "applicable" if it can be installed and operated on the source in question. *Id.* Technologies identified in step one, but that are not demonstrated and either not available or not applicable, are eliminated under step two from further analysis.

18. The third step of the BACT analysis is to list the remaining options (not eliminated in step two) in order of stringency, with the most stringent option listed first.

19. In step four, collateral impacts (energy, environmental, and economic impacts) are considered and the top alternative is either confirmed as appropriate or is determined to be inappropriate.

20. In step five, the most effective control alternative not eliminated in step four is selected as BACT. *Id.*

21. The top-down process reflects the mandate of the BACT definition itself. The definition requires that emission limits be set based upon the most effective method of pollution

control (simply put, “the best”), unless collateral impacts (energy, environmental, or economic) justify a conclusion that the most stringent technology is not “achievable.” 40 C.F.R § 52.21(b)(12).

22. The NSR manual contains an extensive discussion with respect to each of the five steps in a top-down analysis. The NSR Manual defines available control options as “air pollution control technologies and techniques with a practical potential for application to the emissions unit and the regulated pollutant under evaluation.” NSR Manual, at B.5. To identify all available control options, the NSR Manual calls for consideration of the following sources: EPA’s BACT/LAER Clearinghouse; Best Available Control Technology Guideline – South Coast Air Quality Management District; control technology vendors; other permits; performance test data; environmental consultants; technical journals, reports, and newsletters; air pollution control seminars; and EPA’s New Source Review bulletin board. NSR Manual, at B.11.

23. In discussing step two of the top-down process, the NSR Manual provides that all the controls listed in step one be evaluated in terms of technical feasibility. NSR Manual, at B.7. For those controls deemed technically infeasible, documentation as to the physical, chemical, and engineering principles that provide the basis for the determination should be provided. *Id.*

24. With respect to the third step, which is ranking the technically feasible alternatives, the NSR manual states that: “It is not the EPA’s intention to require analysis of each possible level of efficiency for a control technique, as such an analysis would result in a large number of options. Rather, the applicant should use the most recent regulatory decisions and performance data for identifying the emissions performance level(s) to be evaluated in all cases.” NSR Manual, at B.23.

25. The definition of BACT uses the word “achievable,” not “achieved.” In creating this definition, Congress recognized that the purpose of BACT is “to promote use of the best control technologies as widely as possible. *In re Knauf Fiber Glass, GBMH*, 8 E.A.D. 121, 140 (EAB 1999) (appended hereto as Attachment 2); *see also In re General Motors*, 10 E.A.D. 360, 378 (EAB 2002) (appended hereto as Attachment 3). Rather than establishing a static emission limit for new sources, Congress chose to require an emission limit based on the “maximum degree of reduction . . . **achievable** for such source.” 42 U.S.C. 7479(3) (BACT definition) (emphasis added). The result is increasingly stringent limits as technology and experience improve the ability to reduce and capture pollutants. This forward-looking emphasis is the "most important" mechanism promoting the Clean Air Act's "philosophy of encouragement of technology development." S. Rep. No. 95-127 at 18. *See also Alabama Power v. Costle*, 636 F.2d 323, 372 (D.C. Cir. 1980) (noting that Prevention of Significant Deterioration Program is intended to be "technology forcing"). The BACT standard is intended to require use of "the latest technological developments [in pollution control] as a requirement in granting the permit," so as to "lead to rapid adoption of improvements in technology as new sources are built," rather than "the stagnation that occurs when everyone works against a single national standard for new sources." *Id.*

26. In ranking technologies, and more importantly, in setting emission limits, EPD cannot simply look at what other plants are achieving. To give meaning to the word “achievable,” EPD must look forward to what levels of control this new facility can achieve based upon a technological evaluation. *See Sierra Club v. Environmental and Public Protection Cabinet*, slip op. at 7-8 (Ky. Cir. Ct. Aug. 6. 2007) (appended hereto as Attachment 4):

The Petitioners also contest the foundation for the Secretary's conclusions in the Best Available Control Technology (BACT) portion of the Secretary's Final Order. They

argue that for both sulfur dioxide and nitrogen oxides, the Secretary based her ultimate approval on what other plants were currently achieving. In the case of sulfur dioxide, the Secretary stated, "the evidence establishes that there was not a single coal-fired permit in the country that required 99% SO₂ removal." For nitrogen oxides, the Secretary enhanced environmental protection by making the permit's requirements more stringent for nitrogen oxide removal. But, in justifying revising the permits, she relied on the fact that other plants currently in effect were achieving better removal rates than the rates the permit allowed. Neither this justification for nitrogen oxides nor the justification for SO₂ is appropriate, and we are bound to look at the justifications offered by the Secretary in the Final Order.

The question that the Secretary must answer is not, "What have other plants achieved in the past?" but rather, "What can this plant achieve for the future?" We think the answer to this question is critically important considering that the pollution-control standards the Commonwealth requires today will be in effect for the 50-year life of this power plant. The BACT analysis requires a thorough, case-by-case analysis, seeking out the "maximum degree of reduction.. .achievable for [the proposed] source." 40 1 KAR Sec. 5 1 :017(1)(8). In the case of SO₂, the Secretary, as a matter of law, relied on an impermissible, backwards-looking standard for determining what level of SO₂ reduction was achievable. For nitrogen oxides, the Secretary should have remanded the permit for a more complete BACT analysis. Reliance on the wrong standard makes the Secretary's Final Order irrational by law. In both cases, the proper remedy is a remand to the Cabinet for a technology-forcing BACT analysis rather than a retrospective survey of emissions achievements of older, less-advanced sources.

27. In Step Four of a BACT analysis, when establishing a BACT limit, EPD must identify the most effective control option and must set BACT based on that option unless EPD rejects the most effective option due to unusual circumstances. EPD may only reject the top control option if it demonstrates and documents that energy, environmental, or economic impacts (known as the "collateral impacts"), which are unique to the facility, support its decision. In *In re Kawaihae Cogeneration Project*, 7 E.A.D. 107, 117 (EAB 1997) (appended hereto as Attachment 5), the EAB explained:

The [collateral impacts] clause allows rejection of the most effective technology as BACT only in limited circumstances. "[T]he collateral impacts clause operates primarily as a safety valve whenever *unusual circumstances specific to the facility* make it appropriate to use less than the most effective technology." *Columbia Gulf*, 2 E.A.D. at 827 [emphasis added by EAB]. Unless it is demonstrated to the satisfaction of the permit issuer that such unusual circumstances exist, then the permit applicant must use the most effective technology. *Id.*; see also *In re World Color Press, Inc.*, 3 E.A.D. 474, 478

(Adm'r 1990) (“[T]he collateral impacts clause focuses upon specific *local* impacts which constrain a particular source from using the most effective control technology.”) [emphasis added by EAB].

Columbia Gulf and *World Color Press* have been appended hereto as Attachments 6 and 7.

The NSR Manual, at B.29, amplifies this point:

The determination that a control alternative to be inappropriate involves a demonstration that circumstances exist at the source which distinguish it from other sources where the control alternative may have been required previously, or that argue against the transfer of technology or application of new technology. Alternately, where a control technique has been applied to only one or a very limited number of sources, the applicant can identify those characteristic(s) unique to those sources that may have made the application of the control appropriate in those case(s) but not for the source under consideration. In showing unusual circumstances, objective factors dealing with the control technology and its application should be the focus of the consideration. The specifics of the situation will determine to what extent an appropriate demonstration has been made regarding the elimination of the more effective alternative(s) as BACT. ***In the absence of unusual circumstance, the presumption is that sources within the same category are similar in nature, and that cost and other impacts that have been borne by one source of a given source category may be borne by another source of the same source category.***

28. With respect to the energy component of the collateral impacts analysis, “any energy implications associated with the use of a control technology should be quantified and factored into the economic impacts analysis.” *In re General Motors, Inc.* 10 E.A.D. at 365 (Attachment 3) (“[G]eneral unquantified concerns about collateral impacts, without more, do not justify the rejection of a more stringent technology.”). *See also* NSR Manual, at B.30 (“Certain types of control technologies have inherent energy penalties associated with their use. While these penalties should be quantified, so long as they are within the normal range for the technology in question, such penalties should not, in general, be considered adequate justification for nonuse of that technology.”).

29. As for consideration of environmental impacts, the NSR manual notes that: “[T]he fact that a control device creates liquid and solid waste that must be disposed of does not

necessarily argue against selection of that technology as BACT, particularly *if the control device has been applied to similar facilities elsewhere and the solid or liquid waste problem under review is similar to those other applications*. On the other hand, where the applicant can show that unusual circumstances at the proposed facility create greater problems than experienced elsewhere, this may provide a basis for the elimination of that control alternative as BACT.” NSR Manual, at B.47.

30. With respect to the economic element of the collateral impacts analysis, “In determining whether BACT for a pollutant should be based on a particular control technology, the permit issuer must consider the economic impacts of using that technology. In general, the permit issuer will gauge economic impacts by estimating the average and incremental cost effectiveness of various pollution control options, measured in dollars per ton of pollutant emissions removed. The agency will then compare a control option’s cost-effectiveness with what other companies in the same industry have been required to pay in recent BACT determinations to remove a ton of the same pollutant. In most cases, a control option is determined to be economically achievable if its cost-effectiveness is within the range of costs being borne by other sources of the same type to control the pollutant. In the absence of unusual circumstances, the presumption is that sources within the same source category are similar in nature, and that they can bear the same costs and other impacts.” *In re Steel Dynamics, Inc.*, 9 E.A.D. 165, 202 (EAB 2000) (internal citations and punctuation omitted) (quoting *In re Masonite Corporation*, 5 E.A.D. 551, 564 (EAB 1994); see also *In re General Motors, Inc.* 10 E.A.D. at 377 (remanding case because the permitting authority “failed to document that the control options considered were outside the range of costs being borne by similar sources”); *In re Inter-Power of New York, Inc.*, 5 E.A.D. 130, 149 (EAB 1994) (“[C]ost-effectiveness is

determined in most cases by showing that a control option or combination of options is either within or outside the range of costs being borne by similar sources under recent BACT determinations.”). *Steel Dynamics, Masonite, and Inter-Power* have been appended hereto as Attachments 8, 9, and 10.

31. Each collateral impact should be analyzed separately. NSR Manual, at B-8 (“For each option, the applicant is responsible for presenting an objective evaluation of each impact”).

Additional Impacts

32. Georgia and federal PSD regulations require that a PSD applicant perform “an analysis of the impairment to . . . soils and vegetation that would occur as a result of the source or modification and general commercial, residential, industrial and other growth associated with the source or modification. . . .” 40 C.F.R. 52.21(o), Ga. Comp R. & Regs. r. 391-3-1-.02(7)(b)(12) (incorporating and adopting by reference 40 C.F.R. 52.21(o)).

33. The “additional impact analysis” requires the applicant to analyze the proposed facility’s impacts of air, water, and ground pollution on soils and vegetation. NSR Manual, at D.1-2 (“Generally, small emissions increases in most areas will not have adverse impacts on soils, vegetation, or visibility. However, an additional impacts analysis still must be performed.”).

