State Office of Administrative Hearings

Cathleen Parsley
Chief Administrative Law Judge

October 1, 2010

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

RE: SOAH DOCKET NO. 582-09-6185; TCEQ DOCKET NO. 2009-1093-AIR; IN RE: THE APPLICATION BY TENASKA TRAILBLAZER PARTNERS, LLC FOR STATE AIR QUALITY PERMIT 84167, PREVENTION OF SIGNIFICANT DETERIORATION AIR QUALITY PERMIT PSD-TX-1123, AND HAZARDOUS AIR POLLUTANT MAJOR SOURCE PERMIT NO. HAP-13

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 **Thursday, October 21, 2010**. Any replies to exceptions or briefs must be filed in the same manner no later than Monday, November 1, 2010.

This matter has been designated **TCEQ Docket No. 2009-1093-AIR; SOAH Docket No. 582-09-6185.** 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,

Ami L. Larson
Administrative Law Judge

Sarah G. Ramos
Administrative Law Judge

ALL/SGR/cm
Enclosures
cc: Mailing List

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AGENCY: **Environmental Quality, Texas Commission on (TCEQ)**

STYLE/CASE: **TENASKA TRAILBLAZER PARTNERS, LLC**

SOAH DOCKET NUMBER: **582-09-6185**

REFERRING AGENCY CASE: **2009-1093-AIR**

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xc: Docket Clerk, State Office of Administrative Hearings

SOAH DOCKET NO. 582-09-6185
TCEQ DOCKET NO. 2009-1093-AIR

APPLICATION OF TENASKA TRAILBLAZER PARTNERS, L.L.C. FOR STATE AIR QUALITY PERMIT 84167, HAP-13, AND PSD-TX-1123	§ § § § § §	BEFORE THE STATE OFFICE OF ADMINISTRATIVE HEARINGS

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PROPOSAL FOR DECISION

I. INTRODUCTION

Tenaska Trailblazer Partners, LLC (Tenaska or Applicant) filed an application with the Texas Commission on Environmental Quality (TCEQ or Commission) for approval of the following three permits: (1) State Air Quality Permit No. 84167, (2) National Emissions Standards for Hazardous Air Pollutants Program Permit No. HAP-13; and (3) Federal Prevention of Significant Deterioration (PSD) Permit No. PSD-TX-1123. Obtaining Commission approval of those permits is a prerequisite to Tenaska's planned construction of the Trailblazer facility, a baseload, subbituminous coal-fired electric power generating facility, located approximately nine miles east of Sweetwater, Texas, in Nolan County. The proposed plant would also have a carbon dioxide (CO_2) capture facility that would capture CO_2 from the flue gas exhaust from the main boiler to use for purposes of enhanced oil recovery (EOR) operations in the Permian Basin oil fields. The Sierra Club, Multi-County Coalition (MCC), and the Commission's Office of Public Interest Counsel (OPIC) oppose Tenaska's Application. The Commission's Executive Director (ED) supports the Application.

The Administrative Law Judges (ALJs) have concluded, based on their review of the evidence and applicable law, that Tenaska failed to meet its burden of proof to demonstrate that the emissions limits proposed in its Draft Permit will meet the requirements for Best Available Control Technology (BACT) and Maximum Achievable Control Technology (MACT). The ALJs recommend that the Commission adopt more stringent emissions limits as indicated below. Alternatively, the ALJs recommend that the Commission deny the Application or remand the matter for further evidence regarding BACT and MACT.

The following discussion addresses only the issues about which the parties disagreed. To the extent that portions of the Application are not discussed in this Proposal for Decision, the ALJs find those portions to be legally sufficient.

II. NOTICE, JURISDICITON, AND PROCEDURAL HISTORY

A. Notice and Jurisdiction

The Trailblazer Application for the air quality permits sought (Application) was submitted to TCEQ on February 19, 2008. The Application includes responses to information requests by the ED and the following three supplements: (1) the case-by-case MACT analysis report, submitted in July 2008; (2) a Class II Area Air Dispersion Modeling Analysis Report, which was submitted on July 3, 2008; and (3) a Class I Area Air Dispersion Modeling Analysis Report, which was submitted on August 22, 2008. The ED issued an administrative completeness determination for the Application on January 30, 2009. The ED rendered his preliminary decision to approve the Application and issued a Draft Permit on January 30, 2009, as part of the technical completeness declaration on the Application. The Draft Permit combines authorizations for all three permits sought by Tenaska into one document. In issuing the Draft Permit,[1] the ED concluded that, with some amendments as indicated in the Draft Permit, Tensaka's proposed controls constituted BACT for criteria pollutants and MACT for hazardous air pollutants (HAPs) and that the modeling analysis demonstrated that the proposed project would not violate the National Ambient Air Quality Standards (NAAQS) or have an adverse impact on the public health, soils, or the environment.

Tenaska posted signs and published notice of the Application and hearing in this matter in accordance with ED Staff instructions and TCEQ rules. Notice of receipt of the Application and intent to obtain an air permit was published by the Applicant in the *Sweetwater Reporter* on March 7, 2008. Tenaska published notice of Application and preliminary decision, notice of

[1] ED Ex. 12.

public meeting, and notice of hearing for an air quality permit in the *Sweetwater Reporter* on February 1, 2009.

B. Public Meetings and Hearings

A public meeting was held regarding the Application on March 3, 2009, in Sweetwater, Texas. As a result of requests for a contested case hearing on the Application, Tenaska requested a direct referral of this matter to the State Office of Administrative Hearings (SOAH). A preliminary hearing was held on October 14, 2009, in Sweetwater, Texas, during which the following parties were designated:

> Tenaska Trailblazer Partners, LLC (Tenaska), represented by Rod Johnson and Danny Worrell;
>
> The Executive Director of the TCEQ (ED), represented by Chrissie Angeletti;
>
> The Office of Public Interest Counsel of the TCEQ (OPIC), represented by Garrett Arthur;
>
> The Environmental Defense Fund (EDF), represented by Charles Irvine, but prior to the hearing, EDF withdrew as a party based on its settlement agreement with Tenaska;
>
> Sierra Club, represented by Christina Mann and Gabriel Clark-Leach;
>
> Multi-County Coalition (MCC), represented by Wendi Hammond; and
>
> George Lister, Patricia Broadwell, Charlie Broadwell, Debbie and David Veal, Richard Broadwell, Joe Starkey, Marilyn E. Starkey, Dr. John D. Starkey, Kathy and Terry Boley, Sherion Carter, David Hall, Jimmy Headstream, Gordon Root, and Rogers Dennis, who were aligned with MCC.

The hearing on the merits was held on June 2-10, 2010, at SOAH, 300 W. 15th Street, Austin, Texas. The record closed on August 4, 2010, after the parties filed briefs, replies, and proposed findings of fact and conclusions of law. Other specific facts relating to notice and jurisdiction are addressed more particularly in the Findings of Fact and Conclusions of Law.

C. Offer of Proof

James Russell Bailey III, is employed by Trinity Consultants Inc. (Trinity) and assisted in preparing the BACT and MACT determinations.[2] At the hearing on the merits, the ALJs sustained Sierra Club's objections to parts of Mr. Bailey's rebuttal testimony. Mr. Bailey was Tenaska's chief BACT witness, and Tenaska offered the excluded testimony to address issues that related to permits for other facilities with more stringent emissions limits than those proposed for Tenaska. Sierra Club objected to the rebuttal testimony because the other permits were discussed during discovery, in the Application, or in the ED's Response to Comments. In Sierra Club's view, Tenaska should have anticipated the need to address the feasibility of these lower emission limits, and it was unfair for Tenaska to wait until Protestants had rested their cases before asking Mr. Bailey about them.

Tenaska completed an offer of proof on the excluded testimony, and Sierra Club participated in the cross-examination of Mr. Bailey during this offer. When the transcripts were filed, the ALJs re-considered the correctness of excluding Mr. Bailey's rebuttal testimony. For three reasons, they now change their ruling, overrule Sierra Club's objections, and allow the testimony that was given as an offer of proof into the record. First, including the testimony will give the Commission a more complete record. Second, Mr. Bailey had no opportunity to consider that permit when he prepared his prefiled testimony; his direct testimony was pre-filed on March 16, 2010, and at least one significant permit at issue, the Plant Washington permit, was not issued until April 10, 2010.[3] Third, with the exception of questions regarding Coleto Creek and NRG, Mr. Bailey was not asked about other permits during cross-examination. Since re-direct examination was limited to those issues raised during his cross-examination, counsel for Tenaska had no opportunity to ask Mr. Bailey about other permits during the re-direct portion of Tenaska's case. For these reasons, the ALJs allow the testimony to be admitted as evidence.[4]

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[2] Mr. Bailey is an environmental consultant specializing in Clear Air Act regulations as they apply to stationary sources. He holds a bachelors degree in engineering and a masters of science in environmental engineering. He has worked with Trinity for more than 15 years.

[3] Sierra Club Cross Ex. 4.

[4] Tr. 969-987.

III. OVERVIEW OF APPLICABLE LAW

A. Texas Clean Air Act

The Texas Clean Air Act (TCAA) sets the state's policy to safeguard the state's air resources. The statute's goals are to protect the public's health, general welfare, and physical property, including the public's esthetic enjoyment of air resources and the maintenance of adequate visibility.[5] Under the statute, if an entity plans to build a facility,[6] including a power plant, then it must obtain a state air quality permit from the Commission before construction begins.[7] The Commission is required to grant an air quality permit application if it finds that: (1) the proposed plant will use at least BACT, considering the technical practicability and economic reasonableness of reducing or eliminating the emissions resulting from the facility and (2) there is "no indication" that the emissions from the facility will contravene the intent of the TCAA, including protection of the public's health and physical property.[8]

B. Federal Clean Air Act

Under the federal Clean Air Act (FCAA), EPA has established a list of emissions that have been determined to cause or contribute to air pollution and that have been identified as a danger to public health or welfare. EPA sets a National Ambient Air Quality Standard (NAAQS) for each of the pollutants on the list.[9] EPA then determines whether a county complies with the NAAQS for each pollutant and designates the county as either "nonattainment" (exceeding the NAAQS) or "attainment" (meeting NAAQS or insufficient information to determine the county's status).[10]

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[5] TEX. HEALTH & SAFETY CODE ANN. § 382.002.

[6] A "facility" is a discrete or identifiable structure, device, item, equipment, or enclosure that constitutes or contains a stationary source, including appurtenances other than emission control equipment. TEX. HEALTH & SAFETY CODE ANN. § 382.003(6).

[7] TEX. HEALTH & SAFETY CODE ANN. § 382.0518(a).

[8] TEX. HEALTH & SAFETY CODE ANN. § 382.0518(b).

[9] *See* 42 U.S.C.A. §§ 7408(a) and 7409(a). In establishing NAAQS, EPA has identified six "criteria pollutants": lead (Pb), ozone (O_3), nitrogen oxides (NO_x), SO_2, carbon monoxide (CO), and two sizes of PM, one less than or equal to 10 microns in diameter (PM_{10}) and one less than or equal to 2.5 microns in diameter ($PM_{2.5}$).

[10] 42 U.S.C.A. § 7407(d)(1)(A).

The FCAA authorizes a state (through its designated environmental protection agency) to assume primary regulatory jurisdiction if the state has received approval from EPA for a State Implementation Plan (SIP). A SIP provides the terms by which a state will implement, maintain, and enforce the NAAQS.[11] EPA has approved Texas' SIP— although the parties dispute whether some changes to the state permitting process have gained EPA approval— and the Commission has been authorized, by EPA and the Texas legislature, to issue federal air quality permits.[12] In this proceeding, Tenaska seeks approval of its Applications for two federal air quality permits: a Prevention of Significant Deterioration (PSD) permit, and a Hazardous Air Pollutant (HAP) permit.

1. PSD Permit

A facility that proposes a major new source of pollution in an attainment area must obtain a federal PSD permit.[13] Major new sources include fossil fuel-fired boilers that have the potential to emit at least 100 tons per year of any regulated new source review (NSR) pollutant. A PSD permit may be issued by the Commission if the applicant: (1) proves BACT for each criteria pollutant[14] and (2) provides a modeling analysis that demonstrates no significant environmental deterioration will result from the proposed project.[15] Under the Commission's rules, an applicant must also show that allowable emission increases from the proposed source, in conjunction with all other applicable emission increases, would not cause or contribute to air pollution in violation of: (1) any NAAQS in any air quality control region or (2) any applicable maximum allowable increase over the baseline concentration in any area.[16]

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[11] 42 U.S.C.A. § 7410(a)(1).

[12] See 40 C.F.R. § 52.2270; 57 Fed. Reg. 28,093 (June 24, 1992).

[13] 30 TAC § 116.111(a)(2)(I).

[14] The elements of BACT are discussed in greater detail under the BACT section of this document.

[15] PSD is designated under federal laws, and the Commission has incorporated PSD determination under its rules. 30 TAC §§ 116.160 through 116.163. In establishing PSD, EPA has established three "incremental pollutants": SO_2, PM, and NOx. ED Ex. 41 at 10.

[16] 30 TAC § 116.160 and 40 C.F.R. § 52.21(k).

2. HAP Permit

An applicant must obtain a federal HAP permit if the proposed facility will emit one or more HAPs. EPA has issued its National Emissions Standards for Hazardous Air Pollutants (NESHAP) to limit the release of specified HAPs from specific industries, including electric generation. To obtain a HAP permit, an applicant must prove that it has incorporated the MACT standard for electric utilities.[17]

IV. OVERVIEW OF TRAILBLAZER PROJECT

Tenaska proposes to construct a coal-fired electric power generating facility. The main steam-electric generating unit will consist of one supercritical pulverized coal (SCPC) boiler powering a single steam turbine designed for base load operation with a nominal gross power output of 900 megawatts (MW).

Nolan County, where the plant is to be located, is currently an attainment or unclassified area for all criteria pollutants. The facility proposed by Tenaska will constitute a new major source under TCEQ rules based on the emissions represented in its Application. The proposed project is subject to PSD review for air emissions of carbon monoxide (CO), nitrogen oxides (NOx), sulfur dioxide (SO_2), particulate matter (PM), volatile organic compounds (VOC), sulfuric acid (H_2SO_4) mist, and elemental lead (Pb).

The proposed SCPC boiler (main boiler) will burn subbituminous coal to produce steam to drive a condensing steam turbine to generate electricity. A natural gas-fired auxiliary boiler will be used to provide steam during startup of the main boiler. During normal operation, flue gas emissions from the main boiler will be controlled as follows: NOx emissions will be

[17] In brief, MACT is an emission limitation for new sources of pollution. To achieve MACT, the applicant must show: (1) it will use an emission limitation that is not less stringent than the emission limitation achieved in practice by the best controlled similar source, and (2) the emission limitation 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. The definition is taken from an EPA rule, 40 CFR § 63.41, that is mirrored in a Commission rule, 30 TAC § 116.15.

controlled using low-NOx burners (LNB with over-fire air (OFA) and selective catalytic reduction (SCR) with ammonia injection; SO_2 emissions will be controlled using wet flue gas desulfurization (WFGD) with calcium carbonate (limestone) addition; PM emissions will be controlled by injection of activated carbon or other sorbent into the flue gas prior to passing through the fabric filter. A flue gas carbon dioxide (CO_2) capture plant is also planned for the facility, but is not included in the permits sought.

V. ISSUES TO BE ADDRESSED

Because this case was directly referred to SOAH for a contested case hearing, the Commission has not listed specific issues to be resolved. Instead, Tenaska has the burden of showing compliance with all applicable state and federal standards. As a practical matter, the contested issues are framed by the Protestants and OPIC, who identified areas of concern through evidence and arguments. Nonetheless, the burden of proof remains on Tenaska to demonstrate its Application satisfies all applicable legal standards and that all requirements have been met for issuance of the permits.

The primary issues raised by the Protestants or OPIC are whether:

- Tenaska has shown that all proposed HAP emission limits for its Trailblazer project represent MACT.
- Tenaska has shown that all proposed emission limits for criteria pollutants represent BACT.
- Tenaska properly accounted for amine emissions from Trailblazer's carbon capture facility

VI. MACT Analysis

A. Overview of MACT

On December 20, 2000, EPA determined that it was appropriate and necessary to regulate coal and oil fired electric utility steam generating units (EUSGUs) under the FCAA § 112. On January 30, 2004, EPA proposed a FCAA § 112(d) standard for mercury emissions from such units (Utility MACT). However, on March 29, 2005, EPA delisted the EUSGU source category from the FCAA Section 112(c) list and, instead of promulgating the proposed Utility MACT, EPA established mercury standards and a cap-and-trade program under 40 CFR Part 60 Subparts Da and HHHH, which together made up the Clean Air Mercury Rule (CAMR). Then, on February 8, 2008, the delisting and CAMR were vacated by the D.C. Circuit Court of Appeals. Because no EPA MACT standard applicable to Tenaska's proposed new plant is currently in effect, a case-by-case MACT analysis is required regarding each HAP that Tenaska's Trailblazer plant is expected to emit.[18]

In July 2008, Tenaska submitted its supplemental case-by-case MACT analysis that is part of the Application and contains analyses for both the main boiler and the auxiliary boiler.[19] Pursuant to its case-by-case MACT analysis for the main boiler, Tenaska grouped the approximately 60 HAPs that may be emitted into the following four categories:[20]

(1) Mercury
(2) Non-mercury metallic HAPs
(3) Acid gases (HF and HCl)
(4) Organic HAPs

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[18] 42 U.S.C. § 7412(g)(2)(B); 40 CFR § 63.40(c). There is no dispute that Tenaska's Trailblazer Plant constitutes a "new source" as defined by CAA Section 112, 42 U.S.C. § 7412 and is subject to case-by-case MACT analysis.

[19] No issues were raised concerning the MACT analysis done with respect to the auxiliary boiler, which Tenaska argues was not required. Therefore, this discussion is limited to the analysis performed with respect to the main boiler.

[20] Tenaska Ex. 3, p. 25; Tenaska Ex. 2B, Tab B, Appendix A, p. A-2 (Bates No. APP-0410).

Like BACT, MACT is designed to be technology-forcing to ensure that new technologies are used to obtain the lowest achievable emissions of HAPs in newly issued permits. Both EPA and TCEQ have provided a definition for MACT emissions limits in their respective rules. EPA defines MACT as:

> The emission limitation which is not less stringent than the emission limitation achieved in practice by the best controlled similar source, 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.[21]

The TCEQ's definition of MACT is virtually identical and is found at 30 TAC § 116.15.

Although no specific procedures have been adopted for conducting a case-by-case MACT analysis, 40 CFR § 63.43 sets forth, in relevant part, the following general principles, which govern preparation of each permit application requiring a case-by-case MACT determination and all subsequent review of and actions taken concerning such applications by the permitting authority:

- The MACT emission limitation or MACT requirements recommended by the applicant and approved by the permitting authority shall not be less stringent than the emission control which is achieved in practice by the best controlled similar source, as determined by the permitting authority.
- Based upon available information, the MACT emission limitation and control technology recommended by the applicant and approved by the permitting authority shall achieve the maximum degree of reduction in emissions of HAP which can be achieved by utilizing those control technologies that can be identified from the available information, taking into consideration the costs of achieving such emission reduction and any non-air quality health and environmental impacts and energy requirements associated with the emission reduction.

[21] 40 CFR § 63.41.

- If the Administrator has either proposed a relevant emission standard pursuant to section 112(d) or section 112(h) of the Act or adopted a presumptive MACT determination for the source category which includes the constructed or reconstructed major source, then the MACT requirements applied to the constructed or reconstructed major source shall have considered those MACT emissions limitations and requirements of the proposed standard or presumptive MACT determination.

Tenaska's case-by-case MACT analysis consisted of a two part review for each category of HAPs to be emitted. First, a MACT "floor" was determined based on the emission control level that has been achieved in practice by the best controlled similar source. Cost was not a part of this determination because the law requires an applicant to meet the MACT floor emission limit regardless of cost.

The second step in Tenaska's case-by-case MACT analysis was a review of other available information to determine whether it may be possible to achieve an emissions limit below the MACT floor. This review is commonly known as a "beyond-the-floor" analysis and aims to determine if it is appropriate to set a MACT limit that is more stringent than the floor value based on an evaluation of available technologies and methods. In determining the appropriateness of a beyond-the-floor emission limit, consideration of cost and other feasibility issues may be taken into account.

B. General Sufficiency of Tenaska's Case-by-Case MACT analysis

1. Evaluation of Similar Sources

The MACT floor for new sources must be based on the HAP emission control levels achieved by the best controlled similar source. Therefore, the first step in a case-by-case MACT analysis is to define the characteristics of a "similar source" with respect to the proposed facility. Once the similar sources have been identified, the best performing facility of that subcategory must be identified.

Similar source is defined by EPA and TCEQ as "a stationary source or process that has comparable emissions and is structurally similar in design and capacity to a constructed or reconstructed major source such that the source could be controlled using the same technology."[22] In adopting its case-by-case MACT regulations, EPA stated that "two criteria should be used to determine if a source is similar: (1) whether the two sources have similar emission types, and (2) whether the sources can be controlled with the same type of control technology."[23] EPA also noted that an applicant may consider the types and concentration of constituents in a gas stream when identifying available control options using its specified emissions sources as a general guide.[24]

Protestants argued that Tenaska's MACT analysis was impermissibly narrow because it failed to consider either circulating fluidized bed (CFB) or other types of pulverized coal power plants, which they asserted are similar sources to Tenaska because they would have comparable emissions and could be controlled through the use of the same control technology as proposed for Tenaska. Protestants further asserted that the EPA construes "similar source" broadly and intends for consideration of transfer technologies from other source categories to be included as part of the case-by-case MACT analysis for new sources.[25]

In its Application, Tenaska indicated that, for the broad source category of coal-fired utilities, the two key parameters for determining what constitutes a similar source are coal type and combustion configuration.[26] With respect to coal type, the Application noted that different types of coal vary in terms of heat value and composition and that these differences can affect emissions and also are critical to boiler design.[27] Accordingly, Tenaska considered similar sources to be only those units combusting subbituminous coal.[28]

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[22] 40 CFR § 63.41; 30 TAC § 116.15(10).

[23] 61 *Fed. Reg.* at 68,394.

[24] 61 *Fed. Reg.* at 68,394.

[25] 61 *Fed. Reg.* 68,394-395.

[26] Tenaska Ex. 2B, Tab B, p 4-2.

[27] Tenaska Ex. 2B, Tab B., p.4-1.

[28] Tenaska Ex. 2B, Tab B, p. 4-2.

Tenaska further noted in its Application that the combustion characteristics of PC and CFB units are fundamentally different. Relative to PCs or other conventional boiler types, CFB units combust fuel at lower temperatures and longer residence times, enabling them to combust low quality waste fuels since the different firing approach of a CFB makes it insensitive to coal rank or fuel quality in general. Therefore, Tenaksa did not consider CFBs to constitute similar sources, and they were excluded from consideration in Tenaska's MACT analysis.[29]

The ED, in its Response to Comments and expert testimony, also noted that boiler process and fuel type have a direct impact on resulting emissions and explained why neither CFB units nor units using coal types other than subbituminous are considered to be similar sources to Tenaska.[30]

The issue of what constitutes a similar source for purposes of case-by-case MACT analysis was raised recently in both the *White Stallion*[31] and *Coleto Creek*[32] cases. In both cases, the presiding ALJs found that the applicants properly reviewed facilities with similar combustion technology and fuel types in their MACT analyses and that CFBs and PCs do not constitute similar sources for purposes of case-by-case MACT review. In Coleto Creek, the Commission agreed and issued its order concluding that Coleto Creek's MACT analysis complied with all applicable regulations.[33]

Based on the evidence in the record, the ALJs conclude that Tenaska properly evaluated the best controlled similar sources in its MACT analysis. The preponderance of the evidence establishes that flue gases from CFBs and PC boilers have different concentrations of pollutants and different physical properties. Additionally, the type of fuel burned has a significant impact on the amount and type of pollutants emitted from the facility. Accordingly, it was proper for Tenaska to focus its MACT analysis on sources that burn the same fuel type and use the same

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[29] Tenaska Ex. 2B, Tab B, p. 402.

[30] ED Ex. 13, pages 29, 32; Sierra Cross Ex. 15, pages 82, 98-99; 4 Tr. 539

[31] *Application of White Stallion Energy Center, LLC*, SOAH Docket No. 582-09-3008. PFD.

[32] *Application of IPA Coleto Creek, LLC*, SOAH Docket No. 582-09-2045, PFD.

[33] *Coleto Creek* May 3, 2010 order, COL Nos. 24-26.

combustion technology as Tenaska. Protestants did not present sufficient controverting evidence to conclude otherwise.[34] The only exception is for MACT analysis of filterable PM, as discussed further below.

2. Nature and Scope of Information Required for MACT Analysis

Both EPA and TCEQ's definitions of MACT require that a limit be established, commonly known as the "MACT floor," that is no less stringent than the emission limitation achieved in practice by the best controlled similar source.[35] Once determined, that limit must be met regardless of economic or other feasibility concerns. Additionally, a beyond-the-floor MACT analysis must be conducted to determine whether there is any feasible way for a new source to achieve emissions rates even lower than the MACT floor limit. In other words, the MACT floor limit is based on what has been achieved in practice whereas a beyond-the-floor limit is based on what feasibly can be achieved or is achievable, even if it has not yet been demonstrated in practice.[36]

Protestants contended that neither Tenaska nor the ED conducted legally sufficient MACT floor or beyond-the-floor analyses. Tenaska and the ED asserted that the MACT analysis was thorough and performed as required by law and that the resulting MACT determinations are proper.

The parties fundamentally disagree about the nature and scope of the information that must be considered for a legally sufficient case-by-case MACT analysis. This disagreement seems to stem from differing views about the meaning of "achieved in practice" and "achievable" in the absence of any specific definitions in this context.

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[34] The ALJs further note that, contrary to Protestants' arguments, both Tenaska and the ED did, in fact, consider data from CFB boilers and those using other fuel types in their respective MACT analyses.

[35] 40 CFR § 63.41; 30 TAC § 116.15.

[36] 40 CFR § 63.43.(d)(2).

a. Tenaska's and the ED's Position

To determine the MACT floor, Tenaska and the ED relied primarily on the lowest identified permit limits for similar operational plants. Tenaska and the ED asserted that the "achieved in practice" standard, upon which the MACT floor is based, requires only that operational plants, which have had an opportunity to demonstrate compliance with their permit limits in practice, need to be evaluated for determination of a MACT floor limit. Accordingly, Tenaska and the ED noted, but discounted, lower permit limits established for plants that are not yet in operation.

In addition, Tenaska asserted that it conducted a thorough beyond-the-floor analysis by considering not only the sources used for its BACT determination, but also all required "available information" as defined by 40 CFR § 63.41, including information related to the development of the original EPA proposed Utility MACT.[37]

In general, neither Tenaska nor the ED reviewed specific performance data, such as stack test results or CEMS data to determine either the MACT floor or beyond-the-floor limits. Tenaska explained that the law does not require the review of such information for a case-by-case MACT analysis and further noted that such data can be difficult to obtain and may not be reliable.[38]

b. Protestants' Position

Protestants argued that Tenaska and the ED impermissibly determined the MACT floor by relying solely on permit limits without analyzing emissions data to determine the actual emissions rates that are being achieved in practice by the best controlled similar sources. According to Protestants, evaluation of such emissions data is necessary for a proper MACT determination because some sources may be achieving emissions rates in practice that are better

[37] Tenaska Reply Closing, p. 40 (citing Tenaska Ex. 3, p.7).

[38] Tenaska Reply to Closing Arguments, p. 20, FN 99.

than the rates allowed by their permit limits. In those cases, Protestants asserted, the lower rates being achieved in practice should constitute the MACT floor, regardless of the permit limits.

