

State Office of Administrative Hearings



Cathleen Parsley
Chief Administrative Law Judge

August 24, 2009

CHIEF CLERKS OFFICE

2009 AUG 24 PM 4:08

TEXAS
COMMISSION
ON ENVIRONMENTAL
QUALITY

Les Trobman, General Counsel
Texas Commission on Environmental Quality
P.O. Box 13087
Austin Texas 78711-3087

RE: SOAH DOCKET NO. 582-09-0636; TCEQ DOCKET NO. 2008-1145-AIR; IN RE: APPLICATION OF ASPEN POWER, LLC FOR A STATE AIR QUALITY PERMIT, PREVENTION OF SIGNIFICANT DETERIORATION AIR QUALITY PERMIT, & A HAZARDOUS AIR POLLUTANT MAJOR SOURCE PERMIT

Dear Mr. Trobman:

The above-referenced matter will be considered by the Texas Commission on Environmental Quality on a date and time to be determined by the Chief Clerk's Office in Room 201S of Building E, 12118 N. Interstate 35, Austin, Texas.

Enclosed are copies of the Proposal for Decision and Order that have been recommended to the Commission for approval. Any party may file exceptions or briefs by filing the documents with the Chief Clerk of the Texas Commission on Environmental Quality no later than **Monday, September 14, 2009**. Any replies to exceptions or briefs must be filed in the same manner no later than **Thursday, September 24, 2009**.

This matter has been designated **TCEQ Docket No. 2008-1145-AIR; SOAH Docket No. 582-09-0636**. All documents to be filed must clearly reference these assigned docket numbers: All exceptions, briefs and replies along with certification of service to the above parties shall be filed with the Chief Clerk of the TCEQ electronically at <http://www10.tceq.state.tx.us/epic/efilings/> or by filing an original and seven copies with the Chief Clerk of the TCEQ. Failure to provide copies may be grounds for withholding consideration of the pleadings.

Sincerely,

A handwritten signature in black ink that reads "Sarah G. Ramos".

Sarah G. Ramos
Administrative Law Judge

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SOAH DOCKET NUMBER: 582-09-0636
REFERRING AGENCY CASE: 2008-1145-AIR

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SOAH DOCKET NO. 582-09-0636
TCEQ DOCKET NO. 2008-1145-AIR

2009 AUG 24 PM 4:08

APPLICATION OF
ASPEN POWER, LLC
FOR A STATE AIR QUALITY PERMIT,
PREVENTION OF SIGNIFICANT
DETERIORATION AIR QUALITY
PERMIT, & A HAZARDOUS AIR
POLLUTANT MAJOR SOURCE
PERMIT

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BEFORE THE STATE OFFICE

CHIEF CLERKS OFFICE

OF

ADMINISTRATIVE HEARINGS

TABLE OF CONTENTS

TABLE OF CONTENTS	1
I. INTRODUCTION	1
A. Issues to be Addressed	2
B. Protestants' Related Concerns.....	3
C. Expert Witnesses.....	5
II. NOTICE, JURISDICITON, AND PROCEDURAL HISTORY	6
III. APPLICABLE LAW.....	7
IV. MAXIMUM AVAILABLE CONTROL TECHNOLOGY	8
A. General Requirements.....	8
B. Application.....	9
C. Parties Arguments.....	12
D. Denial Recommended.....	13
E. Non-Mercury Metal HAP.....	14
F. Organic Hazardous Air Pollutants	15
G. Startup, Maintenance, and Shutdown	18
V. BEST AVAILABLE CONTROL TECHNOLOGY	19
A. TCEQ Guidance on BACT	20
B. Methodology	21
C. Timeframe for Consideration of New BACT Information	23
D. Technical Practicality and Economically Reasonableness.....	25
E. NOx.....	26
1. Catalytic Regeneration is Technically Feasible.....	26
2. RSCR Is Economically Reasonable.....	29
VI. AIR DISPERSION MODELING.....	34
A. Legal Standards and Issues.....	34
B. NOX Emissions.....	35
VII. TRANSCRIPT COSTS	40
VIII. SUMMARY.....	42
APPENDIX.....	44
Abbreviations	44
Particular Contaminants.....	44

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APPLICATION OF § BEFORE THE STATE OFFICE
ASPEN POWER, LLC §
FOR A STATE AIR QUALITY PERMIT, §
PREVENTION OF SIGNIFICANT § OF
DETERIORATION AIR QUALITY §
PERMIT, & A HAZARDOUS AIR §
POLLUTANT MAJOR SOURCE, §
PERMIT § ADMINISTRATIVE HEARINGS

I. INTRODUCTION

Aspen Power, LLC (Aspen) submitted a new source review application to the Texas Commission on Environmental Quality (TCEQ) for State Air Quality Permit No. 81706 and Prevention of Significant Deterioration (PSD) Air Quality Permit No. PSD-TX-1089. The original application relied on 40 Code of Federal Regulations (C.F.R.) Part 63, Subpart DDDDD, the *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters*. However, this standard was vacated on June 8, 2007, in the case of *National Resources Defense Council, et al v. Environmental Protection Agency*, 489 F.3d 1250, 1259 (D.C. Cir. 2007). The Executive Director then accepted the previously submitted application as the application for a case-by-case MACT determination for Hazardous Air Pollutant (HAP) Permit No. 12. The permits would authorize construction and operation of the Lufkin Generating Plant, a biomass-fired electric generating facility in Lufkin, Texas.¹ The Administrative Law Judge (ALJ) recommends that the application be denied because Aspen did not perform a Maximum Achievable Control Technology (MACT) review.

Aspen proposes to install a 692.6 MMBtu/hr² wood-waste-fueled boiler that will drive a 45 megawatt (MW) steam turbine generator. The fuel will consist of untreated wood waste. For PSD purposes, the Lufkin Generating Plant would emit the following air contaminants in significant amounts: carbon monoxide (CO); volatile organic compounds (VOCs); nitrogen oxides (NOx); sulfur dioxide (SO₂); and particulate matter (PM) including particulate matter less

¹ App. Ex. 5.

² Pounds per million British thermal units.

than 10 and 2.5 microns in diameter (PM₁₀ and PM_{2.5}). In addition, the plant would emit sulfuric acid mist (H₂SO₄); lead (Pb); hydrogen chloride (HCl); chlorine (Cl); and ammonia (NH₃).

This Proposal for Decision (PFD) uses numerous acronyms. They are identified in the text and, for ease of reference, many are also identified in an appendix at the end of the PFD.

A. Issues to be Addressed

Aspen asked the Commission to directly refer this case to the State Office of Administrative Hearings (SOAH) for a contested case hearing. Therefore, Aspen has the burden of showing compliance with all applicable state and federal standards. But as a practical matter, the contested issues were framed by Protestants who, through evidence and arguments, identified the principal areas of concern with the permit application. Protestants urged three primary points:

- (1) Aspen did not submit a MACT case-by-case application; instead, the Executive Director attempted to construct a MACT application from Aspen's BACT application. The "constructed" application failed to meet applicable MACT requirements.
- (2) The Texas Best Available Control Technology (BACT) definition does not comply with Environmental Protection Agency (EPA) standards. Aspen should have used a top-down analysis rather than Texas' three-tiered approach to determine BACT. Even in using the three-tiered approach, Aspen and the Executive Director used only the first tier and, therefore, failed to consider viable comparable biomass plants for certain emissions, particularly technology that would reduce NO_x; and
- (3) Aspen's modeling of NO_x screening impacts for the annual PSD increment was improperly performed, and Aspen failed to account for worst case conditions by modeling for production to occur during only 50, instead of 52, weeks per year.
- (4) Aspen did not submit a MACT case-by-case application; instead, the Executive Director attempted to construct a MACT application from Aspen's BACT application. The "constructed" application failed to meet applicable MACT requirements.

The ALJ agrees with Protestants on the first issue. Aspen submitted no MACT application, and the one Staff attempted to construct from the BACT application was inadequate. As to the second issue, the ALJ finds that regenerative selective catalytic reduction technology could reduce the NOx emissions limit to 0.075 lb/MMBtus. Finally, the ALJ finds the modeling was properly performed but recommends a special condition that allows the facility to operate only 50 of 52 weeks per rolling 12-month period and to use biodiesel only when the plant is operated at 25% or less of capacity.

B. Protestants' Related Concerns

In addition to Protestants' three primary points, Protestants testified during the hearing about their concerns for the community where Aspen will be located. Sylvester McClain said the proposed facility's site is close to three elementary schools, housing for elderly, and two day care centers. One day care center is directly adjacent to the site.³ Mr. McClain was exposed to Agent Orange while serving in South Vietnam and has resulting health challenges to deal with. He also has several relatives in the vicinity near the site.⁴ He is concerned the plant will adversely affect all those who live in close proximity.

For the past 27 years, Mr. McClain has been a spokesperson for various people in the community when they have been at risk of having their rights violated. He described the neighborhood where Aspen's property is located as predominantly African American and economically poor.⁵

Another Protestant, Aaron Hartsfield, lives less than a half-mile from the plant. Mr. Hartsfield is concerned that he may not be able to raise a garden and open the doors of his home to fresh air if the plant is built. In addition to emissions from plant operations, he is concerned about pollutants from vehicles that will transport wood and wood products to the site.⁶

³ Tr. 640.

⁴ Tr. 641.

⁵ Tr. 642.

⁶ P. Ex. 23; Tr. 644-646.

In the Response to Comments, the Executive Director mentioned TCEQ's lack of jurisdiction over pollution from mobile sources and traffic congestion.⁷ More importantly, the Executive Director noted that impacts to human health, welfare, and the environment are determined by comparing ambient air concentrations predicted by computer air dispersion modeling for emissions. When National Ambient Air Quality Standards (NAAQS) standards are met, adverse health or welfare effects are not expected to occur.⁸ Similarly, the Executive Director advised, nuisance conditions are prohibited by 30 T.A.C. § 101.4, and violations may be reported to TCEQ's regional office in Beaumont.⁹

The ALJ agrees with the points the Executive Director raised in the Response to Comments, but, to place review of the application into perspective, highlights the underlying guiding principles of law. First, the Texas Clean Air Act, TEX. HEALTH & SAFETY CODE ANN. Ch. 382 (TCAA), provides in § 382.002:

- (a) The policy of this state and the purpose of this chapter are to safeguard the state's air resources from pollution by controlling or abating air pollution and emissions of air contaminants, consistent with the protection of public health, general welfare, and physical property, including the esthetic enjoyment of air resources by the public and the maintenance of adequate visibility.
- (b) It is intended that this chapter be vigorously enforced and that violations of this chapter or any rule or order of the [Commission] result in expeditious initiation of enforcement actions as provided by this chapter.

Along these lines, Commission rule 30 T.A.C. § 116.111(a)(2)(A)(i) requires emissions from a proposed facility to comply with the Commission's rules and regulations and with the intent of the TCAA, "including the protection of the health and property of the public."

⁷ ED Ex. 15 at 8.

⁸ ED Ex. 15 at 7-8.

⁹ ED Ex. 15 at 8.

C. Expert Witnesses

Several expert witnesses testified at the hearing. For ease of reference their qualifications are briefly outlined in this section. Their testimony and exhibits are described in the sections that relate to the specific issues.

Aspen's engineering witness, J. L. (Joe) Woolbert, P.E., holds bachelors and masters degrees in chemical engineering. He worked 25 years with Eastman Chemical Company in engineering, safety, and air compliance, and has been a regulatory (air emissions) consultant since 1984. Mr. Woolbert also served many years as a leader for the Texas Chemical Council in advocacy related to Texas air quality rules and the EPA's air policy and standards development.¹⁰

Danny M. Vines, Aspen's president, also testified. He holds a B.S. degree in forestry with a wood technology option and has had extensive experience in the utility industry.¹¹ Thomas M. Dydek, Ph.D. was Aspen's witness on toxicology issues. Dr. Dydek holds a B.S. in mechanical engineering and an M.S. in environmental engineering. His Ph.D. studies focused on environmental toxicology.¹²

Protestants' expert, Bill Powers, has a B.S. in mechanical engineering and master's degree in public health with a focus on environmental sciences. He has 25 years experience in power plant technology, emissions, and cooling system assessments. He is also experienced in permitting, testing and monitoring combustion and emissions control equipment.¹³

TCEQ's permit engineer, Richard Hughes, P.E., serves in the Air Permits Division of the Office of Permitting and Registration. Mr. Hughes holds a B.A in anthropology and an M.S in environmental health engineering. He has been employed by TCEQ and its predecessor agencies

¹⁰ App. Ex. 7.

¹¹ App. Ex. 2.

¹² App. Exs. 10 and 17 at 3.

