EXHIBIT 2
Part 2

I.G BACT Is Not Required For Sulfuric Acid Mist Emission From PC Boilers

The EPA concludes that BACT for sulfuric acid mist (SAM or H_2SO_4)[18] is an emission limit of 0.004 lb/MMBtu without performing a top-down BACT analysis. SOB, p. 29. The EPA copies the Application, which also does not contain a top-down BACT analysis. Instead, both the SOB and Application argue with no support that BACT is 0.004 lb/MMBtu because the use of sorbent injection can achieve an emission level lower than permitted for Thoroughbred (0.00497 lb/MMBtu), which uses a wet electrostatic precipitator (WESP). SOB, pp. 28-29 and Ap., Sec. 4.7. There are several problems with this determination.

First, there is no top-down BACT analysis. A BACT emission limit was plucked out of thin air. The Application states that a hydrated lime technology will be used to control acid gases upstream of the fabric filter. Ap., p. 4-23. There is no evidence that other technologies or combinations of technologies were considered that could result in higher removal efficiencies and thus a lower SAM limit. The Application and SOB do not contain step 1 (identify technologies), step 2 (eliminate infeasible options), step 3 (rank remaining options), or step 4 (evaluate most effective controls and document) of the top-down process. NSR Manual, p. B.6. There are many control options that should have been evaluated including: (1) the use of a low SO_2 to SO_3 conversion SCR catalyst (Ex. 16, 17); (2) SCR catalyst washing (Ex. 18); (3) other sorbents such as SBS and trona (Exs. 19, 20); (4) wet electrostatic precipitators (Ex. 21); (5) a more efficient SO_2 scrubber; (6) air heater additives; and (7) combinations of these methods (Ex. 22), among others. NSR Manual, p. B.17 ("combinations of techniques should be considered to the extent they result in more effective means of achieving stringent emissions levels…").

Second, the comparison to Thoroughbred is irrelevant. The Thoroughbred limit is not the lowest permitted or achieved SAM limit (see below). Further, the Thoroughbred plant will burn high sulfur, bituminous coal with a sulfur content of 8.5 lb SO_2/MMBtu, while Desert Rock will burn subbituminous coal with a sulfur content of 1.84 lb SO_2/MMBtu, or nearly five times lower. Some of this sulfur is converted into SAM, as shown by Exhibit 23, discussed below. Generally, all else constant, the less sulfur, the less SAM. Thus, a much lower SAM limit should be achievable for Desert Rock than Thoroughbred, because five times less sulfur is available to convert to SAM. This does not satisfy BACT, which is an emission limit based on the maximum degree of reduction. If the same degree of reduction were required for Desert Rock as required for Thoroughbred (98%), a much lower SAM limit would result.

Third, a "proprietary" technology (SOB, p. 29) is proposed to control SAM. The process used to select hydrated lime as the top technology and the design details of this system are not provided, *e.g.*, amount of sorbent to be injected, design SAM control efficiency. The design basis must be provided to allow step 3 ranking and step 4 costing. NSR Manual, Sec. IV.C.3

[18] Burning coal in the boilers converts sulfur in the coal into gases, including sulfur dioxide (SO_2) and sulfur trioxide (SO_3). Sulfur trioxide is present as a gas in the heated combustion gases. Sulfur trioxide is also generated and removed downstream of the boiler, in the pollution control system and air preheaters. The sulfur trioxide combines with water in the combustion gases and is converted into very small liquid droplets of sulfuric acid (H_2SO_4), called sulfuric acid mist, before it leaves the stack. In these comments, the terms H_2SO_4, and sulfuric acid mist or SAM are used interchangeably to refer to sulfuric acid mist emissions from the stacks, as limited in the Draft Permit, Condition IX.K. See Ex. 23.

(explaining how BACT is selected by ranking most effective to least effective emission controls using "performance level" or emissions calculated there from) and IV.D.2. Otherwise, there is no basis to conclude that BACT is 0.004 lb/MMBtu, or any other value. See discussion in Comment I.B.