34. In performing the additional impacts analysis, the applicant must analyze the anticipated growth that will be occur due to the source and then the applicant must analyze expected air emissions that those secondary sources will bring. NSR Manual, at D.3. The applicant then combines this estimate with the expected emissions from the source itself. NSR Manual, at D.4. This combined total becomes the input for the modeling of air quality and the result is an estimate of ground-level contributions of each pollutant, due to the source. *Id.* Next,

the applicant must combine this total with the total emissions from other permitted sources in the area (that are not yet in operation) and include that in the modeling analysis. *Id.* The applicant then combines the emissions estimates and adds the results of the modeling analysis to the background air quality to arrive at a total ground-level concentration of each pollutant. *Id.*

35. The results of the air quality analyses must be analyzed with respect to the impacts that the resulting concentrations of each pollutant are expected to have on soils and vegetation in the area. NSR Manual, at D.4-5. “For most types of soil and vegetation, ambient concentrations of criteria pollutants below the secondary national ambient air quality standards (NAAQS) will not result in harmful effects. However, there are sensitive vegetation species . . . which may be harmed by long-term exposure to low ambient air concentrations of regulated pollutants for which are no NAAQS.” NSR Manual, at D.4-5. Thus, even low concentrations of a given pollutant must be considered in this analysis.

STANDARD OF REVIEW

36. OSAH Rule 21(1) provides that this Court must make an “independent determination on the basis of the competent evidence presented at the hearing.” In doing so, this Court’s review is “*de novo* in nature and the evidence on the issues in any hearing is not limited to the evidence presented to or considered by the Referring Agency prior to its decision.” OSAH Rule 21(3) (emphasis added).

37. In Georgia, in a *de novo* proceeding the court is to “try the issue anew and pass original judgments on the questions involved as if there had been no previous trial.” *Knowles v. Knowles*, 125 Ga. App. 642, 645, 188 S.E.2d 800 (1972). *See also* Black’s Law Dictionary, Sixth Edition (*de novo* means “trying a matter anew; the same as if it had not been heard before and as if no decision had been previously rendered.”)

38. The standard of proof for the Court’s determination is a preponderance of the evidence. OSAH Rule 21(4). O.C.G.A. § 24-1-1(5) defines preponderance of the evidence as “that superior weight of evidence upon the issues involved, which, while not enough to free the mind wholly from a reasonable doubt, is yet sufficient to incline a reasonable and impartial mind to one side of the issue rather than to the other.” It has been also described as follows:

Preponderance simply requires the trier of fact to believe that the existence of a fact is more probable than its nonexistence before ruling in favor of the party with the burden of persuasion. If the test could be quantified, the test would say that a factual conclusion must be supported by 51% of the evidence. A softer definition, however, seems more accurate: the preponderance test means that the factfinder, either the presiding official and any administrative appeal authority, must be convinced that the factual conclusion it chooses is more likely than not.

Administrative Law and Practice, Part I. Chap. 5, F.1. Courts have also likened this burden to a tipping of the scales of justice, with the burden holder merely having to tilt the scales in its favor. *Smith v. Merck*, 206 Ga. 361, 376, 57 S.E.2d 326 (1950).

39. While a petitioner has the burden of proof, claims are presumed to be well founded under certain circumstances. Specifically, Georgia law provides that:

If a party has evidence in his power and within his reach by which he may repel a claim or charge against him but omits to produce it, or if he has more certain and satisfactory evidence in his power but relies on that which is of a weaker and inferior nature, a presumption arises that the charge or claim against him is well founded; but this presumption may be rebutted.

O.C.G.A. § 24-4-22. Thus, if EPD produces evidence that is weaker or inferior, or fails to bring forth evidence in response to a claim, the presumption of correctness shifts to the petitioner.

40. Respondent and Intervenor have requested that this Court review EPD’s final decision with substantial deference. However, it is impossible to give deference to EPD while also honoring the law’s admonition that this proceeding be conducted *de novo* with Petitioners being held to only a preponderance of evidence standard. In effect, by asking this Court to defer

to EPD's decision, Respondent and Intervenor are urging this Court to hold Petitioners to a higher standard of review than dictated by OSAH rules. *See e.g. In re Walker County*, Record No. DNR-EPD-HW-AH 2-89, 1990 Ga. Env. LEXIS 16, 22 (1990) (court should make independent review); *In re Coffee County Solid Waste Handling Permit*, Record No. DNR-EPD-SW-AH 4-86, 1987 Ga. ENV LEXIS 21 (1987) (same). Moreover, the law is clear that this Court is acting as a representative of the agency itself. *See* O.C.G.A. § 50-13-40 (2)(A) (stating that hearings are to be conducted by administrative law judges that are "acting in the place of the Board of Natural Resources"). Deference is granted on appellate review; however, such principles do not apply when the decisionmaker is the representative of the very agency whose decision has been challenged.

41. Even assuming that any deference is due, the law is clear that EPD is not entitled to blanket deference. At best, deference only creates a presumption that can be overcome. Under Georgia law, presumptions last only as long as no proof is presented to rebut them. *See* O.C.G.A. § 24-4-21. Moreover, any deference due to an agency applies *only* to the extent that the agency is interpreting state law. As held by the Eleventh Circuit and other courts, "[a] state agency's interpretation of federal law is generally not entitled to deference by the courts." *Miccosukee Tribe of Indians v. S. Fla. Water Mgmt. Dist.*, 280 F.3d 1364, 1368 (11th Cir. 2002) (citing *GTE South, Inc. v. Morrison*, 199 F.3d 733, 745 (4th Cir. 1999)), *vacated on other grounds*, 541 U.S. 95 (2004); *Orthopaedic Hosp. v. Belshe*, 103 F.3d 1491, 1495 (9th Cir. 1997) ("We review de novo a state agency's interpretation of a federal statute) (citing cases); *AMISUB (PSL), Inc. v. Colorado Dep't of Social Serv.*, 879 F.2d 789, 796 (10th Cir. 1989) (reviewing state Medicaid Plan, court subjected state agency's determination of procedural and substantive compliance with federal law to de novo review), *cert. denied*, 496 U.S. 935, 110 L. Ed. 2d 660,

110 S. Ct. 3212 (1990).

42. Deference is not due with respect to factual determinations. Georgia law recognizes a distinction between presumptions given to factual and legal determinations. O.C.G.A. § 24-4-20 (“Presumptions are either of law or of fact. Presumptions of law are conclusions and inferences which the law draws from given facts. Presumptions of fact are exclusively questions for the jury, to be decided by *the ordinary test of human experience.*”). The relevance of this distinction with respect to deference standards has been described by the United States Supreme Court. As stated by Justice Scalia:

[Presumptions of law an agency] may create and apply *in the teeth of the facts*, as means of implementing authorized law or policy in the course of adjudication [Presumptions of fact], however, ... are not creatures of the [agency] but its masters, representing the dictates of reason and logic that must be applied in making adjudicatory factual determinations.

NLRB v. Curtin Matheson Scientific, Inc., 494 U.S. 775, 815 (1990) (Scalia, J. Dissenting)³.

Thus, while this Court has given deference to the state in matters of interpretation of law, *see Smart Growth-Forsyth County v. EPD*, OSAH-BNR-ES-0707202-60-Howells (Mar. 2, 2007) (“applying deference to the interpretation and application of the laws”); *see also Georgia Dept. of Community Health v. Gwinnett Hospital System, Inc.*, 262 Ga. App. 879, 882, 586 S.E. 2d 762 (2003) (deference to an interpretation of a statute); *Commissioner of Insurance v. Stryker*, 218 Ga. App. 716, 718, 463 S.E.2d 163 (1995) (same), no such deference applies to factual determinations.

43. Even assuming that deference applies, such deference to agency action is not without limit. For example, agency deference is only allowed to the extent that an interpretation

³ While Justice Scalia dissented from the majority opinion, the Court did not disagree with Scalia’s characterization of factual presumptions, but stated that the Court was addressing a different issue altogether. *NLRB.*, 494 U.S. at 778.

by a regulatory agency is reasonable. *Tenaska Georgia Partners, L.P., Petitioner V. Dr. Carol Couch, Director, Environmental Protection Division, Department Of Natural Resources*, 2005 Ga. ENV LEXIS 7 (2005) (“It is well settled that the interpretation by a regulatory agency of laws and regulations it must enforce is entitled to deference, unless such an interpretation is not a reasonable one.”). Moreover, in determining whether deference is due, a Court should consider “the thoroughness of the agency’s consideration, the validity of its reasoning, and the consistency of its position over time.” *Wilshire Westwood Associations v. Atlantic Richfield Corp.*, 881 F.2d 801, 809 (9th Cir. 1989). Thus, when an agency merely offers conclusory statements in support of its position, deference is not due. *Keyspan-Ravenswood, LLC v. FERC*, 474 F.3d 804, 812 (D.C. Cir. 2007) (no deference where the agency merely provided “conclusory” statements in support of its position).

44. Even assuming deference is due, *see Bentley v. Chastain*, 242 Ga. 348, 350-51 (1978) (a “high level of expertise and opportunity for specialization” may entitle an agency to deference), it is axiomatic that a court should not give such deference when an agency has not exercised that expertise. *Keyspan-Ravenswood*, 474 F.3d at 812 (finding that a court should not defer to an agency decision when that agency did not exercise its expertise); *Pub. Citizen Health Research Group v. Tyson*, 796 F.2d 1479, 1505 (D.C. Cir. 1986) (“While we acknowledge our deference to the agency's expertise in most cases, we cannot defer when the agency simply has not exercised its expertise.”)

45. Even if deference is due in theory, deference is not due if agency expertise, “even if based on scientific expertise, [is] not reasoned.” *Greenpeace v. NMFS*, 80 F. Supp.2d 1137, 1147 (W.D. Wash. 2000); *see also Defenders of Wildlife v. Babbitt*, 958 F. Supp. 670, 679 (D.D.C. 1997) (“The deference a court must accord an agency's scientific . . . expertise is not

unlimited, however. Thus the presumption of agency expertise may be rebutted if its decisions, even though based on scientific expertise, are not reasoned."); *Greenpeace v. NMFS*, 55 F. Supp.2d 1248, 1259 (W.D. Wash. 1999). Courts "do not hear cases merely to rubber stamp agency actions [the agency] cannot rely on reminders that its scientific determinations are entitled to deference in the absence of reasoned analysis" *NRDC v. Daley*, 209 F.3d 747, 755 (D.C. Cir. 2000) (citation, internal quotation omitted); *Center for Biological Diversity v. Bureau of Land Management*, 422 F. Supp. 2d 1115, 1127-28 (N.D. Cal. 2006) ("while a reviewing court must show deference to the reasonable decisions of an agency, such deference is 'warranted only when the agency utilizes, rather than ignores, the analysis of its experts'")(quoting *Center for Biological Diversity v. Lohn*, 296 F. Supp. 2d 1223, 1239 (W.D. Wash. 2003)).

46. Deference also implies experience, and if an agency is confronting an issue *for the first time*, great deference is not allowed. *National Adver. Co. v. Department of Transp.*, 149 Ga. App. 334, 339, 254 S.E.2d 571, 574 (1979) ("the appellant has correctly pointed out that the Department of Transportation had never issued an administrative ruling interpreting Code Ann. § 95A-916(r) and, therefore, its interpretation of the statute in this case is not entitled to any special consideration").

EVAULATION OF EXPERT TESTIMONY

47. The *Daubert* standard for evaluating expert testimony is properly applied in this case under O.C.G.A. § 24-9-67.1(b).

48. Under *Daubert*, expert testimony must actually be founded on "scientific knowledge." *Daubert v. Merrell Dow Pharms.*, 509 U.S. 579, 591 (1993).

