State Office of Administrative Hearings

Cathleen Parsley
Chief Administrative Law Judge

February 8, 2010

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

Re: SOAH Docket No. 582-09-2045; TCEQ Docket No. 2009-0032-AIR;
Application of IPA Coleto Creek, LLC for State Air Quality Permit 83778 and
Prevention of Significant Deterioration Air Quality Permit Psd-Tx-1118 and for
Hazardous Air Pollutant Major Source
[Fcaa § 112(g)] Permit HAP-18

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 March 1, 2010. Any replies to exceptions or briefs must be filed in the same manner no later than March 11, 2010.

This matter has been designated **TCEQ Docket No. 2009-0032-AIR; SOAH Docket No. 582-09-2045**. 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,

Richard R. Wilfong
Administrative Law Judge

William G. Newchurch
Administrative Law Judge

RRW/sb
Enclosures
cc: Mailing List

STATE OFFICE OF ADMINISTRATIVE HEARINGS

AUSTIN OFFICE
300 West 15th Street Suite 502
Austin, Texas 78701
Phone: (512) 475-4993
Fax: (512) 475-4994

SERVICE LIST

AGENCY: Environmental Quality, Texas Commission on (TCEQ)

STYLE/CASE: IPA COLETO CREEK LLC

SOAH DOCKET NUMBER: 582-09-2045

REFERRING AGENCY CASE: 2009-0032-AIR

STATE OFFICE OF ADMINISTRATIVE HEARINGS	ADMINISTRATIVE LAW JUDGE ALJ RICHARD WILFONG
REPRESENTATIVE / ADDRESS	**PARTIES**
LADONNA CASTANUELA CHIEF CLERK TEXAS COMMISSION ON ENVIRONMENTAL QUALITY OFFICE OF THE CHIEF CLERK P.O. BOX 13087 AUSTIN, TX 78711-3087 (512) 239-3300 (PH) (512) 239-3311 (FAX)	TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
DEREK R. MCDONALD BAKER BOTTS, L.L.P. 1500 SAN JACINTO CENTER 98 SAN JACINTO BOULEVARD AUSTIN, TX 78701 (512) 322-2667 (PH) (512) 322-8342 (FAX) derek.mcdonald@bakerbotts.com	IPA COLETO CREEK, LLC
GARRETT ARTHUR STAFF ATTORNEY TEXAS COMMISSION ON ENVIRONMENTAL QUALITY OFFICE OF PUBLIC INTEREST COUNSEL MC-175 P.O. BOX 13087 AUSTIN, TX 78711-3087 (512) 239-5757 (PH) (512) 239-6377 (FAX) garthur@tceq.state.tx.us	OFFICE OF PUBLIC INTEREST COUNSEL

WENDI HAMMOND
ATTORNEY
7325 AUGUSTA CIRCLE
PLANO, TX 75025
(972) 746-8540 (PH)
(469) 241-0430 (FAX)
wendi@TexasEnvironmentalLaw.net

CITIZENS FOR A CLEAN ENVIRONMENT

BOOKER HARRISON
SENIOR ATTORNEY - AIR
TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
ENVIRONMENTAL LAW DIVISION
MC-173 P.O. BOX 13087
AUSTIN, TX 78711-3087
(512) 239-4113 (PH)
(512) 239-0606 (FAX)
booharri@tceq.state.tx.us

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

PAUL TOUGH
ATTORNEY
1201 SPYGLASS DR., SUITE 200
AUSTIN, TX 78746
(512) 327-8111 (PH)
(512) 327-6566 (FAX)
ptough@msmtx.com

ENVIRONMENTAL DEFENSE FUND

CHRISTINA MANN
ATTORNEY
TEXAS OFFICE OF THE ENVIRONMENTAL INTEGRITY PROJECT
1303 SAN ANTONIO, STE. 200
AUSTIN, TX 78701
(512) 637-9477 (PH)
(512) 584-8019 (FAX)
cmann@environmentalintegrity.org

SIERRA CLUB (ENVIRONMENTAL INTEGRITY PROJECT)

---

xc: Docket Clerk, State Office of Administrative Hearings

SOAH DOCKET NO. 582-09-2045
TCEQ DOCKET NO. 2009-0032-AIR

APPLICATION OF	§	BEFORE THE STATE OFFICE
IPA COLETO CREEK, LLC	§	
FOR STATE AIR QUALITY	§	
PERMIT 83778 AND PREVENTION	§	
OF SIGNIFICANT DETERIORATION	§	OF
AIR QUALITY PERMIT PSD-TX-1118	§	
AND FOR HAZARDOUS AIR	§	
POLLUTANT MAJOR SOURCE	§	
[FCAA § 112(g)] PERMIT HAP-18	§	ADMINISTRATIVE HEARINGS

PROPOSAL FOR DECISION

SOAH DOCKET NO. 582-09-2045
TCEQ DOCKET NO. 2009-0032-AIR

APPLICATION OF	**§**	**BEFORE THE STATE OFFICE**
IPA COLETO CREEK, LLC	**§**	
FOR STATE AIR QUALITY	**§**	
PERMIT 83778 AND PREVENTION	**§**	
OF SIGNIFICANT DETERIORATION	**§**	**OF**
AIR QUALITY PERMIT PSD-TX-1118	**§**	
AND FOR HAZARDOUS AIR	**§**	
POLLUTANT MAJOR SOURCE	**§**	
[FCAA § 112(g)] PERMIT HAP-18	**§**	**ADMINISTRATIVE HEARINGS**

PROPOSAL FOR DECISION

I. INTRODUCTION

IPA Coleto Creek, LLC (IPA or Applicant) seeks Texas Air Quality and federal Prevention of Significant Deterioration (PSD) and Hazardous Air Pollutant (HAP) major source permits from the Texas Commission on Environmental Quality (TCEQ) authorizing it to construct a new pulverized coal-fired electric generating unit and related facilities at IPA's existing Coleto Creek Power Station site in Goliad and Victoria Counties, Texas. The Executive Director (ED) of the TCEQ recommends approval of the Application,[1] but the remaining parties oppose approval.

The Administrative Law Judges (ALJs) recommend that IPA's Application be approved and the permits issued subject to the Best Available Control Technology (BACT) emission limit for total particulate matter and particulate matter equal to or less than 10 microns (PM_{10}) being reduced from 0.035 pounds per million British thermal units (lb/MMBtu) to 0.025 lb/MMBtu.

---

[1] There are a total of two applications for a total of three permits. To simplifying writing, however, the ALJs will refer to them collectively as "the Application" and "the Permit," except as otherwise noted.