¹³ P. Ex. 2.

since 1991. During his years of agency employment, Mr. Hughes has attended numerous environmentally-related seminars.¹⁴

Rachel Gould and Dan Schultz, members of TCEQ's Air Dispersion Modeling Team, also testified. They hold degrees in earth science and meteorology, respectively. Mr. Schultz worked for several years in the private energy sector before joining TCEQ in 1993. Ms. Gould joined TCEQ in February 2007.

II. NOTICE, JURISDICITON, AND PROCEDURAL HISTORY

After TCEQ Staff's completed its review of the application, the Executive Director issued the Notice of Application and Preliminary Decision, which included the Preliminary Determination Summary and Draft Permit. In issuing the Draft Permit,¹⁵ the Executive Director concluded that Aspen's proposed controls constituted BACT for criteria pollutants and MACT for hazardous air pollutants and that the modeling analysis demonstrated that the proposed project would not violate the NAAQS or have any adverse impact on the public health, soils, or the environment. TCEQ received hearing requests for Aspen's permit, but also received letters withdrawing the requests. As a result of the withdrawn requests, the Executive Director issued the permit on July 25, 2008.¹⁶

The Commission subsequently received a Motion to Overturn the Executive Director's issuance of the permit, based on the premise that a hearing requestor had not withdrawn his request for a hearing. The Commission heard arguments on the motion at a Commission meeting on October 10, 2008, granted the motion, and directed the Executive Director to refer the permit to SOAH for a determination of affected party status. Other specific facts relating to notice and jurisdiction are addressed more particularly in the Findings of Fact and Conclusions of Law.

¹⁴ ED Ex. 1 at 2.

¹⁵ ED Ex. 8.

¹⁶ ED Ex. 8.

The preliminary hearing on the application was held on November 17, 2008, in Lufkin, Texas. Attorney Robert E. "Robin" Morse III represented Aspen. Several persons who live or have lived near the proposed plant were recognized as Protestants: Sylvester McClain, Theodor and Betty Mathis, Annie Mae Shelton, Dr. Dallas Pierre, Aaron and Willie Hartsfield, Oletha Durham, and Donald R. Anderson. Based on their common interests in the application, the Protestants were aligned as a group and represented by Mr. McClain. Garrett Arthur, Assistant Public Interest Counsel, represented the Office of Public Interest Counsel, and TCEQ Staff Attorney Amy Lynn Browning represented the Executive Director.

Prior to the hearing on the merits, attorneys entered appearances for Protestant Annie Mae Shelton. Enrique Valdivia with Texas Rio Grande Legal Aid filed the first notice of appearance and was later joined by co-counsel Kelly Haragan with the Environmental Law Clinic at the University of Texas School of Law. The hearing on the merits was held April 27-30 and May 8, 2009, at SOAH, 300 W. 15th Street, Austin, Texas. The record closed on June 23, 2009, after the parties filed their briefs and replies.

III. APPLICABLE LAW

The evidence raised fact issues regarding the appropriate level of review for the MACT and BACT determinations. As required by the TCAA, the Commission must find, among other things, that the facility will employ "at least the best available control technology, considering the technical practicability and economic reasonableness of reducing or eliminating the emissions resulting from the facility. . . ." ¹⁷ The Federal Clean Air Act (FCAA), ¹⁸ as incorporated into TCEQ's rules, requires a review of MACT for the emissions of hazardous air pollutants. ¹⁹ Commission rule 30 T.A.C. § 116.602(c) requires the permit to require best available control technology.

¹⁷ TEX. HEALTH AND SAFETY CODE ANN. § 382.0518(b)(1).

¹⁸ 42 U.S. CODE ANN. Ch. 85, § 7401 *et seq.*

¹⁹ 42 U.S. CODE ANN. § 7412; 30 T.A.C. Ch. 116, subch. E.

IV. MAXIMUM AVAILABLE CONTROL TECHNOLOGY

A. General Requirements

Aspen's proposed power plant would be a major source of HAP. The proposed emissions of benzene, acrolein, NH₃, formaldehyde, and HCl each exceed the 10 tons per year (tpy) major source thresholds specified by the FCAA.²⁰ Total HAP are estimated at 109 tpy, significantly above the FCAA major source threshold of 25 tpy for all HAP.²¹

Before constructing a new major HAP-producing facility, the owner must demonstrate that the facility will achieve an appropriate MACT emission limit for each HAP.²² If EPA has established an emission standard, that standard is the MACT. But when EPA does not have an established standard, as in this case in which the standards have been vacated, MACT must be established on a case-by-case basis.²³

MACT is designed to be technology-forcing, to ensure that new technologies are used to obtain the lowest achievable pollutant emissions in newly-issued permits. Both the EPA and the TCEQ have provided a definition for MACT emissions limits in their rules. Specifically, 40 C.F.R. § 63.41 provides:

*Maximum achievable control technology (MACT) emission limitation for new sources means the **emission limitation** which is **not less stringent** than the **emission limitation achieved in practice** by the **best controlled similar source** [a/k/a the MACT floor], and which reflects the **maximum degree of reduction in emissions** that the permitting authority, taking into consideration the **cost of achieving such emission reduction**, and **any non-air quality health and environmental impacts and energy requirements**, determines is **achievable** by the constructed or reconstructed major source [a/k/a beyond the floor].²⁴*

²⁰ App. Ex. 5 at 50.

²¹ App. Ex. 5 at 45.

²² 42 U.S. CODE ANN. § 7412(g).

²³ 42 U.S. CODE ANN. § 7412(g); 42 U.S. CODE ANN. § 7412(d)(3); 40 C.F.R. § 63.43(d).

²⁴ TCEQ's definition is found at 30 T.A.C. § 116.15 and mirrors the EPA's definition.

Thus, Aspen's permit must include case-by-case MACT limits that are at least as stringent as the limits achieved by the best-controlled similar source. Further, more stringent controls must be required to the extent they are achievable.²⁵ In determining MACT, the TCEQ must consider "available information," which includes information provided to or considered available by the agency as of the date of the agency's final approval of the MACT application.²⁶

EPA regulations also specify minimum procedural standards for MACT determinations, including requirements for application content and public participation.²⁷ The application was available for review by the public during the public comment period.²⁸ EPA filed the only comments relevant to the MACT issue and questioned why there was no discussion of a permitted Southpoint, Ohio plant, which has lower CO and PM permit limits.²⁹

B. Application

As previously mentioned, Aspen did not submit a MACT case-by-case application. Instead, the application refers to the vacated standard:

The Lufkin Plant will be subject to the requirements of 40 C.F.R. 63 Subpart DDDDD. Because EPA has issued an applicable standard for the facilities at the Lufkin Plant, the provisions of federal Clean Air Act Section 112(g) do not apply to the Lufkin Plant.³⁰

After Subpart DDDDD was vacated on June 9, 2007, Aspen submitted other reports, clarifying letters, and application amendments. But it did not amend its application to add a MACT case-by-case analysis. Mr. Woolbert testified that the vacated MACT standard constituted Aspen's MACT analysis.³¹ Indeed, Aspen began its BACT analysis for CO and PM

²⁵ 42 U.S. CODE ANN. §§ 7412(d)(2) and (d)(3).

²⁶ 40 C.F.R. § 63.41.

²⁷ State MACT permitting programs must meet the minimum requirements of 40 C.F.R. §§ 63.40-63.44. 40 C.F.R. § 63.42(a).

²⁸ App. Ex. 1.

²⁹ P. Ex. 3.

³⁰ App. Ex. 5 at 102 and 103.

³¹ Tr. 218.

by referring to the EPA's MACT Standards for Subpart DDDDD. Aspen then concluded that the CO and PM performance required by the vacated MACT standards also represented the BACT performance levels.³²

Mr. Hughes' MACT analysis is included in the Preliminary Determination Summary.³³ That analysis (with the ALJ's emphasis added) states:

The vacated Subpart DDDDD would have classified this [boiler] as a large gaseous fuel industrial boiler. **The relevant emission standards to meet would have been**

- Carbon Monoxide (CO) limited to 400 ppm by volume on a dry basis corrected to 7 percent oxygen (30-day rolling average for units 100 MMBtu/hr or greater).
- Particulate Matter (filterable) limited to 0.025 lb/MMBtu.
- Total selected Metals (in this case – Pb) limited to 0.0003 lb/MMBtu.

...

Permit limitations (taken from the proposed permit) for the reduction in volume and elimination of HAP emissions:

Permit limitations for the application of operational standards from Special Condition No. 9 (SC 9) **are the same or more stringent than the vacated MACT**. The CO limits of 0.31 lb/MMBtu heat input represents about 306 ppmv at 7% oxygen. **This is well below the vacated MACT standard**. The PM emissions are 0.025 lb/MMBtu for total PM (for filterable and condensable [*sic*]), which is **more strict than the vacated MACT**. The HCl emissions are **the same as the vacated MACT**.

The maximum allowable emission rate table limit for Pb is equivalent to 0.00005 lb/MMBtu, which is more strict than the vacated MACT.³⁴

³² Citing App. Ex. 5 at 86-88.

³³ ED Ex. 7.

³⁴ ED Ex. 7 at 4-5.

This document is not dated, but the Executive Director's preliminary decision was issued on July 25, 2008.

To find the MACT floor, Mr. Hughes said he considered facilities listed in the BACT analysis of the permit, spoke with other TCEQ engineers, searched the Internet, considered the permit of the only other recently permitted biomass plant in Texas (Nacogdoches Power), and searched the EPA's RACT/BACT/LAER Clearinghouse (RBLC) for similar sources.³⁵ The RBLC is a voluntarily reported database with information on the best available air pollution control technologies required by various states for reducing air emissions from stationary sources.³⁶ Mr. Hughes found that several stoker boilers in the RBLC used oxidation catalysts or a thermal oxidizer, but he determined that they were not similar sources because their boilers produced less than 250 MMBtu/hr in exhaust.³⁷ Aspen's boiler would produce almost 700 MMBtu/hr, and Mr. Hughes said the higher volumetric flow rate of the exhaust from a large unit makes end-of-pipe treatment options less feasible technically and economically.

In addition to relying on the vacated standards to find the MACT floor, Mr. Hughes said he performed a beyond-the-floor analysis to see if there were other methods for reducing emissions. He said he considered factors such as the cost of achieving emission reductions and any non-air quality health and environmental impacts and energy requirements,³⁸ but he found no beyond-the-floor methods that showed promise for potentially reducing emissions to a greater degree.³⁹ Therefore, Mr. Hughes concluded, Aspen's proposed BACT limits for HCl, CO, and total PM would also be sufficient for the MACT limits.⁴⁰

³⁵ ED Ex. 1 at 10-11, 18-20; Tr. 670-671, 673-678, 685-688.

³⁶ One survey conducted by representatives from Enviroplan Consulting found that only 13% of the most recent BACT/LAER determinations were included in the RBLC database.

³⁷ ED Ex. 1 at 19, corrected at Tr. 667.

³⁸ ED Ex. 1 at 19.

³⁹ ED Ex. 1 at 20.

⁴⁰ ED Ex. 1 at 19-20.

C. Parties Arguments⁴¹

Protestants point out that a MACT floor for a new source must be based on the emissions levels “achieved” by the best performing source. It is unacceptable to simply assume that permitted levels in the RBLC reflect the MACT floor because RBLC is not a comprehensive database of permitted sources, they argued.⁴² Further, they mention similar sources that were listed in the RBLC but not analyzed by Aspen or the Executive Director. Similarly, Mr. Powers testified that control technologies have improved since the Subpart DDDDD was originally adopted in 2003; in particular, oxidation catalysts are now the demonstrable floor for MACT analysis.⁴³ Neither the application nor Staff’s review included: an evaluation of technical information on the design, operation, size, and estimated control efficiency of this control technology;⁴⁴ supporting documentation “including identification of alternative control technologies considered by the applicant to meet the emission limitation;”⁴⁵ or an “analysis of cost and non-air quality health environmental impacts or energy requirements for the selected control technology.”⁴⁶

According to Aspen, the same control technologies that are effective to reduce criteria pollutants (NO_x, CO and particulates) also serve to minimize both organic and metallic HAP. Consequently, the BACT assessment also constituted a case-by-case assessment for MACT purposes.⁴⁷ In Aspen’s view, this argument is supported by the fact that the proposed permit’s final HAP limits were more stringent than those in the vacated MACT regulations. Aspen also draws attention to the fact that a MACT determination is to be “[b]ased upon available information . . .”⁴⁸ According to Aspen, Aspen’s engineer and the TCEQ’s permit reviewer

⁴¹ OPIC did not address MACT in its briefs.

⁴² P. Ex. 1 at 9-10

⁴³ Tr. 491 and 573.

⁴⁴ 40 C.F.R. § 63.42(e)(xi)

⁴⁵ 40 C.F.R. § 63.43(e)(xii).