49. Testimony must be grounded in the methods and procedures of science -- a.k.a. "the scientific method." Evidence thus grounded possess the requisite scientific validity to establish evidentiary reliability. *Id. at 592.*

50. An expert must present sufficient evidence to show that his opinion is based upon a scientific methodology. In evaluating the methodology, the Court will consider whether the theory or technique has been subjected to peer review and publication. *Id. at 593.*

51. Widespread acceptance of a methodology is an important factor in ruling particular evidence admissible, and "a known technique that has been able to attract only minimal support within the community, may properly be viewed with skepticism." *Id. at 594.*

52. In evaluating the opinions offered by the various experts in this case, the Court will examine whether scientific opinions offered have been grounded with scientific support.

FINDINGS OF FACT

BACKGROUND

53. Longleaf submitted an application to EPD on November 19, 2004, Exs. EPD File 8-21 (updated on July 11, 2005, Exs. EPD File 43-47, and August 15, 2005, Exs. EPD File 48-50), to receive a PSD Permit to construct and operate a pulverized coal-fired electric power generation facility at a site to be called Longleaf Energy Station in Early County, Georgia.

54. The final Permit was issued to Longleaf on May 14, 2007. Ex. EPD File 104.

55. The facility will consist of two units, each comprised of one pulverized coal-fired (PC) boiler, a multiple shell condensing steam turbine generator, multiple steam surface condensers, and a multiple cell mechanical draft-cooling tower. Ex. EPD File 84.

56. Neither the application nor the final permit specifies whether the boilers need to be supercritical or subcritical. Ex. EPD File 103.

57. The Gross Electrical Capacity of the facility is to be 1200 MW, *id.*, and the facility, if constructed may not exceed that level of output. Tran. 3083.

58. The facility is permitted to burn Powder River Basin (PRB) coal and/or Central Appalachian (“CAPP”) Coal. Ex. EPD File 104.

59. The regulated pollutants that will be emitted in significant quantities from the facility include fine particulate matter (PM₁₀), nitrogen oxides (NO_x), sulfur dioxide (SO₂), and sulfuric acid mist (H₂SO₄). Ex. EPD File 104.

60. The facility will also emit a number of toxic air pollutants including lead, hydrogen chloride, mercury, beryllium, vinyl chloride, and trace amounts of other heavy metals. Ex. EPD File 8.

61. Prior to issuing this permit, EPD “ha[d] never done a PSD permit for a coal-fired power plant.” Tran. 3096.

62. The Longleaf Energy Station is classified as a major source under federal and state air quality regulations, specifically, PSD regulations, because potential emissions of at least one PSD pollutant exceed 100 tons per year, and it is one of the 28 named source categories (Fossil fuel-fired steam electric plant of more than 250 million Btu per hour heat input). Ex. EPD File 84.

DEFERENCE TO AGENCY FACTUAL FINDINGS AND JUDGMENTS

63. Prior to their work on this permit, neither Mr. Capp nor Ms. Aponte had ever been involved in the issuance of a PSD permit for a new coal-fired power plant. Tran. 3096.

64. Neither Mr. Capp nor Ms. Aponte, the primary EPD employees responsible for issuing the Longleaf permit, are licensed professional engineers. Capp, Tran. 2571; Aponte, Ex. P-242.

65. In reaching conclusions regarding this permit, Ms. Aponte, the permit's author, relied heavily on information provided by Longleaf without independently verifying that information. Tran. 2384-2385 (re: control of HAPs for wet and dry scrubbers); Tran. 2398-2399 (re: equipment costs reflected in Ex. EPD File 48, Appendix Da, Table D-6 at 10.); Tran. 2420-2421 (re: response to comments), 2424-2427 (re: wet scrubber control of SAM); Tran. 2427-2428 (re: NO_x); Tran. 2207 (re: control efficiency of baghouse); Tran. 2309, 2312-2313 (re: NO_x - boiler outlet concentration); Tran. 2364 (re: water consumption of scrubbers).

66. In drafting key documents including the Final Determination, language written by the applicant was incorporated almost verbatim without attribution. *See, e.g.*, Tran. 2349-2353, 2364, 2398-2399, 2420-2421; 3101-3106, 3067-3069, and other examples incorporated below.

67. EPD failed to conduct an adequate investigation into public comments on critical, material issues. Tran. 2353, 2360.

68. EPD did not rely upon its own expertise to determine the validity of those comments. Tran. 2354-2360; 3044.

69. Instead, EPD claimed that it did not have adequate resources to independently verify information or adequately research control technologies, Aponte, Tran. 2359.

70. Information related to the public comments was readily available at the Ga. Tech library. *See* Tran. 3450.

71. As graduates of Ga. Tech, both Mr. Capp and Ms. Aponte have access to this resource. Despite this, there was no attempt to utilize the Ga. Tech Library or the resources there. Tran. 3048-3052.,

72. EPD's own statements and conclusions have been inconsistent. *See* Ex. EPD File 860 as compared with Ex. EPD File 84, Tran. 3136-3138, 3141-3144 (re: achievable emissions

limits); compare Tran. 3078, 3095, 3097 with Tran. 3333-3336 (re: analysis of cost); compare Tran. 1894-1895 with Ex. EPD File 84, at 62 (re: water use).

73. As stated above, to the extent that EPD's factual findings and judgments in this matter would, in theory, be entitled to deference at all, given the facts found above, no deference will be given here. A Court should consider "the thoroughness of the agency's consideration, the validity of its reasoning, and the consistency of its position over time." *Wilshire Westwood Associations*, 881 F.2d at 809. The Agency decisions at issue in this case were not the product of thorough consideration, independent and valid reasoning or consistent over time. Also key to the consideration of how much deference agency decisions should be afforded is the amount of experience and expertise the agency holds and was put to use in making agency determinations. *See National Adver. Co.*, 149 Ga. App. at 339, 254, *see also Keyspan-Ravenswood*, 474 F.3d at 812. EPD did not have adequate experience nor did it exercise expertise in issuing the Permit at issue. Rather, the decisions made by EPD were unreasonable.

EVALUATION OF WITNESSES

74. Longleaf's witnesses failed to provide adequate support for their opinions. For example, Mr. Kosky's testimony was contradictory to prior testimony he has given on the same pieces of pollution control equipment at issue in this case. Tran. 3256-3257. Mr. Kosky's testimony was also contradictory to other PSD applications that he has worked on, where he advocated for the use of technology that he felt should be rejected in this case. *See* P-253, Tran. 3296, *see also* 3292-3294.

75. Similarly, Ms. French did not provide persuasive authority supporting her opinions. In fact, Ms. French has had very limited experience with respect to many of the key issues in this case. *See* Tran. 1742-1743. Ms. French testified that she was not the employee

responsible for speaking with vendors of pollution control equipment and investigating what various equipment was capable of achieving. Tran. 1863-1864. As such, she is not the one most qualified to discuss what representations were made regarding the capabilities of much of the control equipment at issue in this case.

76. None of the witnesses for either EPD or Longleaf provided sufficient documentation for their positions and failed to adequately support their positions at the hearing. As held by the United States Supreme Court, testimony must be grounded in the methods and procedures of science. Daubert, 509 U.S. at 591. However, as is discussed in detail below, many of the representations made in both the Preliminary Determination and the Final Determination are not adequately supported by the current state-of science.

77. In contrast to EPD and Longleaf, Dr. Phyllis Fox provided significant and abundant documentation for her positions. First, with respect to any opinion given, she painstakingly provided the calculations for the Court, *see* Tran. 3624, which stands in direct contrast to EPD witnesses that frequently could not even say where their calculations came from, let alone reproduce those calculations. *See* Tran. 2399-2402. Dr. Fox demonstrated a wealth of knowledge and offered opinions that were adequately supported by treatises, peer-reviewed articles, air permits for other facilities, performance data, vendor representations, and agency guidance. *See* Tran. 220, 322, 316-320, 329, 333-334, 368, 374-376, 378, 381-382, 465-457, 467, 470-471, 665, 729-730, 770-771, 802, 815, 3592, 3625. Most of Dr. Fox's testimony was accompanied by a showing of the sources upon which she relied as a basis for that testimony. *See* Tran. 3624. Dr. Fox's testimony is credible and reflects the current state-of-science in terms of the pollution controls at issue in this case and the capabilities of those controls.

78. Therefore, I find that a presumption arises that Petitioners' claims are correct, which have not been rebutted by Longleaf or EPD. O.C.G.A. § 24-4-22 (presumption of correctness of claims attaches when opposing party relies upon evidence of a weaker or inferior nature).

SO₂ BACT

79. In the permit, EPD set the following emission limitations for SO₂. SO₂ cannot exceed 0.065 lb/MMBtu on a 30-day rolling average if the uncontrolled SO₂ emission rate would be less than or equal to 1 lb/MMBtu on a 30-day rolling average, cannot exceed 0.08 lb/MMBtu on a 30-day rolling average if the uncontrolled SO₂ emission rate would be less than or equal to 1.25 lb/MMBtu on a 30-day rolling average, cannot exceed 0.105 lb/MMBtu on a 30-day rolling average if the uncontrolled SO₂ emission rate would be less than or equal to 1.6 lb/MMBtu on a 30-day rolling average, and cannot exceed 0.12 lb/MMBtu on a 24-hour average. Ex. EPD File 104.

80. EPD set the emission limits in this permit based on the use of a control device known as a Spray Dry Absorber or dry scrubber (hereinafter "SDA"), operating with a control efficiency of 93.5 %. Tran. 3089-90.

81. SDA's are not the most effective technology for controlling SO₂. Rather, another class of control devices, commonly referred to as Wet Scrubbers, are the superior technology in terms of control effectiveness. Ex. EPD File 84 at 49 and 58. and that view was universally shared by all of the parties in the case. See Ex. EPD File 84.

Control Efficiency of Wet Scrubbers

82. Wet scrubbers can achieve a control efficiency of 99% and that it would be safe to assume a control efficiency of 98% in order to set an SO₂ emission limit based on a wet scrubber.

Support:

a. Several wet scrubbing systems, achieve control efficiencies of 98% or better. These include the Chiyoda jet bubbling reactor, the Alstom FlowPac scrubber, the Advatech double contact absorber, the Carmeuse magnesium enhanced limestone scrubber, and the Advanced Spray Tower made by Hitachi. Tran. 329-34, 342-44, 374-77, 386-97, 399-400, 1332 *See also* Ex. P-57.

b. The Chiyoda scrubber uses a special design by which boiler exhaust gas is forced through a solution containing a reagent that captures the gaseous SO₂. Tran. 301-302.

c. The efficiency of the Chiyoda design depends on the details of the coal to be burned, but, on the coals that are proposed to be used at this facility, the Chiyoda is capable of achieving 98 percent removal efficiency. Tran. 304.

d. The Shinko-Kobe Electric Power Plant in Japan, a facility equipped with a Chiyoda scrubber, has consistently obtained control efficiencies greater than 99%. Tran. 329-34.

e. Alstom's FlowPac uses the bubbling zone technology, but differently than the Chiyoda. Tran. 386.

f. The Carmeuse Magnesium Enhanced Lime (MEL) is similar to conventional wet scrubbers, but uses a different reagent (uses lime with an excess amount

of magnesium instead of limestone). Tran. 390. The MEL scrubber has been used since the early 1980's at the Mitchell Station in Pennsylvania pursuant to a consent decree, and it operated for several years at 98 to 99 percent SO₂ removal. Tran. 391.

83. Advanced wet scrubbing systems can achieve control efficiencies of 98% or better even when burning low-sulfur coal such as the PRB or CAPP coal.