Similarly, with respect to beyond-the-floor MACT analysis, Protestants argued that there is no evidence to demonstrate that either Tenaska or the ED undertook the required inquiry into whether an even better performance level than that which has already been achieved in practice by the best performing similar source is achievable either by the same control train proposed by Tenaska or otherwise. By way of example, Protestants cite the lack of any evidence in the record regarding the emissions limits that pollution control vendors are willing to guarantee for Tenaska's selected control technologies and the lack of any substantive discussion of the current technical literature concerning available and proposed control technologies.[39]

c. ALJs' Analysis

As an initial matter, the ALJs note that Tenaska, in its closing briefs, took contradictory positions regarding the applicable law for the case-by-case MACT analysis completed by Tenaska and reviewed by the ED. First, Tenaska stated that TCEQ has incorporated by reference the EPA's rules regarding MACT.[40] Curiously, however, Tenaska also stated that TCEQ has not incorporated the EPA's MACT rules but merely implements them.[41]

Although TCEQ rules refer to implementation rather than specific incorporation of EPA MACT rules, the ALJs find that the EPA MACT rules govern here in the absence of any approved state implementation plan or other state-specific rules or statutes regarding case-by-case MACT analysis. With respect to the nature and scope of information required to be evaluated for a case-by-case MACT determination, the ALJs, having reviewed the evidence and applicable law, do not find entirely convincing either party's position.

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[39] Sierra Club Closing Brief, p. 59.

[40] Tenaska Closing Brief p. 32.

[41] Tenaska Reply to Closing p. 38.

Protestants' argument that the MACT floor limit must be based on the lowest emissions rate that has been demonstrated in practice as revealed by emissions testing data assumes that such data is readily available. Moreover, it overlooks the evidence that, although such data may show that a particular emissions rate has been achieved on one or more occasions, the achieved rate may be, but is not necessarily, indicative of the emissions rate that can be met continuously over time by the tested source. Because a permittee will be required to comply continuously with whatever MACT limits are established by the permitting authority, those limits should be based only on emissions test data that is deemed to be a reliable indicator of emissions rates that can be achieved by the permitted source on an ongoing basis and under the gamut of expected operating conditions. Therefore, it is appropriate to consider specific emissions data for determination of the MACT limits, but only to the extent that relevant data can be obtained and reliably indicates what is achievable on an ongoing basis.

Also unpersuasive is Tenaska's and the ED's argument that, because the MACT floor is to be determined based on an emissions limit that has been "achieved in practice," no evaluation or analysis is required of lower emissions limits found in permits issued for facilities that are not yet operational. This position overlooks the fact that non-operational facilities may have permit limits that were set based on emissions rates that have been achieved in practice over time by similar operating sources. And those emissions rates achieved by operational plants were deemed reliable enough by a permitting authority to form the basis for its determination of a permit limit for a new, non-operational source. Accordingly, Tenaska and the ED were required to evaluate lower permit limits for non operational sources to determine the basis for those limits. To the extent that more stringent permit limits for non-operational sources were found to be based on reliable similar emissions rates that have, in fact, been achieved in practice by other operating facilities, the lower permit limit for the non-operational similar source would constitute the MACT floor for Tenaska.

Once the MACT floor has been established, other available information must be considered to determine whether an even more stringent "beyond-the-floor" MACT limit may be feasible for Tenaska. "Available information" to be considered in making this determination is defined to include in relevant part:

- A relevant draft or proposed regulation, including background information and all supporting information;
- Any additional information that can be expeditiously provided by the Administrator; and
- For the purpose of determinations by the permitting authority, any additional information provided by the applicant or others, and any additional information considered available by the permitting authority.[42]

Any proposed or adopted EPA presumptive MACT emissions standard must be considered as well.[43]

The evidence demonstrates that Tenaska and the ED considered the proposed and later rescinded EPA presumptive MACT emissions standards as required. And, there is no evidence in the record to establish that Tenaska and the ED failed to consider any relevant draft or proposed regulations or other information provided by EPA's Administrator. The issue, therefore, is whether there was any additional information provided by Protestants or otherwise available that Tenaska and the ED were required to consider, but did not.

Tenaska is correct that the EPA definition of "available information" does not include a specific requirement to consider emissions testing data or other permit limits for a beyond-the-floor MACT determination. However, to the extent that potentially relevant information concerning emissions data or permit limits was provided by Protestants to Tenaska or the ED before or during the hearing, the ALJs believe that Tenaska or the ED was obligated to consider and evaluate that information to determine the degree, if any, of its applicability to Tenaska.

This obligation to consider other available information necessarily raises the issue of timing and at what point a MACT determination is considered to be complete such that the evaluation of new information is no longer required. Memoranda in the record from EPA

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[42] 40 CFR § 63.41.

[43] 40 CFR § 63.43(d)(4).

explain EPA's policy that a BACT determination for a major new source is not considered to be set until the final permit is issued.[44] The same reasoning applies equally to determinations of MACT, which are intended to be based on the most current information available in order to best mitigate emissions of the most potentially harmful pollutants.[45] Accordingly, to the extent that new potentially relevant information is made available concerning MACT, it is the responsibility of the source to investigate that information to the extent possible and to determine whether any changes in the MACT permit limits should result. This obligation is ongoing and continues until the date of approval of the MACT determination by TCEQ.[46]

The parties' positions regarding the general sufficiency of Tenaska's MACT analysis were also reiterated in the context of the specific analyses conducted for each individual HAP or category of HAPs to be emitted. Therefore, the ALJs will address these arguments further, as warranted, in relation to the individual MACT analyses as discussed below.

C. Sufficiency of Mercury (Hg) MACT Determination

Existing technologies for other pollutants also provide control of mercury emissions.[47] Specifically, particulate mercury is controlled with traditional particulate control equipment such as fabric filtration baghouse technology; gaseous mercury can be controlled by WFGD, also known as wet scrubbing;[48] and activated carbon injection (ACI) (or other sorbent injection) can provide additional control of mercury emissions. For control of mercury from the main boiler,

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[44] Sierra Club Cross Exs. 18 and 19. There is no evidence in the record to demonstrate that the Commission has adopted a contrary policy.

[45] Sierra Club Cross Ex. 19 ("[O]ld technologies are constantly being replaced by newer more advanced ones; and in the absence of overriding considerations – for example, those bearing on the orderly administration of the permit program – information on the latest control technology should ordinarily receive consideration."). Although this discussion is related to BACT determination cutoffs for new source permits, the rationale applies at least as much, if not more, to MACT determinations.

[46] 40 CFR § 63.41.

[47] Tenaska Ex. 2B, Tab B, p. 6-1 (Bates No. 0398) (citing *Preliminary Estimates of Performance and Cost of Mercury Emission Control Technology Applications on Electric Utility Boilers: An Update*, R.K. Srivastava, USEPA Office of Research and Development, National Risk Management Research Laboratory, June 2004).

[48] Elemental gaseous mercury is insoluble and is not captured in WFGD systems. However, under certain conditions, some mercury may be oxidized in selective catalytic reduction systems (SCR) at which point it may be controlled by WFGD.

Tenaska's Application proposes to use a combination of WFGD, a fabric filter baghouse, SCR, and ACI (or equivalent sorbent injection).[49]

1. Tenaska's MACT Analysis

Based on its review of other MACT proposals for subbituminous PC utility boilers since 1999, and the proposed Utility MACT new source MACT floor limit, Tenaska determined that no emissions rate lower than 2.2×10^{-6} lb/MMBtu has been achieved in practice by any other similar source. Accordingly, Tenaska determined that the MACT floor limit for mercury should be 2.2×10^{-6} lb/MMBtu. Although Tenaska identified and considered several units with lower proposed limits, it noted that compliance with those lower limits had not been demonstrated and, therefore, asserted that those limits cannot be considered to be achieved in practice, which is the standard for determining the MACT floor.[50]

For its beyond-the-floor MACT analysis, Tenaska considered the possibility of utilizing alternate technologies to better control for mercury. Both wet electrostatic precipitators (wet ESPs) and the non-thermal plasma (electro catalytic oxidation) process were considered. Neither was determined to be beyond-the-floor MACT, however, because wet ESP would be cost prohibitive,[51] and non-thermal plasma technology would not necessarily control mercury any better than the technology suite already proposed to be used by Tenaska.[52]

2. ED's MACT Review

The ED also reviewed MACT limits for mercury that have been set in recently-issued permits for subbituminous coal burning PC boilers[53] and compared them to the mercury limit

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[49] Tenaska Ex. 2B, Tab B, p. 6-1 (Bates No. 0398).

[50] Tenaska Ex. 2B, Tab B, p. 6-2 (Bates No. 0399).

[51] Tenaska provided a detailed cost analysis to demonstrate that wet ESP is not economically feasible at this time. Tenaska Ex. 2B, Tab B, Appendix B.

[52] Tenaska Ex. 2B, Tab B, p. 6-2 (Bates No. 0399).

[53] The ED agreed with Tenaska's determination that similar sources consisted of PC boilers burning subbituminous coal.

proposed by Tenaska. Based on the Council Bluffs Station (Unit 4),[54] which has demonstrated achievement of a 1.7 x 10^{-6} lb/MMBtu limit for mercury, the ED changed the Draft Permit to propose 1.7 x 10^{-6} as the MACT floor limit for Tenaska. The ED noted that the permit limit for mercury in NRG Limestone Unit 3, which was issued by the Commission in December 2009, was also based on the Council Bluffs limit, but was expressed in different units as 0.015 lb/GWh. That limit, when using Tenaska's heat input rate of 8307 MMBtu/hr and nominal 900 MW rating, equates to 0.016 lb/GWhr for Tenaska.[55]

The ED considered, but rejected, a lower proposed draft permit limit of 0.88 x 10^{-6} lb/MMBtu for Old Dominion Cypress Creek because that permit has not yet been issued and that limit has not been demonstrated to be achieved in practice. Mr. Hughes further noted that the Cypress Creek limit is approximately half of the demonstrated achievable performance of mercury control equipment and that "TCEQ does not have creditable information that this technology is technically and economically achievable and therefore does not consider these emissions limitations to be a proper 'beyond-the-floor' MACT limit."[56]

Like Tenaska, the ED also considered emissions standards previously proposed by EPA for subbituminous coal fired electric generating units. And, like Tenaska, the ED found that neither the proposed EPA MACT standard nor the latest NSPS standard for new bituminous coal-fired units supported proposing a lower mercury emission limit for Tenaska.

Additionally, the ED reviewed the available literature to determine whether a more stringent beyond-the-floor MACT limit would be appropriate. The ED confirmed Tenaska's determination that no beyond-the-floor MACT limit was warranted. Mr. Hughes explained that, because the ED's new lower proposed Draft Permit MACT floor limit is already based on Tenaska's use of the most effective and state-of-the-art emissions controls currently

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[54] Also known as Unit 4 of the Walter Scott, Jr. Energy Center.

[55] Tenaska Ex. 2G, p. 10. Sierra Club attempted to disputes Mr. Hughes' conversion results by offering new calculations in its closing brief. Because there is no contrary expert testimony or other evidence in the record, however, the ALJs rely on the equivalencies in the record.

[56] ED Ex. 13, p. 32.

available on a commercial scale for mercury reduction, no more stringent limit would be justified.[57]

3. Protestants' Arguments

Protestants MCC and Sierra Club reiterated their argument that both Tenaska and the ED failed to properly identify the MACT floor for mercury because they failed to consider a broad enough range of similar sources.

Additionally, Protestants MCC and Sierra Club restated their position that Tenaska and the ED failed to consider the actual level of emission control that has been achieved in practice by the best performing similar source, but instead relied merely on the lowest issued permit limits for operational plants to determine the MACT floor.

Moreover, Protestants noted, the evidence demonstrates that permit limits issued by other permitting authorities reflect the judgment of those agencies that the limits established are achievable. Nonetheless, the ED failed to review any of the applications or supporting documents related to permits with lower mercury emissions limits to determine the basis for those limits and whether the lower limits prescribed in those permits have been achieved or outperformed in practice by similar sources.

Protestants identified five PC boilers burning subbituminous coal either as the only fuel or as a significant fuel source, which have lower permit limits for mercury than Tenaska's proposed limit.[58] In particular, Protestants noted that the Plant Washington permit limit for mercury was established after consideration of stack testing conducted at both the Walter Scott and Santee Cooper Cross Unit 3 plants, both of which have demonstrated emissions rates for mercury that are lower than the rates proposed by either Tenaska or the ED.[59] Accordingly,

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[57] ED Ex. 1, p. 30.

[58] Protestants also cited a lower mercury limit established in the permit for Seminole Electric Power plant, but that plant is not a similar source because it burns coke and bituminous coal.

[59] Sierra Club's closing brief at pp. 64-65 (citing Sierra Club Cross Ex. 5, pp. 134-35).

Protestants argue that the Plant Washington MACT mercury limit of 7.64 x 10^{-6} lb/MWhr,[60] or 1.46 x 10^{-6} lb/MMBtu, while using only PRB subbituminous coal, is the proper mercury MACT floor limit for Tenaska.

Additionally, Protestants asserted that a proper beyond-the-floor analysis for mercury was not conducted. According to Protestants, Tenaska should be able to meet an even more stringent beyond-the-floor MACT limit than the limit for Plant Washington. In support of this contention, Protestants point out that the Plant Washington limit for mercury is based upon a 90 % control efficiency when burning PRB subbituminous coal, which is the coal Tenaska will use. The Tenaska Application indicates that use of an ACI system alone is capable of achieving a 90 % control efficiency.[61] Therefore, Protestants reasoned, Applicant should be able to achieve mercury control efficiencies greater than 90% and comply with an even lower mercury emissions limit than Plant Washington because, in addition to ACI, Tenaska proposes to use wet FGD, SCR, and baghouse filtration to control for mercury.

Also, Protestants noted, the ED based his conclusion that no beyond-the-floor MACT limit for mercury was justified on the fact that Tenaska already plans to use the most effective controls available on a commercial scale for mercury reduction. According to Protestants, however, this reasoning is inconsistent with the ED's determination that a beyond-the-floor MACT limit for filterable PM is appropriate for Tenaska based on the same fabric filter technology that Tenaska had already proposed to use.[62]

4. ALJs' Analysis

As previously discussed, the ALJs generally find that PC boilers burning subbituminous coal are appropriate similar sources for purposes of Tenaska's case-by-case MACT analysis. Although there is some evidence in the record to suggest that CFB and PC boilers burning the

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[60] This is equivalent to 1.46 x 10-6 lb/MMBtu. Tenaska Closing Brief, p.37 (citing Sierra Club Cross Ex. 5, p. 112).

[61] Sierra Club Closing Brief, p. 66 (citing Tenaska Ex. 2B, Volume I, Table 11-1).

[62] Sierra Club Closing Brief, p.66 (citing ED Ex. 11 at p. 11-12).

same coal rank may be comparable sources with respect to mercury emissions,[63] the evidence also demonstrates that the ED was aware of recently issued permit limits for CFB boilers in addition to PC boilers.[64] And, most significantly, no party identified any CFB boilers burning subbituminous coal which had either lower permit limits or demonstrated lower emissions rates for mercury than the proposed mercury limit for Tenaska. Therefore, based on the preponderance of the evidence, and for the reasons noted in the above general discussion regarding similar sources for MACT, the ALJs find that Tenaska's MACT analysis considered the proper scope of similar sources for mercury emissions.

However, because Tenaska and the ED were provided information about the more stringent mercury emissions limit established for Plant Washington, but failed to evaluate that information, the ALJs find that the MACT analysis was not sufficient. Accordingly, based on the evidence in the record, the proposed MACT limit for mercury contained in the Draft Permit cannot be determined to represent MACT for Tenaska.[65]

The ALJs recognize that, because the Plant Washington permit was not issued until 2010, Tenaska could not have evaluated that permit at the time of its initial case-by-case MACT analysis, which was conducted in 2008. However, there is no reason why Tenaska could not have evaluated the lower limit in that permit as required at or before the hearing in this matter.

Mr. Hughes noted in his deposition of May 17, 2010, more than two weeks before the hearing began, that he had seen the Plant Washington permit and was aware that it contains limits for several criteria pollutants that are lower than the proposed limits for Tenaska.[66] He also agreed that Plant Washington is a similar facility to Tenaska[67] and that permitting decisions

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[63] Sierra Club Cross Exs. 16 and 21.

[64] The ED also included CFB boilers in its review of recently issued permit limits but did not consider those limits to be applicable to Tenaska because of known differences in mercury emissions rates even when the same fuel is burned. ED Ex. 13, pp. 31-32.

[65] Although Plant Washington is equipped to burn a blend of bituminous and subbituminous coal, a separate mercury limit was established for Plant Washington to apply when burning only subbituminous coal versus a coal- blend.

[66] Sierra Club Cross Ex. 15, p. 107.

[67] Sierra Club Cross Ex. 15, p. 107.

made by other agencies reflect the judgment of those agencies about what permit limits are achievable.[68] Nevertheless, Mr. Hughes admitted that he never personally reviewed the applications or supporting documents related to Plant Washington or other non-operational sources with lower permit limits to determine the validity of their underlying rationales and potential applicability to Tenaska.[69] Instead, both Tenaska and the ED dismissed Plant Washington's and other lower limits for mercury issued in permits for non-operational facilities, as not being demonstrated in practice.[70] This is true even though Mr. Hughes agreed that a beyond-the-floor analysis should look at lower permit limits for facilities that have not yet demonstrated compliance with those limits[71] and Tenaska agreed that Plant Washington will employ similar or the same mercury controls as Tenaska.[72]

A permit requiring a particular emissions limit to be achieved for a certain technology is usually sufficient justification to assume the technical feasibility of that technology or emissions limit.[73] Nonetheless, neither Tenaska nor Mr. Hughes evaluated the Plant Washington application or supporting documents to determine generally how its lower permit limit for mercury was derived. Nor did they determine whether that lower limit was based on emissions rates that have been achieved in practice by similar sources or is indicative of emissions rates that may be achievable for Tenaska. In fact, Mr. Hughes conceded that he did not review any underlying applications or supporting documents associated with permits containing lower limits for mercury. Nor did he do any analysis to determine whether any of the lower permit limits for mercury reflected in the RBLC were technically or economically feasible for Tenaska.[74] Instead,

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[68] Tr. 612-613.

[69] Tr. 612-613.

[70] Tr. 191-192.

[71] Tr. 568.

[72] Tenaska Closing Brief p. 38, citing Sierra Club Cross Ex. 4 p. 8, sec. 2.9.

[73] ED Ex. 4, p. B-7. While Mr. Greywall explained that sometimes permit limits are set for purposes other than achieving BACT, there is no evidence to explain why those other reasons should preclude such lower limits from being considered BACT, much less MACT. Tr. 193-194.

[74] Tr. 612.

he simply expressed his skepticism of those limits, noted that he had looked at other kinds of technology to see if the sources using sorbent technology were likely to meet their lower permit limits, and opined, without explanation, that it did not appear that they were.[75]

Furthermore, in his response to comments concerning BACT, Mr. Hughes noted that, "if a control technology has not been applied or an emission limit has not been demonstrated to be achieved in practice, a necessary condition of its selection as BACT requires technically qualified individuals to provide reasoned assurances that the technology or emissions limit is achievable." He went on to note that, "it is rare for an applicant to propose unproven technology or performance that exceeds the capabilities of a control technology; such occasion demands extra scrutiny and the willingness of the reviewing authority to reject the technology or performance level when justified."[76] This statement further supports the proposition that a permit limit, whether BACT or MACT, when issued by a permitting authority, can be assumed to be achievable in the absence of specific evidence to the contrary. Moreover, it further supports the ALJs conclusion that Tenaska's MACT determination should have considered the basis and underlying rationale for Plant Washington's lower mercury limit, since, it can reasonably be assumed that the permitted limits issued by the Georgia permitting authority are achievable in the absence of any specific evidence that they are not.

Thus, to the extent that Plant Washington's permit limit is based on reliable data demonstrating that lower emissions rates have been achieved in practice by other operating sources,[77] that limit would constitute the MACT floor for Tenaska. Alternatively, absent evidence that the Plant Washington limit has been achieved in practice, that limit nonetheless constitutes a beyond-the-floor MACT limit for Tenaska in the absence of any evidence that it is not feasible for Tenaska because of economic or other appropriate reasons. Accordingly, the ALJs recommend that the Commission adopt Plant Washington's mercury limit of 1.46×10^{-6}

[75] Tr. 612.

[76] ED Ex. 13, p.16.

[77] Protestants asserted that the Plant Washington limit is consistent with and was established after consideration of stack testing results conducted at the Walter Scott and Santee Cooper Cross Unit 3 facilities. Sierra Club Closing Brief p. 65. There is no evidence in the record, however, from which a determination can be made about the reliability of that data as a demonstration of rates can be achieved in practice over time under varied operating conditions.

lb/MMBtu as MACT for Tenaska.[78] In the alternative, if Tenaska contends that this limit is simply unachievable, then the permit may either be denied or remanded for further evidence regarding the proper MACT floor and beyond-the-floor determinations for mercury.

D. Sufficiency of MACT Determination for Non-Mercury Metallic HAPs

Particulate matter emitted from Tenaska's main boiler will include various entrained non-mercury HAP metals that are contained in the coal. These metals are controlled by the same devices used to control filterable PM generally. Tenaska proposes to use a fabric filter baghouse as its control technology for PM, asserting that it is the best control technology and can achieve emissions reductions of 99% or greater for all except a small portion of non-mercury metallic HAPs which may be vaporized during combustion. Even so, Tenaska contends that fabric filtration constitutes MACT for all non-mercury metallic HAPs and notes that any vaporized non-mercury metallic HAPs will be controlled by WFGD, the same process that controls acid gases and sulfur emissions. Because non-mercury metallic HAPs are controlled by the same technology used to control filterable PM, Tenaska relied on the accepted practice of using filterable PM as a surrogate for the category of non-mercury metallic HAPs for purposes of its MACT analysis.[79] No party objected to this use of surrogates and the ALJs find that it was proper.

According to Tenaska's Application, for filterable PM, which is captured by traditional PM control devices including baghouses, "all coal-fired boilers are capable of achieving essentially the same emission rate regardless of combustion type or fuel type."[80]

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[78] If warranted, the Commission should recalculate the Plant Washington limit for Tenaska using the appropriate efficiency values for Tenaska. The evidence suggests that heat input values are necessary for a calculation of mercury emissions limits expressed in lb/MMBtu, but the record was not further developed on this point. Tr. 164.

[79] Tenaska Ex. 2B, Tab B, p. 5-1 – 5-2; ED Ex. 11, p. 11.

[80] Tenaska Ex. 2B, Volume I, Tab A, p. 11-7.

1. Tenaska's MACT Analysis

For its case-by-case MACT analysis of non-mercury metal HAPs, Tenaska reviewed emissions controls and recent permit limits for filterable PM associated with other subbituminous coal-burning PC boilers. Based on that review, Tenaska determined that the lowest emission limit that had been achieved in practice for filterable PM was 0.015 lb/MMBtu. Accordingly, Tenaska proposed the emission rate of 0.015 lb/MMBtu as both BACT for filterable PM and the MACT floor limit for non-mercury metallic HAPs as represented by filterable PM. Tenaska then concluded, without additional explanation, that "BACT is equivalent to beyond-the-floor MACT."[81]

2. ED's Review

The ED compiled data regarding both CFB and PC boilers,[82] but agreed with Tenaska's determination that PC boilers are the correct similar sources to be evaluated for MACT because CFBs are known to produce slightly lower PM emissions than PC boilers.[83] The ED also agreed with Tenaska's MACT floor determination of 0.015 lb/MMBtu as being representative of the most stringent limit identified for a similar source that has made its initial compliance demonstration.[84] Mr. Hughes explained that, for both BACT and MACT, "TCEQ generally only considers a similar source with the lowest permit limit to be 'best controlled' if it has been operating for a significant amount of time in order to prove that this lower level is achievable in practice over the long term."[85]

In its beyond-the-floor MACT analysis, the ED observed that 21 coal-fired boilers have either proposed or been issued the more stringent filterable PM limit of 0.012 lb/MMBtu.

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[81] Tenaska Ex. 2B, Volume I, Tab B, p. 6-3.

[82] ED Ex. 13, p. 36.

[83] ED Ex. 13, p. 35-36. Mr. Hughes also noted that the CFB boilers with lower limits burned coal types different than the subbituminous coal proposed to be used by Tenaska. Sierra Club Cross Ex. 15, p. 105.

[84] ED Ex. 11, p. 11.

[85] ED Ex. 13, p. 37.

Mr. Hughes further considered the fact that NRG found that limit to be both achievable and feasible as a beyond-the-floor MACT limit based on advances in fabric filter technology. The ED concluded that this lower limit should also be achievable for Tenaska based on the planned control technologies represented in Tenaska's permit Application. Finally the ED noted that there is no new source MACT proposed by EPA for filterable PM.[86] Accordingly, the ED determined that Tenaska's beyond-the-floor MACT limit for filterable PM is 0.012 lb/MMBtu over a 12-month rolling average.

Mr. Hughes identified three permits for PC boilers burning subbituminous coal with a proposed or issued permit limit of 0.010 lb/MMBtu for filterable PM. He did not apply that lower limit to Tenaska, however, because none of the facilities with this lower permit limit has been built and, therefore, none has demonstrated compliance with the lower limit.[87]

Mr. Hughes noted that Plant Washington also has a filterable PM limit of 0.010 lb/MMBtu. Plant Washington's lower limit is based on a 24-hour rolling average, however, which has not been proposed for Tenaska.[88] Mr. Hughes noted that, because the EPA NSPS limit for mercury is expressed as a 12-month rolling average, and because mercury is collected as particulate matter by the same control system used for filterable PM, the same 12-month rolling averaging time was used for the filterable PM MACT limit.[89]

3. Protestants' Arguments

Protestants argued that, because fabric filter baghouse technology is the most effective method for controlling PM emissions from both CFB and PC boilers burning any type of coal, all permit limits for both types of boilers should have been considered by Tenaska in its MACT analysis for filterable PM. And, because the lowest issued permit limits for filterable PM of

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[86] ED Ex. 11, p. 11.

[87] Sierra Club Cross Ex. 15, p. 87.

[88] Sierra Club Cross Ex. 15, p. 112.

[89] ED Ex. 13, p. 41.

0.010 lb/MMBtu reflect emissions rates that have been achieved in practice,[90] Protestants argue that 0.010 lb/MMBtu must be the filterable PM MACT floor limit for Tenaska.[91]

Moreover, Protestants argued that Tenaska failed to conduct any beyond-the-floor analysis for filterable PM, but merely relied on the analysis conducted two years earlier by another applicant, NRG. At the very least, Protestants argued, even if the lowest permitted limit for filterable PM of 0.010 lb/MMBtu was not determined to be the MACT floor, Tenaska was obligated to evaluate the other sources permitted at that limit to determine whether it would be feasible for Tenaska to achieve that limit as well.

Finally, Protestants noted that the Draft Permit contains only an annual limit and no short term limit for filterable PM. Because EPA recommended adding a short-term averaging time for each HAP or HAP surrogate, Protestants recommended that an unspecified shorter term MACT limit of 0.010 lb/MMBtu should be added to Tenaska's permit.

4. ALJs' Analysis

As discussed previously, the ALJs do not generally consider CFBs and PCs to be similar sources for purposes of MACT analysis. However, Tenaska's Application specifically states that "for filterable PM, which is captured by traditional PM control devices, (*e.g.*, baghouses, ESPs, and venturi scrubbers), all coal-fired boilers are capable of achieving essentially the same emission rate regardless of combustion type or fuel type."[92] Accordingly, based on the evidence in the record, the ALJs find that CFBs and PCs, regardless of fuel type, are similar sources for purposes of a case-by-case MACT analysis of filterable PM as a surrogate for non-mercury HAP metals.[93]

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[90] Sierra Club Cross Ex. 5, p. 46; ED Ex. 13, p. 37.

[91] Sierra Club Closing Brief, p. 60.

[92] Tenaska Ex. 2B, Vol. I, p. 11-7.

[93] Mr. Hughes indicated that PM emissions for CFBs are known to be slightly lower than those for PCs, but did not note any differences specifically for filterable PM. ED Ex. 13, p. 36.