⁴⁶ 40 C.F.R. § 63.43(e)(xii).

⁴⁷ But Aspen recognizes SCR technology for NO_x reduction has nothing to do with HAP reductions and is relevant only for the BACT determination.

⁴⁸ 40 C.F.R. § 63.43(d)(2).

literally complied with this requirement when they considered the RBLC, EPA's comments, and additional information.⁴⁹

D. Denial Recommended

The ALJ finds that Aspen did not meet its obligation to provide a MACT case-by-case analysis, and Staff's review did not supply the information required by law to construct an adequate MACT analysis for Aspen. Staff knew oxidation catalysts were in use before the Response to Comments was issued on July 18, 2008. By that date, Staff had identified several stoker boilers that used an oxidation catalyst or a thermal oxidizer. Yet, apart from Staff's brief opinion about the unsuitability of an oxidation catalyst for Aspen, neither Staff nor Aspen analyzed why Aspen could not achieve lower emissions with an oxidation catalyst. If an emission-reducing technology would not lower HAP emissions, that fact must be demonstrated with objective evidence. Based on the record, it follows that Aspen did not provide an adequate MACT analysis. It did not prove its planned emissions are not less stringent than those actually in practice, and it did not discuss how it might achieve a maximum degree of HAP reductions.

The ALJ appreciates the difficult situation in which Aspen was placed when Subpart DDDDD of the federal regulations was vacated – after Aspen had already submitted its application. But it would be legally untenable to recommend approval of the application in its current state. In essence, the application and Staff's review reflect almost complete reliance on the vacated standards to determine MACT. This was not sufficient to meet the case-by-case requirements. Aspen and the Executive Director attempted to complete the MACT analysis through hearing testimony, but that testimony fell short of the reasoned analysis required by the regulations.

For these reasons, the ALJ concludes that Aspen did not conduct a case-by-case analysis and that the Executive Director's review did not supplement the application to the extent that it

⁴⁹ ED Ex. 1 at 18-20.

met MACT requirements. Accordingly, the ALJ recommends that the Commission deny the application.

E. Non-Mercury Metal HAP

PM is used in Aspen's permit as a surrogate for the non-mercury metal HAP that the facility will emit. The Draft Permit would limit total PM emissions to 0.025 lb/MMBtu,⁵⁰ which Aspen proposes to achieve with an electrostatic precipitator (ESP). The ESP Aspen intends to use has a 98.1% control efficiency for PM.⁵¹

Protestants list other operable wood-fired, stoker biomass boilers that have ESPs with 99.5% to 99.97% control efficiencies for PM, including the operational Burlington and Ryegate plants in Vermont and the permitted Russell Biomass plant in Massachusetts.⁵² Protestants also note that at least five wood-fired stoker biomass boilers have permitted PM limits of 0.020 lb/MMBtu and lower.⁵³ During Ryegate's 2007 annual testing, the measured PM rate was 0.0012 lb/MMBtu.⁵⁴ Russell Biomass is permitted at 0.012 lb/MMBtu PM emission rate.⁵⁵ As Mr. Powers testified, these facts demonstrate that more efficient technology is available.⁵⁶

Mr. Hughes testified that the 0.025 lb/MMBtu limit corresponds to a 0.013 lb/MMBtu filterable PM limit,⁵⁷ but the Draft Permit does not make this distinction.⁵⁸ At one point in Preliminary Determination Summary, Mr. Hughes writes, "Particulate Matter (filterable) limited to 0.025 lb/MMBtu," and in another paragraph he writes, "The PM emissions are 0.025 lb/MMBtu for total PM (for filterable and condensable [*sic*]." Thus, it is not clear whether the PM limit includes both filterable and condensable limits. If a 0.025 lb/MMBtu limit for total PM

⁵⁰ App. Ex. 6 at 2 (Draft Permit).

⁵¹ P. Ex. 1 at 17.

⁵² P. Exs. 6 and 12A.

⁵³ P. Exs. 1 at 18 and 20 at Tr. 433-434 (Powers)..

⁵⁴ P. Ex. 1 at 21 and P. Ex. 12B.

⁵⁵ P. Ex. 1 at 20-21 and P. Ex. 6; Tr. 426 and 437.

⁵⁶ Tr. 426.

⁵⁷ ED Ex. 1 at 19.

⁵⁸ See, e.g., ED Ex. 8 at 5.

could be said to generally correspond to a lower filterable PM limit, that lower limit must be an enforceable permit condition, Mr. Powers explained. The ESP will control only filterable PM and that limit is the appropriate measure of control system performance.⁵⁹

The evidence shows that other facilities have a 0.012 lb/MMBtu limit for filterable PM, and the record does not address the MACT considerations to show why Aspen cannot meet this emission limit. As previously stated, the Commission should deny the application. Yet, if the Commission decides to issue the permit, it would be prudent to specify distinct limits for filterable and condensable particulates. Mr. Hughes' testimony adequately addressed the fact that total PM limits of 0.025 lb/MMBtu would provide filterable limits of 0.013 lb/MMBtu. But no one seeking to enforce the permit's conditions should have to consult testimony to determine the appropriate filterable limit. Therefore, if the application is not denied, the Draft Permit should be amended to limited PM filterable emissions to 0.013 lb/MMBtu.

F. Organic Hazardous Air Pollutants

The Draft Permit would allow Aspen to use CO as a surrogate for organic HAP emissions and sets a CO MACT limit at 0.31 lb/MMBtu. This is the limit guaranteed by the vendor of Aspen's boiler.⁶⁰ Protestants assert that this CO emission limit is twice the limit set in the permits for the Sandy Creek and Spruce coal-fired plants. Yet, both Aspen and the Executive Director concluded that no add-on combustion efficiency control is required because "Good Equipment Design and Proper Combustion Practices" will provide adequate CO control. Furthermore, the application indicates that Aspen considered six new sources listed in the RBLC for CO and found no add-on abatement devices were required for BACT.⁶¹ Mr. Hughes testified that the RBLC listed several stoker boilers that used an oxidation catalyst or thermal oxidizer, but he determined that they were not "similar sources" because the boilers produced less exhaust than Aspen plans to produce.⁶²

⁵⁹ Tr. 422.

⁶⁰ ED Ex. 1 at 19.

⁶¹ App. Ex. 1 at 86-89; ED Ex. 1 at 19.

⁶² ED Ex. 1 at 19.

Protestants believe a proper MACT analysis should have evaluated the viability of an oxidation catalyst because a number of wood-fired biomass plants are permitted to use an oxidation catalyst to reduce CO emissions. While it has not yet been built, the South Point, Ohio, facility was permitted to use an oxidation catalyst in 2004, and the Russell Biomass plant in Massachusetts was permitted to use one in December 2008.⁶³ Whitefield Power and Light in New Hampshire began using an oxidation catalyst in June 2008 and is achieving a 75-85% CO removal efficiency.⁶⁴ The Bridgewater plant in New Hampshire has been operating with an RSCR and oxidation catalyst since October 2007.⁶⁵ Finally, Protestants reference a document issued by the Commonwealth of Massachusetts that provides guidance for biomass-fired electric generating units (MA Document), issued in April 2007, that identifies a BACT floor of 0.01 lb/MMBtu for CO and a presumptive CO BACT limit of 0.01 lb/MMBtu.⁶⁶ At least for beyond-the-floor analysis, more careful consideration of an oxidation catalyst and a CO emission rate of 0.01 lb/MMBtu was warranted, Protestants argue.

The Executive Director faults Protestants for not identifying a MACT CO emission limit in the Bridgewater and Whitefield permits and dismisses the MA Document as not controlling in Texas.⁶⁷ To the extent oxidation catalysts were used at the Bridgewater and Whitefield plants, they came into use after Aspen submitted its application. And the Bridgewater plant uses an oxidation catalyst only on a "pilot" scale.⁶⁸ The MA Document itself states that while Massachusetts "believes these limits [CO at 0.01 lb/MMBtu] represent a good starting point for a BACT evaluation, a final determination cannot be made on emission limits for a specific facility until any required public comment period is completed."⁶⁹ Furthermore, the Executive Director again points out that the Southpoint facility has not been built.⁷⁰

⁶³ P. Ex. 1 at 23.

⁶⁴ P. Ex. 1 at 23.

⁶⁵ P. Ex. 1 at 23.

⁶⁶ P. Ex. 5.

⁶⁷ P. Exhibit 5.

⁶⁸ Tr. 734-735 (Woolbert).

⁶⁹ P. Ex. 5 at 2, footnote 2.

⁷⁰ ED Ex. 15 at 3, Response 2.

The Executive Director's Response to Comments discusses some of these other facilities with lower CO limits:

Five of the 19 [biomass boilers in the RBLC] had lower a CO emission than Aspen, but these five are significantly different from Aspen. Of these five, three had add-on controls and two use fluidized bed combustion chambers. Two of the add-on units, including Biomass Energy, the aforementioned Southpoint, Ohio facility . . . , have an oxidation catalyst to reduce CO. Also, [Southpoint] has not yet been built and so has not been demonstrated to meet such a low limit.

The other 14 units use good combustion practice as BACT for CO rather than add on controls and have the same or higher emission rate as Aspen. Because only a **clear minority** of the recently permitted units **uses add on controls**, the TCEQ does not consider this to be typical BACT, and agreed with Aspen that good combustion practice is BACT.⁷¹

Based on this evidence, the Executive Director continues to recommend a CO emission limit of 0.31 lb/MMBtu.

To determine whether the record supports a conclusion that proposed CO emission limits were properly considered for MACT purposes. For this determination, the ALJ returns, again, to the MACT definition.⁷² The first inquiry is whether the emission limitation was not less stringent than the one achieved in practice by the best controlled similar source. The application and Staff's constructed MACT analysis indicate they were aware of lower CO emission rates achieved by similar sources using add-on controls. But because "a clear minority" used add on-controls, the controls were not evaluated. As a result, the application failed to properly establish a MACT floor for CO emissions. For MACT, one does not count the number of facilities that use a technology and those that do not and then select a limit or technology based on the majority's practice. Otherwise, technology would never improve.

The next issue is whether a lower maximum degree of CO emission reduction is achievable, regardless of whether it is presently in use. Clearly, there is some evidence that a

⁷¹ ED Ex. 15 at 3, Response 2. Emphasis added.

⁷² 40 C.F.R. § 63.41; 30 T.A.C. § 116.15

lower emission could be achieved. The Executive Director would place the burden on Protestants to prove what the CO emission limit should be, but that is not required of a protesting party. The responsibility rests on an applicant. Aspen did not evaluate whether it could build a facility that would emit as little CO as is suggested by the Massachusetts facility. Therefore, the application fails to include a MACT determination for CO emissions and should be denied. However, if the Commission decides to issue the permit, the proposed CO limit of 0.31 MMBtu/hr should be rejected and an oxidation catalyst should be required.

G. Startup, Maintenance, and Shutdown

Aspen's Draft Permit requires compliance with the MACT lb/MMBtu limits "except during periods of start-up not to exceed 12 hours per event or 36 hours per year, or shutdown not to exceed 6 hour per event or 18 hours per year."⁷³ The permit also requires Aspen Power to use "good air pollution control practice to minimize emissions" during startup, shutdown and maintenance by operating in accordance with an SSM plan.⁷⁴

Protestants contend there is no reason to exempt emissions during startup, shutdown, and maintenance from compliance with MACT (or BACT) limits. They are concerned about the emissions impact during these periods of time and cite FCAA Section 112(d), which requires emission standards to apply continuously.⁷⁵ For this reason, the Protestants claim the permit should not exempt Aspen's startup, shutdown and maintenance emissions from the requirements of Special Condition 9.

But Aspen maintains there is no exemption from effective control. Moreover, testimony established that startup, shutdown and maintenance emissions are expected to be lower than normal operating emissions, since the boiler will either not be operating at all (during

⁷³ App. Ex. 6, p. 2, Special Condition 9.

⁷⁴ App. Ex. 6, p. 12, Special Condition 33.

⁷⁵ Citing 42 U. S. CODE ANN. §§ 7412(d)(2), 7602(k).

maintenance), will be operating with biodiesel fuel at a lower capacity as it fires up, or will be operating at a lower capacity as it winds down.⁷⁶

At the beginning of startup or the end of shutdown, there may be a spike in concentration due to low temperature affecting the efficiency of the SNCR, and combustion efficiency in general. Consequently, the Executive Director did not consider concentration limits part of the BACT during these periods. Instead, Aspen is required to limit the duration of each of these activities to the shortest period practicable. The Executive Director added Special Condition 33 to require Aspen to establish work practices in a written operational plan. This parallels the EPA requirement of secondary BACT limits during periods of startup, shut down, and maintenance; when primary control methods are non-operational and secondary controls, including work practices and operational practices, are used to minimize and mitigate emissions.