II. PARTIES

The following are the Parties in this case:

PARTY	REPRESENTATIVE
IPA	Derek McDonald and Whit Swift
ED	Booker Harrison and Ross Henderson
Office of Public Interest Counsel (OPIC)	Garrett Arthur
Sierra Club and Environmental Integrity Project (Sierra Club)	Layla Mansuri and Christina Mann
Environmental Defense Fund, Inc. (EDF)	Paul Tough, Tom Weber, and Matthew Baab
Citizens for a Clean Environment (Citizens or CCE)	Wendi Hammond

At times, the ALJs refer to the Sierra Club, EDF, and CCE collectively, as "Protestants."

III. JURISDICTION

No party disputes the jurisdiction of either the Commission or the State Office of Administrative Hearings (SOAH). The attached Proposed Order contains the necessary finding and conclusions concerning jurisdiction.

IV. PROCEDURAL HISTORY

The most important procedural events are listed below:

DATE	EVENT
January 4, 2008	State Air Quality and PSD Permit applications filed.[2]
January 15, 2008	The ED declared the Application administratively complete.
February 6, 2008	IPA published "Notice of Receipt of Application and Intent to Obtain Air Permit" in *The Victoria Advocate.*[3]
February 7, 2008	IPA published "Notice of Receipt of Application and Intent to Obtain Air Permit" in Spanish in *Revista de Victoria.*[4]
June 28, 2008	HAP Major Source Permit application filed.[5]
November 25, 2008	The ED determined that the Application was technically complete and issued Draft Permit Nos. 83778, PSD-TX-1118, and HAP-18.
December 1, 2008	IPA published "Notice of Application and Preliminary Decision for an Air Quality Permit" in *The Victoria Advocate.*
December 3, 2008	IPA published "Notice of Application and Preliminary Decision for an Air Quality Permit" in *Revista de Victoria.*
January 6, 2009	Applicant requested direct referral of the case to SOAH for contested case hearing.
February 3, 2009	Notice of preliminary hearing mailed as required.[6]
February 5, 2009	Notice of preliminary hearing on the Application was published as required.[7]
March 9, 2009	Preliminary hearing held in Goliad, Texas.

---

[2] Applicant's Ex. 3.

[3] Applicant's Ex. 6.

[4] Applicant's Ex. 7.

[5] Applicant's Ex. 3.

[6] Applicant's Ex. A.

[7] Applicant's Ex. B.

April 1, 2009	The ED transmitted his Response to Public Comments and rendered his final decision to approve the Application and issue Draft Permit Nos. 83778, PSD-TX-1118, and HAP-18.
October 13, 2009	Hearing on the merits (HOM) of Application began in Austin, Texas.
October 20, 2009	Last day of HOM.
November 24, 2009	Deadline to file closing arguments in writing.
December 11, 2009	Deadline to file responses to closing arguments and case record was closed.

V. BACKGROUND FACTS

IPA's Coleto Creek Unit 2 (CC2) project is the planned addition of a second coal-fired steam electric generating unit and associated facilities to IPA's Coleto Creek Power Station.[8] The Coleto Creek Power Station is located on a site in Goliad and Victoria Counties that encompasses over 8,000 acres.[9] IPA's affiliate, Coleto Creek Power, L.P., owns the entire Coleto Creek Power Station property.[10] The existing Coleto Creek Unit 1 (CC1) produces approximately 632 megawatts of electricity and was put in service in 1980.[11]

The Coleto Creek Power Station was originally designed for two units.[12] Many of the facilities at Coleto Creek Power Station are already constructed to support an additional unit.[13] IPA argues that by developing CC2, several environmental and related impacts that are not at issue in this case will be minimized or avoided. Those include the offsite impacts of substantial new rail and transmission line construction and new water supply and discharge features.[14]

[8] Applicant's Ex. 21 at 3.

[9] Applicant's Ex. 1 at 2.

[10] Applicant's Ex. 1 at 4.

[11] Applicant's Ex. 1 at 2.

[12] Applicant's Ex. 21 at 5.

[13] *Id.*

[14] *Id.*

Since the site is already developed as a coal-fired power plant, the CC2 project also will not consume new undeveloped open land.[15]

The operational areas of the Coleto Creek Power Station are confined to an approximately 1,000-acre area known as the Plant Site, which is secured by fencing, natural physical barriers, or both to prevent public access.[16] The operational areas are monitored 24 hours a day, seven days a week, by closed-circuit security cameras and televisions, and access through the main gate is controlled with a security access card and call station.[17] "No Trespassing" signs are posted along the boundaries and water booms bar access by boaters.[18] Station personnel are trained to identify unauthorized visitors to the operational areas of the Station, and they make periodic rounds to ensure no trespassers enter.[19] Through these measures, access to the Plant Site by the general public is restricted.

Perdido Creek is a tributary of the Coleto Creek Reservoir and flows through Applicant's property.[20] The Coleto Creek Reservoir is an approximately 3,100-surface-acre cooling reservoir located within the boundaries of the Coleto Creek Power Station.[21] The reservoir was created to provide cooling for the plant and was configured and sized to support the requirements of two units.[22]

Coleto Creek Power Station restricts, or has the authority to restrict, access to portions of the Coleto Creek Power Station, including the portion of Perdido Creek that runs through the

---

15 Applicant's Ex. 22 at 5; Applicant's Ex. 21 at 5.

16 Applicant's Ex. 1 at 5.

17 *Id.*

18 *Id.*

19 *Id.*

20 Applicant's Ex. 3 at IPA0000242.

21 Applicant's Ex. 1 at 2.

22 *Id.*

station.[23] There is an existing buoy line barrier across a portion of Perdido Creek to prohibit access by the general public near the plant's intake structure.[24] While the company has not yet chosen to do so, it has the authority to restrict access to Perdido Creek by the general public in the future if it were necessary.[25]

CC2 will utilize ultra supercritical pulverized coal boiler technology.[26] The design basis for the boiler output steam is 3,600 pounds per square inch (psi) and 1,100° Fahrenheit.[27] By the definitions accepted by the U. S. Department of Energy (DOE), this constitutes ultra supercritical steam conditions.[28] The ultra supercritical design improves the efficiency of the steam cycle and reduces fuel consumption and emissions when compared to subcritical (and even supercritical) units.[29] As Roosevelt Huggins, IPA's expert witness for air quality control system engineering, testified, CC2 "will be in the class of the highest proven steam cycle efficiency currently in operation in the United States and is considered state-of-the-art in proven steam cycle design."[30]

CC2 would burn low-sulfur subbituminous coal, bituminous coal, or both.[31] CC2 is designed to utilize low-sulfur Western subbituminous coal, principally from the Powder River Basin, as its primary fuel. Up to 40% low-sulfur bituminous coal, principally from South America, may also be utilized on an annual basis.[32] Low-sulfur coal is any coal or blend of coals that produces pre-controlled sulfur dioxide (SO_2) emissions in the range of 1.2 lbs/MMBtu or

---

[23] Applicant's Ex. 1 at 6.