The evidence demonstrates that the MACT limit for Tenaska should be at least as stringent as 0.012 lb/MMBtu based on the limit found to be achievable for NRG (and other issued permits) and deemed by the ED to be achievable for Tenaska as well. The issue then becomes whether a more stringent limit has been achieved or is feasibly achievable for Tenaska such that Tenaska's MACT limit for non-mercury HAP metals should be lowered further.

Mr. Hughes identified a total of 12 CFB and PC boilers with issued permit limits for filterable PM that are lower than Tenaska's recommended limit of 0.012 lb/MMBtu.[94] Additionally, Plant Washington, a very recently permitted PC boiler, includes a filterable PM limit of 0.010 lb/MMBtu over a 24-hour averaging period. Many of the other lower permitted limits are also for shorter averaging periods than Tenaska's 12-month rolling average.[95] Of the issued permits with lower limits, seven of the permitted sources are operational.

In light of the previously cited evidence establishing that permit limits issued by permitting authorities are presumably achievable, Tenaska impermissibly failed to evaluate the bases for the lower permitted filterable PM limits to determine whether those limits have been reliably achieved in practice or are feasibly achievable for Tenaska. In fact, in a prior draft version of its Application, Tenaska considered proposing 0.010 lb/MMBtu as its filterable PM BACT limit, based on a review of the EPA's Coal-fired Utility Database.[96] No evidence was presented to explain why that limit would not be achievable for Tenaska or why it was not ultimately recommended.

With respect to the appropriate averaging period, EPA noted that most of Tenaska's permit limits were represented on an annual average basis. EPA recommended that shorter averaging periods for all pollutants be included as well to insure short term compliance and enforceability.[97] However, EPA did not cite to any authority to indicate that compliance with that request is required. Consequently, the ALJs find that Mr. Hughes' explanation for

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[94] ED Ex. 13, p. 36-37.

[95] ED Ex. 13, p. 36-37.

[96] Sierra Club Cross Ex. 8, p. 032355; Tr: 183-184.

[97] Sierra Club Cross Ex. 11.

employing a 12-month averaging period for filterable PM is sufficient and the Commission is neither required to nor precluded from adding a shorter averaging period for non-mercury metallic HAPs as well.

For the reasons stated above, the ALJs recommend that the Commission adopt the lowest identified filterable PM limit of 0.010 lb/MMBtu over a 12-month rolling average as MACT for non-mercury metallic HAPs. In the alternative, if Tenaska contends that this limit is simply unachievable, then the permit may either be denied or remanded for further evidence regarding the proper MACT determination for non-mercury metallic HAPs.

E. Sufficiency of MACT Determination for Acid Gases (HCl and HF)

The acid gases hydrogen chloride (HCl) and hydrogen fluoride (HF) result from the combustion of coal and are controlled by the same equipment that controls emissions of SO_2. Tenaska proposes to use WFGD to control for SO_2 and acid gases. Emission rates for HF and HCl are based on fuel content specifications for fluorine and chlorine as well as control technology efficiency.[98]

1. Tenaska's MACT Analysis

As it did for its BACT determination, Tenaska reviewed permit limits for similar sources burning subbituminous coal and using wet FGD for its MACT analysis. Tenaska explained that sources using dry scrubbing are able to achieve a greater removal efficiency for HF than those using wet FGD and, therefore, they are not considered similar sources for purposes of MACT analysis.[99]

According to Tenaska, the only similar source with a lower proposed limit for HF was NRG. Tenaska noted that NRG's lower limit was based on both the fluoride content of its fuel

[98] Tenaska Ex. 2B, Vol. I, p. 11-13; Tab B, p. 6-4.

[99] Tenaska Ex. 2B, Vol. I, Tab B, p. 6-4.

and its scrubber efficiency of 95.72%.[100] Tenaska based its proposed MACT limit for HF of 0.00054 lb/MMBtu on its fuel content specifications for fluorine,[101] assuming 100% conversion to HF, and an estimated wet scrubber control efficiency of 95%.

For HCl, without explanation of the basis for its determination, Tenaska proposed a MACT limit of 0.00063 lb/MMBtu. Tenaska noted that its proposed HCl limit is more stringent than any other limit for HCl identified by Tenaska for other subbituminous PC plants.

For its beyond-the-floor analysis, Tenaska noted that wet ESP technology could lower both HF and HCl concentrations but determined that it would be cost-prohibitive for Tenaska to employ that technology as detailed in the cost analysis included with its Application.

2. ED's Review

The ED noted that EPA has not proposed emissions standards for acid gases from coal fired PC boilers for consideration in a case-by-case MACT analysis. Based on its review of available information, the ED found that the most stringent HF emission limit identified for any facility that burns primarily subbituminous coal and has made an initial compliance demonstration is 0.0005 lb/MMBtu.[102] In the preliminary determination summary, the ED determined that this limit represents the HF MACT floor for Tenaska.

The ED agreed with Tenaska's determination that, although a more stringent beyond-the-floor limit could possibly be achievable with the use of wet ESP technology, the cost of that technology would be prohibitive for Tenaska. Therefore, no beyond-the-floor MACT limit for HF was found to be appropriate. In the Draft Permit, the ED recommended Tenaska's proposed limit of 0.00054 lb/MMBtu as the MACT limit for HF.

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[100] Tenaska Ex. 2B, Vol. I, Tab B, p. 6-4.

[101] Fluoride and fluorine are used interchangeably in the discussion regarding evaluation of fuel content for HF emissions limit determinations.

[102] ED Ex. 11, p. 13.

For HCl, the ED observed that the most stringent HCl emission limit that has been demonstrated in practice for any facility that burns primarily subbituminous coal is 0.0029 lb/MMBtu for Unit 4 at the Walter Scott, Jr. Energy Center in Iowa.[103] The ED noted that the Commission has determined that this limit represents the MACT floor for subbituminous coal burning boilers.[104] The ED further noted that Tenaska's proposed HCl limits are lower than the limit for all units in the RBLC and two units identified outside of the RBLC (Luminant's Sandow Unit 5 in Texas and Big Stone Unit 2 in South Dakota). No lower limits than that proposed by Tenaska have been demonstrated in practice.[105] The ED concluded, without explanation, that the HCl limit of 0.00063 lb/MMBtu, as proposed by Tenaska, constitutes the beyond-the-floor MACT limit for HCl.[106]

3. Protestants' Arguments

Protestants argued that Tenaska should have considered facilities using dry FGD and CFB plants to be similar sources for its HF MACT analysis since all PC and CFB boilers can use either wet or dry FGD to control HF emissions. Moreover, Protestants asserted that Tenaska failed to address the lowest limits even among the more limited and undisputedly similar PC boilers burning subbituminous coal and using wet FGD. As an example, Protestants pointed out that Plant Washington, a PC boiler burning all or part subbituminous coal and using wet FGD, has an issued permit limit of 0.000140 lb/MMBtu for HF.

Additionally, Protestants cited several PC boilers using wet FGD that have produced stack test results for HF that are significantly lower than Tenaska's proposed MACT limit. Therefore, Protestants argued, Tenaska's proposed HF limit is not MACT. They assert that Tenaska's MACT limit should be no less stringent than the 0.000140 lb/MMBtu limit established for Plant Washington and Consumer's Energy.

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[103] Also referred to herein as Council Bluffs Unit 4.

[104] ED Ex. 11, p. 13.

[105] ED Ex. 1, p. 31. The evidence does not specify the HCl permit limits for Luminant's Sandow Unit 5 or Big Stone Unit 2.

[106] ED Ex. 11, p. 13.

Protestants did not contest Tenaska's proposed beyond-the-floor MACT limit for HCl. However, OPIC argued that both Tenaska's HCl and HF limits should be no more stringent than the limits set for Plant Washington of 0.00014 lb/MMBtu over a 3-hour averaging period for HF, and 0.000322 lb/MMBtu over a 3-hour averaging period for HCl.[107]

4. ALJs' Analysis

Based on the evidence in the record and the ALJ's general analysis regarding CFB and PC boilers, the ALJs find that PC boilers burning subbituminous coal were the appropriate similar sources to consider for Tenaska's case-by-case MACT analysis of acid gases. The ALJs further note that Protestants did not offer any evidence to sufficiently demonstrate otherwise.

Moreover, the preponderance of the evidence demonstrates that, although dry FGD can better control for HF than wet FGD, Tenaska's proposed use of wet FGD was based on its ability to better control for SO_2 emissions as well as its effectiveness in removing a form of water soluble mercury.[108] Accordingly, the evidence supports Tenaska's consideration of only wet FGD sources for its MACT analysis of acid gases.

That said, the ALJs find both the HF and HCl MACT limits proposed in the Draft Permit to be perplexing. For HF, the ED acknowledged that a limit of 0.0005 lb/MMBtu had been demonstrated in practice and, therefore, constituted the MACT floor for Tenaska.[109] Nonetheless, the slightly higher limit of 0.00054 lb/MMBtu as proposed by Tenaska in its Application was included in the ED's Draft Permit as the MACT limit for HF.

Conversely, the ED acknowledged that Tenaska's proposed MACT limit for HCl was significantly lower than the most stringent limit that had been demonstrated in practice by the best controlled similar source. Without any evidence or explanation to suggest that the ED evaluated Tenaska's proposed limit to determine if it would be achievable for Tenaska, the ED

[107] OPIC Closing Brief p. 12.

[108] Tenaska Ex. 3, p. 14.

[109] ED Ex. 11, p. 13.

simply incorporated Tenaska's proposed limit as the beyond-the-floor MACT limit for HCl. This seems to contradict Mr. Hughes's assertion regarding BACT, which is equally applicable to MACT, that "if an emission limit has not been demonstrated to be achieved in practice, a necessary condition of its selection as BACT requires technically qualified individuals to provide reasoned assurances that the technology or emission limit is achievable."[110] The evidence in the record provides no evaluation, much less any reasoned assurances, regarding the achievability of this limit for Tenaska.

Also problematic is the fact that neither the ED nor Tenaska evaluated the more stringent HF and HCl permit limits issued for Plant Washington and Consumers Energy, [111] even though information regarding each of those permits was provided by Protestants. The evidence establishes that Tenaska's HF and HCl emission limits are based on the specific fluoride and chlorine contents of its fuel as well as the estimated efficiency of its scrubber.[112] That explains why a permit limit for one facility may not be applicable even to another similar source if different fuel compositions or scrubber efficiencies are involved. But it does not explain why Tenaska failed to evaluate the fuel content and scrubber efficiency of other similar sources with more stringent limits to determine whether those more stringent limits may be applicable to Tenaska. And no evidence was identified to explain why Tenaska's WFGD could not achieve at least the efficiency rate of 95.72% as was used by NRG to determine its limit.

Because there is no evidence in the record concerning the fuel content and scrubber efficiency rates used as the basis for the HCl and HF permit limits in Plant Washington and Consumers Energy relative to Tenaska's fuel content and estimated scrubber efficiency rate, the ALJs are unable to determine with any certainty whether those more stringent limits represent MACT for Tenaska. However, in the absence of any evidence to demonstrate that the lower limits issued for Plant Washington are not achievable for Tenaska, the ALJs recommend that the Commission adopt .00014 lb/MMBtu as the HF MACT limit and .000322 lb/MMBtu as the HCl MACT limit for Tenaska. In the alternative, if Tenaska contends that those limits are

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[110] ED Ex. 13, p. 28.

[111] Tenaska's Reply to Closings Brief, p. 44.

[112] Tenaska Ex. B, Vol. I, p. 11-13.

simply unachievable, the permit may be denied or remanded for further evidence regarding the proper MACT determination for acid gases.

F. Sufficiency of MACT Determination for Organic HAPs

1. Tenaska's MACT Analysis

Boiler organic emissions include compounds that are present in the coal or formed as products of incomplete combustion. Such emissions are controlled by proper boiler design and good combustion practices, which cause organics to be oxidized in the combustion zone by ensuring extended residence time, continuous mixing of air and fuel, and consistent high combustion chamber temperatures, facilitating complete combustion.[113] Good combustion practices have been determined to constitute BACT for control of CO. Accordingly, CO is used as a surrogate for organic HAPs and Tenaska proposed its BACT emission limit for CO of 0.15 lb/MMBtu as the MACT limit for organic HAPs.[114]

Tenaska's proposed MACT limit was based on its review of CO limits for other similar subbituminous coal fired facilities, none of which had a more stringent limit than that proposed by Tenaska. For its beyond-the-floor MACT analysis, Tenaska noted that no other technologies have been identified to better control for organic HAP emissions than the good combustion practices to be used by Tenaska.[115] Accordingly, no beyond-the-floor MACT limit was proposed.

2. ED's Review

The ED agreed with Tenaska's assessment that good combustion practice and boiler design is the best technology available for minimizing the products of incomplete combustion,

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[113] Tenaska Ex. 2B, Vol. I, Tab B, p. 6-5.

[114] Tenaska Ex. 2B, Vol. I, Tab B, p. 6-5. No party contested the use of CO as a surrogate for the case-by-case analysis of organic HAPs.

[115] Tenaska Ex. 2B, Vol. I, Tab B, p. 6-6.

including organic HAPs. Additionally, the ED agreed with Tenaska's use of CO as a surrogate for organic HAPs, noting that EPA has approved this practice and that CO is easily monitored and low CO emissions indicate the presence of good combustion.[116]

In December 2009, after the Tenaska hearing process had already begun, the Commission issued a permit for NRG with a MACT limit of 0.12 lb/MMBtu for a 30-day averaging period. The ED was aware of the lower issued limit, but nonetheless recommended a CO MACT limit for Tenaska of 0.15 lb/MMBtu, which is consistent with the limit that was originally proposed by NRG in its application.

The ED observed that Tenaska's case-by-case MACT did not reveal any more stringent CO limit that has been achieved in practice by any boilers burning primarily subbituminous coal and using low NOx burners, noting the inverse relationship between CO and NOx emissions in low NOx burners.[117] Based on Mr. Hughes' review, the ED determined that Tenaska's proposed limit of 0.15 lb/MMBtu, excluding periods of startup and shutdown,[118] constitutes MACT.

In his response to comments, Mr. Hughes acknowledged that some CFB units have lower CO limits, but discounted those limits as being from dissimilar sources. Additionally, he recognized that ten PC permits known to TCEQ had lower CO limits. He disregarded those lower limits because none had yet been demonstrated to have been achieved in practice.[119] He also acknowledged that Plant Washington's issued permit limit for CO of 0.10 lb/MMBtu over a 30-day rolling average is lower than the CO limit proposed for Tenaska.[120]

The ED further determined that no beyond-the-floor MACT limit is appropriate for Tenaska because Tenaska's MACT floor limit is based on the most effective control technology and represents the most stringent limit achievable for organic HAPs. Mr. Hughes discounted the

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[116] ED Ex. 1, p. 32.

[117] ED Ex. 11, p. 14.

[118] Planned startup and shutdown emissions were addressed in the applications for Permit Nos. 84167 and PSD-TX-1123 and, where necessary, were identified in the MAERT. ED Ex. 11, page 14.

[119] ED Ex. 13, p. 43; Sierra Club Cross Ex. 15, p. 94.

[120] Sierra Club Cross Ex. 15, p. 112.

lower permitted limits as being appropriate beyond-the-floor MACT limits for Tenaska by stating merely that "the TCEQ does not have creditable information that these are technically and economically achievable."

Finally, the ED noted that EPA did not propose an emission standard for organic HAPs from coal fired boilers such as Tenaska. And the industrial boiler MACT limit proposed by EPA for CO is higher than the limit proposed by Tenaska.[121]

3. Protestants' Arguments

Protestants' arguments regarding alleged deficiencies in Tenaska's CO MACT largely mirrored their arguments regarding Tenaska's MACT analysis for other HAPs. Specifically, Protestants asserted that Tenaska failed to evaluate specific CO emissions testing data to determine what emission rates have been achieved in practice and also failed to consider lower CO permit limits for similar sources as required for a legally sufficient case-by-case MACT determination.

4. ALJ's Analysis

With respect to Tenaska's alleged failure to consider specific CO emissions data in its MACT analysis, the ALJs find no evidence that reliable emissions data was available that would demonstrate that CO emissions rates had been achieved in practice over time and under a variety of normal operating conditions, that were lower than the most stringent permit limits. Accordingly, the ALJs find that Tenaska was not required to evaluate specific emissions data in its MACT analysis for organic HAPs.

However, Tenaska was required, but failed, to evaluate lower permit limits issued for similar sources, even if those sources were not yet operational, to determine whether such limits were applicable to Tenaska. Those lower permitted limits, if based on a reliable demonstration of emissions rates that had been achieved in practice by other similar sources, would constitute

[121] ED Ex. 1, p. 32.

the MACT floor for Tenaska. And, even if not demonstrated in practice by a similar source, those lower limits should have been evaluated by Tenaska to determine whether they would be feasibly achievable as a beyond-the-floor MACT limit for Tenaska. As discussed previously, this is because emissions limits established in issued permits reflect the considered judgment of the permitting authorities that the established emissions limits can reasonably expected to be met continuously over the life of the permitted facility. Accordingly, in the absence of any evidence to the contrary, the ALJs find that the lower issued permitted limits for similar sources are achievable for Tenaska as well.

Specifically with respect to the MACT limit for organic HAPs as determined by analysis of CO as a surrogate, the ALJs find that the evidence in the record makes clear that Tenaska's proposed limit of 0.15 lb/MMBtu is not MACT. Tenaska's own expert, Paul F. Greywall, P.E., acknowledged that 0.12 lb/MMBtu has been adopted by the Commission as the CO limit for Coleto Creek, and indicated that he did not have concerns about Tenaska's ability to meet that lower limit.[122] Additionally, in a draft document, Tenaska considered a CO BACT limit of 0.10 lb/MMBtu for a 30-day average[123] and indicated that Tenaska would be able to achieve that limit "without substantially impacting the projected NOx emissions."[124] Ultimately Tenaska did not propose this lower limit, explaining only that it has not been demonstrated in practice. This explanation does not excuse Tenaska from its requirement to evaluate the feasibility of that lower limit as a beyond-the-floor MACT limit, however. Accordingly, the ALJs find that the MACT limit for organic HAPs should be 0.10 lb/MMBtu over 30-day and 12-month average periods. Alternatively, if Tenaska contends that this limit is simply unachievable, then the permit may either be denied or remanded for further evidence regarding the proper MACT determination for organic HAPs.

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[122] Tr: 224.

[123] Sierra Club Cross Ex. 8, p. 032259.

[124] Sierra Club Cross Ex. 8, p. 032259.

VII. BACT

A. Overview Of BACT

With the exception of proposed CFB and Integrated Gasification Combined Cycle (IGCC) technology, Protestants did not present evidence of any pollution control technologies or techniques that could produce lower emissions than the technology Tenaska proposes. So, the BACT analysis in this case is not focused on identifying the actual technology that Tenaska must use at the Trailblazer facility but rather the emission limits to be contained in the permits in light of BACT.

Protestants and OPIC specifically challenged Tenaska's BACT determinations for NOx, SO_2, CO, VOC, filterable and total PM/PM_{10};[125] and Pb.[126] The ALJs agree that some limits in the Draft Permit do not represent BACT, and their recommendations are summarized in the following table:

Pollutant and Proposed Controls	**Compliance Averaging Period**	**Recommended Standard (lb/MMBtu)**	
		ED/Draft Permit	**ALJs**
NOx–NOx burners, over-fired air, and selective catalytic reduction	24-hour ave.	0.070	0.067
	30-day rolling ave.	0.060	0.05
	12-month rolling ave.	0.050	No change
SO_2–WFGD	30-day rolling ave.	0.06	No change
	12-month rolling ave.	0.06	No change
CO–proper boiler design and operation	30-day rolling ave.	0.15	0.10
	12-month rolling ave.	0.15	0.10
VOC–proper boiler design and operation	Annual	0.0036	0.024

[125] Particulate matter with less than 10 micrometers aerodynamic diameter
[126] MCC adopted Sierra Club's arguments regarding BACT.

Pollutant and Proposed Controls	Compliance Averaging Period	Recommended Standard (lb/MMBtu)	
Filterable PM fabric filter baghouse	Annual	0.15	0.10
Total PM	Annual	0.030	0.018
	1 hour	0.030	0.018
Pb–fabric filter baghouse	Annual	0.00003	0.000016

B. Background

In part, federal regulations define BACT as:

> an emissions limitation . . . based on the maximum degree of reduction for each pollutant subject to regulation . . . which would be emitted from any proposed major stationary source . . . which the Administrator, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source . . . through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant.[127]

According to EPA, this BACT definition includes two fundamental concepts:

> First, a PSD applicant must consider the most stringent control technology (and associated emission limitation) that is available in conducting a PSD analysis. Second, if the applicant proposes as BACT a control alternative that is less effective than the most stringent available, it must demonstrate to the State through objective indicators that case-specific energy, environmental, or economic impacts renders that alternative unreasonable or otherwise not achievable. The State must exercise independent judgment in reviewing that demonstration.[128]

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[127] 40 C.F.R. § 52.21(b)(12).

[128] 54 *Fed. Reg.* at 52,825.

In 1992, the EPA approved the Texas PSD program to issue and enforce permits, subject to agreements between TCEQ and EPA.[129] By approving the Texas SIP related to the PSD program, EPA found that TCEQ regulations satisfied the FCAA requirements.[130] In addition, TCEQ has stated that it does not circumvent federal new source requirements and its control technology reviews do not result in a technology that is less stringent than BACT as defined in the federal rule.[131]

Section 382.0518(b) of the Texas Health and Safety Code requires the Commission to grant a permit to construct a facility if, from the information available, the Commission finds:

> (1) the proposed facility for which a permit . . . is sought will use at least the best available control technology, considering the technical practicability and economic reasonableness of reducing or eliminating the emissions resulting from the facility; and
>
> (2) no indication that the emissions from the facility will contravene the intent of this chapter, including protection of the public's health and physical property.

The Commission's definition of BACT, found in 30 TAC § 116.10(3), is consistent with this requirement.

C. Sufficiency of Tiered BACT Analysis

To implement its BACT requirement, TCEQ drafted a regulatory guidance document entitled, "Evaluating Best Available Control Technology (BACT) in Air Permit Applications," also known as RG-383. RG-383 is used as a guide in determining BACT; but it is not a rule. Consequently, an alleged failure to follow any particular step in RG-383 is not by itself a dispositive indicator of the sufficiency or lack thereof of a BACT analysis. The document describes a three-tiered process for conducting and evaluating BACT proposals submitted in

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[129] 57 *Fed. Reg.* 28,093 (Jun. 24, 1992) (amending 40 C.F.R. Pt. 52, Subpt SS); *see also*, 54 *Fed. Reg.* 52,823 (Dec. 22, 1989).

[130] 54 *Fed. Reg.* at 52,824-825; 57 *Fed. Reg.* at 28,093.

[131] 35 *Tex. Reg.* 5347 (June 18, 2010).

NSR air permit applications.[132] As stated in the document, the BACT evaluation begins at the first tier and continues through subsequent tiers only if necessary as determined by the described evaluation process.[133]

TCEQ permit engineer Richard Hughes[134] performed a Tier I BACT analysis of Tenaska's Application. A Tier I analysis accepts as BACT those emission levels that have been approved in recent permit reviews for the same process and/or industry, unless new technical developments indicate additional reductions are economically or technically feasible.[135] To identify the lowest permit emission limits for similar pulverized coal plants, Mr. Hughes reviewed information within the application, searched EPA's RACT-BACT-LAER Clearinghouse (RBLC), reviewed an EPA Regional Office spreadsheet that included emissions data, surveyed recent permits in Texas and other states that were not included in the RBLC, and discussed the application with his TCEQ colleagues.[136]

In evaluating permit limits for other facilities, Mr. Hughes gave particular weight to facilities that are operating and to the Coleto Creek[137] and NRG permits.[138] Both of those permits are for coal-fired electric generating facilities, but neither is operational. Coleto Creek will burn low-sulfur Western subbituminous coal, principally PRB, and on an annual basis, may also use up to 40% low-sulfur bituminous coal, principally from South America. NRG's primary fuel will also be subbituminous coal, but the facility may also burn eastern bituminous coal or petroleum coke.

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[132] ED Ex. 3.

[133] *Id.* at 3; Tenaska Ex. 2 (Greywall) at 51-52.

[134] Mr. Hughes is a professional engineer and has been employed at TCEQ or its predecessor agencies for 24 years. He has reviewed about 22 state and federal permit applications, including 10 PSD permits. He holds a B.A. in anthropology and M.S. in environmental health engineering. ED Ex. 1 at 3 and Ex. 2.

[135] ED Ex. 3 at 3-4.

[136] ED Ex. 1 at 12; Tr. 827-828.

[137] SOAH Docket No. 582-09-2045, TCEQ Docket No. 2009-0032-AIR (June, 24, 2010).

[138] SOAH Docket Nos. 582-08-0861 and 582-08-4013, TCEQ Docket Nos. 2007-1820-AIR and 2008-1210-AIR (December, 11, 2009).

In contrast to the Tier I analysis that Mr. Hughes performed, a Tier II analysis considers similar air emission streams in a *different* process or industry and evaluates possible differences in overall performance of control options and technical differences between the processes or industries in question.[139] The parties did not perform a Tier II analysis.

A Tier III analysis includes detailed technical and quantitative economic analyses of all emission reductions options available for the process under review, and for each option, if needed: eliminates technically infeasible options; ranks remaining emission reduction options by emissions reduced; determines cost effectiveness through a quantitative cost analysis to (dollars per ton of pollutant reduced); and selects BACT based on cost effectiveness and performance.[140]

Tenaska's primary expert, Mr. Greywall, works with Trinity Consultants Inc. (Trinity), an environmental consulting firm specializing in air regulation compliance and permitting.[141] Working with the staff at Trinity, Mr. Greywall prepared and submitted Tenaska's Application. Mr. Greywall said Trinity performed a Tier III analysis,[142] followed by a Tier I analysis for the main boiler in which Trinity compared possible emissions limits for Tenaska to other recently issued permits.[143] As part of its analysis, Trinity searched the RBLC for coal-fired external combustion units for which PSD permits have been issued since 1990; obtained all recently-issued PSD permits for coal-fired electric generating facilities in the U.S; and, to supplement the BACT review, identified recently submitted air permit applications and draft air permits. Mr. Greywall said Trinity considered all of the identified control technologies and associated emission limits and gave additional weight to those facilities that have been constructed and had undergone initial compliance testing.[144]

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[139] ED Ex. 3 at 3-4.

[140] ED Ex.3 at 3-4.

[141] Mr. Greywall has worked with Trinity for more than 15 years. He holds bachelors and masters degree in mechanical engineering and an M.B.A. He has assisted in the preparation of more than 3,000 air permit applications. Tenaska Ex. 2 at 1-5 and Ex. 2A.

[142] Tenaska Ex. 2 at 51-52. Tenaska's BACT analysis is located behind Tab A, in Section 11 of the Application, Tenaska Ex. 2B.

[143] Tenaska Ex. 3 (Bailey) at 11; Tr. 131 (Greywall); ED Ex. 1 (Hughes) at 12.

[144] Tenaska Ex. 2 at 53-54 (Greywall).

1. Protestants' and OPIC's Arguments

Protestants and OPIC argued that the application should be denied or remanded because Tenaska did not adequately support its proposed emission limits. If facilities in the same industry have lower permitted emission limits or operational facilities are outperforming Tenaska's proposed BACT limits, Tenaska or the ED had to provide case-specific evidence demonstrating that more stringent limits are not economically reasonable or technically practical for Trailblazer, Protestants maintained. Protestants and OPIC also contended that Tenaska should be required to use the lowest emission limits in permits for comparable facilities.