Aspen's and the Executive Director's evidence and arguments on this point were convincing. The ALJ finds that Special Condition 33 and the required work operational plan should provide adequate safeguards for the public during these periods. Thus, the ALJ recommends no other limitations.

V. BEST AVAILABLE CONTROL TECHNOLOGY

The first issue requiring resolution is whether Aspen has demonstrated that it will use BACT. BACT is an emission limit. A source may use any technology as long as it achieves the limitation.⁷⁷ The ALJ begins with the Commission's past guidance and precedent on the BACT analysis.

⁷⁶ Tr. 91, 96; App. Ex. 8 at 6.

⁷⁷ ED Ex. 1 at 8.

A. TCEQ Guidance on BACT

The TCEQ Guidance Document, "Evaluating Best Available Control Technology (BACT) in Air Permit Applications," guides the evaluation of BACT proposals submitted in a new source review air permit application.⁷⁸ discusses technical issues that must be addressed as part of a BACT analysis.⁷⁹ As the Guidance Document states, a TCEQ BACT evaluation is conducted using a tiered analysis, involving three different tiers.

A **Tier I** evaluation involves a comparison of the applicant's BACT proposal to emission reduction performance levels accepted as BACT in recent permit reviews involving the same process or industry. However, the Guidance Document notes that, in some cases, "evaluation of new technical developments may also be necessary."⁸⁰ A **Tier II** evaluation involves consideration of controls that have been accepted as BACT in recent permits for similar air emission streams in a different process or industry. A **Tier III** evaluation is a detailed technical and quantitative economic analysis of all emission reduction options available for the process under review. As the Guidance Document provides, "technical practicability is established through demonstrated success of an emission reduction option based on previous use, and/or engineering evaluation of a new technology."⁸¹

Essentially then, the TCEQ's practice is to look first at other permits involving the same process or industry to see what has been determined to be achievable. When appropriate, Staff considers new technological developments. Next, with Tier II, Staff looks at emission levels that may be lowered using a different process. Finally, with Tier III, Staff analyzes the technological practicality and economic reasonableness of a new emission option. These determinations are based on either success through actual use or an engineering evaluation.

⁷⁸ ED Ex. 3.

⁷⁹ ED Ex. 3 at 3.

⁸⁰ ED Ex. 3 at 3.

⁸¹ ED Ex. 3 at 3-4.

In contrast, the EPA uses a top-down approach for BACT analysis. The EPA analysis requires the following steps: (1) identify all potential control technologies; (2) eliminate technically infeasible options; (3) rank remaining control technologies by control effectiveness; (4) evaluate the most effective controls and document the results; and (5) select the BACT by choosing the best technology not eliminated in step four (based upon concerns regarding collateral energy, environmental, or economic impacts). This approach inherently focuses on the technologies available and requires a full analysis of all available control technologies.

B. Methodology

Aspen and the Executive Director argue that nothing in the FCAA or its implementing regulations requires use of the EPA's top-down approach.⁸² Since the EPA approved Texas' PSD program in 1992, TCEQ and its predecessor agencies have used the three-tiered approach for all PSD permits issued by the State of Texas. When EPA proposed approval of the Texas PSD program, the EPA found Texas' BACT review as stringent as EPA's except in a few areas not applicable in this case.⁸³

According to the Executive Director, the EPA has interpreted the FCAA definition of BACT as possessing two fundamental concepts.⁸⁴ First, the most stringent available control technology (and associated emission limitation) must be evaluated. Second, if an applicant's proposed control alternative is less effective than the most stringent available, that applicant must demonstrate through objective indicators that case-specific energy, environmental, or economic impacts render the alternative unreasonable or otherwise not achievable.⁸⁵ Aspen and the Executive Director argue that the TCEQ three-tiered approach captures these fundamental concepts. Consequently, use of TCEQ's own definition of BACT and the TCEQ Guidance Document was entirely appropriate, Aspen and the Executive Director argue. Likewise,

⁸² 42 U.S. CODE ANN. § 7479(3); 40 C.F.R. § 52.21(j); *Alaska Dep't. of Envtl. Conservation v. EPA*, 540 US 461, 476, footnote 7 (2004).

⁸³ 54 *Fed. Reg.* 52823 (December 22, 1989).

⁸⁴ *Id.*

⁸⁵ *Id.*

Mr. Hughes testified to the equivalency of the EPA's and TCEQ's BACT review processes.⁸⁶ Aspen adds that the BACT analysis is not a nationally driven and allows for flexibility by the individual states.⁸⁷

In Protestants view, Texas is not in compliance with the PSD definition but rather is following its own definition of BACT, which states:

Best available control technology (BACT). The proposed facility will utilize BACT, with consideration given to the technical practicability and economic reasonableness of reducing or eliminating the emissions from the facility.⁸⁸

Protestants argue this definition is circular. Fundamentally, the definition provides that "BACT is BACT," which is not a meaningful standard. They also note that the EPA has not approved Texas' definition for incorporation into the Texas State Implementation Plan (SIP).⁸⁹ SIP revisions "will not be considered part of the applicable [SIP] until such revisions have been approved by the Administrator in accordance with this part."⁹⁰

The ALJ concludes that the TCEQ's tiered methodology is the proper method for analyzing BACT in this case. The tiered approach requires consideration of new technological developments, whether they have been demonstrated through actual use or engineering analysis. For those technologies that have been demonstrated in one of these two ways, the Guidance Document then provides a mechanism for evaluating whether those technologies would be feasible for the specific facility under consideration, and whether that feasible technology is economically reasonable under the circumstances. As Protestants' witness noted, if BACT is appropriately evaluated, the three-tiered method should produce maximum emission reductions in light of energy, environmental, and economic impacts. The Guidance Document also acknowledges this:

⁸⁶ Tr. 5 at 680.

⁸⁷ Citing EPA's approval of the Texas PSD program in 1992 at *57 Fed. Reg.* 28095 (June 24, 1992) (Exhibit ED-16).

⁸⁸ 30 T.A.C. § 116.111(2)(C).

⁸⁹ Citing 40 C.F.R. § 52.2270 and *67 Fed. Reg.* 58,697, 58,700 (Sept. 18, 2002).

⁹⁰ 40 C.F.R. § 51.105.

. . . BACT progresses as technology progresses or as process developments occur. Subsequent to the most recent permit reviews for the same industry, it is possible that information has become available to indicate that even better performance can be achieved than that proposed.⁹¹

There may be legitimate concerns over whether the TCEQ's three-tiered BACT methodology actually ensures the technology-forcing purposes behind the BACT requirement. But, if the tiered approach is followed correctly, it should result in a fair, balanced consideration of both existing and emerging technology that will lower emissions. In addition, TCEQ has used this tiered analysis to evaluate BACT at least since 2001, when the Guidance Document was issued. Therefore, the ALJ recommends use of the three-tiered methodology to determine BACT for Aspen.

C. Timeframe for Consideration of New BACT Information

As characterized by Protestants, Aspen and the Executive Director used only a first-tier BACT analysis. They neither considered other emission-reducing processes (Tier II) nor conducted a detailed and quantitative economic analysis of all emission reduction options for the process under review (Tier III). Protestants asserted that, by ending its BACT analysis at Tier I, the Executive Director and Aspen failed to meet TCEQ's standard.

The application, Aspen Exhibit 5 at 84 *et seq.*, outlines the steps Aspen took to determine BACT. Aspen reviewed the RBLC information from sources permitted between January 2003 and the date the application was submitted to TCEQ, April 23, 2007.⁹²

By the time public comments were filed, other plants had been permitted with lower required emission levels. Aspen argues that it should not be bound to these lower emissions because, when it filed its application, those facilities were either not permitted or they were permitted but not yet built. Furthermore, they were not listed in the RBLC. If Aspen were

⁹¹ ED Ex. 3 at 16.

⁹² See *e.g.*, App. Ex. 5 at 87, 107-114.

expected to anticipate the use of control technologies that had not been reported, the administrative process would not be fair and orderly, Aspen contends. Aspen also asserts the described technologies have not had demonstrated success. Even if they have produced lower emissions, the technologies are not economically reasonable for Aspen.

During its BACT review, Staff identified lower emissions for NO_x and CO based on information in the RBLC. After Staff identified the lower emissions and Aspen discussed them with its vendors, Aspen agreed to the lower NO_x and CO limits. Those limits are included in the Special Conditions in the Draft Permit.⁹³ During its BACT review, the Executive Director found no other technically feasible and economically reasonable methods to reduce emissions.

Protestants highlight the fact that some agencies do not report to the RBLC at all, and many report only a fraction of their permit actions. Given the limitations of the database, a Tier I BACT analysis which relied solely on the RBLC would fail to identify BACT. Moreover, Protestants point out that the case was directly referred to SOAH pursuant to 30 T.A.C. §§ 55.200 and 55.210. As a result, all issues were open for consideration during the hearing. Evidence presented during the contested case hearing is part of the administrative record and must be considered by the Commission in making a final permit decision.⁹⁴

OPIC agrees with Protestants that a comprehensive BACT analysis must go beyond mere examination of the RBLC. Even if Aspen and TCEQ were unaware of the BACT emission levels of the other plants prior to this case, they are aware of them now. Thus, OPIC contends, a comparison between the plants is inherent to a properly conducted BACT analysis.⁹⁵

The ALJ agrees with Protestants and OPIC that all evidence developed during the contested case hearing should be considered. Unlike permit processes in some jurisdictions, the Texas system is designed to develop a record when all parties are present and have an

⁹³ Citing ED Ex. 1 at 10-11.

⁹⁴ Citing TEX. GOV'T CODE ANN. §§ 2001.060, 2001.141.

⁹⁵ ED Ex. 1 at 10.

opportunity to examine witnesses and discuss documents. While Aspen did not find a comparable unit when it prepared its application, it knew at least by April 18, 2008, the date EPA filed its comments, that better technology for reducing NOx may exist.

Furthermore, the Commission's rules do not limit the scope of a BACT inquiry to what is published in the RBLC; determining what is BACT for an application requires more than an RBLC search. Commission rule 30 T.A.C. § 116.602(c) provides that "all standard permits issued by the commission under this chapter shall require best available control technology."⁹⁶ Even in a Tier I analysis, the Guidance Document recognizes that "evaluation of new technical developments may also be necessary. New technical developments may offer greater performance levels resulting in greater emission reductions than those accepted in recent permit reviews."⁹⁷ Therefore, the ALJ finds it appropriate to consider whether emission limits should be lowered to meet BACT.

D. Technical Practicality and Economically Reasonableness

During the public comment process for this application, EPA commented that the BACT analysis failed to: (1) include a comparison of the proposed control units with other types of control technology for wood waste derived fuel boilers in recent PSD permits issued nationwide; (2) include an evaluation of the technical and economic feasibility of available control technologies; and (3) explain why higher BACT limits than those for other facilities in the RBLC were allowed for NOx, CO, and PM. EPA also questioned whether a baghouse was considered as part of the BACT analysis. Finally, EPA recommended the use of continuous PM monitoring systems.

In response to EPA's comments, the Executive Director referred to:

- the RBLC information that was included in the application;
- the discussion of the environmental and economic impacts in Aspen's BACT analysis;

⁹⁶ ED Ex. 3 at 4.

⁹⁷ ED Ex. 3 at 5.

- Staff's opinion that when permits have been issued but the permitted plants have not been built, lower emission rates have not been successfully demonstrated; and
- representations from Aspen's vendor about the effectiveness of planned emission-reducing equipment, and Staff's confidence in those representations.⁹⁸

No new information was presented during the contested case hearing that altered Staff's conclusions about the application's adequacy. Thus, the Executive Director supports the emission limits in the Draft Permit.

Aspen proposes to use a "state of the art" stoker boiler designed to ensure best combustion practices for CO and VOCs and a targeted injection of a urea solution in the boiler firebox to chemically react with NOx (a/k/a selective non-catalytic reduction or SNCR technology).⁹⁹ Protestants argue that the permit application failed to consider (1) selective catalytic reduction (SCR) or regenerative selective catalytic reduction (RSCR) to reduce NOx; (2) an oxidation catalyst to lower VOC and CO emissions; and (3) a more robust ESP or polishing baghouse for PM. These are certainly available control technologies that, at a minimum, had to be considered in the application and the BACT analysis, Protestants contend. The issue relating to NOx emission is addressed in the following section. Because the MACT analysis addresses the impact that an oxidation catalyst and a different ESP could have on emissions, the ALJ does not address it here.

E. NOx

1. Catalytic Regeneration is Technically Feasible

The Draft Permit would authorize Aspen to have a 0.15 lb/MMBtu¹⁰⁰ emissions limit for NOx. OPIC and Protestants assert that SCR or RSCR is the best technology to reduce NOx

⁹⁸ ED Ex. 15.