[24] *Id.*

[25] Tr. 171.

[26] Applicant's Ex. 1 at 8.

[27] *Id.*

[28] *Id.*

[29] Applicant's Ex. 16 at 9.

[30] *Id.*

[31] ED Ex. ED- 9 at SC 6 (Draft Permit).

[32] Applicant's Ex. 1 at 8; Applicant's Ex. 16 at 7; Applicant's Ex. 21 at 26.

less.[33] Under the Draft Permit, the bituminous coal/subbituminous coal blend is limited to 40 to 60% by weight respectively.[34]

IPA's decision to burn only low-sulfur fuels directly impacts the control technology requirements for sulfur compounds. IPA contends that it will achieve best-in-class BACT emission limits for sulfur compounds with a semi-dry flue gas desulfurization (FGD) system.[35] IPA will employ a suite of emissions control devices and techniques to reduce emissions from CC2, including:

- low-NOx burners and overfire air with selective catalytic reduction (SCR) for control of nitrogen oxides (NOx),
- a lime spray dryer absorber for control of SO_2 and other acid gases,
- a pulse jet fabric filter (PJFF) baghouse for particulate control,
- sorbent injection with powdered activated carbon (PAC) to enhance control of mercury, and
- good combustion controls for carbon monoxide (CO) and volatile organic compounds (VOC) control.[36]

The suite of controls will also control sulfur trioxide (SO_3), hydrogen chloride (HCl), hydrogen fluoride (HF), and other hazardous air pollutants.[37]

According to IPA and the ED, the Draft Permit satisfies all applicable requirements for permit issuance under the federal Clean Air Act (FCAA), the Texas Clean Air Act (TCAA) and TCEQ's implementing regulations in Title 30 TEXAS ADMINISTRATIVE CODE (TAC) Chapter 116 for state air quality and PSD permitting, including the PSD air quality analysis requirements and

---

[33] Applicant's Exhibit 22 at 26.

[34] ED Ex. ED-9 at SC 6 (Draft Permit).

[35] Applicant's Ex. 16 at 11.

[36] Applicant's Ex. 1 at 8-9.

[37] Applicant's Ex. 1 at 9.

the establishment of PSD BACT emissions limitations for CC2 and the associated CC2 project facilities. In addition, they contend that the Draft Permit meets all applicable requirements for permit issuance under FCAA § 112(g) and implementing regulations found at 30 TAC Chapter 116, Subchapter E, and 40 Code of Federal Regulations (C.F.R.) Part 63 for case-by-case Maximum Achievable Control Technology (MACT) determinations, including the establishment of emission limits for HAPs from CC2 that qualify as MACT emission limitations for a new source. The Draft Permit includes sampling, testing and monitoring provisions that will require IPA to demonstrate both initial compliance and continuous compliance with the permit's emission limitations and operating restrictions.

VI. APPLICABLE LAW

A. Federal Law Provisions are Only Indirectly Applicable in This Case

Citizens cite FCAA provisions and United States Environmental Protection Agency (EPA) regulations adopted under it and argue they are "the law of the land" regarding PSD permits unless otherwise provided in the EPA approved State Implementation Plan (SIP) for Texas. They also contend that some TCEQ rules are not part of the approved SIP and in some cases conflict with the FCAA. In those situations, according to Citizens, the TCEQ's rules are not applicable to the PSD permitting process, and IPA's permit must adhere to the requirements of the FCAA and EPA's rules.

Similarly, in its closing argument, Sierra Club also focuses extensively on provisions of the FCAA and argues that some TCEQ rules and practices are not equivalent to EPA's regulations. Sierra Club even asks the ALJs to find that the BACT analysis and resultant emission limitations are inadequate because the TCEQ's definition of BACT violates the FCAA.

The ALJs are fully aware of the supremacy clause of the United States Constitution[38] and have a limited understanding of EPA's authority to take action if it concludes that a state issued permit does not comply with the FCAA.[39] The ALJs do not question the authority of either Congress or the EPA and certainly intend them no disrespect. Nevertheless, these arguments that federal law must be applied in this case in lieu of state law lack important nuance and are overly broad and incorrect.

They are incorrect because Texas law requires the TCEQ—and every other Texas agency—to follow its own rules until they are changed.[40] Additionally, SOAH is not a reviewing court with jurisdiction to determine whether a state agency's rules comply with federal law and to strike them down if they do not. Instead, the ALJs must apply the rules of the state agency for which the ALJs are preparing a Proposal for Decision (PFD).[41] Moreover, an agency's interpretations of its own rules is entitled to deference.[42]

Thus, even if a TCEQ rule conflicted with an EPA rule or the FCAA--as the Protestants argue, but the ALJs do not assume--the TCEQ must follow its rules for purposes of determining whether the Application in this case should be granted. Given that, there is no need for the ALJs or the Commission to consider the Protestants' federal-supremacy arguments in this case. To the extent that Protestants wish to claim that TCEQ is not implementing a state program that is equivalent to the federal program, they would need to make those arguments in another forum with jurisdiction to decide them.

---

[38] U.S. CONST., art. VI, cl. 2.

[39] *Alaska Dept. of Environmental Conservation v. EPA*, 540 U.S. 461, 494 (2004).

[40] TEX. WATER CODE ANN. (Water Code) § 5.103(c) states: "The commission shall follow its own rules as adopted until it changes them in accordance with [the APA]." If a Texas agency fails to follow the clear, unambiguous language of its own regulations, its action is arbitrary and capricious. *See Rodriguez v. Service Lloyds Ins. Co.*, 997 S.W.2d 248, 255 (Tex. 1999) and *Public Util. Comm'n v. Gulf States Util. Co.*, 809 S.W.2d 201, 207 (Tex. 1991).

[41] TEX. GOV'T CODE ANN. (Gov't Code) § 2001.058(b) and (e)(1).

[42] *Public Util. Comm'n of Tex. v. Gulf States Util. Co.*, 809 S.W.2d 201, 207 (Tex.1991).

Additionally, the argument that EPA's rules should be applied in lieu of TCEQ's rules is overly broad because most of TCEQ's rules have been adopted by EPA as federal regulations applicable within Texas.[43] EPA has approved a SIP for Texas that includes versions of many of the TCEQ rules that are at issue in this case.[44] The Protestants offered evidence to show that EPA has proposed to disapprove some subsequent revisions of the Texas SIP, including a revision to the definition of BACT.[45] There is no evidence, however, that EPA has taken final action on the proposed disapproval, and even if EPA took that final action, it appears that most of Texas' SIP would remain in place. Moreover, the Applicant contends that that the change in the TCEQ definition of BACT would have no bearing on the BACT review of its Application. Because they must apply state law, the ALJs see no need to analyze in depth EPA's proposed disapproval of portions of the Texas SIP.