Finally, the SAM limit included in the Permit, 0.004 lb/MMBtu, is not BACT for SAM, even assuming EPA's previously permitted rationale were correct. Lower limits have been permitted and are reported in the RACT/BACT/LAER Clearinghouse or subject permits. These include:

- 0.0010 lb/MMBtu for Newmont, NV
- 0.001 lb/MMBtu for TS Power, NV
- 0.0015 lb/MMBtu for Parish Unit 8, TX
- 0.0014 lb/MMBtu for Santee Cooper Cross, SC
- 0.002 lb/MMBtu for SEI Birchwood, VA
- 0.0024 lb/MMBtu for AES Puerto Rico

Sulfuric acid mist is created in the boiler and SCR system. Some of this SAM is removed by the air preheater, fabric filters, SO_2 scrubber, and hydrated lime system. Ex. 23.[19] The SAM limit that is achievable for Desert Rock depends on the interaction of all of these factors. The Application and SOB do not contain any of the information required to calculate the creation and removal of SAM so you can arrive at a SAM BACT limit at the stack. Thus, there is no basis for the SAM BACT limit.

We calculated achievable SAM emissions for the proposed coal using the Southern Company calculation procedure Ex. 24.[20] and default assumptions because the record does not contain most of the required information for Desert Rock. The Southern Company method is widely used to calculate SAM emissions and BACT limits for PSD permits.

We made calculations for three cases: (1) our guess as to what was assumed to generate the BACT level of 0.004 lb/MMBtu; (2) the use of low SO_2 to SO_3 conversation SCR catalyst (<0.5%)[21] and a WESP or other SAM control method capable of achieving 90% SAM control (Ex. 21); and (3) the same as option (2) but with a 98% efficient SAM control system (based on vendor guarantees for Trimble Unit 2 and Thoroughbred). These options are currently in use at coal-fired power plants and will be guaranteed by vendors. These calculations indicate that the proposed facility should be able to meet a SAM limit of less than 0.001 lb/MMBtu. Ex. 25.

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[19] R.K. Srivastava, C.A. Miller, C. Erickson, and R. Jambhekar, Emissions of Sulfur Trioxide from Coal-Fired Power Plants, *Journal of the Air & Waste Management Association*, v. 54, 2004, pp. 750-762.

[20] Larry S. Monroe, *An Updated Method for Estimating Total Sulfuric Acid Mist Emissions from Stationary Power Plants*, Revised March 2003by Keith E. Harrison, Southern Company Generation and Energy Marketing.

[21] A <0.5% SO_2 to SO_3 conversion catalyst has been demonstrated at AEP's Gavin facility and IPL's Petersburg facility Ex. 16. However, even lower conversions have been reported, <0.1%. Ex. 16C, p. 2 and Ex. 17, page pdf 12.

I.H BACT Is Not Required For Lead Emissions From PC Boilers

The lead limits in the Draft Permit, 1.33 lb/hr and 0.0020 lb/MMBtu based on a 3-hour period, are not supported in the record. Permit, p. 7, Condition IX.L. The permitted lead emissions exceed 0.6 ton/yr, the PSD significance threshold for lead, thus requiring a top-down BACT analysis.

The Application argues that lead is emitted as solid particulate and thus is included in the PM and PM10 BACT emission limits. The Application did not set a separate lead limit but instead concluded that BACT for lead is the use of fabric filters and the PM10 BACT emission limits. Ap., p. 4-23. The SOB makes the identical argument. SOB, pp. 29-30. However, the Permit contains lead BACT limits (Permit p. 7) that appear to have been plucked out of thin air. The files we reviewed do not even indicate the assumed lead content of the coal, the starting point for a lead BACT determination.

The available information indicates that the proffered limits are not BACT for lead. Much lower limits have been permitted. See, for example, Thoroughbred (0.00000386 lb/MMBtu), Trimble Unit 2 (0.000018 lb/MMBtu),[22] Keystone Cogeneration (0.0000046 lb/MMBtu), Spruce Unit 2 (0.0000084 lb/MMBtu), Springerville Units 3 & 4 (0.000016 lb/MMBtu), and Holcomb Unit 2 (0.000021 lb/MMBtu), among others. Permits and RACT/BACT/LAER Clearinghouse.