⁹⁹ App. Ex. 16 at 24 (Woolbert).

¹⁰⁰ MMBtu is the acronym for million British thermal units per hours.

emissions and will reduce those emissions using less ammonia than is required for SNCR.¹⁰¹ With an SCR or RSCR, the operator can exert more control over how much NOx is emitted by controlling the ammonia injection rate.¹⁰²

Protestants' witness, Mr. Powers, testified that four wood waste-fired stoker units in the U.S. are equipped with SCR. Two of these units, the 50 MW Boralex Stratton in Maine and Burlington Electric's 50 MW McNeil Station in Vermont, have essentially the same capacity that Aspen would if the permit is granted.¹⁰³ Boralex Stratton has operated with SCR for more than four years.¹⁰⁴ Burlington Electric's permit for the McNeil Station includes an explicit NOx limit of 0.075 lb/MMBtu. The Massachusetts Department of Environmental Protection issued a permit in December 2008 for the Russell 50 MW facility. The permit limits NOx emissions to 0.060 lb/MMBtu.¹⁰⁵ Babcock Power, the SCR manufacturer for the Russell plant, has provided a guarantee of 0.050 lb/MMBtu for NOx emissions.¹⁰⁶ The Bridgewater Power Company and Whitefield Power Company plants in New Hampshire are permitted to use 0.75 lb/NOx MMBtu.¹⁰⁷ The Whitefield plant's limit is averaged over a calendar quarter.¹⁰⁸ Mr. Powers thinks an emission rate of 0.060 lb/MMBtu NOx is achievable for the Aspen boiler if SCR is used.¹⁰⁹ Furthermore, Babcock Power, an RSCR vendor, represents that RSCR technology will reduce the stack NOx level to 0.065 lb/MMBtu from the uncontrolled value of 0.24 lb/MMBtu. Based on the representation from Babcock and the emission limits found in other permits, Protestants seek a 0.060 lb/MMBtu NOx emission limit.

¹⁰¹ The parties generally referred to SCR technology when discussing technical feasibility and RSCR technology when discussing economic reasonableness. For the biomass facility, the evidence demonstrates that RSCR is more feasible but the parties used both acronyms to generally discuss the selective catalytic reduction technology.

¹⁰² P. Ex. 1 at 13 and 17.

¹⁰³ P. Ex. 1 at 13, 14, 24, 25, and 38.

¹⁰⁴ P. Ex. 1 at 13, 27; Tr. 551.

¹⁰⁵ P. Ex. 6 and Tr. 310, 314 (Powers); 677 (Hughes).

¹⁰⁶ P. Ex. 1 at 13-14.

¹⁰⁷ P. Ex. 7 at 8.

¹⁰⁸ P. Ex. 8 at 9.

¹⁰⁹ Tr. 551; P. Ex. 1 at 13 and 27.

Aspen did not evaluate SCR or RSCR as part of its BACT analysis because Aspen did not find those units in use when it prepared the application.¹¹⁰ Aspen asserts that no recent permits for similar airstreams have better technology than the SNCR it plans to use. The Executive Director notes that only the Russell Biomass permit includes an actual permitted NOx limit of 0.060 lb/MMBtu, and that plant has not yet been built.

The ALJ finds that Aspen did not meet its burden of proving a NOx limit of 0.15 lb/MMBtu is BACT. The Commission's rule provides that a plant "shall require best available control technology." According to the Guidance Document, determining "technical practicability of a BACT proposal involves resolving questions such as whether the proposal has been demonstrated to work based on actual operation and whether it can reasonably be expected to work based on technical analysis."¹¹¹ The Guidance Document allows technical practicability to be established through "demonstrated success and/or engineering evaluation of a new technology."¹¹² In this case, the use of SCR is supported both by demonstrated success in lowering NOx emissions and by representations from Babcock Power.

The evidence demonstrates that a lower NOx limit has been demonstrated based on actual operation of SCR technology. This technology has produced lower NOx emissions for biomass plants for as long as four years. Babcock Power has installed four RSCR units and represents that the units can be expected to reduce the stack NOx level to 0.065 lb/MMBtu.¹¹³

As a result, the ALJ recommends a lower NOx emission limit if the application is approved. The Whitefield and Bridgewater plants both have a 0.075 MMBtu limit, averaged over a calendar quarter. This limit is technologically feasible and has been successfully demonstrated. Since BACT is an emission limit, not a technology, Aspen may choose the way it achieves this limit if the permit is granted. The next inquiry is whether the recommended emission limit is economically reasonable.

¹¹⁰ Tr. 192.

¹¹¹ ED Ex. 3 at 4.

¹¹² ED Ex. 3 at 3-4.

¹¹³ P. Ex. 26.

2. RSCR Is Economically Reasonable

For Aspen, economic reasonableness is an even more pressing issue than the technological feasibility of reducing NOx emissions. Aspen argues that local economic conditions are appropriate considerations and cites the Texas definition of BACT that requires consideration of “the economic reasonableness of reducing or eliminating emissions from the facility.”¹¹⁴ Aspen raises two primary points to support its argument that RSCR technology is not economically reasonable. It argues that it provided more realistic evidence of higher capital and operating costs than Protestants and also would not have access to Renewable Energy Credits (RECs) that help defray the costs of SCR the technology for the New England plants.

In Protestants’ view, Aspen did not meet its burden to establish that SCR or RSCR is economically unreasonable. The application did not include a cost analysis for SCR, cost was not discussed in Applicant’s direct case, and no cost analysis was available for public comment and review. In Protestants’ view, the SCR technology is economically reasonable. They support their argument not only with their expert witness’s testimony but also with an exhibit authored by a Babcock Power officer. The Babcock Power estimate was sent by email on March 26, 2009, from Rich Abrams, “Vice President – Renewable Energy” to Mr. Woolbert, Aspen’s expert. In the email, Mr. Abrams writes:

As we discussed, you’ll include the ductwork, fan, and fuel supply tank in your scope. We included the aqueous ammonia tank and injection skid, PLC control system, hydraulic unit for the dampers, etc. The budget cost for this equipment, delivered to the site, is \$7.9M. We have solid information on the cost to install the system, based on our experience with the installation of four RSCR systems, and the cost should be about \$1.6M, including foundations, electrical, ductwork, insulation, and mechanical. The RSCR would reduce the stack NOx level to 0.065 lb/MMBtu from the uncontrolled value of 0.24 lb/MMBtu. The SNCR system would not be needed.¹¹⁵

¹¹⁴ Citing 30 T.A.C. § 116.10(3).

¹¹⁵ P. Ex. 26.

Mr. Abrams attached a “RSCR Cost Efficiency Analysis” and “RSCR Scope of Supply” to his estimate. The second document lists, item by item, the components for the RSCR system and shows who will provide each item. Mr. Abrams also said the cost-effectiveness of an RSCR for Aspen would be \$4,000 per ton NOx.¹¹⁶

Based on Babcock Power’s estimate, Mr. Powers said the capital costs for RSCR would be about 9% of Aspen’s estimated capital cost of \$87 million,¹¹⁷ or \$3,600/ton.¹¹⁸ This falls within a reasonable range because EPA found that economic reasonableness for BACT ranges from \$5,000 to \$10,000 a ton.¹¹⁹ Even adding in extra costs for a fan, fuel storage tank, heat exchanger and duct work, an RSCR system would still be cost effective for Aspen’s facility, according to Mr. Powers.¹²⁰ In addition, Mr. Powers testified that a cost analysis should consider the NOx, CO, and VOC emission reduction benefits together because the RSCR system includes a built-in platform to hold an oxidation catalyst. When considering the total emission reductions of the system, the cost effectiveness to reduce NOx emissions is about \$2,000 per ton, he stated.¹²¹

Aspen argues that Mr. Powers’ cost analysis was not as complete as that of its own expert, Mr. Woolbert.¹²² With respect to the cost effectiveness to reduce NOx emissions, Mr. Woolbert explained in some detail that purchasing and operating a RSCR unit would cost \$10,327 per ton versus the \$3,600 per ton number discussed in Mr. Powers’ testimony.¹²³

During Aspen’s rebuttal case, Mr. Woolbert discussed his “RSCR NOx Cost Effectiveness Calculation.”¹²⁴ He said Babcock Power’s quotation omitted two primary capital cost items, *i.e.*, a fan with a driver to drop pressure and move air through the system and a

¹¹⁶ P. Ex. 26.

¹¹⁷ P. Ex. 1 at 14, *citing* an article by a Babcock officer.

¹¹⁸ P. Ex. 1 at 14.

¹¹⁹ Tr. 297-298 and 605 (Powers).

¹²⁰ Tr. 567-568.

¹²¹ Tr. 568.

¹²² *Citing* App. Ex. App. 20; Tr. 723-725, 728, and 734.

¹²³ *Citing* App. Ex. 20.

¹²⁴ App. Ex. 20.

supplemental fuel tank to support the regeneration unit necessary to produce enough heat for the catalytic reaction.¹²⁵ To Babcock Power's estimate of direct capital costs, he added indirect costs for engineering, construction, contractor fees, start-up, performance tests, and contingencies of \$2,096,375 to arrive at a total capital cost of \$11,142,573. To this expense, Mr. Woolbert then added higher annualized operating costs, such as 25% in supplemental fuel costs based on fuel usage at Boralex Stratton and for the not-yet-built Russell, Massachusetts plant. He also said Babcock Power's calculations are based on a five-year catalyst life, but the vendor is willing to guarantee only two years of catalyst life. Consequently, Mr. Woolbert used a two-year catalyst life, at a cost of \$792,262 per year, when he evaluated the annualized cost of the catalyst.¹²⁶ And in Mr. Woolbert's opinion, the RSCR unit could not be expected to last 20 years; a 10-year lifespan would be more appropriate due to temperature swings in the regenerative portion of the unit.¹²⁷

In reply, Protestants cited Babcock Power's estimate that indicated certain items or services would be furnished by the RSCR seller and others would be furnished by the "erection provider."¹²⁸ Mr. Woolbert assumed that the items to be furnished by the "erection provider" were not included in Babcock's estimate. But Protestants point to items in the estimate, such as a draft fan, that Babcock Power did include.¹²⁹ They cite Mr. Powers' testimony when he questioned why contractor fees and construction field expenses would almost duplicate this entire expense presented by Babcock Power.¹³⁰ Mr. Powers also said an RSCR is a structural piece of equipment made of metal with a ceramic interior. There is no credible reason it would not last 20 years. To suggest a 10-year suggested life unnecessarily drives up the projected cost, he testified.¹³¹

¹²⁵ Tr. 728-729.

¹²⁶ App. Ex. 20; Tr. 729-732.

¹²⁷ Tr. 733-734.

¹²⁸ P. Ex. 26.

¹²⁹ P. Ex. 26, RSCR Cost Efficiency Analysis at 1.

¹³⁰ Tr. 625-629.

¹³¹ Tr. 623-624.

Protestants also argued that Aspen's cost analysis was created too late for a meaningful analysis, because Mr. Woolbert presented it during Aspen's rebuttal case. Therefore, the parties did not have an opportunity to carefully analyze the document. For this reason and because Aspen's estimated costs contradicted Babcock Power's estimate, Protestants argue that Aspen has not met its burden of proof.

According to the Executive Director, the RECs for reduced NOx emissions in New England are important economic considerations. Burlington's McNeil permit limits NOx emissions to 0.23 lb/MMBtu without installation of the SCR technology.¹³² The SCR system was installed to comply with the REC program, and the lower limit of 0.075 lb/MMBtu did not become effective until the SCR was installed and operating.¹³³ The NOx permit limit for Boralex Ashland is 0.15 lb/MMBtu; lower NOx limits are only applicable when the plant is generating electricity for the REC market.¹³⁴ The Executive Director highlights the fact that Texas does not have a comparable REC program and argues that without similar economic incentives to reach voluntary lower emission rates, a 0.15 lb/MMBtu NOx limit is reasonable.

Mr. Woolbert testified that, in New England, the range of payment is about \$30 to \$40 a megawatt hour for each hour of production. For a 50-megawatt plant, the RECs in New England could range from \$6 million to \$12 or \$13 million. The REC values in Texas are between \$1 and \$3 per megawatt hour.¹³⁵ Also, New England consumers pay less per kilowatt for electricity.¹³⁶

OPIC was not persuaded by Mr. Woolbert's testimony that RSCR technology is not cost effective unless a facility operator receives RECs. Based on evidence regarding the cost effectiveness of the control technologies that could lower emissions, OPIC said emission limits from other plants should be considered for BACT comparison purposes.

¹³² P. Ex. 5.