Support:

a. Witnesses for EPD and Longleaf testified that wet scrubbers burning lower sulfur coals cannot achieve control efficiencies greater than 95%. *See* Aponte, Tran. 2131, 2146; French, Tran. 1854-57; Capp, Tran. 3022-23; 3051-52; 3056; Kosky, Tran. 3246-47. Since none of these witnesses provided any background, technical support for this conclusion, I do not find their opinions regarding wet scrubber performance with low sulfur coal to be adequately supported. Furthermore, neither Ms. French, Ms. Aponte, nor Mr. Capp have much technical experience in this area.

b. Mr. Kosky testified that in his view, wet scrubbers could not attain a control efficiency of 97.5% using CAPP coal. Tran. 3266-67. This conclusion, however, is refuted by the draft permit and permit application for a planned facility in New Mexico known as Desert Rock. On cross examination, EPD's permit manager, Mr. Capp, acknowledged that the Desert Rock facility would burn coal of a comparable sulfur content to the CAPP coal planned to be burned by Longleaf, yet the applicant, with a wet scrubber, proposed an emission limit that would require operation at around 97%. Tran. 3024-27. If Mr. Kosky's opinion regarding wet scrubbing performance were valid, then the proponent of the Desert Rock project would be proposing an emission limit that would be impossible to meet.

c. Second, Mr. Kosky testified that removal efficiency declines as coal sulfur content declines. On questioning from the Court, Mr. Kosky, Longleaf's expert, theorized that the reason he believes wet scrubber performance drops with lower sulfur coals is because of inferior mass transfer of SO₂ in the liquid phase. Tran. 3247. Even though this is a critical fact in this case, Mr. Kosky did not offer any support for his conclusion other than his own opinion, and indeed, this opinion is refuted by a preponderance of evidence in the record.

d. Dr. Fox cited several published studies, Tran. 3428-44, and a government study Ex. P-218, that demonstrate the contrary based on scientific investigation. Further, the permit itself is inconsistent with this theory. The permit sets SO₂ limits for a range of coal sulfur content. Ex. EPD File 104. These SO₂ limits assume a constant removal efficiency across all coals. Tran. 1856-57.

e. Third, Mr. Kosky's views on wet scrubbing performance lead to some troubling contradictions. Mr. Kosky acknowledged that he was responsible for putting together a PSD permit application for a proposed coal-fired power plant in Florida known as Glades. Tran. 3266. In that project, he proposed that a wet scrubber be used to scrub coal with roughly twice the inlet sulfur content as the CAPP coal planned for Longleaf with a control efficiency of 98.7% to produce a proposed emission limit of 0.04 lb/mmBtu on a 24-hour average, much more stringent than the lowest SO₂ limit proposed for Longleaf of 0.065 lb/mmBtu with a 30-day rolling average. Ex. EPD File 104.

f. Dr. Fox pointed out in rebuttal testimony that if Mr. Kosky's theories regarding wet scrubbing performance were correct, then it leads to the conclusion that the overall amount of SO₂ to be emitted from Longleaf could be *reduced* by installing a wet

scrubber and *adding* sulfur to the fuel. Tran. 3247. Dr. Fox testified that such a result defies basic principles of chemistry and physics, Tran. 3428, and is not supported by any peer reviewed papers that she has reviewed. Tran. 3428-44. Furthermore, Mr. Kosky's conclusion is not supported by a Department of Energy Study on the performance of the Chiyoda wet scrubbing system, *see* P-218, nor a study prepared by Sargent & Lundy, one of the big architect and engineer firms that build coal-fired boilers and provides pollution control systems for them. The Sargent & Lundy study includes a wet scrubber designed to remove 97.2% of the SO₂ from a low sulfur (0.6%) PRB coal and 98% of the SO₂ from a low sulfur CAPP coal (1.3%). *See* Tran. 3445-46 and Ex. P-27, Table 4.1-1.

84. Generally, the more SO₂ molecules present in an exhaust stream, the easier it is to remove them. For a low sulfur concentration, unless a high surface area -- or contact area between the gas and the scrubber material can be achieved, high removal efficiencies cannot be maintained. Advanced wet scrubbing devices do not have this problem because there is better contact between the scrubbing fluid and the gases, due to the bubbling zone contact. In fact, in those scrubbers which use the bubbling-zone method, removal efficiency increases as inlet sulfur concentration drops. Tran. 445 - 446. *See* Ex. P-218.

85. EPD's assumption that a wet scrubber can only achieve a 95% control efficiency with the types of coal to be burned at Longleaf was unreasonable.

Support:

a. In extensive comments received by EPD after the Preliminary Determination, Georgia Center for Law in the Public Interest asserted that certain types of advanced wet scrubbers can achieve control efficiencies greater than 99%. *See* Ex. EPD File 356 at 22. This comment letter went on to explain that one of the types of

scrubbers that is achieving this level of efficiency is manufactured by the Chiyoda company, and that this technology is being used by a Georgia Power facility in Georgia, Plant Yates. *Id.* The letter went on to explain that this technology was also being installed on another Georgia Power facility, Plant Bowen, and that Georgia Power's parent company, Southern Company, was a U.S. licensee of the Chiyoda technology, as is another company, Black & Veatch. *Id.*

b. In its Final Determination, Ex. EPD File 103 at 54-55, rejected these comments, noting that "EPD nor [sic] LEA have not been able to obtain or independently verify these Japanese results cited by Georgia Center." EPD faults Georgia Center for failing to "present any evidence" regarding the time period over which 99% efficiencies have been obtained, that these efficiencies can be achieved with low-sulfur coal, or economic or environmental costs." *Id.*

c. The language in these responses to comments was actually drafted by Kathy French (the Longleaf engineer who prepared the application), and incorporated almost verbatim into EPD's final determination without attribution. Tran. 2349-2353.

d. In her letter discussing Georgia Center's comments, Ex. EPD File 107, Ms. French stated that she could not find information about the Chiyoda, *id.* at 22, yet Ms. French's company has a close contractual relationship with Black & Veatch, Tran. 1805, one of the U.S. licensees of the Chiyoda technology, but Ms. French never contacted Black & Veatch to discuss wet scrubber performance. Tran. 1804-1807. Ms. French could and should have contacted Black & Veatch to obtain more information about the technology.

e. The permit's author, Ms. Aponte, was actually the EPD employee who was responsible for processing the permit authorizing Georgia Power's Plant Bowen to install Chiyoda wet scrubbers. Tran. 2353-2354, 2275. Furthermore, Ms. Aponte's supervisor in preparing the comments, Jac Capp, was the EPD employee with the most experience with coal-fired power plants at EPD, including Georgia Power's Plant Yates, Tran. 2573, 2928, which has had a Chiyoda scrubber in place for many years and was the plant where DOE studied the Chiyoda scrubber's performance. *See* Ex. P-218. Despite the fact that both of these EPD employees had knowledge of and access to Georgia Power employees working with Chiyoda technology, neither of them contacted anyone at Georgia Power or Southern Company, Georgia Power's parent company, to discuss the matter. Tran. 2354-2359, 3044. Furthermore, no-one at EPD ever contacted Georgia Center to ask if Georgia Center had any evidence to support its claims, Tran. 2353, or ever went to an engineering library to independently research the matter. Tran. 3048-3051. Ms. Aponte, Mr. Capp, or someone else at EPD could and should have done a more thorough investigation into advanced wet scrubbing technology, particularly in light of the fact that EPD was aware of the Desert Rock permit and permit application, Ex. EPD File 103 at 53, n. 112.

Collateral Impacts Analysis in General

86. In the Preliminary Determination, EPD stated that it was rejecting wet scrubbing as the basis for BACT in lieu of SDA technology "because of increased water consumption, excessive economic impacts and lower ability to control HAP and sulfuric acid emissions." Ex. EPD File 84, at 62. Ms. Aponte also testified that higher energy usage was another reason EPD rejected wet scrubbing. Tran. 2111, 2363

87. The only attribute mentioned in the previous paragraph that is arguably “local” or site-specific is the one related to water consumption. Tran. 2377-2378.

88. Many facilities where low-sulfur PRB coal will be used have been or will be built with wet scrubbers, not SDA’s. These include Desert Rock in New Mexico, Toquop in Nevada, Oak Creek Units 5-8 and Weston 3 in Wisconsin, A&P in Ohio, as well as Asheville Units 1 and 2, Roxboro Units 1-5, Fayette Units 1 and 2. Tran. 3501-3505.

89. Accordingly, the “unusual circumstance” guidance in the NSR manual does not apply in this case. (Ms. French argued that using wet scrubbers with PRB coal is so rare that it should be considered an unusual circumstance. Tran. 1826-1831).

90. Since the unusual circumstance guidance does not apply, even assuming EPD’s findings with respect to economic, environmental, and energy differences were correct, none of these differences, other than the ones related to water, could be determinative. Thus, EPD erred by considering any of these factors, other than the assertions related to water supply, in conducting its collateral impacts analysis with respect to SO₂ BACT.

Collateral Impacts - Cost

91. As mentioned above, a collateral impacts analysis focuses on economic, environmental, and energy factors in evaluating whether a top performing technology, in this case, a wet scrubber, should be rejected as the basis for BACT. Turning first to cost, EPD’s conclusion that the cost of wet scrubbing would be excessive was erroneous, and unreasonable.

Incremental Cost Improperly Relied Upon

92. The average or total cost for controlling SO₂ was reasonable. Tran. 3074-3075 (Capp). *See also* Tran. 3448.

93. U.S.E.P.A. commented that EPD should not rely on incremental cost alone in rejecting wet scrubbing, it ought to reconsider. Ex. EPD File 103 at 4.

94. The NSR Manual, which EPD purports to follow, as well as Environmental Appeals Board decisions, which EPD also purports to follow, Tran. 2597-2600, make it quite clear that a cost analysis should be based on both average and incremental cost effectiveness, and not incremental cost effectiveness alone. NSR Manual at B.41-42. As the NSR Manual points out, if the cost of control “is on the same order as cost previously borne by other sources of the same type in applying that control alternative, the alternative should initially be considered economically achievable, and therefore acceptable as BACT.” NSR Manual, at B.44. *See also In re General Motors*, 10 E.A.D. at 374 (remanding a permit because of permitting authority’s failure to explain how it took average cost into account).

95. Nevertheless, EPD did not discuss average cost or compare average cost of control for Longleaf with costs borne by similarly situated sources. *See* Exs. EPD File 84 and 103.

96. Accordingly, EPD’s failure to adequately address the average cost component of the cost issue makes its cost analysis defective.

Conflating Collateral Impacts

97. In the Preliminary Determination, EPD stated that if found the cost of wet scrubbing for CAPP coal to be “excessive.” EPD File 84, at 62.

98. On the witness stand however, EPD’s permit manager, Mr. Capp, refused to say whether he thought these costs were excessive. Tran. 3078. Mr. Capp’s refusal to discuss the cost issue by itself makes it impossible to evaluate whether EPD’s decision-making with respect

to this issue is reasonable. Accordingly, since EPD refused to offer an explanation, its decision on this point was *per se* unreasonable.

Failure to Support Cost Conclusions

99. Leaving aside EPD's failure to consider average cost for the moment, EPD's review of the applicant's cost analysis was fundamentally flawed.

100. Despite Mr. Capp's refusal to discuss the issue, it appears that EPD based its conclusion that the cost for wet scrubbing would be excessive on Tables XI and XIV in the preliminary determination. Ex. EPD File 84, at 52, 62. Tran. 2398.