Specifically, Sierra Club argued that Tenaska and the ED failed to properly follow the process outlined in RG-383 in their BACT evaluations. The flow chart for RG-383 begins with the question of whether an applicant's proposed performance is less than or equal to that accepted as BACT in recent permit reviews for the same industry. If an applicant's performance is not the same or better, the chart advises TCEQ's staff to determine whether there are *compelling technical differences* between an applicant's process and others in the same industry.[145] Relying on this framework, Sierra Club contended that Tenaska did not prove compelling technical differences to show Trailblazer could not achieve equivalent or lower limits to those in recent permit reviews for facilitates in the same industry.[146]

In addition, Protestants and OPIC asserted that emission limits for plants that are not yet operational must be considered as part of a BACT analysis. They also pointed out that Coleto Creek and NRG are not operational, but the ED nonetheless considered their permit limits to be BACT.

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[145] ED Ex. 3 at 5 and 18-19.

[146] *Id.* at 18.

2. Tenaska's and ED's Responses

In response, Mr. Bailey testified for Tenaska that a lower emission rate reported in the RBLC for a comparable facility is not necessarily a BACT limit for Trailblazer.[147] He said BACT is case-specific and requires consideration of factors not related to a particular emission limitation, such as cost.[148] Also, technology that will lower the emission of one pollutant may not be as effective at lowering another emission. For example, Mr. Bailey said wet scrubbing is more effective at removing SO_2 but less effective at removing H_2SO_4 emissions, and an applicant must decide which emission it should address and how much of the pollutant it should remove.[149] Furthermore, Mr. Bailey added, units that can be continuously operated at a full load are often able to meet lower limits than those that must "swing" with electrical demand.[150]

Tenaska argued that, even if lower emissions are demonstrated at a particular time on a specific unit, Trailblazer will not necessarily be able meet those limits consistently during years of use. Determining what is achievable involves a comparison of BACT emission limits that can be met over a facility's operating life and under the most adverse circumstances that can reasonably be expected to occur, Tenaska observed.[151]

Similarly, Mr. Hughes testified for the ED that permit limits are typically set at the highest expected emission rate when the unit is being properly operated so that emissions test data will normally be safely below the permit limit. Mr. Hughes generally expects to see lower emissions demonstrated through stack testing than the limits proposed in the Draft Permit. This is because stack tests that show lower emissions are usually initial compliance determinations performed under optimum conditions, he explained. Over time, a combination of factors, including wear and tear due to abrasion, will reduce overall emissions control on average.[152]

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[147] ED Ex. 13 at 28, *citing* RG-383 at 16 and Appendix C (Question No. 4).

[148] Tenaska Ex. 3 at 18(Greywall).

[149] Tenaska Ex. 3 at 18 (Bailey).

[150] Tenaska Ex. 3 at 18-19 (Bailey).

[151] *Citing National Lime Ass'n v. EPA*, 627 F.2d 416, 431 n. 46 (D.C. Cir. 1980).

[152] ED Ex. 13 at 30.

And an applicant must have a reasonable chance to consistently comply with any proposed BACT determination, Mr. Hughes added.[153]

Mr. Hughes also testified that the ED wants an applicant to choose the lowest limit within the range of recently approved BACT limits. But the ED will consider the reasons an applicant gives to support a higher emission limit.[154] Mr. Hughes pointed out that some recent permit limits may have been voluntarily chosen by an applicant, or the facility may have had peculiar aspects that would allow it to meet lower limits.[155] Finally, Mr. Hughes said options for reducing emissions do not necessarily have to be demonstrated through performance testing and monitoring to be considered as BACT,[156] but an undemonstrated emission limit must be supported by reasoned assurances from qualified experts, he stated.[157]

As for the question of whether BACT is established only by operational plants,[158] Mr. Greywall said some facilities that are not operating, such as Plant Washington, do not reflect BACT.[159] Similarly, for the ED, Mr. Hughes testified that:

> TCEQ generally only considers a similar source with the lowest limit to be 'best controlled' if it has been operating for a significant amount [of] time in order to prove that this lower level is achievable in practice over the long term.[160]

Conversely, Mr. Hughes testified that both Coleto Creek and NRG are similar facilities to Trailblazer.[161] Mr. Hughes also testified that the Coleto Creek and NRG limits are BACT, and the lower limits from those permits should be in the Tenaska's permit.[162] Likewise,

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[153] ED Ex. 13 at 36.

[154] Tr. 577; *see also* Tr. 592; ED Ex. 13 at 26-27.

[155] Tr. 837-838.

[156] Sierra Club Cross Ex. 15 at 81 (Hughes).

[157] ED Ex. 13 at 28, *citing* RG-383 at 16 and Appendix C (Question No. 4).

[158] Tr. 191–191.

[159] Tr. 192, 195-196.

[160] ED Ex. 13 at 37.

[161] Tr. 796.

[162] Tr. 793-794 and 797-798; *see also* Sierra Club Cross Ex 15 at 88.

Mr. Greywall admitted that BACT includes what is achievable, not only what has already been achieved.[163]

3. ALJs' Analysis

The ALJs agree with Protestants that Tenaska bore the burden of proving its emission limits were the most stringent possible in light of permissible considerations. Both the FCAA and the Health and Safety Code require this. The FCAA uses the term "most stringent control technology (and associated emission limitation)" while the Texas statute requires the "best available control technology." It follows then that Tenaska, as the Applicant, had the statutory burden to demonstrate its control technology and emission limits are the most stringent, *i.e.*, best available.

The federal and state definitions set additional standards for BACT review. The federal statute clarifies the fact that a case-by-case analysis is required; it would be inappropriate to set the same limits for every applicant. The location, type, and size of a facility are key factors to be evaluated, as are the fuel and particular processes to be used. Therefore, although a BACT analysis generally begins with a review of permit limits for similar facilities, experts have a duty to determine whether different limits might be more appropriate for the facility under review. Any factor that distinguishes the application at issue may shed light on the issue of an appropriate limit. The federal definition specifically mentions energy, environmental, and economic impacts as factors to consider in determining what is achievable. The state law lists technical practicability and economic reasonableness of reducing or eliminating the emissions. Thus, in every case, it is important to determine whether a limit is technically practical and economically reasonable for a given applicant. On the other hand, the ALJs disagree with Sierra Club that Tenaska was required to show compelling differences between the Application and all recent permits for unit generating electricity, particularly since RG-383 is not a rule. To require this of Tenaska would expand the statutory requirements.

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[163] Tr. 179.

Recent permits with lower limits for PC boilers were included in both the ED's and Tenaska's BACT analysis. Absent evidence to the contrary, it is reasonable to find that those limits are achievable or they would not have been set. When Tenaska proposed higher limits than those found in recent permits, Tenaska needed to explain why it could not achieve those limits. For example, the evidence should have demonstrated that recent permits were for different processes, the facilities for which they were issued would use different types of fuel, or those facilities had unique aspects that allowed them to meet limits that Trailblazer could not achieve. Additionally, evidence would support different limits if it showed how the ability to achieve emissions decreases over time and the impact of variance in emissions.

Some experts testified that a BACT limit must be set higher to account for diminishment in the effectiveness of control technology over time. If wear and tear has such an impact, the record does not demonstrate how much emissions should be expected to increase due to age and use. Thus, the ALJs are left with an assumption that may be logical but is not demonstrated. Reasoned expert opinions based on credible facts about Tenaska's ability or lack thereof to achieve lower limits would support the Application. For some limits, the experts provided this type of evidence. For others, they did not.

A related issue is whether limits in other permits must have been demonstrated in *operating* facilities. Tenaska and the ED asserted that "achievable" means demonstrated in practice by operating facilities. Under that construction, permit limits for Coleto Creek and NRG could not be deemed achieved; yet, the ED recommended changing some of Tenaska's limits in the Draft Permit based on Coleto Creek's and NRG's permits. Thus, the argument that data is valid only if it is derived from facilities that have been operating for significant periods of time is not supported in the record.

Consequently, the ALJs have not systematically rejected evidence of lower permit limits for facilities that are not operational. That would contradict the ED's and Tenaska's own evidence of the use of Coleto Creek's and NRG's permit limits and ignore the fact that permit limits established for non-operational plants may be based on demonstrations and data from other plants that have achieved those same limits in practice. Instead, the ALJs have evaluated

evidence specific to each pollutant and proposed control technology, including what the evidence demonstrated about similar facilities, to determine whether Applicant met its burden of proving BACT.[164]

D. Analysis of IGCC and CFB Technology

1. IGCC Technology and BACT

MCC argued that Tenaska's BACT analysis was deficient because it failed to consider the use of IGCC technology as a possible emission reduction option for Trailblazer. Protestants acknowledged that the Commission's decision in Sandy Creek Energy Station (Sandy Creek), finding that IGCC was not required to be considered as part of the BACT analysis for a coal-fueled power plant because doing so would necessitate redefining the source, was upheld by the Amarillo Court of Appeals.[165] However, Protestants argued, EPA has since rejected that position and the Commission is required to implement EPA decisions regarding PSD program requirements as part of its approved SIP.[166]

Based on the Commission's current policy, neither Tenaska nor the ED considered IGCC as part of their BACT analysis for Trailblazer. OPIC agreed that the Commission has consistently maintained its current policy that including IGCC in a BACT review of coal-fired boilers is not required because doing so would require the Applicant to redefine the source. Furthermore, the ED argued that the recent EPA statements about considering IGCC as BACT apply only to permitting authorities relying on EPA's top down approach, which TCEQ does not employ pursuant to its federally-approved SIP.

Based on the evidence in the record and the applicable law, the ALJs find that Tenaska is not required to analyze IGCC as part of its BACT analysis. Moreover, the preponderance of the

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[164] The Applicant bears the burden of proving by a preponderance of the evidence that its Application complies with all applicable statutes and rules. 30 TAC §§ 55.210(b) and 80.17(a).

[165] *Blue Skies Alliance v. TCEQ*, 283 S.W.2d 525 (Tex. App. – Amarillo 2009, no pet.)

[166] MCC Closing Brief, p. 9.

evidence in the record establishes that the use of IGCC would be contrary to the fundamental business purpose and design of Trailblazer. And finally, although not required, the evidence in the record supports the finding that IGCC is not BACT for Trailblazer.

2. CFB Technology and BACT

Sierra Club maintained that permit limits imposed on facilities with both CFB and PC boilers should have been considered and analyzed to determine BACT for Tenaska. In Sierra Club's view, since Tenaska proposed certain emission limits that are not at least equivalent to the performance in CFB boilers, Tenaska should have been required to demonstrate that Trailblazer cannot achieve the lower CFB limits because of compelling technical differences between PC and CFB boilers.[167]

The ED disagreed with Sierra Club's assertion that Tenaska had to justify why its PC boiler will not achieve the same limits as a CFB boiler. TCEQ does not require an applicant to change its boiler type, which is the source of emissions. According to the ED, a change of the boiler type would constitute a change in the process or "redefining the source."[168] Thus, an applicant that plans to use a PC boiler is not required to demonstrate why its emissions differ from CFB emission limits

The Application states that CFB and PC boilers have different combustion processes. While the conventional boiler types (PC, stoker, and cyclone) have different configurations, the combustion characteristics, such as flame temperature and residence time, are similar. In contrast, CFB units burn fuel at relatively low temperatures and long residence times compared to conventional boilers. This process allows CFB boilers to use lower quality fuels. The different firing approach in CFB boilers makes them generally insensitive to coal rank or fuel quality, which suggests that the formation and speciation of pollutants are different for CFBs than for PC units.[169] Furthermore, according to the Application, the largest CFB units are 300 to

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[167] *Citing* RG-383 at ED Ex. 3 at 18-19.

[168] Sierra Club Cross Ex. 15 at 81 (Hughes).

[169] Tenaska Ex. 2B, Vol. 1, Tab B at 4-2.

350 MW units and have about 10% less power generating efficiency than PC units.[170] Tenaska's PC boiler, at 900 MW, will be a larger and more efficient unit.

Drawing upon this evidence and applicable law, the ALJs find that Tenaska, as part of its BACT analysis, was not required to consider CFBs as similar sources because regulations do not require an applicant to redefine the source of its own emissions. The Commission has determined that an applicant does not need to consider and adopt measures that change the very nature of the project, and their decision has been upheld by a Texas court of appeals.[171] Moreover, even if Tenaska had a duty to justify its use of a PC boiler, rather than a CFB, it met that responsibility. Tenaska has proven that CFB units use different fuels, are much smaller than Trailblazer's PC boiler will be, and have significantly less power generating efficiency than PC units. The ALJs find that the record supports Tenaska's reasoning, and Tenaska was not required to further justify its selection of a PC boiler to demonstrate that it will meet BACT.

E. NOx

Protestants asserted that Applicant failed to meet its burden of proving that lower limits for NOx are unreasonable or otherwise not achievable because of energy, environmental, or economic impacts. In particular, Protestants cited the lack of stack test data and the absence of information other companies could have provided about the limits they were achieving in practice.[172]

Tenaska proposed NOx emission limits of 0.07 and 0.05 lb/MMBtu for the 30-day and annual compliance averaging periods, respectively. The ED lowered the proposed 30-day NOx limit from 0.07 to 0.06 lb/MMBtu, a change with which Tenaska agreed. A 24-hour NOx limit was not included in the initial Draft Permit, and EPA commented on the fact that other facilities

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[170] Tenaska Ex. 2B, Vol. 1, Tab B at 4-2 and 4-3.

[171] *Blue Skies Alliance v. Texas Comm'n on Envtl. Quality*, 283 S.W.3d 525 (Tex. App.–Amarillo 2009, no writ).

[172] Sierra Club Cross Ex. 15 at 36.

have 24-hour NOx limits.[173] In response to EPA's comments, Tenaska consulted with its vendor, and then agreed to a 24-hour NOx limit of 0.07 lb MMBtu. Special Condition No. 8A in the Draft Permit was changed to reflect this limit.

For each averaging period, lower NOx limits than those in Draft Permit have been accepted as BACT in recent permits for PC boilers. The table below shows the limits that Protestants asserted are BACT:

Pollutant	Compliance Ave. Period	Standard (lb/MMBtu)		
		Draft Permit	Protestants	OPIC
NOx	24-hour	0.07	0.06	0.06
	30-day rolling	0.06	0.05	0.05
	12-month rolling	0.05	0.03	0.0385

1. 24-Hour Limits

a. Parties' Positions

EPA cited lower 24-hour limits in the permits for:

Desert Rock (NM):	0.060 lb/MMBtu
Toquop (NV):	0.06 lb/MMBtu (draft permit)[174]
SWEPCO Turk (AR)	0.067 lb/MMBtu
Newmont Nevada Energy	0.067 lb/MMBtu[175]

Tenaska and the ED contended that the NOx limits proposed in the Draft Permit are among the lowest achievable and should represent BACT for Tenaska.

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[173] Sierra Club Cross Ex. 12 at 2.

[174] ED Ex. 13 at 37.

[175] Sierra Club Cross Ex. 12; *see also* ED Ex. 13 at 35; Tenaska Ex. 2B at App-250.

Desert Rock's permit is for a PC facility that will burn bituminous coal.[176] The permit was withdrawn and remanded for consideration of IGCC technology,[177] but the permit is signed as a final decision and was reviewed and issued by EPA.[178] Because it was issued by EPA and remanded only for reconsideration of IGCC technology, Protestants and OPIC contended that the Desert Rock permit reflects emission levels accepted as BACT by the EPA in a recent permit review and serves as BACT for comparison to Tenaska's Draft Permit.

Mr. Hughes did not recommend Desert Rock's lower limits for Tenaska because the Desert Rock permit has been remanded,[179] and the plant will not be built. The Desert Rock permit requires initial performance tests for several pollutants but after the initial tests, for many of the pollutants, the permit provides that EPA may waive a specific annual test or allow for testing to be done at less than maximum operating capacity.[180]

Tenaska disagreed that a lower permit limit is BACT for Trailblazer, and relied on Mr. Hughes' testimony to contend that its proposed limit is within an acceptable range of 24 hour limits. If a proposed limit is within the range of those in the RBLC, an applicant is not required to make additional demonstrations to support its request, Tenaska claimed. At the hearing, Mr. Hughes was questioned about RG-383 by one of Tenaska's attorneys:[181]

> Q: Okay. And would you agree with me that what's stated [in Step 6] is as follows: 'Is proposed performance greater than or equal to that accepted as BACT in recent permit reviews for the same industry?'
>
> A: Yes, that's what it says.
>
> Q: Okay. Now, you've testified that BACT is a range. Is that– is that how you interpret it?

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[176] ED Ex. 13 at 34.

[177] Tr. 192 (Greywall).

[178] Sierra Club Cross Ex. 1 at 034164.

[179] ED Ex. 1 (Hughes) at 14.

[180] Sierra Club Cross Ex. 1 at 034168.

[181] Tr. 836-838.

A: Whenever we look up permits on the RBLC and even among permits we've issued recently in Texas, there's always a range.

Q: Okay. And would you–in Step No. 6, . . . is it your interpretation that that is BACT range that it is talking about there?

A: It doesn't specifically state that. That's the way that we do it. That's our practice–

Q: Okay.

A: – at the TCEQ.

Q: In other words, if an applicant proposes a BACT that's outside the recent permit BACT range, in your estimation, then the applicant would have to go to Step 12 in this diagram.[182] Is that correct?

Mr. Hughes: That's correct.

Q: Okay. And otherwise, if the BACT proposed by the applicant is within the range of BACTs in recent permits, in your estimation, you would go to Step 7. Is that correct?[183]

Mr. Hughes: Well, in general that's true. That range—usually within that range we want people to pick the lower.

Q: Okay.

Mr. Hughes: But we do acknowledge that there may be permits in that range that are—somebody may have voluntarily done it, or it may be that their peculiar facility could meet a lower number for who knows what reasons.

Q: Okay.

Mr. Hughes: And also if something hasn't been built, we consider that that's not demonstrated yet if it's a very low number, and so we . . . want somebody to get in the low end of the range.

Q: Okay. Okay.

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[182] Step 12 requires an Applicant to show compelling technical differences between the process and others in the same industry. ED Ex. 3 at 5.

[183] Step 7 asks, "Has APD [the TCEQ's Air Permitting Division] identified other emission reduction options with > performance that should be evaluated for this plant?" ED Ex. 3 at 5.

> Mr. Hughes: But we would let them -- if they were at the high end, we would let them make an argument to us as to why they should be in the high end.
>
> . . .

b. ALJs' Analysis

The ALJs do not interpret Mr. Hughes' testimony as stating that any emission limit within the range shown in the RBLC is acceptable. Instead, Mr. Hughes stated more than once that the ED wants an Applicant to demonstrate the reason for any requested limits that are not in the low end of permitted limits. To the ALJs, this means that an applicant must provide sufficient evidence to support a higher emission limit if other lower permit limits exist. This interpretation fits with the federal and state definitions discussed earlier. The state definition requires the best available control technology, considering the technical practicability and economic reasonableness of reducing or eliminating the emissions, and the FCAA requires the maximum degree of reduction.

Nevertheless, the ALJs find that Tenaska met its burden of proving the Toquop draft permit and Desert Rock permit are not BACT for a 24-hour NOx limit. As previously stated, the Desert Rock permit requires initial performance tests for NOx, and after the initial performance tests, EPA can waive a specific annual test or allow for testing to be done at less than maximum operating capacity if adequate justification is provided.[184] To the ALJs, this reflects some uncertainty about whether the Desert Rock limit is achievable. The Toquop limits were for a draft permit that has not been finalized. Further, Mr. Bailey said no plant has achieved the 0.060 limit as of 2009.

On the other hand, Mr. Bailey did not address the limit for the other two facilities that EPA mentioned—Newmont Nevada Energy and SWEPCO Turk, which both have 24-hour limits of 0.067 lb/MMBtu. In the absence of evidence explaining how those facilities would be different from Trailblazer, it appears more likely than not that a 24-hour NOx limit of 0.067 lb/MMBtu is achievable. Therefore, the ALJ find that limit is BACT for Trailblazer.

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[184] Sierra Club Cross Ex. 1 at 034168.

2. 30-Day Average Limit

a. Parties' Positions

Mr. Hughes determined the limit in the Draft Permit, 0.06 lb/MMBtu, is one of the most stringent limits in the country that has been demonstrated in practice and determined to be achievable. According to OPIC and Protestants, Tenaska's limit should be lowered to 0.05 lb/MMBtu, which is the same as Plant Washington's 30-day average limit.[185] Plant Washington will have a PC boiler of roughly the same size as Trailblazer and will burn PRB subbituminous coal or a 50/50 blend of PRB subbituminous coal and eastern bituminous coal. That permit was granted by the Georgia Department of Natural Resources (GDNR) in April 2010, and Mr. Hughes was aware of the permit during the discovery period of this proceeding.[186]

b. ALJs' Analysis

Tenaska argued that Plant Washington's limit of 0.050 lb/MMBtu has not been demonstrated in practice. Yet, the Plant Washington limit does not have restrictions or a phase-in period for the 30-day limit,[187] and Tenaska did not persuasively prove why its facility is distinguishable. It gave only cursory explanations and failed to justify its rationale with detailed supporting evidence. For these reasons, the evidence establishes that Trailblazer should be able to achieve a NOx 30-day rolling average of 0.50 lb/MMBtu.

3. NOx 12-Month Average Limit

a. Parties' Positions

Mr. Hughes determined Applicant's proposed 0.050 lb/MMBtu limit for the 12-month average was as stringent as any recently permitted electric generating facility except for

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[185] Sierra Club Cross Ex. 4 at 8.

[186] Sierra Club Cross Ex. 15 at 79, 107.

[187] Sierra Club Cross Ex. 4 at 7 § 2.4.

Desert Rock. But the Desert Rock permit allows the 0.039 limit to be changed to 0.05 lb/MMBtu if monitoring data shows the lower limit cannot be met.[188]

The GDNR set Plant Washington's annual NOx emission limit at 0.030 lb/MMBtu while subbituminous coal is burned.[189] According to the permit, 0.030 lb/MMBtu is the lowest limit ever permitted for a PC plant and, in 2009, no coal-fired unit emitted less than 0.030 lb/MMBtu. Thus, the GNDR allowed Plant Washington six months after initial start up to bring the boiler into compliance with this limit.[190]

Mr. Hughes referenced emissions testing data from 2005-2008 for the W.A. Parish unit near Houston. The highest annual averages over 16 quarters at that facility were:

0.053 lb/MMBtu for Unit 5
0.050 lb/MMBtu for Unit 6,
0.050 lb/MMBtu for Unit 7, and
0.040 lb/MMBtu for Unit 8.

According to Mr. Hughes, these averages support the proposed annual BACT limit of 0.050 lb/MMBtu for Trailblazer.

For Tenaska, Mr. Bailey said Plant Washington's annual level is not BACT for Trailblazer because it is not achievable. He testified that it is the lowest NOx limit he has ever seen and, as of 2009, no unit had met that limit.[191] He also cited the Plant Washington phase-in period as evidence to support his opinion that a lower limit is not likely to be achievable.[192]

Another permit in Texas, Oak Grove, has a lower annual NOx limit than in the Draft Permit, and Oak Grove uses lignite fuel which is a lower-ranked fuel than PRB subbituminous coal. However, Mr. Bailey testified that lignite has more moisture in it which

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[188] ED Ex. 1 (Hughes) at 13; ED Ex. 13 at 34; *see also* Sierra Club Cross Ex. 1 (Desert Rock Permit).

[189] Sierra Club Cross Ex. 4 at 10 § 2.13(r).

[190] Sierra Club Cross Ex. 4 at 10.

[191] Tr. 975-977.

[192] Sierra Club Cross Ex. 4 at 10, § 2.13(r).

tends to quench some of the NOx formation.[193] Also, bituminous coal burns hotter because it is the hardest, subbituminous coal burns somewhat cooler, and lignite burns cooler still. Because lignite burns cooler, is easier to control NOx production with lignite, Mr. Bailey added.[194]

b. ALJs' Analysis

The ALJs find Mr. Hughes' and Mr. Bailey's assessments to be persuasive. Mr. Bailey's testimony demonstrates that Plant Washington's limit may not be achievable. While a lower limit may be achievable for Plant Washington, the GDNR gave that facility time to reach the 0.030 lb/MMBtu limit, and this indicates some doubt about whether that lower limit can be achieved. Based on this evidence, the ALJs find that 0.050 lb/MMBtu is BACT for Trailblazer's annual NOx emission limit.

F. SO_2

1. Parties' Positions

For SO_2 control, Tenaska proposed WFGD[195] with a potential control efficiency of more than 90%,[196] and Tenaska seeks an emission limit of 0.06 lb/MMBtu for both the 30-day and 12-month rolling averages.

OPIC argued that a 0.052 lb/MMBtu is achievable based on Plant Washington's 12 month rolling limit. However, Plant Washington's 30-day rolling average is higher—0.69 lb/MMBtu.[197] Sierra Club argues that an SO_2 emission limit equivalent to 0.019 lb/MMBtu is achievable for a PC boiler firing PRB coal, citing Plant Washington's Final Determination:

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[193] Tr. 982-984.

[194] Tr. 983-984.

[195] WFGD is a wet scrubbing system in which the exhaust gas from the main boiler is directed through a tower where an alkaline solution is sprayed. The SO_2 in the exhaust gas reacts with the suspended alkaline agent and is removed from the exhaust gas stream. Tenaska Ex. 3 at 14 (Bailey); Tenaska Ex. 2B, Tab A, p. 11-9.

[196] Tenaska Ex. 2B, Vol. 1, Tab A, pp. 11-3 and 11-14.

[197] SC Cross Ex. 4 at p. 9.

> SO_2 emissions in the range of 0.019 lb/mmBtu is expected [*sic*] from Plant Washington when burning PRB coal and maintaining compliance with the minimum efficiency of 97.% percent . . . Maintaining compliance with the minimum removal efficiency value is essentially the same as establishing a specific lb/mmBtu permit limit for PRB coal when utilizing the average design basis PRB coal. For PRB coal, minimum removal efficiency limit will be more stringent than the lbs/mmBtu limit and thus an additional lbs/mmBtu limit is not needed.[198]

In Sierra Club's view, given Trailblazer's expected 90% SO_2 removal rate with its WFGD, Trailblazer can achieve the same limit as Plant Washington—an equivalent SO_2 limit of 0.019 lb/MMBtu.

The wet FGD process Tenaska proposes is more effective at removing SO_2 than dry scrubbing.[199] In a document Tenaska produced during discovery, a Trinity engineer projected that Trailblazer's actual SO_2 emissions, even with dry scrubbing, could be as low as 0.01 lb/MMBtu.[200] In an email exchange, a Tenaska officer wrote to one of its expert witnesses, Christine Chambers:

> SO2 emission factor: we will want to permit as high as a factor we can within the BACT constraints; however we may want to move lower if it will get us out of Class I modeling or any other such requirement. This should not 'set the BACT bar' lower as the reason for our very low SO2 emissions is the CO2 plant, absent of which the lower SO2 emissions would not be cost effective. This is especially true if the CO2 plant will include an additional SO2 'polishing' unit to reach the 1-2 ppm level.[201]

In response to Tenaska's instructions, Ms. Chambers wrote on December 21, 2007:

> . . . The SO2 emission factor will be reviewed to ensure we 1. do not set a precedent for the industry, 2. the SO2 emissions controls are cost effective, and 3. whatever SO2 emissions factor is used does not trigger any additional requirements.[202]

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[198] *Citing* SC Cross Ex. 5 at 42.

[199] Tenaska Ex. 3 at 17 (Bailey).

[200] SC Cross Ex. 6 at 010494.

[201] SC Cross Ex. 7 at 001447.

[202] SC Cross Ex. 7 at 001447-001448.

The written summary of a conference call later that same day between Trinity and Tenaska states, ". . . Just because our actual [SO2] emissions might be 0.01 [lb/MMBtu] we do not have to permit at this value."[203]

Tenaska characterized the email as a discussion regarding the merits of setting SO_2 limits below BACT levels in recognition of the need for low SO_2 concentrations in the flue gas for proper operation of the CO_2 capture unit.[204] Also, Tenaska argued, the cost per ton for SO_2 control during carbon capture would be cost prohibitive under a normal BACT analysis, and neither Tenaska's nor the ED's expert witnesses recommend a lower SO_2 limit.