Lastly, the claim that EPA's rules should be applied in lieu of TCEQ rules lacks important nuance. TCEQ has adopted many EPA rules by reference. Similarly, the Legislature has adopted certain FCAA provisions by reference.[46] Thus, the ALJs apply many federal provisions below, but not because they are federal rules and statutes. They apply them because the TCEQ or the Legislature has adopted them by reference instead of writing them out at length. Accordingly, the adopted-by-reference federal statues and rules are also Texas statutes and rules.

It is also important to distinguish between (1) legal requirements and (2) methodologies that experts use to reach an opinion offered to assist the ALJs and the Commission in determining whether a legal standard has been met. EPA has developed many such methodologies, and the TCEQ staff has developed some as well. As discussed below Protestants point to several EPA methodologies, sometimes refer to them as "required," and sometimes

---

[43] *See* 42 U.S.C. § 7413, which authorizes EPA to enforce approved SIP provisions within a state.

[44] 40 C.F.R. Part 52, Subpart SS.

[45] 74 Fed. Reg. 48,472 (Sept. 23, 2009) (emphasis added); Sierra Club Cross Exhibit 1; Tr. 1051-1052.

[46] *E.g.* TEX. HEALTH & SAFETY CODE ANN. (Health and Safety Code) § 382.0541(a).

argue that the Application should be denied because the Applicant has failed to use the "required" methodology.

If, however, no applicable rule or statute mandates the use of a specific EPA methodology, the ALJs do not agree that denial of the Application is required if that method was not used. Instead, an expert's failure to use it may or may not affect the credibility of his or her opinion. That depends on the other bases for the expert's opinion. In short, the evidence must be weighed.

B. Texas Clean Air Act Standards

Under Texas law, IPA may not construct CC2 until it has obtained a permit from the Commission. TEX. HEALTH AND SAFETY CODE § 382.0518(a) provides:

> Before work is begun on the construction of a new facility or a modification of an existing facility that may emit air contaminants, the person planning the construction or modification must obtain a permit or permit amendment from the commission.

Subsection (b) of section 382.0518 sets out two overarching standards for obtaining a pre-construction permit. It states:

> The commission shall grant within a reasonable time a permit or permit amendment to construct or modify a facility if, from the information available . . . the commission finds:
>
> > (1) **the proposed facility** for which a permit, permit amendment, or a special 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 [the TCAA]**, including protection of the public's health and physical property.

(Emphasis added.)

Under the FCAA, new major sources of HAPs are prohibited from commencing construction unless the source demonstrates it will achieve an emission standard equivalent to the "maximum achievable control technology emission limitation" for each HAP emitted.[47] Health and Safety Code § 382.0541(a) authorizes the Commission to require certain sources to use BACT or MACT, if it is more stringent, and to establish MACT requirements. It provides:

> (a) The commission may:
>
> * * *
>
> (3) require facilities or federal sources that are new or modified and are subject to Section 112(g) of the federal Clean Air Act (42 U.S.C. Section 7412) to use, at a minimum, the more stringent of:
>
> (A) the best available control technology, considering the technical practicability and economic reasonableness of reducing or eliminating emissions from the proposed facility or federal source; or
>
> (B) any applicable maximum achievable control technology (MACT), including any MACT developed pursuant to Section 112(g) of the federal Clean Air Act (42 U.S.C. Section 7412);
>
> (4) establish maximum achievable control technology requirements in accordance with Section 112(j) of the federal Clean Air Act (42 U.S.C. Section 7412) . . .

The intent of the TCAA is set out in Health and Safety Code § 382.002(a), which provides:

---

[47] 42 U.S. C. § 7412(g).

> The policy of this state and the purpose of [the TCAA] are to safeguard the state's air resources from pollution by controlling or abating **air pollution** and emissions of air contaminants, consistent with the protection of public health, general welfare, and physical property, including the esthetic enjoyment of air resources by the public and the maintenance of adequate visibility.

(Emphasis added.)

Air pollution is defined by Health and Safety Code § 382.003(3) as follows:

> "Air pollution" means the presence in the atmosphere of one or more air contaminants or combination of air contaminants in such concentration and of such duration that:
>
> (1) are or may tend to be injurious to or to adversely affect human health or welfare, animal life, vegetation, or property; or
>
> (2) interference with the normal use or enjoyment of animal life, vegetation, or property.

To simplify writing, the ALJs collectively refer to the above as "adverse effects."

C. Standards in TCEQ's Rules

1. Permit Requirement

Under 30 TAC § 116.110, before any actual work is begun on a facility, any person who plans to construct any new facility or to engage in the modification of any existing facility which may emit air contaminants into the air of this state shall either obtain a permit under 30 TAC §116.111, or comply with an alternative requirement. IPA has chosen to apply for a permit.

2. BACT

TCEQ rule 30 TAC § 116.10(c) includes the following definition: "Best Available Control Technology (BACT) -- BACT with consideration given to the technical practicability and the economic reasonableness of reducing or eliminating emissions from the facility."

3. MACT

TCEQ rules at 30 TAC §§ 116.400-.406 adopt by reference 40 C.F.R. Part 63, Subpart B, which govern Hazardous Air Pollutant from Constructed or Reconstructed Major Sources. Under 40 C.F.R. § 63.2, a hazardous air pollutant is "any air pollutant listed in or pursuant to section 112(b)[48] of the [federal Clean Air Act]." Major source is defined by 40 C.F.R. § 63.2 as:

> . . . any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit considering controls, in the aggregate, 10 tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants, unless the Administrator establishes a lesser quantity, or in the case of radionuclides, different criteria from those specified in this sentence.

A "[s]ource" is "[a] point of origin of air contaminants, whether privately or publicly owned or operated,[49] and an "affected source" is a "stationary source or group of stationary sources which, when fabricated (on-site), erected, or installed meets the criteria in §116.180(a)(1) and (2) of this title (relating to Applicability) and for which no MACT standard has been promulgated under 40 C.F.R. Part 63.[50] The parties agree that CC2 is an affected source of HAPs for which no MACT standard is in place.

---

[48] 42 U.S.C. § 7412(b).

[49] 30 TAC § 116.10(17).

[50] 30 TAC § 116.15(1).