101. The cost tables in the Preliminary Determination were based on cost calculations provided by the applicant in a supplement to the application provided by Longleaf on August 15, 2005. Ex. EPD File 48. These cost calculations are provided in Table D.6 on p. 10 of Appendix Da of Ex. EPD File 48 (for PRB) (LSEPD006222) and p. 10 of Appendix Db of Ex. EPD File 48 (for CAPP) (LSEPD006252).

102. Longleaf's cost tables provide no information as to the source of the cost figures they contain, Tran. 2399, and Ms. French, the Longleaf Engineer who prepared the application could not provide any information regarding where those cost figures came from. Tran. 1863-1867.

103. More significantly, despite the fact that EPD cited excessive cost as one of the reasons for rejecting wet scrubbing, no one at EPD made any effort to verify any of the cost information contained in these tables. Aponte Tran. 2398-2399; Capp Tran. 3101-3106.

104. Ms. Aponte and Mr. Capp asserted in their testimony that they believed that this cost information was in line with what they had seen, but they provided no information to support that assertion. Aponte Tran. 2394-2395; Capp Tran. 3101-3106.

105. Accordingly, it is impossible for anyone to verify the legitimacy of these cost figures.⁴

106. Thus, I find EPD's failure to either require Longleaf to provide source information for its cost data or to do anything verifiable to review that cost data to be unreasonable, arbitrary, and capricious.

Incremental Costs Were Not Excessive

107. Assuming for the sake of argument that it was legitimate to reject wet scrubbing on a cost basis, based on incremental cost alone, and assuming that the source data in Longleaf's cost tables is legitimate, EPD erred in finding that the incremental cost for CAPP coal was excessive.

108. First, Longleaf made some nonstandard assumptions regarding the appropriate interest rate to use and the useful life of the scrubbing equipment. *See* Fox Tran. 661 and Kosky Tran. 3291.

109. According to EPA's cost manual, nonstandard assumptions can be used if an applicant demonstrates that their cost of borrowing would be different than the standard seven percent, which is the public interest rate used by governmental projects. Tran. 661. Longleaf never obtained the approval of EPD to use nonstandard assumptions, however. French Tran. 1864-1867; Capp Tran. 3106, 3108. Accordingly, EPD never had a basis from which it could conclude whether use of nonstandard assumptions was appropriate.

⁴ The NSR Manual, again guidance EPD purports to follow, states that "the basis for equipment cost estimates should also be documented, either with data supplied by an equipment vendor (i.e. budget estimates or bids) or by a referenced source [such as the OAQPS Control Cost Manual (Fourth Edition), EPA 450/3-90-006, January 1990, Table B-40. Inadequate documentation of battery limits is one of the most common reasons for confusion in comparison of costs of the same controls applied to similar sources." NSR Manual at B.33.

110. As mentioned above, assuming a 95% control efficiency for a wet scrubber was erroneous and unreasonable.

111. A cost effectiveness calculation is greatly dependent on the tons of pollution removed by the control device. For example, adjusting the control efficiency of the wet scrubber from 95% control to 97% control changes the tons of SO₂ that would be emitted from the facility when it is burning CAPP coal from 1718 tons per year to 1031 tons per years. Tran. 3461-62 and Ex. PR-46. Any cost calculation for CAPP coal should have used an assumed control efficiency of at least 97%.

112. In comparing the calculated incremental cost between wet scrubbing and an SDA for the facility with similar incremental costs for other sources, which Longleaf attempted to do in Table 1 of Ex. EPD File 107 (LSEPD000611), Longleaf erred by not adjusting the cost information to a common year basis, and EPD erred, to the extent it relied on this table in reaching its conclusion regarding excessive cost, by relying on this table.

113. Petitioners' expert, Dr. Fox, prepared corrected incremental cost calculations by first, changing the assumed control efficiency for the SDA to 93.5% (the control efficiency assumed for the SDA in the final permit) and the control efficiency for the wet scrubber to 97%. Tran. 2461-3464.

114. Second, Dr. Fox used standard assumptions for the interest rate and equipment useful life, Tran. 3462.

115. Third, Dr. Fox adjusted the incremental cost data reported in Table 1 of Ex. EPD File 107 to a common year basis. Tran. 3459-3461.

116. Dr. Fox summarized the conclusions of these adjustments in Ex. PR-38 and Ex. PR-46. These calculations show that using the applicant's unverified cost numbers, the

incremental cost to go from an SDA to a wet scrubber is \$4809/ton, which is close to half of the lowest adjusted incremental cost for the facilities reported in Table 1 of Ex. EPD File 107. Tran. 3463-3464.

117. Based on these calculations, even on incremental cost basis alone, it would be inappropriate to conclude that the cost of wet scrubbing would be excessive.

118. In summary, EPD's conclusion that the cost of wet scrubbing would be excessive was arrived at in an unreasonable and arbitrary fashion and was erroneous.

Collateral Impacts – Energy

119. The next part of the collateral impact analysis used by EPD to reject wet scrubbing as the basis for BACT was energy considerations. Tran. 2111, 2363.

120. I find Basing the rejection of wet scrubbing on this basis to be erroneous.

121. Any differences between wet scrubbers and SDA's with respect to energy usage would be generic, and since wet scrubbing has been used as the basis for BACT for SO₂ for other PC boilers, it would be inappropriate to use this factor here.

122. The NSR Manual and EAB caselaw suggests that energy impacts can be quantified and considered as part of the cost portion of the collateral impacts analysis. That is precisely how the applicant handled energy considerations here, Tran. 612-13. Since cost was not a legitimate basis for wet scrubbing, and energy considerations were incorporated into the cost analysis by the applicant, energy cannot be a legitimate basis for rejecting wet scrubbing.

Collateral Impacts – Environmental

123. The last portion of the collateral impacts analysis used by EPD to reject wet scrubbing as the basis for BACT was environmental considerations.

Hazardous Air Pollutants

124. EPD asserted that SDA's are better able to control emissions of hazardous air pollutants than wet scrubbers. Ex. EPD File 84, Preliminary Determination, at 52, 62; Tran. 3283-3284. EPD's conclusion is incorrect and inconsistent with its own analysis *in the Preliminary Determination*. On pages 52 and 62 of the Preliminary Determination, Ex. EPD File 84, EPD rejects wet scrubbing in part because of a "lower ability to control HAP emissions." Yet, on page 138 of the same document, in a detailed discussion of mercury capture, EPD notes that while mercury capture for bituminous coals by SDA's operated in combination with fabric filters, which is a type of particulate matter control system that Longleaf proposes to use here, tends to be efficient, that efficiency is "much less" for lower ranked coals, such as the coals to be burned by Longleaf. See Tran. 589-590.

125. The detailed discussion of mercury capture in Ex. EPD File 84 suggests control efficiencies can be improved through the addition of sorbent injection, and this also squares with the testimony of Dr. Fox. Tran. 514-515.

126. Both wet scrubbers and SDA's are essentially equally capable of capturing mercury, Tran. 596-97, and other hazardous pollutants, Tran. 524-25 (HF and HCl), and accordingly, it was erroneous to assert that SDA's would be a better performer in this area.

Sulfuric Acid Mist

127. In the Preliminary Determination, Ex. EPD File 84, EPD also rejects wet scrubbing because it asserts that wet scrubbing has a lesser ability to control sulfuric acid mist emissions. Again, this finding was erroneous.

128. In the case of an SDA, the SDA is followed by a downstream fabric filter baghouse and is generally considered to be part of it. Tran. 537-538.

129. In the case of a wet scrubber, however, commonly the scrubber is discussed alone without reference to the upstream fabric filter. *Id.* When the wet scrubber-baghouse combination is compared with the SDA-baghouse combination, removal efficiencies of the two for sulfuric acid mist, are actually quite similar. *Id.*

130. Longleaf's witness, Ms. French, suggested that in the wet scrubbing-baghouse combination, baghouses are unable to capture sulfuric acid mist because exhaust gas temperatures are too high to allow for capture of this pollutant. Tran. 1700-1702; 1913-16.

131. Ms. French's assertion is not borne out in practice. Baghouses remove sulfuric acid mist (as SO₃) even when they do not follow in sequence of an SDA. Tran. 3593. Indeed, at some plants where fabric filter bags had failed, investigation showed that the reason was that the bags had become so heavy from capturing sulfuric acid mist that they had failed. Tran. 3592-3593.

Water Use

132. The final reason given by EPD in its collateral impacts analysis for rejecting wet scrubbing as the basis for BACT for SO₂ is because it asserts that a wet scrubber will cause increased water consumption. Ex. EPD File 84, Preliminary Determination, at 62.; Tran. 2362. For the reasons set forth below, I find this conclusion by EPD to be erroneous.

133. SDA's do not use more water on a per-pound-of-SO₂ removed basis than wet scrubbers. Petitioners' expert, Dr. Fox, analyzed this issue using water balance information contained in Chapter 35 of Steam, a Treatise published by Babcock & Wilcox, Tran. 1374 and Ex. PR-17, that covers all types of boilers, including coal-fired boilers, and pollution control systems used on boilers. Tran. 1373-1395. Dr. Fox's analysis shows that on a pound of SO₂ basis, SDA's actually use more water than wet scrubbers. Tran. 1394. While Dr. Fox

acknowledges that most discussions of the subject state that wet scrubbers use more water than SDA's, they are comparing apples and oranges. A proper comparison must normalize water consumption on a pound-of-SO₂ basis. Tran. 1394.

134. It was unreasonable for EPD to use water consumption as a reason for rejecting wet scrubbing and choosing an SDA as the basis for SO₂ BACT because EPD did nothing to verify the water consumption numbers it quoted in the preliminary determination. Aponte Tran. 2364; Capp Tran. 3067-3069.

135. EPD's water consumption estimate for wet and dry scrubbers can be found in Ex. EPD File 84, Preliminary Determination, at 51 and 62 (355 million gallons/year for a wet scrubber and 127 million gallons per years for an SDA). These estimates come straight from the applicant in Ex. EPD File 48, at LSEPD005916 and LSEPD006253, yet none of the witnesses testifying for EPD could explain where these values came from. Aponte Tran. 2364; Capp Tran. 3067-3069.

136. These values, which provide that a wet scrubber would use 127% more water than a spray dryer are not even consistent with values presented elsewhere in the Preliminary Determination, which conclude that wet scrubbers would use between 20 and 38% more water. Ex. EPD File 84, at 60.

137. Furthermore, in its application for a water withdrawal permit, Ex. I-59, Longleaf stated that it needed 490 million gallons a year, far, far more than the amount it said it needed to operate an SDA in its PSD permit application (127 million gallons per year), Ex. EPD File 48 at LSEPD006223 (for PRB) and LSEPD006253 (for CAPP coal); indeed, 135 million gallons per year more than it said a wet scrubber would need. *Id.*

138. Given these widely varying numbers regarding the amount of water necessary to operate either an SDA or a wet scrubber, and given EPD's complete lack of investigation into the legitimacy of the numbers, basing a rejection of wet scrubbing on this ground would be unreasonable, arbitrary, and capricious.

139. The Court has taken judicial notice of the facts that the availability, management, and use of water in the Chattahoochee River is an issue that is contested.

140. None of the parties, however, actually introduced any *evidence* that there is actually a water shortage in the Chattahoochee River.

141. There is evidence however, that Longleaf received the right to withdraw all the water from the Chattahoochee River for which it applied, *see* Ex. I-59 and Ex. I-60, and that, as mentioned above, Longleaf's water withdrawal application set aside more than enough water to operate either a wet scrubber or an SDA. *See* I-59 and Ex. EPD File 48.