Data submitted to the ED showed emissions test data with lower SO_2 limits than Tenaska proposed, but Mr. Hughes said he expects to see a large number of emission tests with actual lower emissions for SO_2 than in the Draft Permit because permit limits are set at the highest emission rate expected when the unit is being properly operated.[205] Also, stack tests usually are initial compliance determinations and performed under optimum conditions. A combination of factors, including wear and tear due to abrasion, will reduce overall particulate control on average over time, he stated.[206] Mr. Hughes found that no operating unit had lower limits than those in the Draft Permit; other facilities with lower limits have either not been built or their permits have been cancelled.[207]

2. ALJs' Analysis

The ALJs find that the SO_2 limits in the Draft Permit represent BACT for Trailblazer. The email upon which Sierra Club bases its argument for lower limits is most logically construed as a discussion about the impact carbon capture may have on the facility. The ALJs have

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[203] SC Cross Ex. 6 at 010494.

[204] *Citing* SC Cross Ex. 6 at 010494; Tr. 176 (Greywall Cross); Tenaska Ex. 1 at 1415 (Kunkel).

[205] ED Ex. 13 at 30.

[206] ED Ex. 13 at 30.

[207] ED Ex. 13 at 29-30.

determined that Trailblazer must meet BACT and MACT limits apart from the impact of carbon capture technology.

Moreover, while Tenaska's WFGD will remove more than 90% of the SO_2, it is not clear what Trailblazer's precise removal rate will be, and Plant Washington's limit is based on a precise removal efficiency. Thus, the record in this case does not support a different SO_2 emissions limit based on expected removal efficiency. Emissions will have some fluctuation, and the record does not show what limit can be achieved over time. Finally, Plant Washington's annual limit is somewhat less than the limit in the Draft Permit, but Plant Washington's 30-day rolling average is higher. Thus, a preponderance of the evidence demonstrates that an emissions limit of 0.060 lb/MMBtu is BACT for Trailblazer.

G. CO and VOC

Emissions of both CO and VOC are the result of incomplete combustion,[208] and both are minimized by the use of good combustion practices. As stated in the Application, no post-combustion emission controls have been effectively demonstrated in controlling CO and VOC emitted from coal-fired facilities.[209] For that reason, Tenaska proposed proper boiler design and operation as the best control for CO and VOC for the main boiler.[210]

1. CO[211]

a. Parties' Positions

Pursuant to its Tier III BACT evaluation, Tenaska proposed a CO limit of 0.15 lb/MMBtu for 30-day and 12-month rolling averages, and the Draft Permit reflects these

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[208] Tenaska Ex. 2B, Tab A at 11-11 (Bates No. APP-0158).

[209] Tenaska Ex. 2B, Tab A at 11-12 (Bates No. APP-0159).

[210] *Id.*

[211] CO is a surrogate for organic HAPs, and Tenaska also analyzed CO in its MACT analysis. Tenaska Exs. 2B, Tab B at 6-5 (Bates No. APP-0402) and 2G (ED's Preliminary Determination Summary) at 4 and 14.

limits.[212] The 30-day limit of 0.15 lb/MMBtu is proposed for both the MACT and BACT limits, but the 12-month limit of 0.15 lb/MMBtu is proposed only for BACT.[213]

Mr. Hughes agreed that utilization of good combustion practices to meet a CO emission limit of 0.15 lb/MMBtu over 30-day and annual rolling averages is BACT.[214] He also found that the proposed annual emission limit is the same as the one set by EPA for SWEPCO Turk and represents MACT for Tenaska.[215]

On the other hand, the ED identified 10 PC boiler facilities with CO permit limits lower than Tenaska's, including Coleto Creek and NRG, both with BACT/MACT limits of 0.12 lb/MMBtu.[216] Mr. Hughes said Coleto Creek and NRG will be similar facilities to Tenaska and agreed that since the Commission has used the lower limits for Coleto Creek and NRG, the same limits should probably be used for Tenaska.[217] As for out-of-state permits, Mr. Hughes found their lower limits were neither demonstrated nor technically and economically achievable because none of the facilities with lower CO limits are currently operating.[218]

Sierra Club and OPIC contended that the limits in the following table are more appropriate for Trailblazer:

Pollutant and Proposed Controls[219]	**Compliance Ave. Period**	**Standard (lb/MMBtu)**		
		Draft Permit	**Sierra Club**	**OPIC**
CO–proper boiler design and operation	24-hour			0.10 (from Desert Rock permit)

[212] Tenaska Ex. 2B, Tab B at 6-5 (Bates No. APP-0402).

[213] Tenaska Ex. 2G (ED's Preliminary Determination Summary) at 4 and 14.

[214] ED Ex. 1 at 17 and ED-13 at 43-44.

[215] ED Ex. 13 at 43.

[216] ED Ex. 13 at 43.

[217] Tr. 796-798.

[218] ED Ex. 13 at 44.

[219] Tenaska Ex. 2B, Vol. 1, Tab A at 11-14.

Pollutant and Proposed Controls[219]	Compliance Ave. Period	Standard (lb/MMBtu)		
	30-day rolling (for BACT and MACT)	0.15	0.093 (from lowest level in RBLC)	0.10 (from Plant Washington permit)
	12-month rolling (for BACT only)	0.15		0.12 (from Coleto Creek and NRG permits)

In the course of preparing the Application, Tenaska considered a CO BACT limit of 0.10 lb/MMBtu (30-day ave.), which is equivalent to the lowest CO limit in the RBLC.220 The draft states that Tenaska would be able to achieve that limit "without substantially impacting the projected NOx emissions."[221] Yet, Tenaska's experts did not ultimately recommend the lower limit, and Tenaska argued that limit has not been demonstrated in practice.

b. ALJs' Analysis

After considering the evidence and arguments, the ALJs find that Tenaska has failed to show that its proposed limit of 0.15 lb/MMBtu is BACT for CO emissions. Mr. Hughes agreed that permit limits for Coleto Creek and NRG should be used for Trailblazer. This same reasoning requires appropriate consideration of even lower limits in other permits.

Apart from summary statements that lower limits are not BACT, Tenaska did not present evidence to demonstrate those limits cannot be achieved. As previously mentioned, the Desert Rock permit allows the permittee to seek adjustment of the 24-hour CO limit. This reflects uncertainty about whether the 0.010 lb/MMBtu limit is achievable.[222] In contrast, the Plant Washington permit shows the 30-day rolling CO limit of 0.010 lb/MMBtu is achievable, and the ALJs find that this is the appropriate 30-day and annual rolling BACT limit.

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[220] Sierra Club Cross Ex. 8 at 032259; App Ex. 2B, Appendix C.

[221] Sierra Club Cross Ex. 8 at 032259.

[222] Sierra Club Cross Ex. 1 at 034168.

2. VOC

a. Parties' Positions

In Tenaska's Tier III BACT analysis, Tenaska proposed a VOC limit of 0.0036 lb/MMBtu on an annual average for the Trailblazer main boiler.[223] Tenaska does not believe that the proposed limit will substantially impact projected NOx emissions.[224]

The RBLC listed other permits with lower VOC limits than Tenaska's proposed limit. The Plant Washington permit contains a BACT limit of 0.0024 lb/MMBtu (3-hour avg.).[225] Tenaska's and the ED's experts considered lower limits but did not find that they were BACT.[226] Tenaska's proposed VOC limit was among the lowest of all recent determinations and was less than the permit limits for the J. K. Spruce Unit 2 in San Antonio (Spruce) and NRG.[227] Further, Mr. Hughes said Tenaska's proposed limit is within an appropriate range of recent BACT limit determinations by the ED.[228] Consequently, Tenaska claimed, no technical or economic demonstration was required.[229] Further, the Tenaska's experts agreed that the proposed VOC limit for the main boiler is consistent with BACT.[230]

Tenaska expert Paul Greywall testified that some of the lower limits for other plants are for PSD avoidance purposes and do not reflect BACT.[231] However, Mr. Greywall did not specify which permits or limits do not reflect BACT other than those for the Spruce unit.[232] He

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[223] *Id.*

[224] Tenaska Ex. 2B, Tab A, §11, at 11-12 (Bates No. APP-0159).

[225] Tenaska Ex. 2B at Appendix C at 249-252; Sierra Club Cross Exs. 4 at 9 and 5 at 50-51.

[226] *See* ED Ex. 1 (Hughes) at 12; Tenaska Ex. 2B, Vol. 1, Appendix C, at 15-18 or 20 (Bates Nos. APP-0249–APP-0252).

[227] Tenaska Ex. 2B, Tab A at 11-12 (Bates No. APP-0159).

[228] Tr. 836-837 (Hughes); Sierra Club Cross Ex. 15 (Hughes) at 53.

[229] *See id.*; ED Ex. 3 at 5.

[230] ED Ex. 1 (Hughes) 18; Tenaska Ex. 2 (Greywall) 56; Tenaska Ex. 3 (Bailey) 23.

[231] Tr. 193-194.

[232] Tr. 195-196.

said some of the limits in the Spruce permit are beyond BACT and were included to comply with NAAQS.

b. ALJs' Analysis

As with CO, the ALJs find that Tenaska did not prove its proposed VOC limit is BACT. Other existing permits have limits lower than the 0.036 lb/MMBtu emission limit that Tenaska has proposed. Apart from Mr. Greywall's testimony that some of the limits may have been set beyond BACT to meet NAAQS requirements, Tenaska did not justify its higher limit. Plant Washington's permit shows that a limit of 0.024 lb/MMBtu is achievable, and the ALJs recommend this limit for Trailblazer.

H. PM/PM_{10}

1. Filterable PM/PM_{10}

As with MACT, the ALJs consider 0.010 lb/MMBtu to be the appropriate BACT emission for filterable PM/PM_{10}. Briefly stated, the evidence demonstrated that 21 PC boilers had the same limit that the ED recommended (0.012 lb/MMBtu), a limit which Mr. Hughes found was achievable and feasible for Tenaska. Mr. Bailey recognized other facilities have lower limits but expressed concern about whether Trailblazer can meet a lower limit over the life of the facility. If a limit is exceeded once, the facility will be out of compliance, he stated.[233]

Nevertheless, the evidence demonstrated that six permits, two for facilities that are currently operating, have a 0.010 lb/MMBtu filterable PM/PM_{10} limit.[234] Based on this evidence and the evidence discussed in the section regarding MACT, the ALJs find that 0.010 lb/MMBtu is BACT for filterable PM/PM_{10}.

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[233] Tr. 224-226.

[234] ED Ex. 13 at 36-37; Sierra Club Cross Ex. 4 at 8.

2. Total PM/PM_{10}

a. Parties' Positions

In the Draft Permit, Mr. Hughes approved Tenaska's requested limit of 0.030 lb/MMBtu, stating he had concerns with EPA's testing method, and he was aware that Tenaska's vendor had guaranteed the requested limit.[235] Mr. Hughes also stated that permit limits are set at the highest expected emission rate because stack tests are generally performed under optimum conditions and a combination of factors, including wear and tear, will reduce overall particulate control on average over time.[236] Nevertheless, guided by TCEQ's determination in the Coleto Creek and NRG permits, Mr. Hughes acknowledged that the same limit in those permits, 0.025 lb/MMBtu, is BACT for total PM/PM_{10} emissions.[237]

Mr. Bailey expressed concern about EPA's test method for total PM/PM_{10}.[238] But, Sierra Club pointed out, other facilities with lower limits are subject to the same bias in the testing method. Although EPA plans to revise the testing method, the revisions are intended to address users' inappropriate application of hardware and analytic options, rather than erratic results or a bias in the test method itself, Sierra Club observed.[239]

Sierra Club also noted that the 0.22 lb/MMBtu emission limit for the Spruce plant in San Antonio is based, in part, on "typical vendors guarantees for new fabric filter units and the expected performance of high efficiency fabric filter units."[240] In reply, Tenaska asserted its vendor guarantee was provided specifically for Trailblazer's main boiler, and that guarantee should be considered more reliable. Also, Mr. Bailey said a total PM_{10} limit of 0.22 lb/MMBtu is very aggressive, and he does not think it would be consistently achievable over a facility's

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[235] ED Ex. 13 at 38. The record does not contain evidence of what any vendor actually guaranteed.

[236] ED Ex. 13 at 38.

[237] Sierra Club Cross Ex. 15 at 87-88; Tr. 590.

[238] Tr. 224, 229-230 (Bailey).

[239] *Citing* 56 *Fed Reg.* 12972 (March 25, 2009).

[240] Sierra Club Cross Ex. 3 at 038375 and 038394-038395.

life.[241] Tenaska argued it will risk noncompliance if more stringent PM emission limits are included in the permit.[242]

Mr. Bailey also testified that the Omaha Public Power District plant, which has a 0.018 lb/MMBtu total PM emission limit, is different from Trailblazer because the Omaha facility has a dry scrubber, which is more effective at removing sulfur trioxide, the main component of total PM.[243] In addition, Mr. Bailey understood that the Omaha facility PM limit was based on a single 2004 stack test from another facility, and since PM_{10} emissions vary over the long term, Mr. Bailey said it is quite likely that the Omaha facility will exceed this emission limit.[244]

b. Analysis

While PM measurements vary, the limits Tenaska requested are higher than the most recently permitted similar facilities. Mr. Hughes found that the limits should be consistent with what was ordered for Coleto Creek and NRG. The issue remains, however, as to whether they should be even lower. Facilities have been permitted with lower PM/PM_{10} limits in recent years, and they will have the same challenges as Tenaska, such as wear and tear on equipment over many years of use. Moreover, the Commission regulates condensable PM/PM_{10} even in light of concerns about EPA's testing method. Therefore, arguments about potential biases in the measurements are not persuasive.

Tenaska argued that its vendor's guarantee is specific to Trailblazer, but the guarantee is not in the record, and there is no evidence that the vendor would not have guaranteed a lower limit. Furthermore, a BACT limit is not based on a guarantee but on various sources of data including manufacturer's data, engineering estimates, and the experience of other facilities.

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[241] Tr. 972.

[242] ED Ex. 13 at 39; ED Ex. 1 at 12; Tenaska Ex. 2B, Tab A, Appendix C.

[243] Sierra Club Cross Ex. 2.

[244] Tr. 970-971.

Mr. Bailey testified that most units that use subbituminous coal chose dry scrubbing because the coal has relatively low sulfur levels. Yet, Tenaska chose the more effective method for SO_2 removal which, according to Mr. Bailey, is wet scrubbing.[245]

In addition, the Nebraska Department of Environmental Quality set Omaha's total PM/PM_{10} limit at 0.018 lb/MMBtu based on testing at an operating facility with a PC boiler: KCP&L's Hawthorn in Kansas. The Hawthorn plant met its PM/PM_{10} limit for 2001, 2002, 2003, and 2004, with the 2004 results being 0.0166 lb/MMBtu. The Nebraska permitting authority also observed that a new facility, Whelan Energy Center Unit 2 in Nebraska, also had a total PM limit of 0.018 lb/MMBtu.[246]

Given this evidence, Tenaska has not adequately supported its requested total PM/PM_{10} limit of 0.030 lb/MMBtu. The appropriate BACT limit is 0.018 lb/MMBtu. This is the limit in the Plant Washington permit, and as has been discussed, that facility will be very similar to Trailblazer. Furthermore, the testing upon which Nebraska Department of Environmental Quality relied at KCP&L's Hawthorn in Kansas occurred over four years, and the limit was not exceeded even in the fourth year of testing. As for the compliance averaging periods, the Draft Permit requires compliance demonstration at one-hour and annual intervals, and the ALJs agree with these testing periods.

I. Lead

1. Parties' Positions

For Tenaska's MACT determination, lead was grouped with filterable PM. Tenaska proposed a lead BACT limit of 0.00003 lb/MMBtu, or 30 lb/TBtu) on a 12-month average. A trace metal in coal, lead is vaporized during combustion and then absorbed into fly ash in the gas stream. Thus, control technologies for lead are the same as for PM.[247] The lead content of the

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[245] Tenaska Ex. 3 at 17 (Bailey).

[246] Sierra Club Cross Ex. 2 at 015116-015117.

[247] Tenaska Ex. 2B, Vol. 1 at 11-7.

coal that is burned and the efficiency of the fabric filter baghouse (generally greater than 95%) impact the quantity of lead emissions.[248]

The RBLC showed several permits with lower lead emission limits. Neither the Applicant nor the ED offered any evidence that those lower limits are not technically practicable and economically reasonable for Tenaska.[249] Tenaska contended its limit is BACT because the "proposed value is consistent with, or less than, the majority of limits found for recently issued PSD permits."[250] The ED agreed with Tenaska's proposed limit,[251] but Mr. Hughes conceded that if the ED had prepared a separate MACT analysis for lead, "we undoubtedly would make it lower."[252]

EPA suggested consideration of the 600 MW coal-fired SWEPCO Turk plant and Tucson Electric Power's Springerville Station in Arizona (Springerville) in determining BACT.[253] Both the SWEPCO Turk and Springerville permits have lead emission limits of 16 lb/TBtu. The ED found that the SWEPCO Turk limit did not bear consideration for BACT because that limit was set pursuant to a MACT determination, and the original BACT determination was 26 lb/TBtu. Mr. Hughes assumed the Springerville lead limit was also established for a MACT limit, but he did not direct the ALJs attention to any evidence that would support his assumption.[254]

In addition to BACT limits, the RBLC includes limits set as MACT or LAER (lowest achievable emission rate) limits.[255] If a company has chosen a more stringent emission limit than is required for BACT, an applicant for a TCEQ permit is not required to choose that more stringent limit if the lower limit would not be considered economically reasonable for an

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[248] Tenaska Ex. 2B, Vol. 1 at 11-9.

[249] Tr. 589.

[250] Tenaska Ex. 2B, Vol. 1, at 11-9.APP-0156.

[251] ED Ex. 13 at 44-45; ED Ex. 1 (Hughes) at 18-19.

[252] Sierra Club Cross Ex. 15 at 96-97.

[253] Sierra Club Cross Ex. 11 at 2.

[254] ED Ex. 13 at 44.

[255] Tr. 825-826 (Hughes).

applicant.[256] Tenaska's expert agreed with this interpretation, stating that a company may have set a lower limit in order to avoid going through the PSD process for a particular pollutant and not as part of its BACT evaluation.[257]

2. ALJs' Analysis

With the brief explanation that lead emissions are derived from the type of coal used and the efficiency of the fabric filter baghouse, Tenaska chose a limit that was not the lowest in the RBLC. The ALJs accept the fact that the lowest limit in recent permits is not necessarily BACT for Trailblazer, but Tenaska did not prove that other lower limits in the RBLC were set for MACT or LAER purposes or that the facilities listed in the RBLC were distinguishable and not appropriate as BACT for Tenaska. Apart from the Turk facility that Mr. Hughes said had a lower lead limit based on its MACT demonstration, the record does not explain why Trailblazer cannot achieve a much lower limit. Even the Turk BACT analysis included a lower lead limit. Finally, Mr. Hughes did not actually know whether the Springerville limit was set pursuant to a MACT determination or a BACT determination.

For these reasons, the ALJs find that Tenaska did not meet its burden of proving 30 lb/TBtu is the appropriate BACT emission for lead. The ALJs suggest the limit in the Springerville permit, 16 lb/TBtu

J. Impact of Carbon Capture on Emissions

1. Parties' Positions

Trailblazer will capture CO_2 from the flue gas exhaust and transport the captured CO_2 to the nearby Permian Basin oil fields for use in enhanced oil recovery operations. Therefore, when the CO_2 capture facility is employed, emissions from the main boiler unit will go through the SCR unit for NOx removal; injected activated carbon (or other sorbent) for mercury removal; a

[256] *Citing* ED Ex. 3 at C-2.

[257] Tr. 193-194.

baghouse for particulate matter removal; a wet limestone scrubber for desulfurization; and an amine scrubber to remove CO_2.[258] Like other emissions, amines from the carbon capture process will go through emission point number (EPN) 54.[259] Because the plant is designed to allow for bypass of the CO_2 capture facility, Tenaska's proposed permit limits are based only on the PC boiler emissions without the use of any carbon capture equipment.

Carbon capture technology may use different amines. Although Tenaska has not chosen its technology, it proposed to use monoethanolamine (MEA)[260] as the CO_2 scrubber solution.[261] MEA or other amines that Tenaska may use and their resulting emissions may constitute one or a combination of pollutants, including VOC and PM.[262]

A key issue for one of the Protestants, MCC, is the potential impact of amines that will be produced during carbon capture. Mr. Hughes relied on professional engineering judgment, Internet research and discussions with his colleagues to conclude that emissions from CO_2 capture would not exceed trace amounts.[263] Mr. Hughes determined the carbon capture system will not significantly affect the ultimate emissions,[264] but he also said that if carbon capture control technology produces contaminants, either as a product gas or vent gas, he would want an engineering report that shows actual test data.[265]

Portions of a Norwegian study initiated by the Institute for Air Research produced by MCC were read into evidence. The study indicates that an amine scrubber on vent gas will usually release between one to four ppmv[266] of the amine substance into the air. For a full-scale

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[258] Tr. 649-650, 663-665.

[259] Tr. 669, 833(Hughes).

[260] 30 TAC § 116.12(14). MEA is not regulated under any of the subparagraphs except as a precursor to ozone or condensable form of particulate matter.

[261] Tenaska Ex. 2B, Tab A (Bates No. APP-0224); Tr. 76-78.

[262] Tr. 184-186; Tr. 242-245.

[263] Tr. 668-669, 670-671, 720-723.

[264] Tr. 665, 667-668 (Hughes).

[265] Tr. 671-672, 715-716.

[266] Parts per million by volume.

gas-fired power plant that collects one million tons of CO_2, amine emissions could range from 40 to 160 tons per year.[267] The Norwegian study also recommended including amine emissions in a power plant's atmospheric modeling because the emissions can have both local and regional impacts.[268]

In MCC's view, the Norwegian study demonstrates that the Application is deficient because it contradicts Tenaska's assumption that amines will produce only trace emissions. For this reason, MCC asked that the Application be remanded, with a period allowed for additional public notice and comment, or that it be denied.

In response, Mr. Greywall testified that the Norwegian study discusses a hypothetical scenario of amines released from a natural-gas-fired turbine electric generating plant,[269] with different emissions and combustion technologies than Tenaska's.[270] Thus, Tenaska argued, the Norwegian study should be given little, if any, weight.

Tenaska also mentioned that amines, including MEA, are a subset of VOC[271] and will be counted in establishing compliance with the permit's BACT limits.[272] If amines condense to form particles, those particles will be accounted for within the PM limits. Tenaska experts found that such minor amounts of amines would be emitted that higher VOC or PM limits based on the carbon capture facility were not warranted.[273] Finally, Tenaska reasoned, the Draft Permit requires stack testing on the main boiler's EPN 54, which will determine compliance with the permit limits for VOC and PM.[274]

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[267] Tr. 744.

[268] Tr. 758-759.

[269] Tr. 940 (Greywall).

[270] Tr. 940-941 (Greywall).

[271] Tr. 243 (Dydek).

[272] Tr. 905 (Greywall); Tr. 884-885(Kunkel).

[273] Tenaska Exhibit 2B, Tab A at 7-1 (Bates No. APP-0059).

[274] ED Ex. 12, Special Conditions 25(A)(1).

2. ALJs' Analysis

The greater weight of evidence proves that amine scrubbing as part of CO_2 capture should be accounted for in stack testing. Tenaska is confident enough that amines will not impact emission limits that it did not ask for increased VOC and PM limits to cover additional emissions. Any of Trailblazer's limits that exceed the permit should be detected through stack testing. The Norwegian study, while of interest, did not evaluate comparable facilities and relied on a number of assumptions that were not shown to be applicable to Trailblazer. Accordingly, the ALJs find the evidence demonstrates that carbon capture will not significantly impact emissions from EPN 54, and if it does, those emissions will be accounted for in stack testing. However, as discussed further below, the ALJs find that stack testing should be required under all normal operating conditions, including before and after use of the CO_2 capture facility.

VIII. AIR DISPERSION MODELING

A. MCC's Position

MCC argued the air dispersion modeling is incomplete, and the Application and Draft Permit should be denied because air modeling did not account for amine emissions.[275] Initial stack testing within 180 days after startup, and annually after that, will show whether Trailblazer's VOC emissions are in compliance with emissions limits. But, Mr. Hughes testified, the Draft Permit does not specify whether the main boiler's vent gas will be tested after it has bypassed, or passed through, the carbon capture facility. Mr. Hughes doubted that the EPA region, which approves testing plans, will allow stack testing to be completed without including the CO_2 unit, but he could not say for certain. Two other TCEQ staff members who testified about this issue, Matthew Kovar[276] and Daniel Menendez,[277] also could not say whether or not

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[275] Sierra Club Cross Ex. 24.

[276] Mr. Kovar is a modeling and assessment specialist with TCEQ where he reviews air dispersion modeling projects. He holds a B.S. in meteorology. ED Ex. 17 at 3-4 and Ex. 18.

[277] Mr. Menendez is a natural resource specialist with TCEQ and a team leader for the air dispersion modeling team. He received his B.S. in meteorology in 2001. Prior to joining TCEQ, he worked as an aviation forecaster and flight controller. ED Ex. 29 at 1-2 and 30.

the modeling audit was based on modeling of the flue gas after it has been treated by the carbon capture technology.[278] MCC is also concerned because no federal law or rule requires testing to include emissions from carbon capture equipment.[279] Thus, MCC argued, Tenaska could bypass the carbon capture facility when it tests for VOC.[280]

MCC also contended that the air dispersion modeling relied on, among other things, the fact that the main boiler's stack gas volume is exactly the same before and after the utilization of the carbon capture facility. Experts did not explain why the volume would be the same after carbon capture control technology since it is assumed the carbon capture technology will remove 85-95% of the CO_2 gases. The equal volume of gas can only result from two scenarios, MCC asserts: either the modeling did not include the impact of carbon capture or the carbon capture facility will emit some other unidentified pollutant in the equal amount that CO_2 gases are removed.

A related issue, in MCC's view, is a possible error in the emissions volume in the Application. One section lists the volume as 2,254,759 standard cubic feet per minute (SCFM).[281] However, the Application also states that the actual volume of the emissions coming from the PC boiler, through the pollution control technology equipment, bypassing the amine scrubber, and then out the stack, will be 2,233,539 SCFM.[282] MCC cited these figures to argue that the volume of emissions will increase by the difference (21,220 SCFM) after the boiler vent gas is treated by the amine scrubber.

Mr. Hughes testified that (a) these numbers may have been typographical errors; (b) the data should have shown that the volume of all the emissions coming from the PC boiler would be exactly the same whether or not the amine scrubber is used; or (c) the data does not account for PC boiler emissions that have been treated by the amine scrubber. But he said the key number is

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[278] Tr. 372 (Kovar) and 394-395 (Menendez).

[279] Tr. 785.

[280] Tr. 784.

[281] Tr. 725-728.

[282] Tr. 729-731.

not the SCFM; rather it is the flow rate at which emissions exit the stack. The flow rate used for all the modeling was 64.62 feet per second (fps), which is the actual SCFM of wet emissions.[283]

B. Tenaska's Response

In response to MCC's arguments about the possibility that stack testing could bypass the carbon capture equipment, Tenaska relied on Mr. Greywall's testimony. He said that even if every pound of VOC allowed by the Draft Permit is emitted as an amine, the off-property impacts would be below the corresponding Effects Screening Levels.[284] And, Tenaska claimed, even in the worst-case hypothetical, the VOC limit would account for any amines emitted.

As for a possible error in the Application, Tenaska referenced the Class II modeling that shows that the main boiler stack parameters were modeled at a flow rate of 64.62 fps and 104 degrees Fahrenheit.[285] Tenaska stated that the velocity or flow rate, not the volume, is the key modeling parameter,[286] and as Mr. Hughes testified, staff used the flow rate of 64.62 fps to evaluate Tenaska's modeling.[287] No expert testified that flow rates were incorrect. In fact, Tenaska maintained, the modeling parameters for the main boiler are referenced consistently throughout the Application[288] and were reviewed closely by the experts in this case.[289]

Tenaska also pointed out that removing 90% of the CO_2 removes only a small portion of the total flue gas.[290] The combustion analysis shows that CO_2 accounts for 14.239% (dry) and

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[283] Tr. 735-737.