An affected source of HAPs is required to submit a permit application. 30 TAC § 116.404 states:

> Consistent with the requirements of 40 Code of Federal Regulations § 63.43 (concerning maximum achievable control technology determinations for constructed and reconstructed major sources), the owner or operator of a proposed affected source (as defined in §116.15(1) of this title (relating to Section 112(g) Definitions)) shall submit a permit application as described in § 116.110 of this title (relating to Applicability).

MACT is defined by 30 TAC § 116.15(7) 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 executive director, 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.

Nearly identical, 40 C.F.R. § 63.41 provides:

> *Maximum achievable control technology (MACT) emission limitation* for new sources means the emission limitation which is not less stringent than the emission limitation achieved in practice by the best controlled similar source, 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

4. NAAQS and PSD

In the FCAA,[51] Congress directed EPA to adopt National Ambient Air Quality Standards (NAAQS).[52] The Commission has adopted the NAAQS by reference and specified that they be enforced throughout Texas.[53] The current NAAQS are listed below:

NAAQS[54]				
	Primary Standards		**Secondary Standards**	
Pollutant	**Level**	**Averaging Time**	**Level**	**Averaging Time**
Carbon Monoxide	9 ppm[55] (10 mg/m^3)	8-hour	None	
	35 ppm (40 mg/m^3)	1-hour		
Lead	0.15 $\mu g/m^3$	Rolling 3-Month Average	Same as Primary	
	1.5 $\mu g/m^3$	Quarterly Average	Same as Primary	
Nitrogen Dioxide	0.053 ppm (100 $\mu g/m^3$)	Annual (Arithmetic Mean)	Same as Primary	
PM_{10}	150 $\mu g/m^3$	24-hour	Same as Primary	
$PM_{2.5}$	15.0 $\mu g/m^3$	Annual (Arithmetic Mean)	Same as Primary	
	35 $\mu g/m^3$	24-hour	Same as Primary	
Ozone	0.075 ppm (2008 std)[56]	8-hour	Same as Primary	
	0.08 ppm (1997 std)	8-hour	Same as Primary	
	0.12 ppm	1-hour	Same as Primary	

---

[51] As amended, 42 United States Code Ann. (U.S.C.) § 7401 *et seq*.

[52] 42 U.S.C. § 7409(a).

[53] 30 TAC § 101.21.

[54] 40 C.F.R. Part 50. Transitioning provisions and calculation details are not included. Table layout, with minor modifications, can be found at http://epa.gov/air/criteria.html.

[55] Part per million.

[56] As of the time of the hearing, the 0.075 ppm ozone NAAQS had yet to be fully implemented, and EPA had not designated any area as being in non-attainment with the 0.075 ppm ozone NAAQS. EPA was not expected to do so until March 2010 at the earliest. CCE Ex. 20 at 97 - 99 (T. Pella).

NAAQS[54]				
	Primary Standards		**Secondary Standards**	
Pollutant	**Level**	**Averaging Time**	**Level**	**Averaging Time**
Sulfur Dioxide	0.03 ppm	Annual (Arithmetic Mean)	0.5 ppm (1300 $\mu g/m^3$)	3-hour
	0.14 ppm	24-hour		

An area that meets the NAAQS for a particular criteria pollutant is deemed to be in "attainment" for that pollutant. An area that does not meet the NAAQS is a "nonattainment" area. An area that cannot be classified due to insufficient data is "unclassifiable," which allows the area to be treated for regulatory purposes as though it were an attainment area for the particular criteria pollutant in question.[57]

Under TCEQ rule 30 TAC § 116.111(a)(2)(I), a proposed facility located in an NAAQS attainment area must comply with all applicable requirements of 30 TAC chapter 116 concerning PSD review. Additionally, 30 TAC §116.161 provides:

> **The commission may not issue a permit** to any new major stationary source or major modification located in an area designated as attainment or unclassifiable, for any National Ambient Air Quality Standard (NAAQS) under FCAA, §107, **if ambient air impacts from the proposed source would cause or contribute to a violation of any NAAQS.** In order to obtain a permit, the source must reduce the impact of its emissions upon air quality by obtaining sufficient emission reductions to eliminate the predicted exceedances of the NAAQS. A major source or major modification will be considered to cause or contribute to a violation of a NAAQS when the emissions from such source or modification would, at a minimum, exceed the *de minimis* impact levels specified in §101.1 of this title (relating to Definitions) at any locality that is designated as nonattainment or is predicted to be nonattainment for the applicable standard.

(Emphasis added.)

[57] 42 U.S.C. §7407(d).

Further, 30 TAC § 116.160 adopts by reference EPA's rules at 40 C.F.R. § 52.21. In relevant part, 40 C.F.R. § 52.21(k) states the following:

> Source Impact Analysis. The owner or operator of the proposed source . . . shall demonstrate that allowable emission increases from the proposed source . . . , in conjunction with all other applicable emission increases or reductions (including secondary emissions), would not cause or contribute to air pollution in violation of:
>
> (1) Any [national ambient air quality standard (NAAQS)] in any air quality control region; or
>
> (2) Any applicable maximum allowable increase over the baseline concentration in any area.

Congress set increments for particulate matter and for sulfur dioxide.[58] EPA in 1987 amended the particulate increment to specify that particulate matter smaller than 10 microns in diameter (*i.e.* PM_{10}) would be the subset of particulate matter regulated by the increment.[59] EPA later set increments for nitrogen dioxide, a pollutant for which Congress had not initially set any increments.[60]

5. Sulfur Compound Rules

Chapter 112 of TCEQ's rules establishes property-line standards for the sulfur compounds SO_2 and sulfuric acid (H_2SO_4). The Chapter 112 standards are the maximum off-property ground-level concentrations of those compounds that are allowed from all emissions sources on a site. The standards are set out below:

---

[58] 42 U.S.C. § 7473.

[59] 52 Fed. Reg. 24,634 (July 1, 1987).

[60] 53 Fed. Reg. 40,656-40,670-72 (Oct. 17, 1988).

State Property-Line Standard		
Pollutant	**Averaging Period**	**$\mu g/m^3$**
SO_2	1-Hour	1,021
H_2SO_4	1-Hour	50
	24-Hour	15

6. Other TCEQ Rules

IPA's Application is also subject to TCEQ rules in the following chapters of Title 30 of the Texas Administrative Code, but no party contends that the Application does not comply with them:

- Chapter 101 – General Rules
- Chapter 111 – Control of Air Pollution from Visible Emissions and Particulate Matter
- Chapter 113 – Standards of Performance for Hazardous Air Pollutants and for Designated Facilities and Pollutants
- Chapter 114 – Control of Air Pollution from Motor Vehicles
- Chapter 118 – Control of Air Pollution Episodes

D. Burden of Proof

The Parties agree that the Applicant bears the burden of proving by a preponderance of the evidence that its Application complies with all applicable statutes and rules.[61]

[61] 30 TAC §§ 55.210(b) and 80.17(a).