Further, the coal combustion section of AP-42 (Ex. 26) includes an equation, rated A, to calculate the lead emissions, given the lead (C) and ash (A) content of the coal and the particulate emissions in lb/MMBtu (PM):

$$\text{Lead (lb/10}^{12}\text{ Btu)} = 3.4(C/A*PM)^{0.8}$$

AP-42, Table 1.1-15.

The Application for the competing Cottonwood Energy Center, which would use the same coal, indicates that the lead content of the subject coal ranges from 5 ppm to 40 ppm (C) and averages 15 ppm. Ex. 27.[23] The design ash content for Desert Rock is 20.5% (A) and the PM BACT limit is 0.010 lb/MMBtu (PM). Thus, the controlled lead emission limit, corresponding to the BACT PM limit is:

$$\text{Lead (lb/10}^{12}\text{ Btu)} = 3.4(40/0.205*0.01)^{0.8}$$

$$= 5.80 \text{ lb/10}^{12}\text{ Btu}$$

$$= 0.0000058 \text{ lb/MMBtu}$$

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[22] Ex. 1, p. 29: (0.55 ton/yr)(2000 lb/ton)/(8760 hr/yr)(6942 MMBtu/hr) = 0.000018 lb/MMBtu.

[23] Chaco Valley Energy, LLC, *Cottonwood Energy Center, Prevention of Significant Deterioration (PSD) Permit Application*, March 2004, p. 8, Table 1-1.

This lead emission factor is 34 times lower than the lead emission limit included in the Draft Permit. Thus, the permit limits do not satisfy BACT for lead.

We further note that the assumption that BACT for PM and PM10 satisfies BACT for lead is not correct. Lead is volatilized in the boiler and condenses as very fine particulate matter or nanoparticles (<2.5 microns) in the pollution control train. Ex. 32.[24] The highest concentrations of lead are consistently found in the smallest particles. Ex. 28,[25] 34.[26] The particulate collection efficiency for baghouses designed to collect PM and PM10 is generally lower for these nanoparticles that contain most of the lead than for larger particles. Ex. 26, Table 1.1-5, Ex. 33, p. 1582, Ex. 34, p. 1538. Thus, a fabric filter system designed to meet BACT for PM and PM10 does not necessarily meet BACT for particles smaller than 10 microns where most of the lead is found. These smaller particles also cause proportionately more of the adverse health impacts because they can penetrate deep into the lung. Ex. 33.

A BACT analysis for lead must consider methods to enhance the removal of these finer particles. Methods to enhance the control of fine lead particles include: (1) use of a filtration media with a higher removal efficiency for nanoparticles; (2) use of a wet electrostatic precipitator (Ex. 29); and (3) use of an agglomerator upstream of the baghouse. An agglomerator uses electrical charges to attach nanoparticles to larger particles, which are then more efficiently removed by the baghouse.[27] Agglomerators have been used to reduce opacity (caused by nanoparticles) and PM at several coal fired power plants.[28] Ex. 30.

I.I The Draft Permit Does Not Contain Any BACT Conditions For Material Handling

Desert Rock will emit PM and PM10 from equipment used to handle, convey, and store materials including coal, limestone, gypsum, fly ash, and bottom ash. These emissions will be controlled by dust suppression, enclosures, and/or fabric filters. Ap., Sec. 4.6.4. However, the Draft Permit does not contain any limits whatsoever for material handling.

For sources vented through baghouses, the applicant proposed BACT PM/PM10 limits of 0.005 grains per dry standard cubic foot (gr/dscf) for coal and 0.01 gr/dscf for limestone and other materials. Ap., p. 4-22. The EPA adopted these limits with no further investigation. SOB, p. 28. These limits are not included in the Draft Permit and thus are not enforceable.