[284] Tr. 901-902 (Greywall).

[285] Tenaska Ex. 2B, Tab C (Bates No. APP-0464).

[286] Tenaska Ex. 2B, Tab C at 6-3 (Bates No. APP-0464).

[287] Tr. 734-735 (Hughes).

[288] *Citing* Tenaska Ex. 2B, Tab A (Bates Nos. APP-0072, 0082, and 0145) Tab C (Bates Nos. APP-0464 and 0551) Tab I (Bates No. APP-0830).

[289] *Citing* Tenaska Ex. 2 (Greywall) at 76-79; Ex. 4 (Chambers) at 29 and 40; and 40-41; ED Ex. 1 (Hughes) at 20-22 and ED Ex. 14 (TCEQ Modeling Audit) at 523-529; ED Ex. 17 (Kovar) at 545 and ED Ex. 29 (Menendez) at 837; Tr. 735-737 (Hughes).

[290] *Id.*, Tab A at A-25 (Bates No. APP-0211).

12.48% (wet) of the total flue gas at the ID fan inlet and 14.22% (dry) and 11.7% (wet) of the total flue gas at the FGD outlet.[291]

C. ALJs' Analysis

The ALJs are not convinced that the air modeling analysis was inadequate. While MCC pointed out potential errors, the expert testimony demonstrated that, more likely than not, the modeling analysis was correct. As Mr. Hughes stated, the significant component is the flow rate, and the same flow rate was used consistently.

On the other hand, the ALJs believe it is important to clarify in the permit whether stack testing for VOC will include emissions that pass through the carbon capture equipment. Thus, the ALJs recommend that the Draft Permit be amended to include a Special Condition requiring stack testing to include emissions that have been treated by carbon capture technology as well as those that have by-passed the technology. If VOC or PM emissions are significantly higher because of carbon capture, the testing will reveal it.

IX. TRANSCRIPT COSTS

In accordance with the Commission rules, the ALJs required a transcript to be prepared in this case because the hearing was scheduled to last longer than one day.[292] Tenaska agreed to pay the costs associated with an expedited transcript. The non-expedited transcription costs are $5,377.25. Transcript costs may not be assessed against OPIC or the ED.[293] Tenaska requested that the transcript costs be allocated equally among Tenaska, Sierra Club, and MCC. Sierra Club requested that it not be required to pay for any of the transcript costs. And MCC requested that all transcript costs be assessed to Tenaska.

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[291] *Id.*, Tab A at A-26 (Bates No. APP-0211).

[292] 30 TAC § 80.23(b)(4).

[293] 30 TAC § 80.23(d)(2).

The Commission's rules at 30 TEX. ADMIN. CODE § 80.23(d) list the factors to be considered in assessing reporting and transcription costs. A list of those factors along with the ALJs' corresponding analysis is set forth in the table below:

Criteria From Section 80.23(d)(1)	Analysis
The party who requested the transcript.	The ALJs required the court reporter and transcript, so no specific party actually requested it. However, Tenaska requested an expedited transcript.
The financial ability of the party to pay the costs.	There is no specific evidence on the financial status of the various parties.
The extent to which the party participated in the hearing.	All of the parties participated in the hearing. Although Tenaska presented the greatest number of direct witnesses and the only rebuttal witnesses, all parties actively cross-examined the witnesses.
The relative benefits to the various parties of having a transcript.	All parties relied on the transcript in their closing arguments and replies.
Budgetary constraints of a state or federal administrative agency participating in the proceeding.	Not applicable. None of the parties involved against whom costs could be assessed is a state or federal agency.
In rate proceedings, the extent to which the expense of the rate proceeding is included in the utility's allowable expenses.	Not applicable. This is not a rate case.
Any other factor which is relevant to a just and reasonable assessment of costs.	Tenaska requested direct referral of its Application. Protestants defined the issues. Each party benefited from a hearing transcript. Tenaska agreed to pay all costs associated with the expedited transcript.

The ALJs recommend that Tenaska pay additional costs incurred for an expedited transcript. Tenaska, MCC, and Sierra Club should equally share the other costs.

X. CONCLUSIONS AND RECOMMENDATIONS

As explained in this PFD, the ALJs find that the requested State Air Quality, federal PSD, and HAP permits may be issued with the modified emissions limits and special condition recommended herein and summarized below. The Maximum Allowable Emissions Rates Table (MAERT) should be changed to reflect these changes in emission limits.

- Lower the 24-hour average NOx emissions limit from 0.070 lb/MMBtu to 0.067 lb/MMBtu.
- Lower the 30-day rolling average NOx emissions limit from 0.060 lb/MMBtu to 0.050 lb/MMBtu.
- Lower the 30-day rolling average CO emissions limit from 0.15 lb/MMBtu to 0.10 lb/MMBtu.
- Lower the 12-month rolling average CO emissions limit from 0.15 lb/MMBtu to 0.10 lb/MMBtu.
- Lower the 30-day and 12-month rolling averages for VOC emissions limit from 0.0036 lb/MMBtu to 0.024 lb/MMBtu.
- Lower the annual filterable PM emissions limit from 0.15 lb/MMBtu to 0.10 lb/MMBtu.
- Lower the one-hour and annual total PM/PM_{10} emissions limit from 0.030 lb/MMBtu to 0.018 lb/MMBtu.
- Lower the one-hour total PM/PM_{10} emissions limit from 0.030 lb/MMBtu to 0.018 lb/MMBtu.
- Lower the annual lead emissions limit from 0.00003 lb/MMBtu to 0.000016 lb/MMBtu.
- Lower the annual mercury emissions limit from 1.7×10^{-6} lb/MMBtu to 1.46×10^{-6} lb/MMBtu.
- Lower the emissions limit for organic HAPs as represented by CO from 0.15 lb/MMBtu to 0.10 lb/MMBtu.
- Lower the emissions limit for non-mercury metallic HAPs as represented by filterable PM from 0.015 lb/MMBtu to 0.010 lb/MMBtu.
- Lower the annual HF emissions limit from 0.00054 lb/MMBtu to 0.00014 lb/MMBtu.

- Lower the annual HCl emissions limit from 0.00063 lb/MMBtu to 0.000322 lb/MMBtu.
- Add a special condition requiring VOC emissions testing to be performed both when Trailblazer's CO_2 capture facility is used and when it is bypassed.

SIGNED October 1, 2010.

AMI L. LARSON
ADMINISTRATIVE LAW JUDGE
STATE OFFICE OF ADMINISTRATIVE HEARINGS

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

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

ORDER REGARDING
THE APPLICATION BY TENASKA TRAILBLAZER PARTNERS, LLC FOR STATE AIR QUALITY PERMIT 84167, PREVENTION OF SIGNIFICANT DETERIORATION AIR QUALITY PERMIT PSD-TX-1123, AND HAZARDOUS AIR POLLUTANT MAJOR SOURCE PERMIT NO. HAP-13
TCEQ DOCKET NO. 2009-1093-AIR
SOAH DOCKET NO. 582-09-6185

On _____, the Texas Commission on Environmental Quality (TCEQ or Commission) considered the application of Tenaska Trailblazer Partners, L.L.C. (Tenaska) for State Air Quality, federal Prevention of Significant Deterioration, and Hazardous Air Pollutant Major Source permits to construct a new 900 megawatt (MW) coal-fired electric power generating facility located near Sweetwater, Texas, in Nolan County, Texas. A Proposal for Decision was presented by Administrative Law Judges (ALJs) Sarah G. Ramos and Ami L. Larson of the State Office of Administrative Hearings (SOAH), who conducted a hearing in this matter on June 2-4 and 7-10, 2010, in Austin, Texas. The record closed on August 4, 2010.

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. Tenaska has applied for preconstruction authorizations for a proposed new supercritical pulverized coal (SCPC) boiler (main boiler) powering a single steam turbine designed for base load operation with a nominal gross power output of 900 MW and related facilities to be located at the Tenaska Trailblazer Energy Center (Trailblazer or the Plant).

2. Trailblazer will be located approximately 6.5 miles east northeast of Sweetwater, Texas, in Nolan County, Texas.

3. The main boiler will use Powder River Basin (PRB) subbituminous coal as the primary fuel source, with a maximum heat input rate of 8,307 MMBtu/hr.

4. The Plant will also have materials handling equipment for coal and other materials and a flue gas CO_2 capture unit that will be capable of capturing 85-90% of the CO_2 from the main boiler that will subsequently be used for enhanced oil recovery (EOR) operations.

5. Tenaska's business purpose for proposing the Trailblazer project is (1) to construct and operate a full-scale, baseload, coal-fired electric power generating facility and (2) to use CO_2 capture technology so that a maximum amount of CO_2 can be captured and produced for utilization in EOR operations.

6. SCPC technology with CO_2 capture reaches close to 90% CO_2 capture rates; whereas CO_2 capture rates for integrated gasification combined cycle (IGCC) technology are typically only 65%. SCPC technology maximizes the amount of CO_2 that can be captured during facility operations.

7. IGCC is not a technology that has been demonstrated in practice for use with low sulfur, subbituminous PRB coal, since such coal has high moisture and ash content that can adversely affect IGCC operations; whereas, use of subbituminous PRB coals are well demonstrated in operation of SCPC facilities.

8. IGCC technology has not been proven to achieve at least 90% availability for purposes of baseload electric power generating operations since there are many components to an IGCC plant, each of which contribute to potential reliability problems, making baseload operation difficult to achieve.

9. Low-sulfur, subbituminous PRB coal is more compatible with capture solvents to be used in the CO_2 capture facility, because such solvents are typically degraded by sulfur.

10. The Trailblazer Air Quality Permit Application (the Application) was submitted to the Texas Commission on Environmental Quality (TCEQ) on February 19, 2008, and additional submittals followed.

11. The Application includes responses to information requests by the TCEQ Executive Director (ED) Staff and three larger supplements subsequently submitted to the ED Staff that include: (1) the case-by-case maximum achievable control technology (MACT) analysis report, submitted in July 2008; (2) a Class II Area Air Dispersion Modeling Analysis Report, which was submitted on July 3, 2008; and (3) a Class I Area Air Dispersion Modeling Analysis Report, which was submitted on August 22, 2008.

12. The ED deemed the Application administratively complete on February 25, 2008.

13. The ED deemed the Application technically complete on January 30, 2009.

14. The ED rendered his preliminary decision to approve the Application and issued a Draft Permit on January 30, 2009, as part of the technical completeness declaration on the Application.

15. The Draft Permit is actually three different air quality authorizations combined into one document: (1) the State Air Quality Permit No. 84167, under the New Source Review Program (NSR); (2) the National Emissions Standards for Hazardous Air Pollutants (NESHAPs) Program Permit (HAP-13); and (3) the Prevention of Significant Deterioration (PSD) Program Permit No. PSD-TX-1123.

16. Tenaska published the "Notice of Receipt of Application and Intent to Obtain Air Permit" in the *Sweetwater Reporter* on March 7, 2008.

17. Tenaska published the "Notice of Application and Preliminary Decision, Notice of Public Meeting, and Notice of Hearing for an Air Quality Permit" in the *Sweetwater Reporter* on February 1, 2009.

18. The 30-day public comment period commencing February 1, 2009, was extended until April 16, 2009.

19. A public meeting was held regarding the Application on March 3, 2009, in Sweetwater, Texas.

20. As a result of contested hearing requests on the Application, on July 14, 2009, Tenaska requested a direct referral to the SOAH.

21. Tenaska published the "Notice of Hearing" in the *Sweetwater Reporter* on September 10, 2009, giving notice of the preliminary hearing to be held on October 14, 2009, in Sweetwater, Texas.

22. A preliminary hearing was held on October 14, 2009, in Sweetwater, Texas, the evidentiary hearing was held on June 2-4 and 7-10, 2010, before ALJs Sarah G. Ramos and Ami L. Larson in Austin, Texas, and the record closed on August 4, 2010.

23. The following parties appeared and participated in the hearing: Tenaska, Sierra Club, Multi-County Coalition (MCC), the ED, and OPIC.

24. Tenaska posted signs and published notice in accordance with ED Staff instructions and TCEQ rules.

Completeness of the Application

25. All appropriate forms were submitted in the Application.

26. Tenaska's Application for Trailblazer was prepared in accordance with existing TCEQ rules, guidance, and procedures.

27. The area map, plot plans, and process flow diagrams provided in the Application are accurate.

28. The Application addressed all sources of air emissions associated with the Trailblazer project that are subject to air quality permitting under TCEQ rules.

29. An accurate material balance table depicting all inputs and outputs associated with Trailblazer's proposed operations and cross-referenced with associated emission points

from process flow diagrams and process flow rates are provided in the Application and is accurate.

30. The Application includes an accurate Emission Point Summary Table, which lists all of the emission points associated with the proposed Trailblazer Plant, along with emission rates and stack parameters for each emission point, along with accurate equipment tables that provide technical details for the emission sources that comprise the proposed Trailblazer Plant.

31. The Application addressed applicable TCEQ Control of Air Pollution Episodes requirements, under 30 TAC Chapter 118, which were triggered by the Trailblazer project, and Tenaska will comply with generalized and localized air pollution episodes requirements but is not subject to the emissions reduction plan requirements.

32. Tenaska has committed to prepare a risk management plan before bringing anhydrous ammonia on-site for storage.

33. Dr. Greg Kunkel, Vice President of Environmental Affairs, Tenaska Trailblazer Partners, LLC, an authorized representative of Tenaska, signed the Application.

34. The appropriate permit fee of $75,000 was submitted with the Application.

35. The State Air Quality/PSD Application was submitted under the seal of Dr. Weiping Dai, a Texas registered professional engineer.

36. TCEQ ED Staff reviewed Tenaska's Application to determine whether it complied with all applicable rules and policies and documented the conclusions of that review in the Construction Permit Source Analysis and Technical Review for Permit No. 84167/PSD-TX-1123/HAP-13.

Emissions Sources and Calculations

37. Based on a detailed review of facility design, including process flow diagrams, material balance, and equipment lists, all emission sources and associated emission points were accurately identified in the Application.

38. All stationary emission sources required to obtain preconstruction approval for the Plant were described in the Application and there are nine general categories: (1) combustion sources, (2) material transfer points, (3) dust collectors, (4) material storage piles, (5) storage pile maintenance and earth moving emissions, (6) cooling towers, (7) solid waste disposal wind erosion, (8) roads, and (9) storage tanks.

39. The regulated air contaminants proposed to be emitted from the Plant include the following PSD regulated pollutants: Volatile Organic Compounds (VOCs), Particulate Matter (PM) with an aerodynamic diameter less than 10 microns (PM_{10}) and Particular Matter with an aerodynamic diameter less than 2.5 microns ($PM_{2.5}$), nitrogen oxides (NOx), which includes Nitrogen Dioxide (NO_2), Carbon Monoxide (CO), Sulfur Dioxide (SO_2), Elemental Lead (Pb), Sulfur Acid Mist (H_2SO_4), ammonia (NH_3), and Fluorides. Emissions of VOC, PM, PM_{10}, NOx, CO and SO_2 exceed the applicable PSD major source threshold of 100 tons per year.

40. The Plant is proposed to also emit HAPs regulated under the Texas Clean Air Act and non-criteria air pollutants regulated by the State of Texas.

41. All regulated pollutants that are proposed to be emitted from the Plant have been accurately and adequately identified.

42. All regulated pollutant emission rates from the proposed Trailblazer Plant were accurately calculated both on a short-term and annual emissions rate basis resulting in a conservative accurate estimate of the maximum potential emissions.

Federal Standards of Review for Constructed or Reconstructed Major Sources of Hazardous Air Pollutants (HAPs): 30 TEX. ADMIN. CODE § 116.111(a)(2)(K) (Case-by-Case MACT)

43. Tenaska submitted an FCAA § 112(g) case-by-case MACT Analysis as part of the Application and applied for a HAP major source permit and to establish case-by-case MACT requirements for Trailblazer.

44. Tenaska conducted a case-by-case MACT Analysis for both the main boiler and the auxiliary boiler.

45. The case-by-case MACT Analysis was complete and included all information necessary for the ED to render a case-by-case MACT determination for the Trailblazer main boiler and the auxiliary boiler.

46. The TCEQ ED Staff reviewed the case-by-case MACT Analysis contained in the Trailblazer Application and other information available to the ED, and the ED rendered a case-by-case MACT determination for the Trailblazer main boiler and auxiliary boiler as described in the Preliminary Determination Summary as required by the Draft Permit.

47. Because the Trailblazer main boiler is a conventional pulverized coal boiler, circulating fluid bed combustion (CFB) facilities are properly excluded from consideration in the Trailblazer case-by-case MACT Analysis and Best Available Control Technology (BACT) determinations with the exception of filterable PM analysis, because CFBs have different combustion characteristics to that of PC boilers and are, therefore, not similar sources to pulverized coal (PC) boilers, such as the proposed Trailblazer main boiler.

48. All necessary HAPs were evaluated as part of Tenaska's MACT analyses for the Plant.

49. HAPs other than mercury and acid gases to be emitted by the Trailblazer main boiler were properly grouped as either non-Hg metallic HAPs or organic HAPs in order to establish enforceable MACT emission limits.

50. Because there is no approved state implementation plan or other state-specific rules or statutes regarding case-by-case MACT analysis, EPA MACT rules govern the case-by-case MACT analysis for Tenaska.

51. Coal type and combustion configuration are the key parameters for determining what constitutes a similar source category of coal-fired utilities for purposes of case-by-case MACT analysis.

52. Combustion characteristics of PC and CFB units are fundamentally different and, relative to PCs or other conventional boiler types, CFB units combust fuel at lower temperatures

and longer residence times enabling them to combust low quality waste fuels since the different firing approach of a CFB makes it insensitive to coal rank or fuel quality in general.

53. With the exception of filterable PM emissions, CFBs and PCs do not constitute similar sources for purposes of Tenaska's case-by-case MACT analysis.

54. For each HAP to be emitted, Tenaska must meet a "MACT floor" emissions limit, regardless of cost or other feasibility concerns, that is no less stringent than the emissions limitation achieved in practice by the best controlled similar source.

55. If feasible, Tenaska must meet a "beyond-the-floor" MACT emissions limit, which is the most stringent emissions limit achievable for each HAP to be emitted considering cost and any non-air quality health and environmental impacts and energy requirements.

56. With the exception of filterable PM as a surrogate for non-mercury metallic HAPs, Tenaska properly restricted its MACT analysis to evaluate only sources that burn the same fuel type and use the same combustion technology as Tenaska.

57. For filterable PM, which is captured by traditional PM control devices, including baghouses, all coal-fired boilers are capable of achieving essentially the same emission rate regardless of combustion or fuel type.

58. To determine the MACT floor limit, Tenaska and the ED relied primarily on the lowest identified permit limits for similar operational plants and noted, but discounted, lower permit limits for plants that are not yet in operation.

59. In the absence of specific evidence to the contrary, permit limits issued by other permitting authorities reflect the judgment of those agencies that the limits established are achievable.

60. Tenaska and the ED considered information related to the development of the original EPA proposed and later rescinded Utility MACT standards in their beyond-the-floor MACT analyses as required.

61. Tenaska was not required to obtain specific performance data, such as stack test results or CEMS data to determine either its MACT floor or beyond-the-floor limits.

62. Tenaska was required to consider reliable emissions data that was made available to it as part of its MACT determination.

63. Non-operational similar sources may have permit limits that were set based on emissions rates that have been achieved in practice over time by similar operating sources.

64. As part of its case-by-case MACT analysis, Tenaska and the ED failed to evaluate lower permit limits for non-operational similar sources as required to determine the basis for those limits and whether they should be applied to Tenaska.

65. Tenaska was required but failed to evaluate information provided by Protestants before and during the hearing concerning more stringent permit limits issued for other similar sources to determine whether those more stringent limits should be applied to Tenaska.

66. BACT and MACT determinations are not considered to be complete until the final permit is issued.

67. For control of mercury from the main boiler, Tenaska proposes to use a combination of wet flue gas desulfurization (WFGD), a fabric filter baghouse, selective catalytic reduction (SCR), and activated carbon injection (ACI) (or equivalent sorbent injection).

68. Based on its review of other MACT proposals for subbituminous PC utility boilers since 1999, and the proposed Utility MACT new source MACT floor limit, Tenaska determined that no emissions rate for mercury lower than 2.2×10^{-6} lb/MMBtu has been achieved in practice by any other similar source and recommended that limit as its MACT floor.

69. Tenaska considered, but rejected as not being achieved in practice, lower mercury permit limits for similar sources that had not yet demonstrated compliance with those lower limits.

70. A beyond-the-floor MACT analysis should look at lower permit limits for facilities that have not yet demonstrated compliance with those limits.

71. For its beyond-the-floor MACT analysis, Tenaska considered the use of wet electrostatic precipitators (wet ESP) and the non-thermal plasma (electro catalytic oxidation) process.

72. Wet ESP would be cost-prohibitive for Tenaska and is not appropriate as the basis for a MACT beyond-the-floor limit.

73. Non-thermal plasma technology is not an appropriate basis for a beyond-the-floor MACT limit for Tenaska because it would not necessarily control mercury any better than the technology suite already proposed to be used by Tenaska.

74. In the Draft Permit, the ED recommended a MACT floor mercury limit for Tenaska of 1.7×10^{-6} lb/MMBtu based on Council Bluffs Station, Unit 4 (also known as Walter Scott, Jr. Energy Center), which has demonstrated compliance with that limit.

75. The ED determined that no MACT beyond-the-floor limit for mercury would be appropriate because the limit recommended in the Draft Permit was based on Tenaska's use of the most effective and state-of-the-art emissions controls currently available on a commercial scale for mercury reduction.

76. Plant Washington in Georgia is a similar source to Tenaska.

77. The Georgia Department of Natural Resources (GDNR) issued a permit for Plant Washington on April 8, 2010 (Plant Washington permit).

78. Plant Washington will use similar or the same mercury controls as Tenaska.

79. The permit issued for Plant Washington contains a MACT mercury limit of 1.46 x 10 6 lb/MMBtu while burning the same PRB subbituminous coal that Tenaska will use.

80. The Plant Washington permit MACT limit for mercury is based on a 90% control efficiency.

81. Tenaska's use of an ACI system alone is capable of achieving an estimated 90% control efficiency.

82. Tenaska's MACT analysis was insufficient because Tenaska failed to evaluate the more stringent mercury emissions permit limit issued for Plant Washington and other similar non-operational sources.

83. A permit requiring a particular emissions limit to be achieved for a certain technology is usually sufficient justification to assume the technical feasibility of that technology or emissions limit.

84. Neither Tenaska nor the ED evaluated the Plant Washington application or supporting documents to determine how its lower limit for mercury was derived or whether it is based on emissions rates that have been achieved in practice by similar sources or may be achievable by Tenaska.

85. No analysis was done to determine whether any of the more stringent limits for mercury reflected in the EPA's RACT/BACT/LAER Clearinghouse (RBLC) were technically or economically feasible for Tenaska.

86. The mercury emissions limit that represents MACT for Tenaska is 1.46×10^{-6} lb/MMBtu.

87. Tenaska will use a fabric filter baghouse to achieve emissions reductions of 99% for filterable PM.

88. Non-mercury metallic HAPs are controlled by the same technology used to control filterable PM.

89. Tenaska properly used filterable PM as a surrogate for non-mercury metallic HAPs in its MACT analysis.

90. Based on Tenaska's review of emissions controls and recent permit limits for filterable PM associated with other subbituminous coal-burning PC boilers, Tenaska determined that its MACT floor limit for non-mercury metallic HAPs is 0.015 lb/MMBtu, because that was the lowest emission limit for filterable PM that had been achieved in practice.

91. Tenaska did not conduct a beyond-the-floor MACT analysis for filterable PM.

92. The ED agreed with Tenaska's MACT floor determination but concluded that 0.12 lb/MMBtu was feasible and appropriate as the MACT beyond-the-floor limit for Tenaska based on advances in fabric filter technology and the permit that contained that limit issued for NRG Texas Power LLC (NRG), SOAH Docket Nos. 582-08-0861 and 582-08-4013, TCEQ Docket Nos. 2007-1820-AIR and 2008-1210-AIR.

93. Mr. Hughes identified seven operational CFB and PC boilers with issued permit limits for filterable PM that are more stringent than the limit of 0.012 lb/MMBtu recommended for Tenaska.

94. At the time of the ED's review, four similar sources to Tenaska had either issued or proposed permit limits of 0.010 lb/MMBtu for filterable PM. The ED did not recommend that limit for Tenaska because none of those sources were operational.

95. CFBs and PCs, regardless of fuel type, are similar sources as Tenaska for purposes of case-by-case MACT analysis of filterable PM as a surrogate for non-mercury HAP metals.

96. Tenaska's MACT analysis for non-mercury metallic HAPs is insufficient because Tenaska failed to evaluate the bases for lower permitted filterable PM limits of similar sources to determine whether those limits have been reliably achieved in practice or are feasibly achievable for Tenaska.

97. In a prior draft version of its application, Tenaska considered proposing 0.010 lb/MMBtu as its filterable PM BACT limit and offered no explanation as to why that limit was not ultimately recommended or would not be achievable for Tenaska.

98. A 12-month rolling averaging period for filterable PM as a surrogate for non-mercury metallic HAPs is appropriate; the addition of a shorter averaging period is neither required nor precluded.

99. The MACT limit for non-mercury metallic HAPs is 0.010 lb/MMBtu over a 12-month rolling average.

100. The acid gases hydrogen chloride (HCl) and hydrogen fluoride (HF) result from the combustion of coal and are controlled by the same equipment that controls emissions of SO_2.

101. Tenaska will use WFGD to control for SO_2 and acid gases.

102. Emissions rates for HF and HCl are based on fuel content specifications for fluorine and chlorine as well as control technology efficiency.

103. As part of its MACT analysis for acid gases, Tenaska reviewed permit limits for sources burning subbituminous coal and using WFGD.

104. The HF permit limit issued by the Commission for NRG is based on a WFGD efficiency of 95.72.

105. Tenaska proposed a MACT limit of 0.00054 lb/MMBtu for HF based on its fuel content specifications for fluorine, assuming 100% conversion to HF, and an estimated wet scrubber efficiency of 95%.

106. Without evidence of the basis for its determination, Tenaska proposed a MACT limit for HCl of 0.00063 lb/MMBtu.

107. Wet ESP technology could lower both HF and HCl concentrations, but it would be cost-prohibitive for Tenaska to employ that technology.

108. The EPA has not proposed emissions standards for acid gases from coal-fired PC boilers.

109. A permit limit for one source may not be applicable to another similar source if different fuel compositions or scrubber efficiencies are involved.

110. PC boilers using WFGD were the appropriate similar sources to consider for Tenaska's case-by-case MACT analysis of acid gases.

111. Although dry FGD can better control for HF than wet FGD, Tenaska's use of wet FGD was appropriate based on its ability to better control for SO_2 emissions as well as its effectiveness in removing a form of water-soluble mercury.

112. The most stringent HF permit limit for any facility in the United States that is similar to Trailblazer and burns primarily subbituminous coal is 0.00014 lb/MMBtu over a three-hour average for Plant Washington.

113. The most stringent emission limit for HCl for any facility that is permitted in the United States, is similar to Trailblazer, and burns primarily subbituminous coal, is 0.000322 lb/MMBtu for Plant Washington.

114. In the Draft Permit, the ED recommended 0.00054 lb/MMBtu as the limit for HF and 0.00063 lb/MMBtu as the limit for HCl.

115. Neither Tenaska nor the ED evaluated the more stringent HF and HCl permit limits issued for Plant Washington even though information regarding that permit was available to them.