E. No Law Regulates the Emission of Greenhouse Gases

In response to objections by IPA and the ED, the ALJs excluded evidence offered by Citizens, Sierra Club, and EDF regarding global warming and emissions of carbon dioxide (CO_2) and greenhouse gases (GHGs).[62] Given that ruling, the Protestants did not press arguments concerning global warming in their closing arguments. However, Sierra Club indicated that it might address the related legal issues in later briefing before the Commission.[63] Given that, the ALJs will very briefly describe their reason to exclude the global-warming evidence.

The Commission has no rules regulating emissions for purposes of avoiding or reducing global warming. Also, it has consistently declined to regulate CO_2 *ad hoc* through the state preconstruction or PSD permitting programs.[64] Under those circumstances, the ALJs concluded that the global-warming evidence offered by Protestants was not legally relevant. The ALJs have no jurisdiction to determine and no need to consider whether the law or policy should be different.

IPA also argues that emissions of CO_2 and other GHGs remain beyond the scope of PSD review for air quality permits because they are not subject to regulation under the FCAA. It claims that EPA has repeatedly confirmed that GHGs are not subject to regulation.[65] Because

---

[62] Order No. 8.

[63] Sierra Club's Closing Argument at 54.

[64] *See, e.g., An Order Granting the Application of Oak Grove Management Company, LLC for Air Quality Permit No 76474; PSD Permit No. PSD-TX-1056 (Oak Grove)*; TCEQ Docket No. 2006-0195-AIR, SOAH Docket No. 582-06-1502 (Jun. 20, 2007) (Applicant's Ex. 27); *An Order Granting the Application of Sandy Creek Energy Associates, L.P., for Air Quality Flexible Permit No. 70861, PSD Permit No. PSD-TX-1039 (Sandy Creek)*, TCEQ Docket No. 2005-0781-AIR, SOAH Docket No. 582-05-5612 (May 25, 2006) (Applicant's Ex. 26); and Applicant's Ex. 7 at 32-33 (Executive Director's Response to Comments).

[65] 73 Fed. Reg. 44,400, 44,397-44,400 (July 30, 2008) (Regulating Greenhouse Gas Emissions Under the Clean Air Act); *In the Matter of Deseret Power Electric Coop.*, EAB App. No. PSD 07-03 (Nov. 13, 2008); 74 Fed. Reg. 51,535 (Oct. 7, 2009) (Reconsideration of Interpretation of Regulations That Determine Pollutants Covered by the Federal PSD Permit Program); Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 74 Fed. Reg. 18,905, n. 29 (Apr. 24, 2009); Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, Pre-Publication Version at 115, n.17 (Dec. 7, 2009).

they are applying state law, the ALJs have no need to determine if IPA is correct on that point of federal law.

VII. BACT, MACT, and PM CEMS

Protestants claim that: (1) the Applicant has not sustained its burden to prove that the emission limits in its Draft Permit represent BACT; (2) the HAP-18 Draft Permit fails to satisfy the legal requirements for a case-by-case MACT determination; and (3) the Draft Permit fails to require use of available CEMS to demonstrate ongoing compliance with BACT and MACT emission limits.

A. BACT

Protestants claim that IPA and the ED have neglected their responsibilities to propose emission limits that constitute BACT for each regulated pollutant. Their arguments are based, in major part, on (1) the ED's adherence to the Texas definition of BACT, which Sierra Club claims was unlawfully adopted by TCEQ, rather that applying the required federal definition; and (2) the use of TCEQ's BACT guidance document RG-383, which applies a Three-tier methodology, rather than EPA's New Source Review Workshop Manual, which applies a Top-Down methodology. Sierra Club contends that the TCEQ BACT definition emphasizes consideration of "technical practicability" and "economic reasonableness" and thus improperly skews BACT analysis in favor of weaker emission limits that are unjustifiably less burdensome to permit applicants. Moreover, according to Protestants, the Texas Three-tier guidance exacerbates the deficiencies of the Texas BACT definition. They argue that because the first, and only necessary step, of the Three-tier analysis is a review of technologies that already exist, the TCEQ approach thwarts the technology-forcing objective of BACT.

As the ALJs have previously explained, resolution of the federal v. state issues raised by the Protestants is not necessary to reach a decision in this administrative proceeding. The TCEQ definition of BACT was adopted in 1998 through the rulemaking process, and it has not been overturned by subsequent legislation or judicial ruling. Also, the TCEQ Three-tier methodology has been found to be proper and reliable in numerous prior cases. Therefore, the TCEQ BACT definition and methodology establish the criteria for determining whether the Draft Permit is BACT compliant.

1. NOx Emission Limits

The Draft Permit specifies NOx emission rates of 0.05 lb/MMBtu on a 12-month average, and 0.06 lb/MMBtu on a 30-day rolling average, excluding startup and shutdown. IPA proposes to achieve these limits using a system of in-boiler controls—low-NOx burners and overfire air—and post-boiler control using SCR. Protestants agree that this control train is appropriate to achieve BACT for NOx, but they contend that the appropriate NOx BACT for CC2 is 0.02 lb/MMBtu. They claim that IPA's proposed NOx emission limits would simply provide an unjustified cushion. According to the Protestants, there is nothing to prevent CC2 from achieving a 90% control efficiency at the SCR in addition to low-NOx boiler output. Additionally, Protestants claim that their proposed 0.02 lb/MMBtu emission limit can be met on a 30-day rolling average and, thus, there is no need for an annual average emission limit. Respondents further criticize IPA's implicit 75% or even 67% NOx control efficiency as being based on outdated information not typical for BACT today. Protestants are further critical of the lack of specific information concerning the catalyst to be used in the SCR and of the adequacy of the ED's technical review in the absence of relevant design detail. Lastly, Protestants refer to the EPA comments on the Draft Permit[66] and argue that CC2 should use a lower short-term (24-hour) emissions rate for a NOx BACT limit.

The Applicant responds that the assertion by Protestants' mechanical-engineering and control-technology expert witness Ranajit Sahu, Ph.D., that an SCR can reliably achieve a 90% removal efficiency when applied to low-boiler NOx output is unpersuasive. Thus, according to

---

[66] CCE Ex. 7.