¹³³ P. Ex. 5.

¹³⁴ P. Ex. 11A.

¹³⁵ Tr. 242-244.

¹³⁶ Tr. 244-245.

Even though Mr. Powers recognized the incentive the RECs provide for the New England plants to use SCR technology,¹³⁷ Protestants argue that the lack of an REC program in Texas like the one in New England does not mean SCR lacks economic reasonableness. Technology is available that will lower emissions, and the cost has been demonstrated to be within the range recommended by EPA.

The ALJ agrees with Protestants and OPIC that Aspen did not meet its burden of proving that the SCR and RSCR technologies are not economically reasonable for Aspen. While the RECs are significant for the plants that receive them, the cost of RSCR technology falls within the EPA range even without RECs. Mr. Powers testified that EPA's guidance on economic reasonableness for BACT is \$5,000 to \$10,000 a ton. Even if Mr. Woolbert's cost analysis were exactly correct on every line item, his estimate of \$10,037 almost fits within that range.

As Protestants point out, Mr. Woolbert's cost analysis was prepared very late in the proceedings and he added significant amounts to Babcock Power's estimates. The extra \$2 million in indirect costs is of particular interest. Mr. Woolbert did not explain why construction costs and contingencies would be so much higher than what Babcock Power estimated. He said he considered total costs, including the benefit of not needing the SNCR technology, when he calculated the cost per ton of NOx removed with RSCR technology. Nevertheless, the extent to which he compared the costs of the two systems is not clear from the evidence. For example, he added \$10,000 for a performance test but does not show any savings that Aspen would receive by not testing the SNCR technology. Mr. Woolbert also did not prepare a line-by-line comparison of the costs of the two types of technology (SNCR and RSCR) for fuel, electricity, ammonia and other items that be incurred when using either type of system.

Similarly, Mr. Woolbert planned for replacement of the catalyst and regeneration cycle every two years, the length of time Babcock would guarantee it.¹³⁸ Given the way the case unfolded, there was no opportunity for any vendor representative or other witness who has

¹³⁷ Tr. 317-320.

¹³⁸ App. Ex. 20 at 3.

evaluated RSCRs over time to present evidence as to the usual life of a catalyst. Thus, Aspen's evidence is not sufficient to meet its burden of proving the cost of reducing NOx is economically unreasonable. Therefore, the ALJ finds Aspen's NOx emissions limit should be reduced to 0.075 lb/MMBtus if the Commission decides that the application should be approved.

VI. AIR DISPERSION MODELING

A. Legal Standards and Issues

Under Texas statutes and rules, Aspen is required to demonstrate that the expected emissions from its facility will not contravene the intent of the TCAA, including the protection of public health, public welfare, and physical property.¹³⁹ To satisfy these requirements, Aspen conducted air dispersion modeling to demonstrate the anticipated air quality effects of the proposed facility. In its Air Quality Impact Assessment Report, Applicant found that:

- predicted off-site impacts from the plant are less than State Property Line standards;
- impacts from the plant are less than the applicable Effects Screening Levels; and
- none of the plant's sources will make a significant impact for any pollutants of concern in the PSD NAAQS Analysis.¹⁴⁰

Aspen's modeling demonstrated that there would be no harm to public health, public welfare, or physical property, as addressed by the various state and federal standards (such as NAAQS, PSD increment standards, state property line standards, *etc.*). However, Protestants raised two challenges to the reliability and sufficiency of Aspen's air quality modeling: (1) Aspen's failure to follow EPA Air Modeling Guidance left it without sufficient proof that its NOx emissions would not cause or contribute to exceedances of the NAAQS and PSD increments, and (2) Aspen failed to model worst case emissions when it modeled for only 50 out of 52 weeks per year.

¹³⁹ TEX. HEALTH & SAFETY CODE § 382.0518(b); 30 TEX. ADMIN. CODE § 116.111(a)(2)(A)(i).

¹⁴⁰ App. Ex. 8.

B. NOX Emissions

One of the demonstrations that must be made by Aspen is that its plant emissions will not exceed the NAAQS or PSD increment for NO_x. Aspen did this by relying on modeling performed by Mr. Woolbert. He conducted screening air dispersion modeling prior to submission of the permit application and then refined air dispersion modeling after the Executive Director concurred that certain emission controls were BACT.¹⁴¹

Protestants did not call a modeling expert to challenge Mr. Woolbert. Nevertheless, they argue that Aspen's modeling was deficient in at least two respects: (1) that Mr. Woolbert's modeling of NO_x screening impacts for the annual PSD increment was improperly performed, and (2) that Mr. Woolbert failed to account for worst case conditions by modeling for production to occur during only 50, instead of 52, weeks per year.

In support of their position, Protestants cite to EPA and TCEQ regulations. It is undisputed that these regulations require Aspen to demonstrate that its emissions will not cause or contribute to air pollution in excess of the NAAQS or PSD increment, which is set at 25 µg/m³ for NO_x. In dispute is whether Aspen complied with, and whether it was required to comply with, EPA's Guidelines on Air Quality Models. Protestants assert that Mr. Woolbert failed to comply with these guidelines when he conducted the screening or *de minimis* modeling for NO_x.

More specifically, Protestants contend that Mr. Woolbert incorrectly relied on the average of five years of meteorological data for input into his screen modeling, when he was required to evaluate the highest average for each of the five years of data in his modeling runs. Protestants derived this conclusion from 40 C.F.R. Part 51, Appendix W which states:

¹⁴¹ App. Ex. 16 at 6.

- a. For new or modified sources predicted to have a significant ambient impact and to be located in areas designated attainment or unclassifiable for the SO₂, PB, NO₂, or CO NAAQS, the demonstration as to whether the source will cause or contribute to an air quality violation should be based on: (1) The highest estimated annual average concentration determined from annual averages of individual years¹⁴²

This issue is particularly troubling to Protestants as Mr. Woolbert's screening modeling predicted a maximum on-ground NOX impact of 0.994 µg/m³, very close to the regulatory *de minimis* amount designated for NOX of 1 µg/m³. Protestants argue that had Mr. Woolbert performed his modeling runs in accordance with the applicable guidelines, the plant's NOX impact, in all probability, would have been above the *de minimis* amount, necessitating refined modeling in order to prove its emissions would not cause or contribute to air pollution in excess of the PSD increment.

Protestants note that Mr. Woolbert admitted he averaged five years of data and compared the five-year average to the significance levels when he analyzed the screen modeling.¹⁴³ He did not compare the annual average for each of the five years of meteorological data, as Protestants' assert is required by the guidelines, but Mr. Woolbert did admit to "being in the process of running those numbers."¹⁴⁴ According to Protestants, they do not need an expert to show that the averaged value of a set of numbers will be lower than some of the numbers averaged. Given how close Mr. Woolbert's averaged five-year value was to the *de minimis* standard, Protestants maintain that common sense leads to a determination that had Mr. Woolbert correctly modeled the NOX emissions, the *de minimis* standard would have been exceeded and further modeling was necessary to prove whether the plant's emissions would cause or contribute to air pollution in excess of the PSD increment.

When Aspen was confronted with this modeling deficiency, Protestants urge that it began to argue that modeling was discretionary and began to minimize the importance of guidance

¹⁴² 40 C.F.R. Part 51, Appendix W at 539.

¹⁴³ Tr. 219.

¹⁴⁴ Tr. 220.

documents. Protestants reject this argument, noting that EPA's regulations require all estimates of ambient air quality concentrations for PSD purposes to be based on models, databases and the other requirements specified in Appendix W to 40 C.F.R. Part 51.¹⁴⁵ Moreover, TCEQ's rules require that air quality estimates be based on the applicable air quality model and procedures specified in the EPA Guidelines or other models approved for use by EPA in the Texas SIP.¹⁴⁶ Because the modeling relied on by Aspen was not performed in compliance with TCEQ and EPA regulations and guidelines, Protestants contend the modeling is fatally flawed and may not form the basis for a finding that the plant will not cause or contribute to violations of the NOX NAAQS and PSD Increment.

Aspen responds that Mr. Woolbert's professional modeling efforts were reviewed and approved by the Executive Director and that Protestants should not be allowed to bootstrap guidance documents into a hard line regulatory requirement, reading out of the modeling exercise any room for professional judgment and interpretation. Aspen urges that air dispersion modeling is not required, but rather is a discretionary part of the air quality permit application. It argues that guidance is just that, a guideline, and does not contemplate hard and fast requirements, regardless of whether the guidance has been incorporated into Commission rules. Applicant believes that whether to require modeling is within the professional judgment of the Executive Director, who may determine that potential ambient impacts are of such little concern that they are below regulatory levels even without modeling. In support of its position, Applicant cites Commission rule 30 T.A.C. § 116.111(a)(2)(J) which states, "[C]omputerized air dispersion modeling may be required by the executive director to determine air quality impacts from a proposed, new facility or source modification."¹⁴⁷

Aspen notes that Protestants offered no expert witness to support their position or to suggest that there is any real threat of significant impacts. Rather, Protestants merely assert that a single screen modeling run was improperly modeled, but there is no evidence suggesting that

¹⁴⁵ 40 C.F.R. §§ 51.166(l) and 52.21(l).

¹⁴⁶ 30 T.A.C. § 116.160(d).

¹⁴⁷ 30 T.A.C. § 116.111(a)(2)(J). Emphasis added.

the plant might be out of compliance with the applicable standards even if Protestants' allegations are true. Thus it appears to Applicant that Protestants would have the application dismissed based on an alleged technical deficiency in a *de minimis* screening model, unsupported by expert opinion, which even if shown to be incorrect, would have only triggered a more sophisticated modeling.

To be clear, Aspen finds no modeling error and notes that neither does the Executive Director. And Applicant disagrees with Protestants claims that EPA's guidance, Appendix W to 40 C.F.R. Part 51, requires any specific modeling techniques. Aspen understands this guidance to be EPA recommendations generally applicable to the higher levels of modeling, more refined than the screening modeling at issue here. Moreover, in Section 3.1 of the Preferred Modeling Techniques, EPA states that changes may be made to a "preferred model" including the averaging of time for model results. While Section 7.2.1.1.b recommends that five years of meteorological data be used, it is not required.¹⁴⁸ For these reasons, Applicant urges that Protestants' objections to its modeling be discounted and that a finding be made stating that the plant will not cause or contribute to air pollution in excess of the PSD increment for NO_x.

The Executive Director contends that Applicant's Air Quality Analysis was acceptable, as testified to by its witnesses, Rachel Gould and Dan Schultz.

After considering the evidence and arguments, the ALJ finds that the plant will not contribute to air pollution in excess of the PSD increment for NO_x. The ALJ does not agree with Protestants' assessment that Mr. Woolbert essentially admitted to incorrectly performing the modeling run for NO_x. Rather, it appears that Mr. Woolbert had a difficult time following the cross-examination. For instance, Mr. Woolbert testified:

¹⁴⁸ 40 C.F.R. Part 51, Appendix W at 539.

Q: And is it correct that TCEQ and EPA guidance require each five-year data be compared individually to a significance level?

A: I didn't ---

Q: That each five year's data be compared individually - each five years' data be compared individually to the significance level:

A. Yes. We pick the worst case number, which would have accomplished that result.¹⁴⁹

The ALJ is unsure that Mr. Woolbert understood what was being asked. It is particularly evident in this instance where the Protestants did not offer a technical expert to explain their concerns.

Ultimately, the ALJ does not conclude that Mr. Woolbert's application of the guidelines was erroneous. There is no expert opinion in the record indicating as much. To the contrary, all of the testimony, from those who regularly work with the EPA and TCEQ modeling guidelines, conclusively establishes that the modeling was sufficiently performed. Finding the modeling performed sufficient for determining that potential on ground impacts of NOX is below significant impact levels, the ALJ does not address the legal issues related to whether guidelines are mere recommendations or are something more substantial.

The only other significant air quality issue raised by Protestants was whether worst-case emissions were modeled in accordance with EPA and TCEQ regulations and guidance. Protestants argue that this was not accomplished because:

- Aspen modeled operations for only 50 weeks per year while the Draft Permit has no such limitation,¹⁵⁰
- annual PM modeling should have assumed wood chip piles to be at 100% capacity;¹⁵¹ and
- biodiesel was assumed to be used only when the plant was operating at 25% capacity or less, yet the Draft Permit does not so limit operations.¹⁵²

¹⁴⁹ Tr. 150.

¹⁵⁰ App. Ex. 8 at 21.

¹⁵¹ App. Ex. 8 at 21; Tr. 127.

¹⁵² Tr. 94.