142. In response to comments regarding the water withdrawal application, EPD stated that:

EPD does not expect that the loss of water from the Chattahoochee River would cause adverse impact on downstream users.

and

EPD has determined that Longleaf's proposed withdrawal is reasonably necessary to meet the applicant's needs, and we do not expect any adverse impacts upon other water users.

and

EPD does not expect that the loss of water from the Chattahoochee River would cause adverse impacts on downstream users.

Tran. 1894-95.

143. Given this evidence, I do not find that there is a local water issue that would justify the rejection of wet scrubbing on the basis of increased water usage even if there were an adequate factual record from which EPD could actually make that conclusion.

144. In summary, in conducting its collateral impacts analysis for SO₂ BACT, EPD made a number of erroneous findings regarding material facts, and given the facts as I have found them, the evidence does not support the rejection of wet scrubbing as the basis for SO₂ BACT. Accordingly, I find that the Petitioners have prevailed on their claim regarding SO₂ BACT, that the emission limits in the permit are not reflective of BACT, and I am remanding this matter back to EPD for further action consistent with this Order.

NO_x BACT

145. The permit sets the following emission limitations for NO_x: NO_x can neither exceed 0.07 lb/MMBtu on a 30-day rolling average nor 0.05 lb/MMBtu on a 12-month rolling average. Ex. EPD File 104.

146. The parties do not disagree that BACT should be based on the following suite of technology: low NO_x burners with Overfire Air in the boiler combined with an SCR. The parties disagree about what emission limit is achievable with this technology.

147. In the preliminary determination, EPD set a NO_x emission limit of 0.07 lb/MMBtu on a 30-day rolling average, and that limit remains in the permit.

148. In response to public comments received by EPD, including comments from U.S.E.P.A. and the Petitioners, EPD added an additional NO_x emission limit of 0.05 lb/MMBtu on a 12-month rolling average. Ex. EPD File 104.

149. As a matter of law, that EPD did not follow the law in establishing the NO_x emission limit. The definition of BACT is clear that it is based on what is achievable, not simply

achieved. Despite this, EPD established the NO_x emission limit by reviewing the emission limits proposed by the applicant and comparing them to emission limits being established in other permits. Aponte Tran. 2048-2049, 2168-2171; Capp Tran. 2873, 3133, 3147-3148. Such an analysis will, by its very nature, always produce a result based on what has been achieved, and not what is achievable. As the Court in the Thoroughbred case discussed above pointed out, the question to be answered “is not, ‘What have other plants achieved in the past?’ but rather, ‘What can this plant achieve for the future?’”

150. To answer the question of what is “achievable” from this technology, at a minimum, EPD should have required Longleaf to supply more complete design information about what it is planning to build. *See* Ex. EPD File 10, Table IV-(A)1 at LSEPD003471, Tran. 2298-2301; *see also* Ex. EPD File 456 at LSEPD009854, Tran. 2302-2304. Although EPD’s application forms require applicants to provide information regarding manufacturer’s specifications and inlet gas flow rate, EPD did not require Longleaf to supply this information. *See* Ex. EPD File 10, Appendix B, p. 8 of 17.

151. Longleaf asserted that this design information does not yet exist, Tran. 1798-1800. Longleaf’s witness Kathy French also testified, however, that additional design information regarding the planned facility apparently exists at LS Power’s New Jersey offices, although she has never seen it. Tran. 1911. EPD should have requested this information from Longleaf in order to prepare a more complete analysis.

152. Design information is critical in determining BACT because one needs to know the design conditions at the outlet of the boiler to determine the ultimate emission rate after applying the control efficiency from the downstream pollution control device. Tran. 718-719.

153. Even without that information, there was a wealth of information available to EPD from which it could have conducted a more thorough analysis of what emission rates are achievable from the selected technology. In his testimony, EPD's permit manager Jac Capp acknowledged that EPA maintains a great deal of actual performance data from coal-fired power plants using the same type of equipment that the applicant proposes to use here. Tran. 2615. EPD could have used this information to determine the boiler outlet NO_x (SCR inlet) and applied a reasonable estimate of the SCR's control efficiency at that inlet concentration, then applied a margin of safety to arrive at a proposed emission limit.

154. As part of establishing its BACT hierarchy in step three of the BACT analysis, EPD should have determined the emission rate to be produced from the boiler controls alone.

155. EPD did not engage in an engineering-based or technology-based inquiry (based on emission rates and control efficiency data) to determine what is achievable from the selected technology. Despite detailed comments from Petitioners as to this issue, Ex. EPD File 356, the EPD permit engineer, Ms. Aponte, did not make any attempts to investigate or verify the information provided by Petitioners. Tran. 2313-2317, 2323-2326 ("Q: Okay. Upon receiving this comment letter from Georgia Center, did you go and try to determine whether these paragraphs asserting that SCRs can produce 90 percent control efficiency or better was correct? (Aponte) A: No, I did not." Tran. 2325-2316.); *see also* Tran. 2343-2344.

156. Rather, the evidence shows that after EPD received public comment on the Preliminary Determination, EPD engaged in informal discussions with the applicant. Tran. 2339-2340. After those discussions, Longleaf proposed to accept an emission limit of 0.05 lb/mmBtu on an annual average, *see* Ex. EPD File 107, at 11 (response to EPA Comment 5a).

However, the Final Determination contained no technical or engineering analysis showing how the .05 lb/mmBtu limit was derived. Ex. EPD File 103.

157. In contrast, the Petitioners' expert, Dr. Fox, did offer such an analysis. First she testified that EPA had conducted an analysis of NO_x CEMS data from many facilities using low-NO_x burners. Tran. 3519-24. That analysis, Ex. PR-1, shows that in 2003, 23 existing facilities had achieved a combined average emission rate of 0.14 lb/mmBtu. This data on old, existing plants is in line with Dr. Fox's conclusion that a new boiler using the selected in-boiler technology can achieve emission rates of 0.1 lb/mmBtu burning PRB coal. Tran. 775.

158. Dr. Fox further opined that in her view, an SCR on a new facility can achieve a control efficiency of 90%. Tran. 720, 728. In support of her opinion, she again pointed to an EPA study, Ex. PR-1, that showed that several facilities had achieved control efficiencies in their SCR's of better than 85%. Tran. 3560-3561. Thus, Dr. Fox concluded that for PRB coal, with an inlet concentration of 0.1 lb/mmBtu and a 90% removal efficiency (in Dr. Fox's view, SCR's can actually achieve 95% removal efficiency, Tran. 720), the selected technology can achieve an emission rate of 0.01 lb/mmBtu. Tran. 775, 778

159. Applying a margin of safety, Dr. Fox concludes that an emission limit of 0.02 lb/mmBtu is achievable. Tran. 775-776.

160. The limit proposed by Dr. Fox is higher than that suggested by EPD's permit manager, Mr. Capp, stated in a letter sent to the applicant in 2002. Ex. EPD File 860 at LSEPD008161. In that letter, Mr. Capp suggested that BACT would be .016 lb/mmBtu for bituminous coal and .008 lb/mmBtu for PRB coal. Ex. EPD File 860, at LSEPD008161.

161. On the stand in this case, Mr. Capp testified that in his view, SCR equipment can attain a control efficiency of 85%. Tran. 3146-3147. When that control efficiency is applied to

the average emission rate achieved in 2003 by 23 sources with low-NO_x burners, the resulting emission rate is .0225 lb/mmBtu, less than half of the annual emission rate established by EPD for NO_x for this permit. Tran. 3147.

162. Accordingly, EPD's conclusion that BACT is 0.05 on an annual average is unreasonable because lower emission rates are achievable on a sustained basis.

163. Even if this Court's review of EPD's actions is confined to the methodology EPD adopted, namely reviewing recent permitting decisions by other agencies to determine BACT, the NO_x limits in this permit do not reflect the maximum achievable reductions for the selected technology.

164. The Petitioners pointed out in their comment letter, Ex. EPD File 356, at 32, and in other evidence offered in this case, that recently issued permits have emission limits lower than the limits imposed by EPD for NO_x in this case. *See* Tran. 2332 and Ex. P-118, Tran. 2336-37, and Tran. 2339. This includes .05 on a 24-hour average at the Trimble facility in Kentucky, Tran. 2332 and Ex. P-118; .06 on a 24-hour average for the Desert Rock facility, Tran. 2336-37 and Ex. P-128; and 0.067 on a 24-hour average for the Newmont facility, Tran. 2339 and Ex. I-70.

165. EPD's permit author, Ms. Aponte, acknowledged that the limits in the preceding paragraph are more stringent than the .05 lb/mmBtu annual limit established by EPD in the Longleaf permit. Tran. 2335-37, 2339.⁵ Ms. Aponte noted that the Trimble permit limit

⁵ In his testimony, Mr. Kosky suggested that in terms of stringency, there was not much difference between a NO_x limit of .05 on an annual versus a 24-hour basis. Based on Dr. Fox's testimony regarding this matter, Tran. 3548-3552, particularly the demonstrative exhibits prepared by the petitioners, Exs. PR-3A, PR-3B, PR-3C, and PR-3D, I disagree. Dr. Fox presented a convincing case that a short averaging time is more stringent than a long averaging time because time smooths out variability in the data. For example, in Ex. PR-3A, which examines annual NO_x CEMs data for a coal-fired facility in Missouri, this data shows that the

excludes startup and shutdown, Tran. 2332, but also acknowledged that these startup, shutdown exemptions would have no applicability to these short-term limits when the facility was in normal operations, which could be for periods of a month or more. Tran. 2332-37.

166. Mr. Kosky admitted that an emission limit of .05 on a 24-hour average is achievable at Longleaf. Tran. 3294. Indeed, in an application prepared by Mr. Kosky, Florida Power & Light recently proposed that very emission limit for a proposed coal-fired power plant in Florida. Tran. 3292. When these facts are combined with the more stringent permitted NOx limits in the Trimble, Desert Rock, and Newmont facilities, one must conclude that the NOx limits in Longleaf permit do not reflect the maximum degree of reduction *achievable* for the selected NOx control technology.

167. Accordingly, because the NOx emission limits in this permit do not reflect the maximum degree of reduction achievable for the selected NOx control technology and because EPD's NOx BACT analysis did not adequately focus on the reductions achievable for this technology from a technological and engineering perspective, I am remanding this matter back to EPD for further action consistent with this Order.

PM₁₀ BACT

168. EPD set the following emission limitations for particulate matter (PM₁₀) in the permit: the facility shall not emit PM₁₀ in excess of 0.012 lb/MMBtu for filterable particulate matter on a 3-hour average and 0.030 lb/MMBtu for total PM₁₀ on a 3-hour average.

169. Petitioners do not have an objection to the filterable PM limit in the permit, but they contest the total PM₁₀ limit.

highest 24-hour average for NOx from the facility exceeds 0.8 lb/mmBtu, yet the highest 365-day average at the same facility is only 0.118.

170. Total PM₁₀ consists of a filterable component and a condensible component. Tran. 163-164. The filterable component consists of material that can be collected by passing gases through a filter. Tran. 163. The second component, the condensible component, is matter that starts out as a gas but then condenses out of the gas phase at the top of the stack. Tran. 163-164.

171. EPD did not derive the total PM₁₀ limit itself. Rather it relied on a proposed limit established by Longleaf. In the original application, Longleaf proposed, and in the Preliminary Determination, EPD accepted, a filterable PM₁₀ limit of 0.015 lb/mmBtu and a 0.033 lb/mmBtu limit for total PM₁₀. Exs. EPD File 12 and 84.