IPA, Dr. Sahu's assertion that 90% SCR efficiency is BACT for CC2 is groundless. IPA gives several reasons:

- He failed to provide any evidence that any unit with NOx boiler outlet rates as low as CC2 has continuously achieved this level of control. On the contrary, IPA's witness, Mr. Roosevelt R. F. Huggins, explained that 90% SCR control efficiencies are simply not applicable to the sequence of controls proposed by IPA;
- Black & Veatch was unable to obtain 90% control guarantees from SCR vendors due to the planned CC2 NOx control train;[67]
- Dr. Sahu's reported vendor statements are based on hypothetical inquiries that are woefully inadequate for demonstrating BACT;
- BACT is an emission limit and not a specific control technology or control efficiency; and
- Dr. Sahu was unable to identify any similar source with a lower NOx emission limit than that proposed for CC2. Moreover, no more stringent limit for NOx for a similar source has been demonstrated to be achievable in practice.

Concerning Protestants' claim that IPA has provided insufficient catalyst design detail, IPA points to the testimony of its expert witnesses Robert G. Fraser and Mr. Huggins that such design details are not required and are unnecessary for TCEQ to determine that the proposed NOx controls represent state-of-the-art control capability to achieve BACT NOx emission limitations for CC2. Mr. Fraser testified, "the discussion of intermediate control levels and design details of the controls specified is simply not required to determine an overall BACT emission limitation."[68] Mr. Huggins explained at the hearing that "[w]e know we'll have an SCR. We know that we'll have catalysts. We know that we'll use ammonia . . . but you won't know all the specifics until you actually start getting firm engineering detailed design."[69] TCEQ also confirmed, "[d]etailed specific information on each piece of equipment is not normally

[67] Tr. 214.

[68] Applicant's Ex. 84 at 7.

[69] Tr. 214.

available at this phase of a project."[70] Mr. Huggins further testified that he had "never heard [of] clients having to submit a catalyst management plan to a state agency."[71] Rather, the commitment to use the "top control train" for control of NOx and the commitment to achieve one of the lowest emission limits in the country on a long-term continuous basis is sufficient to demonstrate BACT.

Regarding the contention by Citizens[72] and Sierra Club[73] that CC2 should use an hourly NOx limit based on a 24-hour rolling average for a BACT limit, IPA points out that TCEQ specifically documented why it did not use a short-term averaging period in its response to EPA's comments.[74] The Newmont Nevada Energy 24-hour NOx limit of 0.067 lb/MMBtu is 12% higher than the 0.06 /MMBtu proposed for CC2 and, in effect, Newmont was only required to meet the higher limit annually because Newmont's permit was based on a total mass per year limit. The Desert Rock plant has not been constructed. Thus, compliance with a shorter averaging period has not been demonstrated. More importantly, as IPA explained, the draft CC2 permit includes an hourly limit of 400 pounds of NOx.[75] This mass pound per hour limit is an hourly average and must be met every hour of normal operation. Moreover, this mass hourly limit is even more stringent than the 24-hour average proposed by the Protestants. Thus the ALJs find that compliance with the shorter averaging period has not been demonstrated and the NOx BACT emission limits proposed for CC2 are appropriate.

In summary, while Protestants have raised some legitimate concerns, those concerns do not rise to the level of indicating that IPA has not satisfied its BACT analysis for NOx. Based on the preponderance of the evidence, the ALJs find that the proposed BACT limits for NOx are as

---

[70] ED Ex. ED-11 at 22.

[71] Tr. 208.

[72] CCE Argument at 6.

[73] Sierra Club Closing Argument at 27-28.

[74] ED Ex. ED-11 at 23.

[75] ED Ex. ED-9.

stringent as any permit in existence. They represent realistic BACT emission limits for NOx and should be adopted.

2. SO_2 Emission Limits

The Draft Permit specifies an SO_2 emission rate of 0.06 lb/MMBtu on 12-month and 30-day rolling averages, excluding startup, shutdown, and maintenance. IPA proposes to achieve these limits using low sulfur coal and a semi-dry FGD system. Protestants contend that the technology selected by IPA to control SO_2 emissions can achieve lower limits than those proposed in the Draft Permit, and that other technology is available – *wet* FGD – which is not proposed by IPA, that can achieve even lower limits.[76] Protestants also criticized the ED for not making the required searching inquiry to determine whether the technology and emission limits proposed by the Applicant satisfy BACT.[77]

Protestants point to data showing that removal efficiencies over 99% reduction were achieved more than two decades ago. Therefore, Protestants argue that the BACT for SO_2 should be 0.012 lb/MMBtu, except for startup and shutdown – reflecting a 99% removal efficiency. They further claim that the averaging period should be only 24 hours.[78]

IPA responded that Dr. Sahu's data on SO_2 control efficiencies is unreliable and shows the fallacy of viewing BACT as a control technology rather than an emission limit. As IPA pointed out, emission rates can vary over time and operating conditions and across facilities. Accordingly, it is necessary for BACT limits to account for such variations and enable compliance on a consistent basis. This fundamental has been repeatedly acknowledged.[79] EPA's

---

[76] Sierra Club Ex. 300 at 20.

[77] Tr. 1030 - 1031.

[78] Sierra Club Ex. 300 at 20; Sierra Club Exs. 309-316.

[79] *In re Steel Dynamics, Inc.*, 9 E.A.D. 165, 188 (EAB 2000); *In re Three Mountain Power L.L.C.*, 10 E.A.D. 39, 53 (EAB 2001).

Environmental Appeals Board (EAB) explained in *In re Masonite Corporation* why reliance on a control-efficiency is misplaced:

> When the Region prescribes an emissions limitation representing BACT, the limitation does not necessarily reflect the highest possible control efficiency achievable by the control technology on which the emissions limitation is based. Rather the Region has discretion to base the emissions limitation on a control efficiency that is somewhat lower than the optimum level. There are several reasons for this. One reason is that the control efficiency achievable through the use of the technology may fluctuate, so that it would not always achieve its optimal control efficiency. In that case, setting the emissions limitation to reflect the highest control efficiency would make violations of the permit unavoidable. Another possible reason is that the technology itself, or its application to the type of facility in question, may be relatively unproven. To account for these possibilities, a permitting authority must be allowed a certain degree of discretion to set the emissions limitation at a level that does not necessarily reflect the highest possible control efficiency, but will allow the permittee to achieve compliance consistently.[80]

In previous contexts, Dr. Sahu testified that good engineering practice made it inappropriate to rely on summary test results or testing that lacked quality assurance and control verification.[81] That sharply contrasts with his acceptance in this case of unverified summaries of data, vendor statements and papers, and stack data obtained under best possible operating conditions. Clearly, reliance on such data does not meet recognized standards for "good engineering practices" and is unpersuasive guidance for setting a BACT emission limit that must be met continuously over the life of a project.