116. Tenaska failed to evaluate the fuel content and scrubber efficiencies of another similar sources with more stringent permit limits to determine whether those more stringent limits may be achievable by Tenaska.

117. The HF MACT limit for Tenaska is 0.00014 lb/MMBtu.

118. The HCL MACT limit for Tenaska 0.000322 lb/MMBtu.

119. Organic HAP emissions are controlled by proper boiler design and good combustion practices, which also constitute BACT for control of CO.

120. Tenaska appropriately used CO as a surrogate for organic HAPs in its MACT analysis.

121. Tenaska proposed its BACT limit of 0.15 lb/MMBtu as its MACT limit for organic HAPs. The Draft Permit includes this limit except for periods of start up and shut down.

122. For its beyond-the-floor analysis, Tenaska determined that no beyond-the-floor MACT limit was warranted because no technologies have been identified to better control for organic HAP emissions than the good combustion practices to be used by Tenaska.

123. The Commission issued a permit for NRG with an organic HAP MACT limit of 0.12 lb/MMBtu.

124. An inverse relationship exists between CO and NOx emissions in low NOx burners.

125. EPA has not proposed an emission standard for organic HAPs from coal-fired boilers such as Tenaska.

126. Tenaska was required, but failed, to evaluate more stringent CO limits contained in permits issued for similar sources, even if those sources were not yet operational, to determine whether such limits have been achieved in practice or would be achievable by Tenaska.

127. Tenaska's proposed limit of 0.15 lb/MMBtu is not MACT for CO as a surrogate for organic HAPs.

128. Tenaska is able to meet a limit of 0.12 lb/MMBtu for CO as a surrogate for organic HAPs.

129. Tenaska is able to meet a CO limit of 0.10 lb/MMBtu for a 30-day average without substantially impacting its projected NOx emissions.

130. The MACT limit for organic HAPs is 0.10 lb/MMBtu over 30-day and 12-month averaging periods.

BACT: 30 TEX. ADMIN. CODE § 116.111(a)(2)(C)

131. Tenaska considered potential control technologies and resulting emission limits identified using the most recent version of EPA's coal-fired utility database and queried the RBLC for coal-fired external combustion units for which PSD permits have been issued since 1990.

132. Tenaska performed its BACT analysis for the following Trailblazer facilities: (1) the main boiler; (2) the auxiliary boiler; (3) material handling units (*i.e.*, transfer and storage

facilities); (4) the cooling tower; and (5) the diesel engines (*i.e.*, the fire pump and emergency generator).

133. An applicant that proposes to construct a pulverized coal-fired boiler is not required to include other fuel combustion technologies, such as IGCC technology in its BACT analysis, because that would require the source as proposed by the applicant to be impermissibly redefined. *Blue Skies Alliance v. Tex. Comm'n on Envt'l Quality*, 283 S.W.3d 525, 537 (Tex. App. – Amarillo, 2009, no pet.).

134. Pulverized coal boiler technology, unlike IGCC technology, is consistent with Tenaska's business purpose for Trailblazer.

135. Tenaska's BACT analysis for the Plant was performed in accordance with TCEQ guidance and rules.

136. Based on the BACT analysis contained in the Application and other information available to the ED, the ED rendered BACT determinations for the Plant as described in the Preliminary Determination Summary and as required by the Draft Permit.

137. For its main boiler, Trailblazer will utilize low-NOx burners and over-fired air with SCR for control of NOx; limestone WFGD for control of SO_2 and other acid gases, including sulfuric acid mist H_2SO_4, HCl, and HF; a fabric filter for PM/PM_{10}/Pb control; activated carbon or equivalent sorbent injection for control of Hg; and good combustion practices for CO and VOC control.

138. No technical developments in control technologies offer the potential for further emissions reduction from the main boiler that are both technically practicable and economically reasonable for the control off NH_3.

139. Tenaska's control technologies for the Trailblazer's emission sources, including the main boiler, will also control emissions of $PM_{2.5}$, and Tenaska's BACT analysis properly addressed $PM_{2.5}$ emissions as a subset of PM/PM_{10} emissions pursuant to the EPA PM_{10} Surrogate Policy.

140. The control technologies for Trailblazer established as BACT for PM_{10} were at least as effective as the technology that would have been selected if a BACT analysis specific to $PM_{2.5}$ emissions had been conducted.

141. For the natural gas-fired auxiliary boiler, low NOx burners will control NOx and good combustion practices will control other products of combustion.

142. With respect to material transfer and storage operations at the Plant, fabric filters will be used and where fabric filters are infeasible, enclosures and suppressants will be used.

143. For the diesel engines (the fire pump and emergency generator) proper design and operation plus low sulfur fuel will be the control technology and that technology is based on relevant NSPS requirements at 40 CFR Part 60, Subpart IIII.

144. For the cooling tower, drift eliminator technology will be utilized for control of PM emissions.

Start-up and Shutdown BACT

145. Tenaska will conduct all start-ups and shutdowns according to manufacturers' written operating instructions and a written plan that Tenaska developed in accordance with Special Condition No. 10 of the Permit designed to minimize excess emissions.

146. Prior to the initial start-up of the Trailblazer boilers, in accordance with Special Condition No. 10 of the Permit, Tenaska will submit a copy of the Start-up and Shutdown Plan and any updates to the Plan to the TCEQ and the EPA

Materials Handling Systems BACT

147. Use of enclosed conveyors limit emissions during transfers, use of water sprays to minimize windblown fugitive emissions, along with use of fabric filter baghouses to control emissions from material transfer points will all be utilized to control $PM/PM_{10}/PM_{2.5}$ on solid material storage handling equipment.

148. The transfer of fly ash, bottom ash, and gypsum from silos by truck will be controlled by enclosure and/or vacuum collection, and emissions from the landfill will be controlled by water sprays as necessary to minimize windblown emissions. These types of controls all represent BACT.

Emergency Diesel Engines BACT

149. The two emergency diesel engines (*i.e.*, the Emergency Generator and the Fire Water Pump Engine) are required to meet 30 TEX. ADMIN. CODE Chapter 114, Subchapter I and EPA's NSPS 40 CFR Part 60, Subpart IIII requirements for stationary diesel engines, which also limits the sulfur content of the diesel fuel.

150. Based on the limited hours of operations, compliance with the EPA's NSPS requirements represents BACT for these engines.

Auxiliary Boiler BACT

151. Low NOx burners are used to limit NOx emissions from the auxiliary boiler and remaining pollutant emissions from the auxiliary boiler will be controlled via proper design and operation.

152. The low NOx burners will be utilized to meet a 0.036 lb/MMBtu NOx limit at 3% oxygen, which represents BACT for an auxiliary boiler limited to 500 operating hours or 6% annual capacity factor.

153. Other products of combustion are minimal, so good combustion represents BACT for them.

154. Due to 6% operating limitation, additional controls are not cost effective.

Cooling Tower BACT

155. Maintaining a low level of dissolved solids in the cooling water and utilizing mist eliminators on the cooling tower is BACT for emissions of $PM/PM_{10}/PM_{2.5}$ from the cooling tower.

BACT for Main Boiler

156. An applicant must provide sufficient evidence to support a higher emission limit if other lower permit limits exist.

157. Absent evidence to the contrary, it is reasonable to find that lower emissions limits in recently issued permits are achievable or they would not have been set.

158. The record does not demonstrate how much emissions should be expected to change due to age and use.

NOx

159. NOx burners, over-fired air, and SCR are the best available technology to control NOx.

24-Hour NOx Limit

160. The Newmont Nevada Energy and SWEPCO Turk permits both include 24-hour emission limits of 0.067 lb/MMBtu.

161. A 24-hour NOx limit of 0.067 lb/MMBtu is achievable for Trailblazer.

30-Day Average NOx Limit

162. The GDNR set a 30-day NOx emission limit of 0.050 lb/MMBtu for Plant Washington.

163. Plant Washington will have a PC boiler of roughly the same size as Trailblazer and will burn PRB subbituminous coal or a 50/50 blend of PRB subbituminous coal and eastern bituminous coal.

164. A 30-day NOx limit of 0.050 lb/MMBtu is achievable for Trailblazer.

12-Month Average NOx Limit

165. According to Plant Washington's permit, its 12-month NOx emission limit, 0.030 lb/MMBtu, is the lowest limit ever permitted for a PC plant.

166. GNDR allowed Plant Washington six months after initial start up to bring the boiler into compliance with the12-month emission limit for NOx.

167. For the W.A. Parish unit near Houston, the highest annual averages over 16 quarters were 0.053 lb/MMBtu for Unit 5, 0.050 lb/MMBtu for Unit 6, 0.050 lb/MMBtu for Unit 7, and 0.040 lb/MMBtu for Unit 8.

168. The averages at the W.A Parish unit support Tenaska's proposed annual BACT limit of 0.050 lb/MMBtu for Trailblazer.

169. Although the Oak Grove permit in Texas has a lower annual NOx limit than in the Draft Permit, Oak Grove uses lignite fuel which burns cooler, thus making is easier to control NOx production.

170. An annual NOx limit of 0.050 lb/MMBtu is BACT for Trailblazer.

SO_2

171. Although Plant Washington has a lower 12-month rolling SO_2 emission limit than Tenaska has proposed, it has a higher 30-day rolling average.

172. Even though Tenaska may have lower SO_2 limits as a result of its carbon capture technology, Tenaska was not required to demonstrate achievable emissions based on the impact of that technology.

173. Tenaska's proposed SO_2 emission limit of 0.06 lb/MMBtu for both the 30-day and 12-month rolling averages is BACT for Trailblazer.

CO and VOC

174. No post-combustion emission controls have been effectively demonstrated in controlling CO and VOC emitted from coal-fired facilities.

175. Proper boiler design and operation are the best controls for CO and VOC emissions from the main boiler.

CO

176. Recent permits have lower CO emission limits than Tenaska proposed.

177. Tenaska has failed to show that its proposed CO limit of 0.15 lb/MMBtu is BACT.

178. Plant Washington's permit shows that 30-day rolling and annual CO limits of 0.010 lb/MMBtu are achievable for Trailblazer.

VOC

179. Plant Washington's permit contains a VOC limit of 0.0024 lb/MMBtu (3-hour avg.).

180. A VOC limit of 0.0024lb/MMBtu is achievable for Trailblazer.

Filterable PM/PM_{10}

181. Six permits, two for facilities that are currently operating, have a 0.010 lb/MMBtu filterable PM/PM_{10} limit.

182. A filterable PM limit of 0.010 lb/MMBtu is BACT for Trailblazer.

Total PM/PM_{10}

183. Although EPA plans to revise its PM testing method, the revisions are intended to address users' inappropriate application of hardware and analytic options, rather than erratic results or a bias in the test method itself.

184. Even if the EPA's testing method for total PM is not reliable, other facilities are subject to the same bias in testing.

185. In recent years, facilities have been permitted with lower PM/PM_{10} limits than those Tenaska has proposed, and the other facilities will have the same challenges as Tenaska, such as wear and tear on equipment over many years of use.

186. The Commission regulates condensable PM/PM_{10} even in light of concerns about EPA's testing method.

187. The Nebraska Department of Environmental Quality set the total PM emission limit for Omaha Public Power District (Omaha) at 0.018 lb/MMBtu.

188. The Omaha permit limit for total PM was based on testing at an operating facility with a PC boiler: KCP&L's Hawthorn in Kansas.

189. The Hawthorn plant met its PM/PM_{10} limit for 2001, 2002, 2003, and 2004, with the 2004 results being 0.0166 lb/MMBtu.

190. Another new facility, Whelan Energy Center Unit 2 in Nebraska, also had a total PM limit of 0.018 lb/MMBtu.

191. A total emission limit of 0.018 lb/MMBtu is achievable for Tenaska on one-hour and annual intervals.

Lead

192. A trace metal in coal, lead is vaporized during combustion and then absorbed into fly ash in the gas stream. Thus, control technologies for lead are the same as for PM.

193. The lead content of the coal that is burned and the efficiency of the fabric filter baghouse (generally greater than 95%) impact the quantity of lead emissions.

194. The RBLC showed several permits with lower lead emission limits than Tenaska has proposed.

195. EPA suggested consideration of the 600 MW coal-fired SWEPCO Turk plant and Tucson Electric Power's Springerville Station in Arizona (Springerville) in determining BACT.

196. Both the SWEPCO Turk and Springerville permits have lead emission limits of 16 lb/TBtu.

197. A lead emission of 0.000016 lb/MMBtu or 16 lb/TBtu is achievable for Trailblazer.

Other BACT Emission Limits for the Main Boiler

198. Utilization of best management practice to meet an emission limit of 10 ppm based on a 3-hour average is BACT for NH_3 emissions from the main boiler.

199. Emissions of HF, HCl, and Hg that reflect a case-by-case MACT standard that is as or more stringent than BACT are addressed in findings of fact elsewhere in this Order.

Impact of Carbon Capture Technology

200. When the CO_2 capture facility is employed, emissions from the main boiler unit will go through the SCR unit for NOx removal; injected activated carbon (or other sorbent) for mercury removal; a baghouse for particulate matter removal; a wet limestone scrubber for desulfurization; and an amine scrubber, which is a scrubber that uses amines to remove CO_2.

201. Like other emissions, amines from the carbon capture process will go through emission point number (EPN) 54.

202. Because Trailblazer is designed to allow for bypass of the CO_2 capture facility, Tenaska's proposed permit limits are based only on the PC boiler emissions without the use of any carbon capture equipment.

203. Carbon capture technology may use different amines.

204. Amines that Tenaska may use and their resulting emissions may constitute one or a combination of pollutants, including VOC and PM.

205. The Draft Permit requires stack testing on the main boiler's EPN 54, which will determine compliance with the permit limits for VOC and PM.

206. Amine scrubbing as part of CO_2 capture will be accounted for in stack testing.

207. Any of Trailblazer's emissions that exceed the permit limits will be detected through stack testing.

208. Stack testing should be required under all normal operating conditions, including before and after use of the CO_2 capture facility.

209. If VOC or PM emissions are significantly higher because of carbon capture, the testing will reveal it.

Demonstrations under 30 TEX. ADMIN. CODE §116.111: Protection of Public Welfare

Air Dispersion Modeling

The "General Public" and "Ambient Air"

210. An applicant demonstrates that emissions from a proposed facility will be protective of the public health and physical property by evaluating predicted concentrations of air pollutants in the ambient air with air dispersion modeling.

211. TCEQ air permitting guidance defines ambient air as the "portion of the atmosphere, external to buildings, to which the general public has access."

212. Tenaska will control access to the Trailblazer property, and it will prevent the general public from entering the Trailblazer property with signs and fencing.

213. The air dispersion modeling demonstration performed by Tenaska, which evaluates predicted air quality impacts at and beyond the Trailblazer property line, is proper.

Tenaska's Air Dispersion Modeling

214. Tenaska performed air dispersion modeling, which was summarized in its July 2008 Class II Area Air Quality Dispersion Modeling Report; follow-up e-mails of August 14, 2008 and August 18, 2008 to Matthew Kovar, TCEQ; letters dated September 5, 2008, to Daniel Menendez, TCEQ, and November 4, 2008, to Richard Hughes; and e-mail dated November 20, 2008, to Daniel Menendez, TCEQ. Tenaska performed additional air dispersion modeling summarized in its August 2008 Class I Area Air Dispersion Modeling Analysis Report.

215. Tenaska performed the Class II air dispersion modeling in accordance with TCEQ and EPA guidelines using the latest EPA AERMOD dispersion model (Version 07026). These models were recommended by both the TCEQ and the EPA for modeling complex industrial sources like Trailblazer.

216. Tenaska performed the Class I air dispersion modeling in accordance with TCEQ, EPA and FLM guidelines using the latest CALPUFF Modeling System. This is the modeling system recommended by the TCEQ and EPA for modeling impacts at distances of greater than 50 km, including Class I increments, visibility and AQRVs.

217. The Class II modeling that was included in the State Air Quality/PSD Application was performed in accordance with applicable air quality rules and guidance and in accord with the modeling protocol cooperatively developed for this project by Tenaska and TCEQ's air dispersion modeling team.

218. There are no schools located within 3,000 feet of the facilities to be authorized under the State Air Quality/PSD Application.

219. In performing the air dispersion modeling, Tenaska modeled emissions from all of its proposed facilities at the site, including the proposed main boiler facilities.

220. Although TCEQ guidance only requires annual PM_{10} emissions to be included, Tenaska included road emissions from on-site haul roads for modeling runs to demonstrate compliance with the 24-hour and annual National Ambient Air Quality Standard (NAAQS) for particulate matter consisting of particles with diameters less than or equal to 10 microns (PM_{10}) and the annual PSD Increment for PM_{10}.

221. Tenaska excluded road emissions for other modeling purposes, in accordance with TCEQ guidance.

222. Under TCEQ's modeling guidance, modeling of road dust emissions is explicitly excluded for short-term averaging periods.

223. Tenaska will not be transporting road-base aggregate materials at Trailblazer and will employ best management practices for minimizing dust, such as watering plant roads as needed to control fugitive dust emissions.

224. Tenaska's air dispersion modeling tended to over-predict off-property ambient concentrations.

225. Tenaska used a conservative estimate of the maximum emission rates for the facilities.

226. Tenaska assumed that all sources at Trailblazer would be operating simultaneously and emitting their maximum rates at the same time.

227. For its 1-hour NO_2 modeling, Tenaska modeled the maximum allowable pounds per hour NOx emission rates from all sources except the main boiler. For the main boiler, the seven highest days of modeled or monitored concentrations were excluded to account for start up and shut down periods.

228. Tenaska's 1-hour NO_2 modeling was very conservative because it assumed all NOx converted to NO_2 when NO_2 is actually only a fraction of total NOx emissions.

229. Tenaska coupled five years of hourly meteorological data with the worst-case emissions scenario and worst-case meteorological conditions to calculate maximum off-property impacts.

230. Tenaska used the EPA recommended default option for AERMOD.

231. Tenaska properly relied on the pre-processed Nolan County specific meteorological data supplied by the TCEQ in conducting its modeling.

232. Tenaska properly used existing representative air quality data in place of pre-construction monitoring to determine background concentrations.

233. TCEQ's modeling staff performed an audit of Tenaska's modeling and found it acceptable.

234. The standards and guidelines applicable to this permit application's maximum modeled pollutant concentrations are: NAAQS, PSD increments, Net Ground Level Concentration (NGLC) or "state property-line" standards, and Effects Screening Levels (ESLs).

NAAQS Analysis

235. Tenaska directly modeled its emissions of SO_2, CO, PM_{10}, and Pb for the purpose of demonstrating compliance with the NAAQS.

236. If Trailblazer emissions of SO_2, NO_2 or CO result in concentrations which exceed modeling significance levels (MSL), a full impacts analysis is required.

237. For the pollutants and averaging times for which maximum modeled concentrations resulting from emissions at Trailblazer were above their respective MSLs, Tenaska included non-Trailblazer emissions in the modeling and added a representative ambient background concentration to consider the influence of other sources affecting Trailblazer impact areas.

SO_2

238. SO_2 NAAQS exist for three averaging periods: 3-hour (1300 $\mu g/m^3$), 24-hour (365 $\mu g/m^3$), and annual (80 $\mu g/m^3$).

239. Only the maximum annual SO_2 impacts were below the MSL and no further demonstration was required for the annual standard. Tenaska conducted a full impacts analysis for the 24-hour and 3-hour SO_2 standards.

240. Representative background concentrations for SO_2 were obtained by reviewing the nearest monitoring sites within 200 miles of the proposed project and selecting the Dallas monitor as the highest representative location. The EPA monitor in Dallas, Dallas County, was appropriate for representing existing background concentrations of SO_2. The Midlothian monitors were not representative because they are disproportionately impacted by local heavy industries.

241. The maximum modeled 3-hour SO_2 concentration resulting from Trailblazer's emissions and non-Trailblazer emission sources at any off-site location is 69 $\mu g/m^3$; and the ambient background concentration is 37 $\mu g/m^3$. Trailblazer's SO_2 emissions impacts, when modeled with non-Trailblazer emission sources and added to the conservative background level of ambient SO_2, are 106 $\mu g/m^3$, and are below the 3-hour SO_2 NAAQS of 1,300 $\mu g/m^3$.

242. The maximum modeled 24-hour SO_2 concentration resulting from Trailblazer's emissions and non-Trailblazer emission sources at any off-site location is 10 $\mu g/m^3$, and the ambient background concentration is 18 $\mu g/m^3$. Trailblazer's SO_2 emissions impacts, when modeled with non-Trailblazer emission sources and added to the background level of ambient SO_2, are 28 $\mu g/m^3$, and are below the 24-hour SO_2 NAAQS of 365 $\mu g/m^3$.

NO_2 Annual

243. NO_2 NAAQS exists for an annual averaging period (100 $\mu g/m^3$). Annual NO_2 impacts from the project emissions were below the MSL and no further demonstration was required.

NO_2 1-Hour

244. On February 9, EPA published a new 1-hour NO_2 NAAQS, effective on April 12, 2010.

245. Tenaska nevertheless prepared and filed a 1-hour NO_2 modeling analysis with its direct testimony.

246. Neither EPA nor TCEQ have established an MSL for the 1-hour NO_2 standard; therefore, Tenaska conducted a full impact analysis without first evaluating whether its emissions would have a significant impact on 1-hour NO_2 concentrations.

247. Tenaska conservatively assumed that all NOx emissions are NO_2.

248. The 1-hour NO_2 NAAQS is 188.3 $\mu g/m^3$ calculated as the three-year average of the 98th percentile of the yearly distribution of 1-hour maximum concentrations. The highest eight-hour concentration is a conservative estimate of the 98% highest concentration.

249. Representative background concentrations for NO_2 were obtained by evaluating the nearest monitors and selecting the site which most closely represented the conditions at the proposed project. The EPA monitor in Waco, McLennan County, was appropriate for representing existing background concentrations of NO_2. The Ft. Worth, Arlington and Grapevine monitors were not representative because they are disproportionately impacted by local heavy industry and mobile source emissions of NO_2.

250. The maximum modeled daily highest eight-hour concentration daily maximum 1-hour NO_2 concentrations from Tenaska sources and other sources added to the background concentration was 177.4 $\mu g/m^3$, which is below the NAAQS of 188.3 $\mu g/m^3$.

251. Tenaska submitted an addendum analysis supporting the 1-hour NO_2, which included startup and shutdown (SUSD) emission rates for the main boiler even though SUSD's will occur infrequently and are, therefore, unlikely to contribute to the NO_2 design concentration.

252. Although infrequent, Tenaska assumed that the SUSD maximum emission rate would occur continuously through five years of hourly modeling.

253. Tenaska did not conduct annual averaging to the form of standard; rather, it compared the highest eight-hour concentration single year maximum concentration to the NAAQS.

CO

254. CO NAAQS exist for two averaging periods: 1-hour (40,000 $\mu g/m^3$) and 8-hour (10,000 $\mu g/m^3$).

255. The maximum CO impacts from Trailblazer were below the 1-hour and 8-hour MSLs and no further demonstrations are required.

Lead

256. A quarterly Pb NAAQS exists (1.5 $\mu g/m^3$).

257. Tenaska's modeling established that the maximum predicted off-property concentration of lead from the Plant and off property sources over a calendar quarter is 0.05 $\mu g/m^3$. Although this is below the MSL, when combined with a representative background concentration of 0.04 $\mu g/m^3$, the total impact is less than the NAAQS of 1.5.

PM_{10}

258. PM_{10} NAAQS exist for two averaging periods: 24-hour (150 $\mu g/m^3$) and annual (50 $\mu g/m^3$). The maximum modeled 24-hour average PM_{10} concentration resulting from Trailblazer's emissions and off-property sources is 14 $\mu g/m^3$, which when added to the representative background concentration of 74 $\mu g/m^3$ is below the 24-hour PM_{10} NAAQS of 150 $\mu g/m^3$.

259. The maximum modeled annual average PM_{10} concentration resulting from Trailblazer's emissions and off-property sources is 3 $\mu g/m^3$, which when added to the maximum ambient background concentration of 28 $\mu g/m^3$ is below the NAAQS of 50 $\mu g/m^3$.

$PM_{2.5}$

260. Both EPA and TCEQ accept demonstration of compliance with the PM_{10} NAAQS as a surrogate for demonstration of compliance with the $PM_{2.5}$ NAAQS.

261. Based on Tenaska's demonstration of compliance with the PM_{10} NAAQS, Trailblazer's emissions will not cause or contribute to an exceedance of the $PM_{2.5}$ NAAQS.

262. Tenaska conducted $PM_{2.5}$ modeling analyses demonstrating directly that Trailblazer's $PM_{2.5}$ emissions combined with offsite sources and a representative background concentration will not exceed the NAAQS.

Ozone

263. Tenaska performed an ozone analysis following current TCEQ guidance and a representative background concentration of 40 ppb. The ozone analysis demonstrated that the Plant is ozone neutral. Based on historical analyses using the EKMA model, ozone neutral sources are not expected to have a discernable impact on the maximum

ozone concentrations in the area. Tenaska also submitted a transport analysis demonstration reaching the same conclusion.

NAAQS Summary

264. Emissions from the Plant will not cause or contribute to an exceedance of any NAAQS.

PSD Increment Analysis

265. PSD increments are allowable incremental changes in off-property concentrations of certain pollutants for which PSD review has been triggered. Concentration increases in excess of these levels are considered by EPA as significantly deteriorating air quality.

266. Tenaska performed a PSD increment demonstration for emissions of SO_2 and PM_{10} from Trailblazer.

267. Maximum modeled concentrations resulting from emissions from the Plant were below *de minimis* levels for SO_2 (3-hour and 24-hour averaging periods) and PM_{10} (24-hour and annual averaging periods).

268. The impacts of the Plant's increment consuming emissions of SO_2 and the expected emissions of PM_{10} from the Plant are below the allowable levels.

269. For each of the above pollutants and averaging periods, the combined impacts from Trailblazer's maximum modeled concentrations and the PSD increment-consuming sources are less than the applicable PSD increment.

PSD Increment Analysis: Summary

270. Emissions from the Plant will consume increment, but when combined with other increment consuming sources, consumption remains below allowable levels.

PSD Monitoring Analysis

271. Of the criteria pollutants that will be emitted by Trailblazer in PSD-significant amounts, PSD monitoring *de minimis* levels exist for SO_2 (24-hour averaging period); NO_2 (annual

averaging period), CO (8-hour averaging period), PM_{10} (24-hour averaging period), and Pb (3-month averaging period) and below which preconstruction monitoring is not required.

272. Maximum modeled concentrations resulting from the Plant's emissions are below all applicable PSD monitoring *de minimis* levels, except for 24-hour SO_2 and 24-hour PM_{10}, for which Tenaska properly used existing monitoring data, and all modeled concentrations were less than 90% of the applicable NAAQS and PSD increments.

State Property Line Analysis

273. State property-line standards are maximum air concentrations that are allowed to result from all sources on a contiguous site.

274. State property-line standards exist for H_2SO_4 for 1-hour and 24-hour averaging periods and for SO_2 for a 30-minute averaging period.

275. Tenaska modeled site-wide emissions, including the Plant, for comparison to applicable property-line standards.

276. Tenaska's maximum off-property modeled concentrations were below the applicable state property line standards.

Property Line Standard: H_2SO_4

277. The maximum 1-hour average H_2SO_4 concentration resulting from site-wide emissions at any off-property location is 33 $\mu g/m^3$. The site-wide H_2SO_4 emissions will not cause an exceedance of the 1-hour H_2SO_4 property line standard of 50 $\mu g/m^3$.

278. The maximum 24-hour average H_2SO_4 concentration resulting from site-wide emissions at any location is 1.0 $\mu g/m^3$. The site-wide H_2SO_4 emissions will not cause an exceedance of the 24-hour H_2SO_4 property line standard of 15 $\mu g/m^3$.

Property-Line Standard: SO_2

279. The maximum 1-hour average SO_2 concentration resulting from site-wide emissions at any off-property location is 528.0 $\mu g/m^3$. The site-wide SO_2 emissions will not cause an exceedance of the 1-hour SO_2 property line standard of 1,021 $\mu g/m^3$.