172. According to EPD's own guidance, a top-down process begins by listing all available technologies for reducing the pollutant in question. With respect to total PM₁₀, EPD erred because there are three technologies that would assist in reducing total PM₁₀ that EPD never considered: sorbent injection, low SO₂ to SO₃ conversion catalyst, and an agglomerator. Tran. 170-73.

173. The first technology, sorbent injection, would involve the injection of dry powder, calcium oxide, trona, or other material into the stack gases. Tran. 170-171. This material would then react with gases that would become part of the condensible fraction of PM₁₀ such that they could be captured downstream by the PM₁₀ collection system, which in this case consists mostly of the fabric filter baghouse. *Id.*

174. The low SO₂ to SO₃ conversion catalyst addresses the fact that one of the control systems to be used to control NO_x, the SCR, helps produce condensible PM₁₀ as a side-effect. Tran. 169-170. In the SCR, roughly one to two percent of the SO₂ going into an SCR is converted into SO₃. Tran. 170. As SO₃ passes through the pollution control train, it becomes

sulfuric acid mist, H₂SO₄ or “SAM.” Tran. 144. SAM is a major component of condensable PM₁₀. Tran. 165. A low-conversion catalyst changes the active metals in the SCR such that the amount of SO₃ that forms across the catalyst is reduced while the amount of NO_x removed by the SCR is maintained. Tran. 174-75.

175. The third technology, the agglomerator, is a type of electrostatic precipitator whose purpose is to cause very small particles to clump together, forming bigger particles that are then more efficiently removed by the downstream particulate control devices. Tran. 176-177.

176. Because Longleaf and EPD erred by failing to consider these technologies as part of their BACT analysis, the rest of the BACT determination for total PM₁₀ is flawed. EPD was aware of the low conversion catalyst, which is discussed in the Preliminary Determination Ex. EPD File 84, at 35.⁶

177. EPD also erred in Step Two of its BACT determination for total PM₁₀. As mentioned above, Longleaf has proposed to burn two different types of coal, PRB and CAPP. In Step Two of its analysis, EPD rejected coal washing for both coals because they concluded it was technically infeasible for PRB coal alone. *See Ex. EPD File 84, at 65-71.* However, because coal washing was found to be feasible for CAPP coal, EPD should have continued their consideration of coal washing for CAPP coal through the top-down analysis. *Id.* Thus, EPD erred in eliminating coal washing as technically infeasible for both coals.

⁶ Whether EPD was actually aware of the SO₂ to SO₃ conversion issue is unclear. The discussion of the problem, found at Ex. EPD File 84, at 35, has been lifted without attribution, as were many other sections of the Preliminary Determination and the Final Determination, verbatim from the permit application, Ex. EPD File 12, at 14. I find EPD’s practice of copying from permit applications *without attribution* and without verifying the information, leading a reader to believe that one is reading the work product of EPD itself, misleading and disturbing, and I urge EPD to halt the practice. If EPD is quoting from a permit application for a discussion, and especially for a conclusion, it should say so.

178. Turning to Step Three of the BACT determination, where EPD ranks the technologies it has found to be technically feasible, EPD erred because it should have come up with emission limits based on the design of the PM control equipment, i.e., inlet PM₁₀ concentration and control efficiency Tran. 221. Table XVI in the Preliminary Determination, Ex. EPD File 84, at 68, however, does not contain any values explaining either the inlet concentration going into the control devices for PM₁₀ or for the control efficiencies of those devices. Tran. 221-222. *See also* Tran. 232. The application should have provided EPD with this information. *Id.* Had the applicant properly completed Section IV-A1 of the permit application, Ex. EPD File 10, at LSEPD003471, with the technologies noted as missing above, that information would have been present. EPD erred by processing the application without this information. Tran. 222.

179. Instead, the applicant calculated the total PM₁₀ BACT limit using an approach which its permit engineer, Ms. French, subsequently admitted was wrong. Tran. 1921-22. Longleaf calculated the total PM₁₀ limit as the sum of the filterable PM₁₀ plus the condensible PM₁₀. The condensible fraction was calculated from the Corio and Sherwell paper as 45% of the total. *See* Tran. 188-94, Ex. EPD File 43 and Ex. P-146. Using this methodology, and starting with a filterable emission limit of 0.015, the applicant proposed a total PM₁₀ emission limit of 0.033. Ex. EPD File 43, at LSEPD003348. EPD accepted this limit without inquiry. *See* Ex. EPD File 84, at 78. EPD subsequently lowered the filterable emission limit in the final permit based on comments from EPA, Ex. EPD File 104, to 0.012 lb/MMBtu.

180. Going strictly by the logic used by the applicant to derive the total PM₁₀ limit in the first place, i.e. filterable is 45% of total PM₁₀, and applying simple arithmetic, EPD should have revised the total PM₁₀ limit to 0.027. Instead, it set the limit at 0.030. Ex. EPD File 104.

Furthermore, even using the methodology employed by the applicant to derive the ratio of filterable to condensible, the ratio produced by the data in the paper is 49 to 51, not 45 to 55.

Tran. 195. Using this ratio and EPD's final filterable emission limit, and again, applying simple arithmetic, the total PM₁₀ limit should have been 0.024, not 0.030. Tran. 225-26.

181. As the Petitioners' Expert Dr. Fox pointed out, however, it was inappropriate for Longleaf to use Ex. P-146 to determine a ratio of filterable to condensible PM₁₀ because the calculation was based on old facilities using cold-side electrostatic precipitators, which are not as efficient at removing condensible PM₁₀ as the proposed fabric filter baghouse. Tran 225.

Accordingly, EPD erred by implicitly accepting this methodology in establishing the PM₁₀ limit.

182. Even if it were appropriate to establish a total PM₁₀ limit by looking only at other permits and stack tests (and as mentioned above, such an analysis is contrary to law since the methodology looks only at what is achieved, and not what is achievable), the emission limit established by EPD is too high. Recent permits for coal-fired power plants have lower total PM₁₀ limits (0.018 lb/mmBtu) including Trimble Unit 2 in Kentucky (burning high-sulfur bituminous coal), Longview in West Virginia (burning high-sulfur bituminous coal), Hawthorne Unit 5 in Missouri, and Weston Unit 4 in Wisconsin, Elm Road Units 1 and 2, Santee Cross Units 3 and 4, Whelan Energy, and Nebraska City. Tran. 235.

183. Significantly, this lower emission limit, 0.018 lb/mmBtu, proposed by Petitioners' expert, Dr. Fox, Tran. 254, is the same as proposed by Longleaf's expert, Mr. Kosky, in an application he filed for the Glades project in Florida, Ex. P-253. Tran. 3296. Of this total figure, Mr. Kosky determined that 0.013 lb/mmBtu would be filterable PM₁₀, 0.004 lb/mmBtu would be SAM, and 0.001 lb/mmBtu would be other condensible material. *Id.* That would mean 72% of the total PM₁₀ value would be filterable, not 45%, as discussed above.

184. Furthermore, examining Mr. Kosky's Glades application further, of the condensable component, 80% is made up of sulfuric acid mist, and other condensibles make up 20%. *See* Ex. P-253. Applying that ratio here, where EPD set the SAM limit at 0.005 lb/mmBtu, that would mean the concentration of other condensibles would be .0012 lb/mmBtu. Adding all of the components of total PM₁₀ for this project then, 0.012 lb/mmBtu (filterable) + 0.005 lb/mmBtu (condensable) + 0.0012 lb/mmBtu (other condensible), one obtains a total of 0.0182 lb/mmBtu, not 0.030 lb/mmBtu.

185. EPD's permit manager, Mr. Capp, argued that the emission limit needed to be established at 0.030 lb/mmBtu to account for errors in EPA's test method. *See* Tran. 2711, 2794-2795. The answer to an inaccurate test method, however, is to use another method, as is done in Florida. Tran. 3298-99.

186. In summary, with respect to Petitioners' claim regarding the total PM₁₀ emission limitation, the Petitioners' prevail because they have shown by a preponderance of the evidence that a limit of 0.030 is not BACT for total PM₁₀ and that EPD did not have an adequate basis from which to conclude what BACT for total PM₁₀ would be. EPD erred by not considering all available control technologies, by improperly eliminating from consideration other available control methods, and by failing to require Longleaf to submit a complete permit application relevant to this issue. EPD also erred in failing to properly consider emission limits established in other permits as a floor for what emission limit is achievable for this pollutant and in reaching conclusions that are internally inconsistent. Even if EPD were entitled to some deference as a matter of law, its failure to thoroughly explore this issue does not entitle it to deference here. Indeed, EPD's actions in establishing the total PM₁₀ emission limit at 0.030 were arbitrary and capricious.

187. The total PM₁₀ limit is also not BACT because it is not practically enforceable.

188. The NSR Manual, guidance EPD follows, provides that all BACT limits must be enforceable. NSR Manual, at B.56. *See also In re Steel Dynamics, Inc.*, 9 E.A.D. 165, 215-37 (EAB 2000).

189. The total PM₁₀ limit is defective because it relies on a test method that EPD acknowledges is defective, Tran. 2711, 2794-2795, and because compliance testing for total PM₁₀ will be done only once.

190. EPD argued that the inadequacies of the testing regime for total PM₁₀ are irrelevant because once a Title V permit is issued, the PSD permit will be revoked. Legally, EPD is incorrect. *See* 40 C.F.R. 52.21(w) and *See* Georgia SIP, 391-3-1-.02(7)(b)(16), providing that PSD permits remain in effect unless revoked, and also providing that revocation can only occur if construction is not commenced within 18 months or if the permit is rescinded (because it should never have been granted). EPD also argued that the enforceability problem would be resolved by a compliance assurance monitoring plan, 40 C.F.R Part 64, but such monitoring does not create enforceable limits.

191. To resolve the enforceability problems with the total PM₁₀ emission limit, EPD should have included an opacity limit, because opacity can be monitored on a continuous basis. Petitioners suggested that an opacity limit of 5% would have been appropriate. Tran. 270-75.

Sulfuric Acid Mist BACT

192. In the permit, EPD set the following emission limitation for sulfuric acid mist (SAM): the facility shall not emit SAM in excess of 0.005 lb/MMBtu on a 3-hour average. Tran. 2060; Ex. EPD File 104.

193. With respect to Step One of the BACT analysis, as with the analysis for total PM₁₀, EPD erred by failing to consider low SO₂ to SO₃ conversion catalyst. Tran. 689, 2424. Indeed, the permit's author, Ms. Aponte admitted that she did not consider this technology in the BACT analysis for SAM. EPD also erred by failing to consider catalyst washing. Tran. 689.

194. With respect to the technologies that EPD did consider, EPD erred in determining the emission rate for SAM given the selected pollution control technology. First, EPD's starting point, reflected in Table XXVIII of Ex. EPD File 84, at 112 is a SAM emission rate of 0.061 lb/mmBtu. This assumed rate should have been lower. Tran. 690-691. This rate was calculated using an uncontrolled SO₂ production rate of 1.6 lb/mmBtu and a combined furnace SO₂ and SCR catalyst oxidation rate of 2.5%. Tran. 690; Ex. EPD File 84, at 111. This calculation failed to take into account the loss of sulfur that occurs between the coal pile and the inlet to the air pollution control train, including in the bottom ash from the boiler, the fly ash, and across the air preheater. Tran. 690.