Further, the proposed baghouse limits are not supported by a top-down BACT analysis. Instead, the Application asserts with no support that these emission levels constitute BACT. Ap.,

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[24] R.C. Flagan and S.K. Friedlander, Particle Formation in Pulverized Coal Combustion – A Review, In: *Recent Developments in Aerosol Science*, D.T. Shaw (Ed.), 1978, Chapter 2.

[25] Richard L. Davidson and others, Trace Elements in Fly Ash, *Environmental Science & Technology*, v. 8, no. 13, December 1974, pp. 1107-1113; E.S. Gladney and others, Composition and Size Distribution of In-State Particulate Material at a Coal-Fired Power Plant, *Atmospheric Environment*, v. 10, 1976, pp. 1071-1077.

[26] W.P. Linak and others, Comparison of Particle Size Distributions and Elemental Partitioning from Combustion of Pulverized Coal and Residual Fuel Oil, *J. Air & Waste Manage. Assoc.*, v. 50, 2000, pp. 1532-1544.

[27] McIlvaine Hot Topic Hour, Impact of PM2.5 on Power Plant Choices, November 2, 2006. Voice recording available online to subscribers of McIlvaine Power Plant Knowledge System.

[28] http://www.indigotechnologies-us.com/current_installations.php

p. 4-22. Lower grain loadings have been recently permitted for material handling baghouses at other similar sources including:

- 0.004 g/dscf for coal and limestone collectors at Elm Road, WI
- 0.005 g/dscf for coal and limestone collectors at MidAmerican, IA
- 0.005 g/dscf for all baghouses at Indeck-Ellwood, IL

Thus, BACT for PM/PM10 for material handling operations vented to a baghouse should be a grain loading of no more than 0.004 gr/dscf for all materials.

For fugitive sources, the applicant identifies some controls for the inactive storage—covering the pile with soil, geotextile, chemical crusting agents or watering—but is silent as to how fugitive emissions from the active pile would be controlled. Ap., p. 4-22. The EPA adopts the applicant's language with no further investigation. SOB, p. 28. The applicant "believes" that these operational measures and those of NSPS for coal handling represent BACT for inactive storage and associated coal handling. *Ibid.* However, the applicant's "belief" is not a rational basis for a BACT determination. In fact, the Application and SOB contain no BACT analysis for any material handling operation and is totally silent as to fugitive dust controls for the active coal pile.

The baghouse grain loadings and other controls (enclosures, dust suppression) that were selected and used as the basis for estimating emissions included in dispersion modeling are not included in the Draft Permit and thus are not enforceable. BACT limits must be enforceable, which means a condition limiting emissions must be included in a federally enforceable permit together with monitoring, recordkeeping and reporting to assure that they are met. The applicant should be required to prepare a BACT analysis for material handling equipment and fugitive sources, the Draft Permit revised to include the limit(s), and recirculated for public review.

I.J BACT Is Not Required For Fuel-Oil Fired Sources

The facility includes three auxiliary boilers, two emergency diesel generators, and two firewater pumps, all fired on distillate oil. The Application and SOB include BACT limits for these sources. SOB, p. 31, Tables 9, 10; Ap., Sec. 4.0. There are several issues with these limits.

First, the Permit does not contain most of the BACT limits listed in the SOB and Application. Compare SOB, Tables 9 and 10, with the Draft Permit, Conditions IX.O and IX.P. The Draft Permit, for example, does not contain any limits on emissions of any pollutant from the emergency generators. Further, the Draft Permit does not contain any limits expressed in lb/MMBtu, the BACT metric, for any pollutant, from the auxiliary boiler. The Permit only contains limits in lb/hr. Emission limits should be expressed in two ways, as explained throughout the NSR Manual (*e.g.*, pp. B.56, H.10) and as practiced for the PC boilers. Permit, Condition I.X.

Second, the bases for the oil-fired source limits are not disclosed. They are merely stated as meeting BACT with no top-down analysis.