Property-Line Standard Summary

280. Trailblazer will not cause an exceedance of any applicable state property-line standard.

ESL Analysis

281. The TCEQ uses effects screening levels (ESL) as part of the state effects review of an air permit application, as conservative guideline levels to evaluate the potential for effects to public health, welfare or property as a result of exposure to air pollutants for which there are no state or federal air quality standards.

282. Health-based ESLs are set by starting with exposure levels that have been shown to cause no adverse health effects or very minor health effects in humans or animals, and then applying generous safety factors to establish levels that will be protective of the most sensitive members of the general public. Health-based ESLs are frequently set at levels that are 100 to 1000 times lower than exposure levels that are designed to be safe for workers exposed to airborne chemicals in occupational settings.

283. ESLs are set very conservatively and are designed to protect even the most sensitive members of the population, including children, the elderly, and people with pre-existing conditions.

284. Maximum modeled air concentrations that do not exceed the ESL will not cause adverse health or welfare effects from the public's exposure to that chemical, and concentrations above the ESLs will not necessarily cause adverse health or welfare effects, but may require further study.

285. For concentrations which exceed an ESL, TCEQ's guidance establishes the steps for further study to evaluate the compounds.

286. An ESL analysis is conducted only for sources on an applicant's property.

287. The ESL system currently used by TCEQ adequately protects the health and welfare of the public.

288. Tenaska modeled the site-wide emissions of the following non-criteria pollutants: arsenic, coal dust, fly ash, total silica, nickel, beryllium, limestone dust, gypsum dust, dioxins and furans, NH_3, hydrogen chloride (HCl), hydrogen fluoride (HF), and mercury (Hg).

289. For beryllium, the maximum modeled 1-hour average concentration from the Plant's emissions is .0113 $\mu g/m^3$, which is below the 1-hour ESL for beryllium of 0.02 $\mu g/m^3$.

290. The maximum modeled annual average concentration resulting from the Plant's emissions of beryllium is 0.0001 $\mu g/m^3$, which is less than the annual ESL for beryllium of 0.002 $\mu g/m^3$.

291. The maximum modeled annual average concentration resulting from the Plant's emissions of limestone dust is 0.03 $\mu g/m^3$, which is below the annual ESL for limestone dust of 5 $\mu g/m^3$.

292. For limestone dust, the maximum modeled 1-hour average concentration from the Plant's emissions is 6.95 $\mu g/m^3$, which is less than the 1-hour ESL for limestone dust of 50 $\mu g/m^3$.

293. For gypsum dust, the maximum modeled 1-hour average concentration from the Plant's emissions is 7.59 $\mu g/m^3$, which is below the 1-hour ESL for gypsum dust of 50 $\mu g/m^3$.

294. The maximum modeled annual average concentration resulting from the Plant's emissions of gypsum dust is 0.09 $\mu g/m^3$, which is less than the annual ESL for gypsum dust of 5 $\mu g/m^3$.

295. The maximum modeled annual average concentration resulting from the Plant's emissions of dioxins and furans is 0.39×10^{-8} $\mu g/m^3$, which is less than the annual ESL for arsenic of 3.0×10^{-8} $\mu g/m^3$.

296. For NH3, the maximum modeled 1-hour average concentration from the Plant's emissions is 109 $\mu g/m^3$, which is below the 1-hour ESL for ammonia of 170 $\mu g/m^3$.

297. The maximum modeled annual average concentration resulting from the Plant's emissions of ammonia is 0.14 $\mu g/m^3$, which is below the annual ESL for ammonia of 17 $\mu g/m^3$.

298. For HCl, the maximum modeled 1-hour average concentration from the Plant's emissions is 5.51 $\mu g/m^3$, which is below the 1-hour ESL for HCl of 75 $\mu g/m^3$.

299. The maximum modeled annual average concentration resulting from the Plant's emissions of HCl is 0.007 $\mu g/m^3$, which is less than the annual ESL for HCl of 7.5 $\mu g/m^3$.

300. For HF, the maximum modeled 1-hour average concentration from the Plant's emissions is 4.8 $\mu g/m^3$, which is below the 3-hour ESL for HF of 5.0 $\mu g/m^3$.

301. The maximum modeled annual average concentration resulting from the Plant's emissions of HF is 0.006 $\mu g/m^3$, which is less than the annual ESL for HF of 0.50 $\mu g/m^3$.

302. For mercury, the maximum modeled 1-hour average concentration from the Plant's emissions is 0.09 $\mu g/m^3$, which is below the 1-hour ESL for mercury of 0.10 $\mu g/m^3$.

303. The maximum modeled annual average concentration resulting from the Plant's emissions of mercury is 0.0005 $\mu g/m^3$, which is less than the annual ESL for mercury of 0.0100 $\mu g/m^3$.

ESL Analysis: Arsenic

304. For arsenic, the maximum modeled 1-hour average concentration from the Plant's emissions is 0.22 $\mu g/m^3$, which is approximately 2 times the 1-hour ESL for arsenic of 0.10 $\mu g/m^3$.

305. The maximum modeled 1-hour average concentration for arsenic is predicted to exceed the 1-hour ESL for only 14 hours per year.

306. The maximum modeled annual average concentration resulting from the Plant's emissions of arsenic is 0.002 $\mu g/m^3$, which is less than the annual ESL for arsenic of 0.010 $\mu g/m^3$.

307. Because the frequency of 1-hour exceedances is low and the annual ESL is met, the 1-hour arsenic impacts are acceptable.

308. No adverse health or welfare effects will result from the public's exposure to emissions of arsenic from the Plant.

ESL Analysis: Coal Dust

309. For coal dust, the maximum modeled 1-hour average concentration from the Plant's emissions is 15.46 $\mu g/m^3$, which is approximately 1.7 times the 1-hour ESL for coal dust of 9 $\mu g/m^3$.

310. The maximum modeled 1-hour average concentration for coal dust is predicted to exceed the 1-hour ESL for only three hours per year.

311. There were no modeled 1-hour average concentrations for coal dust that exceeded the 1-hour ESL at a sensitive receptor.

312. Coal dust emissions were modeled continuously at maximum rates, yet emissions will not actually be simultaneous or continual.

313. The maximum modeled annual average concentration resulting from the Plant's emissions of coal dust is 0.07 $\mu g/m^3$, which is below the annual ESL for coal dust of 0.90 $\mu g/m^3$.

314. No adverse health or welfare effects will result from the public's exposure to emissions of coal dust from the Plant.

ESL Analysis: Fly Ash

315. For fly ash, the maximum modeled 1-hour average concentration from the Plant's emissions is 37.19 $\mu g/m^3$, which is approximately 1.9 times the applicable 1-hour ESL for fly ash of 20.00 $\mu g/m^3$.

316. The maximum modeled 1-hour average concentration for fly ash is predicted to exceed the 1-hour ESL for only 8 hours per year.

317. The short-term modeling concentration results for fly ash are conservatively modeled.

318. The maximum modeled annual average concentration resulting from the Plant's emissions of fly ash is 0.35 $\mu g/m^3$, which is less than the applicable annual ESL for fly ash of 2.0 $\mu g/m^3$.

319. No adverse health or welfare effects will result from the public's exposure to emissions of fly ash from the Plant.

ESL Analysis: Total Silica

320. For total silica, the maximum modeled 1-hour average concentration from the Plant's emissions is 14.89 $\mu g/m^3$, which is approximately 1.5 times the applicable 1-hour ESL for total silica of 10.0 $\mu g/m^3$.

321. The maximum modeled 1-hour average concentration for total silica is predicted to exceed the 1-hour ESL for only 3 hours per year.

322. The short-term exceedances of silica above the ESL do not occur at a sensitive receptor.

323. The maximum modeled annual average concentration resulting from the Plant's emissions of total silica is 0.14 $\mu g/m^3$, which is less than the applicable annual ESL for total silica of 1.0 $\mu g/m^3$.

324. No adverse health or welfare effects will result from the public's exposure to emissions of total silica from the Plant.

ESL Analysis: Nickel

325. For nickel, the maximum modeled 1-hour average concentration from the Plant's emissions is 0.15 $\mu g/m^3$, which is equal to the 1-hour ESL for nickel of 0.15 $\mu g/m^3$.

326. The maximum modeled 1-hour average concentration for nickel is predicted to occur for only one hour per year.

327. The maximum 1-hour concentration for nickel is predicted to occur in a rural location.

328. The maximum modeled annual average concentration resulting from the Plant's emissions of nickel is 0.001 $\mu g/m^3$, which is less than the annual ESL for nickel of 0.015 $\mu g/m^3$.

329. No adverse health or welfare effects will result from the public's exposure to emissions of nickel from the Plant.

ESL Summary

330. No adverse public health or welfare effects will result from the Plant's emission of air contaminants for which no air quality standard exists.

Additional Findings Concerning Air Emissions: General Requirements and Chapter 111 Standards

331. In the Application, Tenaska represents that it will comply with all applicable requirements of the TCEQ Air Quality General Rules under 30 TEX. ADMIN. CODE Chapter 101, which relates to such things as circumvention; nuisance; traffic hazards; sampling; sampling ports; emissions inventories; sampling procedures and terminology; compliance with U.S. EPA standards; fees; emissions events; scheduled maintenance; start-up and shutdown activities; and emissions banking and trading to the extent they apply to the proposed Plant.

332. The main boiler stationary vents will not exceed the opacity limit of 20% over a 6-minute period as specified in 30 TEX. ADMIN. CODE § 111.111(a)(1)(B).

333. Trailblazer visible emissions from any building, enclosed facility, or other structure will not exceed the opacity limit of 30% over a 6-minute period as specified in 30 TEX. ADMIN. CODE § 111.111(a)(7) and (8).

334. Emissions from all other Trailblazer sources, besides the main boiler, will comply with limits on the emission rates of particulate matter as specified under 30 TEX. ADMIN. CODE § 111.151.

335. Emissions of particulate matter from the Trailblazer main boiler will not be greater than 0.3 pound of total suspended particulates per MMBtu heat input over a 2-hour period during solid fuel firing as specified in 30 TEX. ADMIN. CODE § 111.153(b).

336. The proposed Trailblazer Plant will comply with all applicable emission limitations, opacity, and visible emissions limitations of 30 TEX. ADMIN. CODE Chapter 111.

Summary of Protection of Public Health and Welfare

337. The proposed emissions from the Plant will comply with all ambient air contaminant standards and guidelines at off-property locations.

Unregulated Substances

338. Emissions from Trailblazer of water vapor, oxygen, hydrogen, nitrogen, methane, ethane, carbon dioxide, and certain other substances are not regulated under the Texas Clean Air Act or rules of the TCEQ and, therefore, are not addressed in the Draft Permit, although emission rates for some of these substances were calculated as part of the combustion calculations as set forth in Appendix A to the Application.

Measurement of Emissions: 30 TEX. ADMIN. CODE § 116.111(a)(2)(B)

339. Tenaska will conduct initial stack testing of the main boiler to demonstrate compliance with all emission limits in the Maximum Achievable Emission Rates Table (MAERT) of the Draft Permit, including NOx, SO_2, CO, Hg, NH_3, PM, VOC, H_2SO_4, HCl, HF, and Pb.

340. Tenaska will conduct initial stack testing of the auxiliary boiler to demonstrate compliance with NOx and CO emissions limits in the MAERT of the Draft Permit.

341. Tenaska will conduct initial opacity testing of the coal handling equipment to demonstrate compliance with opacity limits in the Draft Permit.

342. Tenaska will perform initial PM stack testing of one of the material handling baghouses to demonstrate compliance with emission limits in the Draft Permit.

343. The Trailblazer main boiler will be equipped with a Continuous Opacity Monitor System (COMS) to demonstrate continual compliance with the 10% opacity limit in the Draft Permit and will also be equipped with Continuous Emissions Monitoring Systems (CEMS) to demonstrate continual compliance with the NOx, SO_2, CO, Hg, and NH_3 limits in the Draft Permit.

344. Tenaska will stack test emissions from the main boiler to demonstrate ongoing compliance with the emissions limits in this Order.

NSPS 30 TEX. ADMIN. CODE § 116.111(a)(2)(D)

345. Tenaska Application accurately and completely delineates the requirements of all applicable NSPS as they apply to pulverized coal boilers, storage and handling systems, and the CC2 project generally.

346. Trailblazer is expected to meet all applicable NSPS.

347. Compliance with all applicable NSPS requirements is a condition of the Draft Permit.

NESHAPs: 30 TEX. ADMIN. CODE § 116.111(a)(2)(E)

348. There are no national emission standards for hazardous air pollutants (NESHAPs) as listed under 40 CFR Part 61 applicable to facilities of a type comprising the Plant.

NESHAPs for Source Categories: 30 TEX. ADMIN. CODE § 116.111(a)(2)(F)

349. The Plant emergency diesel engines are expected to comply with 40 CFR Part 63, Subpart ZZZZ, the requirements for NESHAPs for source categories, or MACT standards, for stationary Reciprocating Internal Combustion Engines.

350. MACT Subpart DDDDD for Industrial/Commercial/Institutional Boilers and Process Heaters was vacated and is no longer applicable. Tenaska submitted a case-by-case MACT analysis for both the main and auxiliary boilers in the Trailblazer Application.

Performance Demonstration: 30 TEX. ADMIN. CODE § 116.111(a)(2)(G)

351. Draft Permit No. 84167/PSD-TX-1123/HAP-13 and the Trailblazer Application contains provisions for demonstrating achievement of the performance specified in the Application, such as conducting performance testing of emissions from the main boiler and auxiliary boiler stacks, once the Plant is constructed and operating.

352. Provisions for demonstrating achievement of the performance specified in the Application and the Draft Permit will adequately demonstrate performance of Trailblazer facilities.

Nonattainment Review: 30 TEX. ADMIN. CODE § 116.111(a)(2)(H)

353. The Plant is located in Nolan County, which is classified as attainment or not classifiable for all criteria air pollutants.

354. Because the Plant is not located in an area that is designated nonattainment for any air contaminant, the Plant facilities are not subject to nonattainment review requirements.

PSD Review: 30 TEX. ADMIN. CODE § 116.111(a)(2)(I)

355. As part of Texas' State Implementation Plan, EPA has approved TCEQ's program for using TEX. ADMIN. CODE Chapter 116 NSR permits as the vehicle for undertaking the demonstrations required by the federal PSD program.

356. Trailblazer has the potential to emit more than 100 tons of any single regulated air contaminant and the Plant has the potential to emit the following pollutants in significant quantities as defined in 40 C.F.R. §52.21(b)(23): SO_2, CO, PM, PM_{10}, NOx, VOC, H_2SO_4, Pb, and fluorides (as HF).

357. Tenaska conducted a source impact analysis showing that allowable emissions from Trailblazer will not cause or contribute to air pollution in violation of any NAAQS or PSD increment.

358. Tenaska conducted an appropriate additional impacts analysis that assessed the potential impairment to visibility, soils, and vegetation as a result of the Trailblazer emissions and associated commercial, residential, and industrial growth, and assessed air quality impacts as a result of such growth.

359. Trailblazer will not generate sufficient growth in the area to significantly increase air contaminants from secondary sources.

360. Modeling of Trailblazer's emissions shows concentrations that will be protective of soils and vegetation.

361. Tenaska demonstrated through its Class I modeling that Trailblazer will not have adverse impacts on visibility or other air quality related values in any Class I area.

362. Modeling of Trailblazer's impacts on Class I areas is not required by TCEQ guidance because the nearest Class I area is more than 100 km from the site.

Air Dispersion Modeling or Ambient Monitoring: 30 TEX. ADMIN. CODE § 116.111(a)(2)(J)

363. Tenaska performed computerized air dispersion modeling in order to demonstrate the air impacts from Trailblazer.

Mass Emissions Cap and Trade: 30 TEX. ADMIN. CODE § 116.111(a)(2)(L)

364. The main boiler will not be located in the Houston/Galveston ozone nonattainment area.

365. No mass cap and trade allowances are applicable to the Plant.

Compliance History

366. Tenaska has an "average" site and person compliance history rating.

Permit

367. The MAERT in the Draft Permit lists all sources of air contaminants regulated under the permit.

368. The Plant's air emissions sources have been planned to comply with the emission limits specified in the Draft Permit's MAERT.

369. The Trailblazer facilities can be operated to meet the requirements of this Order.

370. The MAERT Table should be revised to comply with all emission limits in this Order.

371. The Draft Permit prescribes requirements for demonstrating initial and ongoing compliance with all applicable requirements of the permit and the TCAA.

Transcript Costs

372. The non-expedited transcription costs for this case are $5,377.25, which Tenaska has paid.

373. Sierra Club and MCC shall each reimburse Tenaska one-third of the non-expedited transcription costs which equal $1,792.41 per party.

CONCLUSIONS OF LAW

1. The Commission has jurisdiction over Tenaska's Application pursuant to TEX. HEALTH & SAFETY CODE Chapter 382 and TEX. WATER CODE Chapter 5.

2. Tenaska's Application was directly referred to SOAH pursuant to TEX. WATER CODE § 5.557.

3. Pursuant to TEX. GOV'T CODE § 2003.047, SOAH has jurisdiction to conduct a hearing and to prepare a proposal for decision in this matter.

4. Notice of Tenaska's Application was provided pursuant to 30 TEX. ADMIN. CODE § 39.601, *et seq.*, and TEX. GOV'T CODE §§ 2001.051 and 2001.052.

5. Tenaska submitted its Application pursuant to 30 TEX. ADMIN. CODE §§ 116.110(f) and 116.140.

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. Pursuant to 30 TEX. ADMIN. CODE § 116.111, the emissions from the Plant's facilities as authorized by this Order will comply with all Commission rules and regulations and with the intent of the TCAA, including the protection of the health and physical property of the people, consistent with the long-standing interpretation of the Commission's rules, regulations, and guidance.

HAPs: 30 TEX. ADMIN. CODE § 116.111(a)(2)(K)

8. The main boiler will be a major source of HAPs.

9. In accordance with 30 TEX. ADMIN. CODE § 116.111(a)(2)(K), a case-by-case MACT analysis was conducted to establish federally enforceable MACT emission limits for the Plant's main boiler and the auxiliary boiler.

10. In accordance with 30 TEX. ADMIN. CODE § 116.400 and the limits set in this permit, the emissions for HAPs from the Plant's main boiler and auxiliary boiler reflect application of MACT for a new source.

11. Based on the above Findings of Fact and Conclusions of Law, Tenaska has made all demonstrations required under applicable state laws and regulations, including 30 TEX. ADMIN. CODE § 116.404 regarding hazardous air pollutant major source permit applications, to be issued a hazardous air pollutant major source air quality permit with case-by-case MACT review.

Mass Cap and Trade Allocations: 30 TEX. ADMIN. CODE 116.111(a)(2)(L)

12. The requirement set forth at 30 TEX. ADMIN. CODE § 116.111(a)(2)(L) is not applicable to the Plant.

Protection of Public Health and Welfare

13. A demonstration of compliance with the PM_{10} NAAQS suffices to demonstrate compliance with the $PM_{2.5}$ NAAQS.

14. When the maximum modeled concentration of a pollutant from a project is less than a NAAQS *de minimis* level, it is unnecessary to incorporate background levels or emissions from other sources in the area in the analysis of that pollutant because the maximum predicted concentration level is insignificant.

15. Pre-construction monitoring is not required to evaluate the cumulative impact of the Plant's emissions of SO_2 and PM_{10} because of the availability of existing conservative monitoring data.

16. Pre-construction monitoring is not required for air contaminants whose modeled concentrations are below PSD monitoring *de minimis* levels.

17. Pre-construction monitoring for NO_2 and CO is not required because the predicted concentrations of these pollutants are less than their respective PSD monitoring significance levels.

18. Post-construction monitoring is not required for any criteria pollutant because all modeled concentrations were less than 90% of the NAAQS and PSD increments.

19. With the emission limits set in this Order, emissions from the Plant will not cause or contribute to air pollution.

20. With the emission limits set in this Order, emissions from the Plant will not cause adverse public health or welfare effects, including nuisance conditions.

21. The emissions from the Plant will comply with the opacity limits and particulate matter emission rates set forth in 30 TEX. ADMIN. CODE Chapter 111 concerning control of air pollution from visible emissions and particulate matter.

22. With the emission limits set in this Order, the emissions from the Plant will comply with the sulfur compound emission requirements set forth in 30 TEX. ADMIN. CODE Chapter 112 concerning control of air pollution from sulfur compounds.

23. Tenaska will comply with all applicable standards adopted by reference in 30 TEX. ADMIN. CODE Chapter 113.

24. The Plant's diesel engines will comply with the specifications set forth in 30 TEX. ADMIN. CODE Chapter 114, Subchapter I.

25. The Plant is not subject to the rules set forth in 30 TEX. ADMIN. CODE Chapter 115 regarding the control of VOCs because it will be located in Nolan County.

26. The Plant is not subject to the rules set forth in 30 TEX. ADMIN. CODE Chapter 117 regarding the control of NOx because it will not be located in an ozone nonattainment area and will be placed into service after December 31, 1995.

27. The Plant is required to operate in compliance with any orders of the Commission relating to generalized and localized air pollution episodes under 30 TEX. ADMIN. CODE Chapter 118.

28. The Plant is not subject to the emission reduction plan requirements of 30 TEX. ADMIN. CODE Chapter 118.

29. In accordance with 30 TEX. ADMIN. CODE § 116.111(a)(2)(A)(i), emissions from the Plant will comply with all Commission rules and regulations and the intent of the TCAA, including protection of the health and property of the public, consistent with the long-standing interpretation of the Commission's rules, regulations, and guidance.

30. Carbon dioxide is not currently subject to regulation under the FCAA or TCAA.

31. Tenaska is not required to evaluate any impacts from the Plant's emissions of substances that are not regulated under the FCAA or TCAA, such as water vapor, nitrogen, methane, ethane, and carbon dioxide.

Measurement of Emissions: 30 TEX. ADMIN. CODE § 116.111(a)(2)(B)

32. In accordance with 30 TEX. ADMIN. CODE §116.111(a)(2)(B), the Plant will have provisions for measuring the emission of air contaminants as determined by the Commission's Executive Director.

33. The MAERT Table in the Draft Permit shall be revised to comply with all emissions limits in this Order.

BACT: 30 TEX. ADMIN. CODE § 116.111(a)(2)(C)

34. In accordance with 30 TEX. ADMIN. CODE § 116.111(a)(2)(C), the Plant will utilize BACT, with consideration given to the technical practicability and economic reasonableness of reducing or eliminating emissions from the facilities of which it will be comprised.

NSPS: 30 TEX. ADMIN. CODE § 116.111(a)(2)(D)

35. In accordance with 30 TEX. ADMIN. CODE § 116.111(a)(2)(D) and with the limits set in this Order, the emissions from the Plant will meet the requirements of any applicable NSPS as listed under Title 40 C.F.R. Part 60, promulgated by the EPA under authority granted under Section 111 of the FCAA, as amended.

NESHAPs: 30 TEX. ADMIN. CODE § 116.111(a)(2)(E)

36. No requirement set forth at 30 TEX. ADMIN. CODE § 116.111(a)(2)(E) regarding compliance with NESHAPS is applicable to the Plant.

NESHAPS for Source Categories: 30 TEX. ADMIN. CODE § 116.111(a)(2)(F)

37. The Plant's emergency diesel engines are the only type of equipment in the Plant subject to a NESHAPs for source categories.

38. In accordance with 30 TEX. ADMIN. CODE § 116.111(a)(2)(F), emissions from the Plant will meet the requirements of any applicable MACT standards as listed under Title 40 C.F.R. Part 63, promulgated by the EPA under authority granted under Section 112 of the FCAA, as amended, or as listed under 30 TEX. ADMIN. CODE Chapter 116.

Performance Demonstration: 30 TEX. ADMIN. CODE §116.111(a)(2)(G)

39. In accordance with 30 TEX. ADMIN. CODE § 116.111 (a)(2)(G) the Plant's facilities will achieve the performance specified in the permit application.

Nonattainment Review: 30 TEX. ADMIN. CODE §116.111(a)(2)(H)

40. Nonattainment review requirements are not applicable to the Plant.

PSD Review: 30 TEX. ADMIN. CODE § 116.111 (a)(2)(I)

41. Trailblazer is a major source because it emits more than 100 tpy of any single criteria pollutant in an attainment or unclassified area for all criteria pollutants.

42. The Plant constitutes a new major source because it emits certain criteria pollutants in "significant" quantities; therefore, PSD review is triggered.

43. In accordance with 30 TEX. ADMIN. CODE §116.111(a)(2)(I), the Plant complies with all applicable requirements of Chapter 116 regarding PSD review.

Air Dispersion Modeling or Ambient Monitoring: 30 TEX. ADMIN. CODE 116. 111(a)(2)(J)

44. In accordance with 30 TEX. ADMIN. CODE § 116.111(a)(2)(J), computerized air dispersion modeling was performed as required to determine the air impacts from Trailblazer.

Tenaska's Permit

45. The special conditions in the permit are appropriately added under 30 TEX. ADMIN. CODE § 116.115(c)(1) and are consistent with the TCAA.

46. A special condition shall be added to the permit to require emissions testing an emissions point number EPN 54 both when emissions are passing through, and bypassing, the CO_2 capture facility.

47. No changes to the permit should be made on the basis of compliance history in accordance with 30 TEX. ADMIN. CODE § 116.110(c), because Tenaska has an "average" site and person compliance history rating as determined in accordance with 30 TEX. ADMIN. CODE Chapter 60.

48. Based on the above Findings of Fact and Conclusions of Law, Tenaska has made all demonstrations required under applicable federal and state laws and regulations, including 30 TEX. ADMIN. CODE § 116.111 regarding air permit applications, to be issued an air quality permit with PSD review.

49. In accordance with TEX. HEALTH & SAFETY CODE § 382.0518(b)(1) and with the emission limits set in this Order, the Plant's facilities will use at least BACT, considering the technical practicability and economic reasonableness of reducing or eliminating its emissions.

50. In accordance with 30 TEX. ADMIN. CODE § 116.400, the main boiler and the auxiliary boiler will employ the maximum achievable control technology (MACT) emissions limitations for a new source.

51. In accordance with TEX. HEALTH & SAFETY CODE § 382.0518(b)(2), emissions from the Plant will not contravene the intent of the TCAA and will be protective of the public's health and physical property, consistent with the long-standing interpretation of the Commission's rules, regulations, and guidance.

52. In accordance with TEX. HEALTH & SAFETY CODE §382.0518(b), the application for State Air Quality Permit No. 84167, Prevention of Significant Deterioration Air Quality Permit PSD-TX-1123, and Hazardous Air Pollutant Major Source Permit No. HAP-13 should be approved and Air Quality Permit No. 84167/PSD Permit No. PSD-TX-1123/HAP-13 should be issued.

Transcription Costs

53. Based on the above Findings of Fact, Tenaska, Sierra Club, and MCC are responsible for the non-expedited transcription costs for the evidentiary hearing, and Sierra Club and MCC shall each reimburse Tenaska one-third of these costs or $1,792.41 per party.

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

1. The application of Tenaska Trailblazer Partners, L.L.C. for State Air Quality Permit No. 84167, Prevention of Significant Deterioration Air Quality Permit PSD-TX-1123, and Hazardous Air Pollutant Major Source Permit No. HAP-13 is approved and the permit attached is approved and issued, with the inclusion of the following special conditions:

2. 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.

3. 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 § 2001.144.

4. 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.

5. The Executive Director's Response to Public Comment concerning Tenaska's Air Quality Permit No. 84167, PSD Permit No. PSD-TX-1123, and HAP-13 is adopted and approved. If there is any conflict between the Commissions's Order and the Executive Director's Response to Comments, the Commission's Order prevails.

ISSUED:

TEXAS COMMISSION ON
ENVIRONMENTAL QUALITY

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Bryan Shaw, Chairman
For the Commission