195. Losses of SO₃ as gases go through the air preheater are 10 to 20 percent. Tran. 690.

196. EPD also erred in its evaluation of the capacity of the wet scrubber, combined with the fabric filter baghouse, to remove sulfuric acid mist.

197. EPD's adopted analysis is incorrect. First, a baghouse, by itself removes 90% of the sulfuric acid mist. Tran. 702. The downstream wet scrubber removes an additional 50%. Between the two devices, the overall removal efficiency is 95%. *Id.*

198. Because of its failure to properly compare the SDA-baghouse combination with a wet scrubber-baghouse combination, EPD incorrectly asserts in its ranking table in the Preliminary Determination, Table XXVIII, Ex. EPD File 84, at 112, that an SDA is more

effective at controlling SAM than a wet scrubber.⁷ Indeed, EPD erroneously asserts in the Preliminary Determination that a wet scrubber would produce 420 to 1100 tons more SAM than an SDA. Ex. EPD File 84 at 50 and 60.

199. Petitioners' expert, Dr. Fox, explained that sulfuric acid mist is actually captured and created as the exhaust travels through the control train, but using information provided by Longleaf and standard industry assumptions, she demonstrated that the SDA-baghouse combination actually allows the emission of slightly more SAM than the wet scrubber baghouse combination. See Tran. 543-47, Ex. P-182, and Ex. P-116-2.

200. EPD's conclusion, reflected in the ranking table, that the selected technology can only achieve an emission rate of 0.005 is erroneous. Petitioners' expert Dr. Fox demonstrated that using a method for estimating SAM emissions developed by Southern Company, Ex. P-116-2, and making conservative assumptions regarding the SAM reductions that can be achieved with a low SO₂ to SO₃ conversion catalyst and sorbent injection, an emission rate of 0.001 can be achieved. Tran. 780-83.

201. On cross examination, Dr. Fox acknowledged that the Southern Company method has a 50% margin of error. Tran. 1054. Even an error of 100% would still lead to an emission limit of 0.002, two and a half times lower than the limit included by EPD in the permit.

⁷ Petitioners drew EPD's attention to this point in their public comments. Ex. EPD File 103, at 73. EPD's response, which once again has been taken essentially verbatim from Longleaf's response document and pasted into the Final Determination *without attribution*, compare Ex. EPD File 107 at 45-46 (response to Comment J) with Ex. EPD File 103 at 73-74 (response to Comment 53), notes that Longleaf used a control efficiency of 50 percent for a wet scrubber based on vendor information, but goes on to say that even if a removal efficiency higher than the 50 percent is assumed for a wet scrubber, a dry scrubber will still be more effective at SO₂ removal. *Id.* EPD goes on to say that it does not believe, due to the location of the baghouse upstream, that the downstream wet scrubber would have any improvement or result in any additional control efficiency beyond that achieved by the baghouse itself. *Id.*

202. Petitioners' demonstration that EPD's chosen emission rate of 0.005 is too high is confirmed by review of other PSD permits. Parish Unit 8 in Texas has an emission limit of 0.0015, four times lower than the limit established for SAM here.⁸ Tran. 692, 698-99. *See also* Ex. P-179. Other lower limits include Newmont (0.001), Santee Cooper Cross (0.0014), SEI Birchwood (0.002), AES Puerto Rico (0.0024), White Pine (0.003), and Desert Rock (0.004). Tran. 693.

203. It is note worthy that Florida Power & Light, in the proposed permit application prepared by Longleaf's expert Mr. Kosky, proposed a limit of 0.004. Ex. P-253 at Table 4-1. *See also* Tran. 3296, 3298.

204. There is no reason to expect that these lower limits cannot be met. In particular, when PRB coal is combusted, the fly ash contains very high concentrations of calcium oxide and sodium oxide, and these oxides act as a sponge that remove pretty much all of the SAM. Tran. 691.

205. Although it never said so in either the Preliminary Determination or the Final Determination, EPD asserted at the hearing that the higher limit of .005 was justified because of margins of error in the test method, Method 8 for determining compliance with the SAM emission limit. Tran. 2846. EPD could have resolved these issues by requiring a modification of the controlled condensation method. Tran. 703; Tran. 3298.

206. In summary, with respect to Petitioners' claim regarding the SAM emission limitation, the Petitioners' prevail because they have shown by a preponderance of the evidence

⁸ Petitioners actually pointed out the low limits being achieved at Parish Unit 8 in their comment letter. Ex. EPD File 103 at 73. The response, again actually drafted by Longleaf, *compare* Ex. EPD File 107 at 45-46 (response to Comment J) *with* Ex. EPD File 103 at 73-74 (response to Comment 53), asserts that the primary fuel for the facility is natural gas. Had EPD checked this assertion by Longleaf itself, it would have found that actually, the facility rarely fires natural gas. Tran. 696-99.

that a limit of 0.005 is not BACT for SAM and that EPD did not have an adequate basis from which to conclude what BACT for SAM would be. EPD erred by not considering all available control technologies, here the low SO₂ to SO₃ conversion catalyst. When the benefits of this improved catalyst are taken into account, much lower emissions of SAM can be expected. These lower emission rates are reflected in recent permitting decisions. Even if EPD were entitled to some deference as a matter of law in some circumstances, inexperience in establishing BACT for this pollutant,⁹ and its failure to thoroughly and independently explore this issue makes the application of deference here inappropriate. Indeed, I find EPD actions in establishing the SAM emission limit at 0.005 to be arbitrary and capricious. For this reason, I am remanding this matter back to EPD for further action consistent with this Order.

ADDITIONAL IMPACTS ANALYSIS

207. The Petitioners contend that EPD erred in accepting the applicant's additional impacts analysis. As mentioned above, the additional impacts analysis is required by 40 C.F.R § 52.21(o), which has been incorporated by reference into the Georgia SIP. 391-3-1-.02(7)(b)(11). This regulation required Longleaf to provide an analysis of the "impairment . . . to soils and vegetation that would occur as a result of the [project]." *Id.* Petitioners contend that although Longleaf prepared an additional impacts analysis, that analysis was inadequate because (1) it contained no discussion of the impacts to soils, and (2) its analysis should have discussed adverse impacts to vegetation that may occur because SO₂ concentrations that will be contributed to by the project may exceed levels known to cause adverse impacts to local species, including pines and peanuts. I agree.

⁹ Jac Capp testified that EPD had very little experience in establishing BACT for SAM as this application was one of the first to go through PSD review for sulfuric acid mist. Tran. 2697.

208. With respect to Petitioners' point regarding the lack of a soils analysis, review of the additional impacts analysis prepared by the applicant shows that it indeed is missing. Ex. EPD File 8, at LSEPD006123-24. Longleaf's expert, Mr. Kosky, asserted when he testified that despite the regulation's requirements, an analysis of the impacts on soils was unnecessary because such analyses are only typically done depending on the sensitivity of the soils. Tran. 3236-37.

209. However, neither Mr. Kosky nor any of the other witnesses, provided any testimony regarding whether the soils in the area impacted by the facility would be considered "sensitive" or impacted by the pollutants to be emitted by this facility. That absence of information regarding impacts on soils, particularly in an area where the primary economic activity is agriculture, Tran. 785, is precisely the point. The regulation is clear that the analysis must be done, even if the conclusion of the analysis would be that there would be no impacts.

210. With respect to Petitioners' second point, regarding the inadequacy of the analysis of impacts to vegetation, Longleaf's analysis in Ex. EPD File 8, at LSEPD006123-24 was inadequate. The primary agricultural crop in the area is the peanut, Tran. 787. In addition, there are 10,250 acres of Longleaf Pines in Early County; 17,393 acres of Slash Pine in Early County; 60,051 acres of Loblolly Pine in Early County, and 1,281 acres of Shortleaf Pine in Early County. Tran. 795. Those are the only conifer species that exist in any significant amount in Early County. Tran. 794-795.

211. The following table shows concentration levels of SO₂ that will adversely impact vegetation in the area¹⁰:

Species	SO₂ Concentration¹¹	Exposure Time
Peanut	130 to 312	4 to 8 hours
Loblolly Pine	546	3 hours
Slash Pine	546	3 hours
Shortleaf Pine	546	3 hours

212. Using the inputs prepared by the applicant in performing its air quality modeling analysis, Petitioners' expert, Mr. Tran, found that there would be 102 instances when concentrations of SO₂ would exceed 568 micrograms/cubic meter. Ex. PR-50. Tran. 3738-3739. EPD and Longleaf challenged these results, noting that they were based on an SO₂ emission rate from the facility of 0.26 lb/mmBtu rather than 0.12 lb/mmBtu, which is the 24-hour limitation on SO₂ emissions in the permit. Tran. 3808. The higher emission rate, however, is the emission rate used by the applicant in performing modeling to determine whether the facility would adversely impact the 3-hour SO₂ National Ambient Air Quality Standard. See Ex. EPD File 49, at LSEPD006304. Tran. 3737.

213. EPD and Longleaf also noted after the Longleaf permit was issued, EPD issued a permit to Georgia Pacific's paper mill located just a few miles from the Longleaf site, which is a major contributor to SO₂ emissions in the area. Tran. 3793 Longleaf's expert, Mr. McCann noted that with these reductions, he would expect ambient concentrations of SO₂ to decline from 20 to 40 percent, Tran. 3820-21. A 20% reduction in the values calculated by Mr. Tran would still yield concentrations above the 546 micrograms/cubic meter, the threshold for harm to the Loblolly and other pines, mentioned above.

¹⁰ See P-165 and Ex. EPD File 645 and Tran. 806-07 and 816.

¹¹ All concentration references are in micrograms per cubic meter.

214. As a matter of straightforward arithmetic, any of the readings above 683 in the column labeled “Total Conc” in PR-50 would be above a concentration of 546 even if the values in that column were reduced by 20%. Sixteen readings fall into this category, and of course, all of Mr. Tran’s readings in the Total Conc column are over the 130 to 312 microgram/cubic meter threshold cited above for peanuts, even if those readings are reduced by 40%.

215. Given these facts, I find that EPD’s action approving the additional impacts analysis, particularly since EPD was put on notice of the plant sensitivity issue, Exs. EPD File 643-645, erroneous and unreasonable. Accordingly, I am remanding this matter back to EPD for further action consistent with this Order.

CONCLUSION

216. For the reasons set forth above, I find the Petitioners’ have prevailed on the following claims:

- (1) The emission limitations in the permit for sulfur dioxide (“SO₂”) is not reflective of Best Available Control Technology.
- (2) The emission limitations in the permit for nitrogen oxides (“NO_x”) is not reflective of Best Available Control Technology.
- (3) The emission limitations in the permit for particulate matter (“PM₁₀”) are not reflective of Best Available Control Technology.
- (4) The emission limitations in the permit for sulfuric acid mist (“H₂SO₄” or “SAM”) is not reflective of Best Available Control Technology.
- (5) EPD should not have issued the permit because Longleaf’s additional impacts analysis was inadequate.

- (6) The permit is invalid because it contains provisions that are not adequately enforceable.

Thus, as to these six counts, the Petition is GRANTED; Permit No. 4911-099-0030-P-01-0, Ex. EPD File 104, is hereby VACATED; and this matter is REMANDED back to EPD for further action consistent with this order.

Respectfully submitted, this 20th day of November, 2007.

/s/ Pamela Orenstein

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CERTIFICATE OF SERVICE

I do hereby certify that I have this day served a copy of PETITIONERS' PROPOSED

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This 20th day of November, 2007.

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