Third, the proffered limits do not satisfy BACT. Much lower limits have been permitted and achieved for these sources for all relevant pollutants.

The definition of BACT requires that clean fuels be considered. Thus, BACT for fuel-oil fired sources is natural gas when a natural gas supply is available. The Application and SOB are silent as to availability of natural gas. Further, the Application and SOB state with no support that BACT for SO_2 for these sources is burning low sulfur distillate oil with a maximum sulfur content of 0.05%. SOB, p. 19 and Ap., p. 4-13. The basis for 0.05% and not a lower sulfur oil is not disclosed. Even assuming that distillate oil qualifies as BACT, cleaner distillate oils are available. A sulfur content of 15 ppm is required by regulation for some classes of diesel engines (ASTM Grade No. 2-D-S15) and thus these low sulfur fuels are widely available. These low sulfur distillates have been required to satisfy BACT for these same sources at other coal-fired power plants, *e.g.*, Trimble Unit 2 (Ex. 1), Spurlock.

Further, much lower NOx, CO, and VOC limits can be achieved by these sources using post-combustion controls, including SCR for NOx and oxidation catalysts for CO and VOCs. These control options were not evaluated in the Application or SOB but have been required to satisfy BACT and LAER at similar sources. See, for example, the auxiliary boiler at the Crockett Cogeneration Facility in California, which is equipped with both SCR and oxidation catalyst and has demonstrated compliance with much lower limits, as well as many other similar sources listed in the South Coast Air Quality Management District's BACT clearinghouse.

I.K BACT Is Not Required For Fluoride Emissions From The PC Boilers

The SOB concludes that BACT for hydrogen fluoride (HF) is 0.00024 lb/MMBtu, assuming 100 ppm fluorine in the coal and 98% control. SOB, p. 29. This limit is adopted as a 3-hour average in the Permit, Condition IX.M, p. 7. The SOB asserts that "[t]his emission rate [0.00024 lb/MMBtu] is consistent with or lower than all recent BACT decisisons." SOB, p. 29. This is incorrect. Much lower fluoride BACT determinations have been made recently, including for Longview, WV (0.00001 lb/MMBtu); Thoroughbred, KY (0.00016 lb/MMBtu); and Trimble Unit 2 (0.000051 lb/MMBtu). Further, the SOB and Application do not contain a supporting BACT analysis or explain why these lower permitted values do not constitute BACT for Desert Rock.

II. ENFORCEABILITY ISSUES

II.A Testing Is Not Adequate To Assure Continuous Compliance

The statute and regulations define BACT as an "emission limitation." CAA Sec. 169(3) U.S.C. Sec 7479(3) and 40 CFR 52.21(b)(12). The CAA defines the term "emission limitation" as "a requirement established by the State or the Administrator which limits the quantity, rate, or concentration of emissions of air pollutants on a **continuous** basis, including any requirement relating to the operation or maintenance of a source to assure continuous emission reduction..." CAA Sec. 302(k), 42 U.S.C. Sec. 7602(k) (emphasis added). The monitoring required in the

Permit is not adequate to assure continuous compliance. The monitoring should be enhanced, as set out below.

II.A.1 Stack Testing Frequency

Permit limits can only be enforced through appropriate monitoring, testing and reporting of emissions. An appropriate hierarchy for specifying monitoring to determine compliance is: (1) continuous direct measurement where feasible; (2) initial and periodic direct measurement where continuous monitoring is not feasible; (3) use of indirect monitoring, *e.g.* surrogate monitoring, where direct monitoring is not feasible; and (4) equipment and work practice standards where direct and indirect monitoring are not feasible. NSR Manual, pp. H.10, I.3. The Draft Permit does not comport with this guidance.

The Draft Permit requires CEMS to determine compliance with limits on NOx, SO2, and CO. The intended use of the PM CEMS is ambiguous, as discussed in Comment II.B. Compliance with all other limits (VOC, PM10, H_2SO_4, HF, and lead) would be demonstrated by an annual stack test. After the initial stack test, the EPA "may waive a specific annual test and/or allow for testing to be done at less than maximum capacity." Permit, p. 3, Condition IX.C.1.