Applicant responded that the evidence in the record establishes maintenance is expected to last for one week and occur twice per year, with biomass facilities in general anticipating two to three weeks of downtime each year.¹⁵³ Mr. Woolbert testified that assuming 75% capacity for PM modeling of wood chip piles was reasonable and his testimony was uncontroverted.¹⁵⁴ Finally, Applicant notes that its biodiesel representation is in the application and, pursuant to the TCEQ regulation, representations in the application become enforceable permit conditions and cannot be deviated from if an increase in emissions will occur.

The evidence supports Applicant's representations. However, the ALJ finds it is reasonable to include more specific permit special conditions to address Protestants' concerns regarding limits on operations and biodiesel fuel. As such, the permit should be amended to include a special condition that the facility only operate 50 of 52 weeks per rolling 12-month period and that biodiesel only be used when the plant is operated at 25% or less of capacity.

VII. TRANSCRIPT COSTS

In accordance with Commission rules, the ALJ required a transcript be prepared in this case because the hearing was scheduled to last longer than one day.¹⁵⁵ Aspen agreed to pay the costs associated with an expedited transcript. Protestants request that the Commission assess all transcript costs to Aspen. In contrast, Aspen concedes that it will likely be expected to bear a large part of the costs, but asserts that Protestants, other than Ms. Shelton, should be assessed 30% of the non-expedited costs. After considering the factors set out in the TCEQ's rules, the ALJ recommends that the Commission assess all transcription costs against Aspen.

¹⁵³ App. Ex. 15 at 4; Tr. 51.

¹⁵⁴ Tr. 124 and 127.

¹⁵⁵ 30 T.A.C. § 80.23(b)(4).

The Commission's rules at 30 TEX. ADMIN. CODE § 80.23(d) list the factors to be considered in assessing reporting and transcription costs. The factors relevant to this case include the following, along with the ALJ's analysis of each factor as applied to the facts of this case:

- (A) "The party who requested the transcript." The ALJ ordered the transcript.
- (B) "The financial ability of the party to pay costs." The aligned Protestants are individual residents in the neighborhood of the proposed power plant. According to testimony, the neighborhood where Protestants live is economically poor. One Protestant, Ms. Shelton, qualified for legal aid by a non-profit organization that provides legal services to low income Texans. There was no evidence regarding Protestants' ability to pay transcription costs, but Aspen does have the financial ability to pay them.
- (C) "The extent to which the party participated in the hearing." Aspen and Protestants participated actively in the hearing. Questioning of witnesses was to the point and directed toward relevant issues, and none of the parties unduly burdened the transcript with frivolous arguments, irrelevant issues, or unnecessary questions.
- (D) "The relative benefits to the various parties of having a transcript." Although all parties benefitted from having a transcript, the ALJ finds that Aspen, as the party bearing the burden of proof, could anticipate the greatest potential benefit from an ability to cite and reassemble information within the record.

- (E) “The budgetary constraints of a state or federal administrative agency participating in the proceeding.” The broad responsibilities and limited budgets of the agency parties in this case make it unreasonable to assess costs against them. The rules also preclude the Commission from assessing costs against parties that cannot appeal a Commission decision (the Executive Director and OPIC).¹⁵⁶
- (F) Because this is not a rate proceeding, this factor is inapplicable.
- (G) “Any other factor which is relevant to a just and reasonable assessment of costs.” The ALJ finds that all parties had plausible arguments for the issues they raised, and no party unduly burdened the transcript costs during the hearing.

Based on a number of these factors, it appears that transcript costs could reasonably be assessed against Aspen and Protestants, with the exception of the expedited costs which Aspen agreed to pay. However, Protestants are individuals whose ability to pay was not developed in the record except for one Protestant, Ms. Shelton, who was represented by a non-profit organization that provides legal services to low income Texans. The ALJ does not believe it appropriate to penalize Protestants for challenging the permit application when they have identified legitimate concerns of inadequacies in the application. Therefore, the ALJ finds it appropriate to assess all transcript costs to Aspen.

VIII. SUMMARY

The application does not support Aspen's requested HAP permit because it did not comply with legal requirements. With its application, Aspen seeks State Air Quality Permit No. 81706, PSD; Air Quality Permit No. PSD-TX-1089, and HAP Permit No. 12. Since the MACT analysis was deficient, the application should be denied and no permits should be issued.

¹⁵⁶ 30 T.A.C. § 80.23(d)(2).

However, if the Commission disagrees with this recommendation and finds that MACT application was adequate, the Draft Permit should be amended to reduce the NOx emission limit to 0.075 lb/MMBtus, specify that PM filterable emissions are limited to 0.013 lb/MMBtu, lower the CO limits and required an oxidation catalyst. Finally, a special condition should be added that allows the facility to operate only 50 of 52 weeks per rolling 12-month period and to use biodiesel only when the plant is operated at 25% or less of capacity.

SIGNED August 24, 2009.

A handwritten signature in black ink, appearing to read "Sarah G. Ramos", written over a horizontal line.

SARAH G. RAMOS
ADMINISTRATIVE LAW JUDGE
STATE OFFICE OF ADMINISTRATIVE HEARINGS

APPENDIX

Abbreviations

BACT - Best Available Control Technology (BACT)

C.F.R. - Code of Federal Regulations

EPA – Environmental Protection Agency

ESP - electrostatic precipitator

FCAA – Federal Clean Air Act

HAP - Hazardous Air Pollutant

MACT - Maximum Achievable Control Technology (MACT)

MMBtu (pounds per million British thermal units)

NAAQS - National Ambient Air Quality Standards

PM – particulate matter

PSD – Prevention of Significant Deterioration

REC - Renewable Energy Credit

SCR - Selective Catalytic Reduction

SIP - State Implementation Plan

SNCR – selective non-catalytic reduction

RBLC – EPA's RACT/BACT/LAER Clearinghouse –

RSCR - regenerative selective catalytic reduction

T.A.C. - TEX. ADMIN. CODE

TCAA - Texas Clean Air Act, TEX. HEALTH & SAFETY CODE ANN. Ch. 382

Tpy - tons per year

Particular Contaminants

Cl – chlorine

CO - carbon monoxide

H₂SO₄ . sulfuric acid mist

HCl - hydrogen chloride

NH₃ - ammonia

NO_x - nitrogen oxides

Pb - lead

PM - particulate matter

PM₁₀ - particulate matter less than 10 microns in diameter

PM_{2.5} - particulate matter less than 2.5 microns in diameter

SO₂ - sulfur dioxide

VOCs - volatile organic compounds

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY



ORDER
REGARDING THE APPLICATION BY ASPEN POWER, LLC FOR
STATE AIR QUALITY PERMIT NO. 81706;
PREVENTION OF SIGNIFICANT DETERIORATION
AIR QUALITY PERMIT NO. PSD-TX-1089; AND
HAZARDOUS AIR POLLUTANT MAJOR SOURCE PERMIT NO. 12.
TCEQ DOCKET NO. 2008-1145-AIR AND
SOAH DOCKET NO. 582-09-0636

On _____, the Texas Commission on Environmental Quality (TCEQ or Commission) considered the application of Aspen Power, LLC (Aspen or Applicant) for State Air Quality, federal Prevention of Significant Deterioration, and Hazardous Air Pollutant major source permits to construct a new biomass-fired generating unit with a 45-megawatt (MW) generator. The facility would be located in Angelina County, Texas, and named the Lufkin Generating Plant. A Proposal for Decision was presented by Administrative Law Judge (ALJ) Sarah G. Ramos of the State Office of Administrative Hearings (SOAH), who conducted a hearing in this matter in Austin, Texas, on April 27-30 and May 8, 2009. The record closed on June 23, 2009.

After considering the Proposal for Decision, the Commission makes the following Findings of Fact and Conclusions of Law.

FINDINGS OF FACT

Introduction and Procedural History

1. Aspen proposes to construct a new biomass-fired utility boiler with a heat input of 692.6 MMBtu/hr and ancillary equipment, the Lufkin Generating Plant.

2. On April 23, 2007, Aspen filed an application with the TCEQ, seeking air quality permit authorization to construct and operate the facility in Lufkin, Angelina County, Texas.
3. Applicant's facility is proposed to be located at the northeast junction of Kurth Drive and State Highway 103 (Loop 287) within the limits of the City of Lufkin, Texas.
4. The boiler, turbine, and other process operations would be located in a area zoned for heavy manufacturing use. The water retention pond and parking lot would be located in an area zoned for special use light manufacturing.
5. Aspen's application was prepared and sealed by a registered professional engineer licensed with the State of Texas and was signed by its president as an authorized representative of the company.
6. Aspen's application was determined by the TCEQ Executive Director's staff to be administratively complete on May 23, 2007.
7. Applicant published the Notice of Receipt of Application and Intent to Obtain Permit in the *Lufkin Daily News* on June 22, 2007, and in *La Lengua*, a Spanish language newspaper, on June 20, 2007. Both of these newspapers are generally circulated in Angelina County, Texas.
8. Signs giving notice of the application were posted and certified at the proposed facility's site in accordance with 30 TEX. ADMIN. CODE (T.A.C.) § 39.604.
9. Applicant supported its permit application on November 1, 2007, with the submission of an Air Quality Impact Assessment Report, prepared by its professional engineer, and the report included air quality computer dispersion modeling results derived from applying U.S. Environmental Protection Agency (EPA) approved models to projected emissions from the Aspen facility.
10. After reviewing Aspens application, the TCEQ Executive Director's Staff determined it was technically complete on January 18, 2008.

11. On March 7, 2008, the Executive Director issued Draft Permit No. 81706, PSD-TX-1089 and HAP 12.
12. Applicant published the Notice of Application and Preliminary Decision in the *Lufkin Daily News* on March 13, 2008, and in *La Lengua* on March 19, 2008.
13. Within the 30-day public comment period, the Executive Director received comments from the EPA on his preliminary decision.
14. The Executive Director issued the Response to Public Comment on July 18, 2008. As a result of the public comments received, the Draft Permit was changed to add Special Provision No. 33.
15. Special Provision No. 33 requires Aspen to develop a written maintenance, startup, and shutdown plan.
16. The Executive Director issued Aspen's Permit No. 81706, PSD-TX-1089 and HAP 12 on July 25, 2008.
17. The Commission received timely motions to overturn, and on October 8, 2008, the Commission granted the motions, set aside the permit, and remanded the application to the Executive Director with instructions to directly refer the application to SOAH.
18. The Applicant published the Notice of Hearing in the *Lufkin Daily News* on October 18, 2008.
19. The Commission's Chief Clerk mailed the notice of hearing on October 15, 2008. The notice included the time, date, and nature of the hearing; legal authority and jurisdiction under which the hearing would be held; applicable statutes and rules; and the matters asserted, as required by TEX. GOV'T CODE ANN. § 2001.052.
20. The preliminary hearing was held in Lufkin, Texas, on November 17, 2008 at which jurisdiction was taken and the following were admitted as parties: Aspen; the Executive Director; the Office of Public Interest Counsel; and aligned Protestants – Sylvester

McClain; Theodore Mathis; Betty Mathis; Annie Mae Shelton; Dr. Dallas Pierre; Aaron Hartsfield; Willie Hartsfield; Oletha Durham; and Donald Anderson.

21. The hearing on the merits was held at the State Office of Administrative Hearings in Austin, Texas, on April 27-30 and May 8, 2009.
22. For PSD purposes, the Lufkin Generating Plant would emit the following air contaminants in significant amounts: carbon monoxide (CO); volatile organic compounds (VOCs); nitrogen oxides (NO_x); sulfur dioxide (SO₂); and particulate matter (PM) including particulate matter less than 10 and 2.5 microns in diameter (PM₁₀ and PM_{2.5}).
23. The plant would also emit sulfuric acid mist (H₂SO₄); lead (Pb); hydrogen chloride (HCl); chlorine (Cl); and ammonia (NH₃).

Federal Standards of Review for Constructed or Reconstructed Major Sources of Hazardous Air Pollutants (HAP): 30 T.A.C. § 116.111(a)(2)(K); 40 Code of Federal Regulations (C.F.R.) § 63.43; 42 U.S. CODE ANN. §7412(g)

24. Aspen's proposed power plant would be a major source of HAP.
25. The proposed emissions of benzene, acrolein, NH₃, formaldehyde, and HCl would each exceed the 10 tons per year (tpy) major source thresholds specified by the Federal Clean Air Act, 42 U. S. CODE ANN. Ch. 85, § 7401 *et seq.* (FCAA).
26. Total HAP are estimated at 109 tpy, significantly above the FCAA major source threshold of 25 tpy for all HAP.
27. Aspen did not prepare a FCAA § 112(g) case-by-case Maximum Achievable Control Technology (MACT) case-by-case application to support its request for a HAP Major Source Permit.
28. The Executive Director attempted to construct a MACT case-by-case analysis from the Best Available Control Technology (BACT) analysis included in the application.