The BACT emission limits for these pollutants must be met on a "continual basis at all levels of operation.." NSR Manual, p. B.56. A stack test normally lasts only a few hours (3-6 hours) and is conducted under ideal, prearranged conditions. Staged annual or other periodic testing tells one nothing about emissions during routine operation or startups and shutdowns on the other 364 days of the year, or 8,750 plus hours. One 3-hour test per year over a 50-year facility life at 85% capacity amounts to testing only about 0.04% of the operating hours. This is a long way from demonstrating continuous compliance.

Further, annual stack testing does not capture spikes caused by normal process operations. Some routine process operations that occur only periodically, from daily to monthly, emit large amounts of VOCs, PM, and other contaminants. Emissions of PM10, for example, substantially increase during soot blowing, which is routinely used to clean deposits out of the boiler and to keep the SCR catalyst clean. Likewise, emissions of VOCs may increase during startups and shutdowns, but the Draft Permit does not require testing during these periods. Annual or other infrequent stack tests are almost never conducted during soot blowing, startups, or shutdowns, even though they are part of the routine operation of power plants.[29] These stack tests are, therefore, likely significantly underestimating emissions and are not sufficient to assure compliance with source emission limits.

Finally, it is well known that "[m]anual stack tests are generally performed under optimum operating conditions, and as such, do not reflect the full-time emission conditions from a source."[30] A widely-used handbook on Continuous Emissions Monitoring ("CEMs") notes, with respect to PM_{10} source tests, that: "Due to the planning and preparations necessary for these manual methods, the source is usually notified prior to the actual testing. This lead time

[29] This is despite EPA guidance stating that stack tests should be conducted during soot blowing. EPA "Restatement of Guidance on Emissions Associated with Soot-Blowing" (May 7, 1982).

[30] 40 Fed. Reg. 46,241 (Oct. 6, 1975).

allows the source to optimize both operations and control equipment performance in order to pass the tests."[31]

An annual stack test, particularly one that can be waived in the future, outside of the BACT process, does not provide any method to assure that the BACT limits are met on a "continual basis." The Permit should be revised to include either more frequent stack testing for pollutants not monitored by CEMS, CEMS where feasible, *e.g.*, sulfuric acid mist (Ex. 35) and PM, or include indicator monitoring (discussed in Comment II.A.3) to address those periods when direct stack testing is not conducted.

II.A.2 Testing Waiver

The performance testing condition allows EPA to waive annual testing or to allow testing at less than maximum operating capacity after the initial stack test. Permit, p. 3, Condition IX.C. Annual testing is not adequate, as explained in Comment II.A.2. Thus, further reducing annual testing is contrary to the requirement that BACT limits must be met continuously and thus must be continuously enforceable. Further, the testing provision is part of the BACT determination. NSR Manual, p. B.56. These test conditions cannot be "waived" without reopening the permit to make a new BACT determination. See also Comment I.E.2.

II.A.3 Surrogates For VOC, HF, H_2SO_4, Lead

As discussed above, no monitoring at all takes place during over 99% of the operating hours. The Draft Permit does not provide any means to determine compliance during these hours. Surrogate parameters can be continuously monitored during these times. A surrogate is an indicator parameter that is related to the parameter of interest. These are commonly used in PSD permits to demonstrate continuous compliance with parameters that cannot be monitored by CEMS, *e.g.*, HF, lead, and H_2SO_4. See, for example, the Permit issued by Kentucky to Thoroughbred and Trimble (Ex. 1).

The Draft Permit does not include any indicator monitoring to supplement annual testing. The use of indicators when a parameter cannot be continuously monitored is consistent with EPA's long-standing policy articulated in the NSR Manual: "[w]here continuous, quantitative measurements are infeasible, surrogate parameters must be expressed in the permit." NSR Manual, p. H.6.

Thus, we recommend that the EPA include surrogates. However, we note that this is a valid approach for "[o]nly those parameters that exhibit a correlation with source emissions...." NSR Manual, p. H.6. Thus, we recommend that the Permit be modified to require the use of surrogates to determine continuous compliance with the proposed limits on VOCs (CO), HF (coal fluoride content), lead (coal lead content), and H_2SO_4 (SO2 unless a continuous monitor for SAM is installed) if a study demonstrates an acceptable correlation between the parameter and the surrogate. The relationship developed in the study should be validated annually by simultaneous source testing and coal sampling, allowing for the residence time through the

[31] James A. Jahnke, *Continuous Emission Monitoring*, 2nd Ed., John Wiley & Sons, Inc., New York, 2000, at p. 241.

facility. The Permit also should state that exceedance of the indicator range is a per se violation of the regulated pollutant.

II.B PM Continuous Emission Monitoring System (CEMS)

The Draft Permit requires the installation of a CEMS to measure PM. Permit, p. 9, Condition IX.Q.1.ii. However, it is unclear whether this CEMS would be used to determine compliance with the PM BACT limit in Condition IX.H. Permit, p. 6. The Draft Permit is ambiguous as to continuous compliance with the PM BACT limit.

The Draft Permit states that "[e]xcess emissions shall be defined as any period during which the average emissions of SO2, NOx, CO or PM as measured by the CEMS exceeds the maximum emission limits set forth in Conditions IX.D, E, F and G..." Permit, pp. 10-11. This list of conditions excludes Condition IX.H which contains the BACT limit for PM, thus setting up an ambiguity as to whether the CEMS would be used to determine excess emissions of PM. Permit, p. 6. The Draft Permit then states that "[e]xcess emissions indicated by the CEMS must be considered violations of the applicable emission limit for the purpose of this permit." Permit, p. 11, Condition IX.R.4. However, the PM BACT limit is excluded from this condition by Condition IX.R.3.v. It is unclear whether the PM CEMS would be used to identify excess PM emissions, and thus violations of the PM limits. We believe that the PM CEMS should be required to determine continuous compliance with the PM BACT limit and that the Permit should be clarified to so indicate.

We further note that the Draft Permit does not disclose where the PM CEMS would be located. It is common to locate opacity and PM monitors upstream of the wet scrubber to avoid wet stacks. This would overestimate PM emissions because the scrubber removes a substantial amount of PM, up to 90%. Ex. 31.[32] This could lead to future challenges of the data for compliance purposes, if permit limits are exceeded. The DataGuard PM monitor has been demonstrated to yield accurate data in wet stacks and has been successfully used at several coal fired power plants, including Big Bend (since 2/02), Dominion Mt. Storm (since 7/04), WE Energy Oak Creek (since 1/05), Western Kentucky Energy Henderson (since 1/05), and WE Energy, Pleasant Prairie (since 9/06). Ex. 31. Thus, we encourage EPA to specifically require that the PM CEMs be located in the stack, rather than upstream of the wet scrubber.

II.C Excess Emissions

The Draft Permit defines excess emissions in Condition IX.R.3, but fails to indicate what is to be done in response to finding them, beyond filing a written report with the EPA. Permit, p. 1, Condition IV and p. 10, Condition IX.R.3. The Permit should be revised to require that the permittee take immediate steps to reduce emissions below permitted levels. NSR Manual, p. H.10.

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[32] Craig Clapsdale, Particulate Monitoring in Wet Scrubbed Stacks, McIlvaine Hot Topic PM2.5, Slides, November 2, 2006.

II.D Ambiguities Render Permit Unenforceable

Permits that contain vague and ambiguous terms are not enforceable. "Ambiguous language hampers the source in its duty to independently assure compliance, and leaves legal requirements open to interpretation." Letter from Bharat Mathur, EPA Region 5, to Robert F. Hodanbosi, Ohio EPA (Nov. 21, 2000). See also Region 9 Guidelines at III-5 and 61[33] ("It is important that permit conditions be unambiguous and do not contain language which may intentionally or unintentionally prevent enforcement").