29. Oxidation catalysts were in use before the Response to Comments was issued on July 18, 2008, and by that date, Staff had identified several stoker boilers that used an oxidation catalyst or a thermal oxidizer.
30. Neither the application nor Staff's review included: an evaluation of technical information on the design, operation, size, and estimated control efficiency of using a catalyst control technology; supporting documentation that identified alternative control technologies to meet emission limits; or an analysis of cost and non-air quality health environmental impacts or energy requirements for the selected control technology.
31. Insufficient evidence was offered to prove that an oxidation catalyst is unsuitable for the Lufkin Generating Plant.
32. An oxidation catalyst, if suitable, could achieve lower emissions.
33. The cost of using a catalyst for a larger boiler was not quantified.
34. The MACT floor for emissions of organic HAP was not adequately established.
35. Filterable PM is an appropriate surrogate pollutant for non-mercury HAP metals because filterable PM and non-mercury HAP metals have common formation mechanisms and control techniques.
36. CO is an appropriate surrogate pollutant for organic HAP emissions because CO and organic HAP have common formation mechanisms and control technologies.
37. It has been EPA's practice to use CO as a surrogate pollutant for organic HAP when establishing MACT emission limits for combustion sources.
38. Staff's constructed MACT analysis indicates Staff members were aware of lower CO emission rates achieved by similar sources using add-on controls.
39. It is inappropriate to count the number of facilities that use a technology and those that do not and then decide whether a technology would reduce emissions based on the majority's practice.

40. Special Condition 33 and the work operational plan that is required would provide adequate safeguards for the public during Aspen's startup, shutdown and maintenance.

Best Available Control Technology: 30 T.A.C. § 116.111(a)(2)(C)

41. The TCEQ guidance document, "Evaluating Best Available Control Technology (BACT) in Air Permit Applications," provides guidance for evaluating BACT proposals.
42. Under the TCEQ's guidance document, the BACT evaluation is conducted using a tiered analysis approach, involving three different tiers: (1) compare the applicant's BACT proposal to emission reduction performance levels accepted in recent permit reviews involving the same process or industry, with an evaluation of new technical developments in some cases; (2) consider controls that were accepted as BACT in recent permits for similar air emission streams in a different process or industry; and (3) analyze, in detail, the technical and quantitative economic aspects of all available emission reduction options.
43. For its main boiler, Aspen proposes a targeted injection of a urea solution in the boiler firebox to chemically react with NO_x (a/k/a selective non-catalytic reduction or SNCR technology).
44. Aspen did not consider selective catalytic reduction (SCR) technology when determining BACT.
45. Aspen proposed a NO_x emission limit of 0.15 lb/MMBtu.
46. At the time of hearing, four wood waste-fired stoker units in the U.S. were equipped with SCR:
 - a. The 50 MW Boralex Stratton in Maine has operated for more than four years and is of similar capacity to Aspen.
 - b. Burlington Electric's 50 MW McNeil Station in Vermont is also of similar capacity to Aspen and has a NO_x limit of 0.075 lb/MMBtu.
 - c. In New Hampshire, plants operated by the Bridgewater Power Company and Whitefield Power Company are permitted with a NO_x limit of 0.075 lb/MMBtu.

47. The Maine and New Hampshire biomass facilities are similar to the one proposed by Aspen and currently achieve lower NO_x emissions than those included in the Draft Permit.
48. The use of SCR is supported by both demonstrated success and engineering evaluation.
49. Regenerative selective catalytic reduction (RSCR) is a variation of the SCR technology and is applicable for biomass-fired plants.
50. Purchasing and operating an RSCR unit would not exceed the \$10,000 per ton cost that EPA has determined reasonable for BACT analysis.
51. The lack of renewable energy credits in Texas does not put the operating costs associated with RSCR into an unreasonable category.
52. A NO_x limit of 0.075 lb/MMBtu is technologically achievable and economically reasonable.

Air Dispersion Modeling: TEX. HEALTH & SAFETY CODE § 382.0518(b); 30 T.A.C. § 116.111(a)(2)(A)(i).

53. The facility would emit the following emissions from:
 - the boiler – flue gas constituents associated with wood combustion processes, including unburnable compounds in wood, combustion products of incomplete combustion including carbon, CO, polycyclic organic matter, nitrogen, NO_x, acrolein, benzene, chlorine, formaldehyde, HCl, manganese compounds, mercury, naphthalene, styrene, toluene, and NH₃;
 - the cooling tower – PM in the form of water hardness compounds and dissolved salts entrained in water droplets and mist;
 - the steam turbine and plant air compressors – lubricating oil vapors associated with the lubrication systems;
 - plant roadways and parking areas – dust particulate emissions;
 - conveyance and unloading operations and the storage piles – wood dust emissions;

- fly ash conveyance and storage – fugitive fly ash particulate emissions;
 - opening of commercial urea product bags – urea and NH₃; and
 - gasoline and diesel fuel storage tank filling and dispensing – VOCs.
54. Aspen’s plant will not operate for more than 50 of every 52 consecutive weeks.
 55. Aspen’s engineer conducted air dispersion computer modeling to predict resultant air contaminant concentrations associated with Aspen’s proposed power plant.
 56. The Executive Director approved Aspen’s Air Quality Impact Assessment Report.
 57. For each of the established National Ambient Air Quality Standards (NAAQS), Aspen’s predicted emissions would be below the applicable standard, including both the primary standards, which are set to protect the health of the most sensitive individuals with an adequate margin of safety, and secondary standards, which are set to protect against welfare effects such as decreased visibility, effects on climate, effects on crops and other vegetation, effects on wildlife and effects on the economy.
 58. The predicted emissions from the Aspen facility will comply with TCEQ property line standards.
 59. Aspen’s predicted emissions impacts were below applicable TCEQ Effects Screening Levels.
 60. The predicted levels of Aspen’s emissions would not create a nuisance or a condition of air pollution.
 61. The Aspen facility would meet applicable visible emission and particulate requirements set forth at 30 T.A.C. Chapter 111.
 62. Angelina County, Texas, is classified as an “attainment” region with respect to all applicable NAAQS; therefore, EPA’s Prevention of Significant Deterioration (PSD) regulations apply to protect clean air increments.

63. Aspen's predicted emissions of NOx and CO will exceed 250 tpy, and the facility would be classified as a "major stationary source" for the purposes of increment consumption analysis under EPA's PSD rules.
64. Aspen appropriately performed its modeling for NOx emission impacts.
65. Aspen's air contaminant emission impacts would have less than a significant impact on PSD increments, thereby complying with PSD requirements to preserve PSD increments established under 40 C.F.R. § 52.21.

Transcript: 30 T.A.C. § 80.23(d)

66. All transcription costs should be assessed to Aspen.
 - a. The ALJ ordered the transcript.
 - b. Aspen has the ability to pay for the transcript
 - c. Protestants are individuals.
 - d. Aspen received the greatest benefit from the ability to cite to the record.
 - e. No party unduly burdened the transcript costs during the hearing.

CONCLUSIONS OF LAW

1. The Commission has jurisdiction over Aspen's State Air Quality, PSD, and MACT application, pursuant to TEX. HEALTH & SAFETY CODE ANN. Ch. 382 and TEX. WATER CODE ANN. Ch. 5.
2. Pursuant to TEX. GOV'T CODE ANN. § 2003.047, SOAH has jurisdiction to conduct a hearing and to prepare a proposal for decision in this matter.
3. Aspen submitted its application pursuant to 30 TEX. ADMIN. CODE §§ 116.110(f) and 116.140.

4. Notice of Aspen's application and the hearing was provided pursuant to 30 TEX. ADMIN. CODE § 39.601, *et seq.*, and TEX. GOV'T CODE ANN. §§ 2001.051 and 2001.052.
5. Aspen complied with the public notice requirements at 30 T.A.C. Ch. 39, 30 T.A.C. §§ 116.130-134 and 116.406. The Executive Director complied with the public comment procedures of 30 T.A.C. § 116.136.
6. Pursuant to 30 TEX. ADMIN. CODE § 80.17(a), in a contested case hearing involving an air quality permit application, the burden of proof is on the applicant to prove by a preponderance of the evidence that it satisfies all statutory and regulatory requirements.
7. In order to be granted an air permit authorization, Aspen's application was required to demonstrate that emissions from the facility meet all of the applicable requirements of 30 T.A.C. § 116.111(a), including a demonstration that the emissions will comply with all rules and regulations of the Commission and with the intent of the Texas Clean Air Act (TCAA), including protection of the health and property of the public.
8. The Lufkin Generating Plant would be a new major source of emissions subject to permitting requirements under the PSD and HAP programs.
9. Reducing the NOx emission limit for the Lufkin Generating Plant to 0.075 lb/MMBtu is technically feasible and economically reasonable. TEX. HEALTH AND SAFETY CODE ANN. § 382.0518(b)(1) and 30 T.A.C. § 116.602(c).
10. The FCAA, as incorporated into TCEQ rules, requires a review of MACT for the emissions of HAP. 42 U. S. CODE ANN. § 7412; 30 T.A.C. Ch. 116, Subch. E.
11. A new major source of HAP is prohibited from commencing construction unless the source demonstrates it will achieve an emission standard equivalent to the MACT emission limitation for each HAP emitted. 42 U.S. CODE ANN. § 7412(g).
12. When EPA does not have an established MACT standard, as in this case, MACT must be established on a case-by-case basis. 42 U.S. CODE ANN. § 7412(g); 42 U.S. CODE ANN. § 7412(d)(3); 40 C.F.R. § 63.43(d).

13. An application for a MACT determination must identify the selected control technology to meet the recommended MACT emission limitation. This includes technical information on the design, operation, size, estimated control efficiency of the control technology; documentation of alternative control technologies to meet the emission limitation; and analysis of cost and non-air quality health environmental impacts or energy requirements for the selected control technology. 40 C.F.R. § 63.41
14. The MACT analysis for Aspen's application did not adequately address whether the use of an oxidation catalyst would reduce CO emissions, as required by 40 C.F.R. § 63.43(e).
15. Because an adequate case-by-case MACT analysis was not conducted, Aspen did not establish federally enforceable MACT emission limits for the Lufkin Generating Plant, as required by 30 TEX. ADMIN. CODE § 116.111(a)(2)(K) and 40 C.F.R. § 63.43(e).
16. For Aspen's application, air quality computer dispersion modeling was required to determine compliance with NAAQS, Texas property line standards, and PSD increment preservation requirements.
17. Aspen complied with the requirement to employ EPA air quality computer dispersion modeling guidance and adequately demonstrated that its expected air quality impacts will not cause PSD increment exceedances, NAAQS exceedances, or Texas property line standard violations, as required by 40 C.F.R. Part 51, Appendix W and 30 T.A.C. § 116.160(d).
18. Monitoring Aspen's boiler emissions with Continuous Opacity Monitoring is consistent with the applicable New Source Performance Standard and 30 T.A.C. § 116.111(a)(2)(B).
19. Under Texas statutes and rules, Aspen is required to demonstrate that the expected emissions from its facility will not contravene the intent of the TCAA, including the protection of public health, public welfare, and physical property. TEX. HEALTH & SAFETY CODE § 382.0518(b); 30 TEX. ADMIN. CODE § 116.111(a)(2)(A)(i).
20. To satisfy these requirements, Aspen conducted air dispersion modeling to demonstrate the anticipated air quality effects of the proposed facility.

21. In its Air Quality Impact Assessment Report, Applicant found that, if a permit was issued, it should be amended to include a special condition that the facility only operate 50 of 52 weeks per rolling 12-month period and that biodiesel only be used when the plant is operated at 25% or less of capacity.
22. With due consideration of the factors set forth at 30 T.A.C. § 80.23(d), Aspen should pay the transcript costs.

NOW, THEREFORE, IT IS ORDERED BY THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY THAT:

1. The application filed by Aspen Power LLC for Air Quality Permit No. 81706, PSD-TX-1089, and HAP 12 is denied.
2. Aspen shall comply with all Findings of Fact and Conclusions of Law contained herein.
3. Aspen shall pay for all transcription and reporting costs associated with this matter.
4. All other motions, requests for entry of specific Findings of Fact or Conclusions of Law, and any other requests for general or specific relief, if not expressly granted herein, are hereby denied.
5. The effective date of this Order is the date the Order is final, as provided by 30 TEX. ADMIN. CODE § 80.273 and TEX. GOV'T CODE ANN. § 2001.144.
6. If any provision, sentence, clause, or phrase of this Order is for any reason held to be invalid, the invalidity of any provision shall not affect the validity of the remaining portions of this Order.

7. If there is any conflict between the Commission's Order and the Executive Director's Response to Comments, the Commission's Order prevails.

ISSUED:

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Buddy Garcia, Chairman
For the Commission