II.D.1 Averaging Times

The averaging times for the emission limits in the Draft Permit are ambiguous. All of the limits are expressed as averages over a "3-hour period," a "24-hour period," or a "rolling 365-day period." Permit, pp. 5-6. The latter is clear, but the former are not. The type of averaging intended for the 3-hour period and the 24-hour period is ambiguous. A 3-hour average, for example, could be determined in several ways, each of which would result in a different average. The data could be averaged in 3-hour blocks. The data could be averaged in rolling 3-hours blocks, advancing through time by adding the most recent hour and dropping the latest hour from sequential 3-hour blocks. Or the data for an entire year could be parceled into sequential 3-hour blocks, and these blocks averaged over the year. Thus, the Permit should be revised to clarify the type of average that is required. The BACT limits then need to be revisited to determine if this would result in a lower BACT limit.

Further, the SOB contains a table that summarizes the BACT emission limits for the PC boilers. SOB, p. 30, Table 8. The averaging times specified in this table differ from those required in the Draft Permit for the following:

- VOC (Permit = 24 hr; SOB=3 hr)
- PM (Permit=24 hr; SOB=6 hr)
- PM10 (Permit=24 hr; SOB=6hr)
- H_2SO_4 (Permit=3 hr; SOB=annual)
- HF (Permit=3 hr; SOB=annual)
- Pb (Permit=3 hr; SOB=quarterly)

The revised Permit should resolve these discrepancies in favor of the more stringent (shorter) averaging time. The Draft Permit should be recirculated for public review if the averaging time is relaxed.

[33] U.S. EPA, Title V Permit Review Guidelines: Practical Enforceability, September 9, 1999.

II.D.2 Ambiguous Language

II.D.2.a Condition III

Condition III requires that all equipment, facilities, and systems used to achieve compliance with the Draft Permit must be operated "as intended" to minimize air pollutant emissions. The phrase "as intended" is ambiguous. Further, it appears to conflict with the obligation to operate air pollution control equipment "in a manner consistent with good air pollution control practice for minimizing emissions." 40 CFR 60.11(d).

II.D.2.b Condition IX.N.2

Condition IX.N.2 defines startup to be a period starting with ignition and lasting until "the equipment has reached a continuous operating level and operating permit limits." Permit, p. 7, Condition IX.N.2. The term "the equipment" is ambiguous as it could refer to any piece of equipment at the facility. The startup language applies only to the boiler.

The phrase "continuous operating level AND operating permit limits" requires that both conditions be satisfied simultaneously. This phrase would allow the boiler to operate at a stable rate but exceed its permits limits continuously, a clearly unintended result. The definition should be revised to restrict the length of individual startup and the number of startups. Further, the term "continuous operating level" is not defined and has no known meaning. The term "stable" would be a better choice.

II.D.2.c Condition IX.P.2

The emergency diesel generators are only permitted to operate during certain "emergency conditions." Permit, p. 8, Condition IX.P.2. However, the Permit does not define or explain what conditions constitute "emergency conditions."

II.E Drafting Errors

The Draft Permit contains minor errors that should be corrected. These include:

- The BACT pollutant, fluorides, is referred to as HF (Condition IX.B, p. 3; Condition IX.C.1, p. 3; Condition IX.C.1.vii, p. 4; Condition IX.M, p. 7). Hydrogen fluoride is one compound that falls in the general class of "fluorides," which is the regulated pollutant. The Permit should be amended to replace HF with fluorides

- The reference to Section X in Condition IV (p. 1) should be changed to Condition IX.

- The reference to Condition L.2 in Condition IX.N.1 should be changed to Condition N.2.

- The reference to Condition IX.M in Condition IX.R.3.v, p. 11, should be Condition IX.N (error occurs in two places in this condition).

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We request that EPA not issue the permit until all of the above-described errors have been corrected. Please contact me if you have any questions or concerns.

Sincerely,

Sanjay Narayan
Staff Attorney
Sierra Club Environmental Law Program

Enclosure (via U.S. mail only).

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