Dr. Sahu did not identify a single example of a coal-fired power plant burning PRB coal and achieving a 99% SO_2 removal efficiency. Instead, he identified a number of dissimilar power plants burning high-sulfur coal that use wet FGD systems, such as power plants in Greece, a plant in an urban area in Japan, and a fuel oil-fired plant in Sweden.[82] Moreover, Dr. Sahu did

---

80 *In re Masonite Corporation,* 5 E.A.D. 551, 560 (EAB 1994).

81 Applicant's Cross Ex. 21 at 166, 169 and 170.

82 EDF Ex. 1 at 21-23.

not identify a lower SO_2 emission limit for any of these plants; he readily acknowledged that many of the technologies he identified are used on high-sulfur fuel applications; and he admitted that he does not know whether certain technologies have been applied to low-sulfur units like CC2.[83] While a *wet* FGD could theoretically achieve higher percentage SO_2 removal, "no similar source using low sulfur Western coal has achieved lower emissions than the case-by-case top level of control established for CC2 with the proposed semi-dry FGD system."[84] IPA was fully justified in choosing a semi-dry FGD system because it offers superior sulfuric acid mist and mercury control, requires less consumptive water use, and results in more net electrical output at a given firing rate.[85]

According to IPA witness Mr. Huggins, regardless of whether a wet or dry FGD is used, the most stringent permit limit guaranteed by vendors is 0.06 lb/MMBtu.[86] Higher SO_2 control efficiencies are simply associated with higher sulfur content coal, but result in similar emissions. Mr. Huggins further pointed out that no better control than that proposed for CC2 has been demonstrated long-term or been demonstrated to be cost-effective for low-sulfur fuel.[87] Because IPA proposed among the most stringent limits for SO_2 based on restricting CC2 to lower sulfur coal in combination with a semi-dry FGD system, TCEQ did not need to evaluate wet FGD to determine if a hypothetical or undemonstrated lower emission limit could be achieved with a different combination of controls.[88] The EPA New Source Review (NSR) Manual states:

> A possible outcome of the top-down BACT procedures discussed in this document is the evaluation of multiple control technology alternatives which result in essentially equivalent emissions. It is not EPA's intent to encourage evaluation of unnecessarily large numbers of control alternatives for every emissions unit. Consequently, judgment should be used in deciding what

[83] Applicant's Cross Ex. 21 at 77-78.

[84] Applicant's Ex. 21 at 37.

[85] ED Ex. ED-8 at 4; Tr. 219; Tr. 221.

[86] Applicant's Ex. 83 at 11.

[87] Applicant's Ex. 16 at 12.

[88] Applicant's Ex. 24 at B.8.

> alternatives will be evaluated in detail in the impacts analysis . . . For example, if two or more technologies result in control levels that are essentially identical considering the uncertainties of emissions factors and other parameters pertinent to estimating performance, the source may wish to point this out and make a case for evaluation of only the less costly of the these options. [89]

Thus, even according to EPA policy, nothing required TCEQ's permit reviewer, Sean O'Brien, to evaluate whether wet FGD design could achieve lower limits because IPA had already proposed the most stringent emissions limitation achievable.[90] Not a single Protestant witness identified any permit for a similar facility that offered more stringent controls, nor did Protestants present any support for the contention that the averaging period for the SO_2 emission limit should be only 24 hours. The ALJs find IPA's rebuttal to Protestants' contentions to be persuasive. Accordingly, the ALJs conclude that IPA's emission limits for SO_2 are BACT.

3. Particulate Matter Emission Limits

The Draft Permit specifies PM/PM_{10} emission rates of 0.012 lb/MMBtu for the filterable portion and 0.032 lb/MMBtu for total PM/PM_{10}. For control of filterable PM emissions from CC2, IPA proposes to use a spray dryer absorber in combination with a pulse jet fabric filter baghouse. IPA contends that this technology will control 99% of filterable PM emissions and is the undisputed top technology for optimum control of PM emissions from pulverized coal-fired units.[91] IPA additionally argues that its BACT analysis for PM included a case specific analysis for $PM_{2.5}$ under TCEQ's well-established and recently affirmed PM_{10} surrogate policy.

Protestants argue that the PM emission rates proposed by IPA are inordinately high. They counter that BACT for total PM/PM_{10} is 0.018 lb/MMBtu on a 3-hour basis and BACT for

---

[89] Applicant's Ex. 24 at B.20.

[90] Sierra Club Cross Ex. 3 at 36-37.

[91] Applicant's Ex. 3 at IPA 0000075; Applicant's Cross Ex. 21 at 111.

filterable PM/PM_{10} is 0.005 lb/MMBtu on a 3-hour basis. In support, Protestants contend that a number of recent comparable permits have limits at or below 0.018 lb/MMBtu.

IPA responds that Dr. Sahu's data regarding allegedly comparable permits is unreliable and does not justify any change to IPA's PM BACT determination. IPA refers to Dr. Sahu's deposition where he could not identify what types of tests the rates were achieved under, the fuel types that were used, the process conditions that existed, or the quality control or verification protocols in place during the tests.[92] However, in regard to total PM/PM_{10}, IPA acknowledges that 0.032 lb/MMBtu, which includes condensable PM, is higher than several recently permitted similar sources. IPA explains that this is due to the uncertainty of controlling condensable PM, and it maintains that CC2's higher total PM/PM_{10} limit is still BACT. Mr. O'Brien, the TCEQ permit reviewer, testified that:

> [O]ther units with lower condensable PM appear to be proposing baghouses as the only PM control devices and baghouses do not control condensable PM as measured by EPA Test Method 202. The other units appear to have estimated a lower number but may not have practical control over how much condensable PM is emitted from the boiler.[93]

Nevertheless, Mr. O'Brien still examined whether further reductions in condensable PM at CC2 were possible and rationalized his conclusion not to set a lower limit as follows:

> Q. Did you evaluate, beyond the explanation provided by Coleto Creek, whether or not a lower condensable permit emission would be achievable?
>
> A. Well, I discussed it with my colleagues, about the condensable limit, and I came to the conclusion that it wouldn't be appropriate to force them to have a lower limit if it's completely out of their control how much is going to be emitted.
>
> * * *

---

[92] Applicant's Cross Ex. 21 at 112-113.

[93] ED Ex. ED-1 at 16.

> I don't think it's been shown that [a lower condensable PM limit] is consistently achievable.[94]

IPA's witness Mr. Fraser explained three reasons why setting a limit for condensable PM contained significant uncertainty:

- Reference Method 202 is known to yield variable results that are biased high and experiences known sulfur artifacts that can skew results from one facility to the next;
- EPA is working toward, but has not yet promulgated, a replacement test method (OTM 28), which is expected to yield more accurate results; and
- condensable PM_{10} performance is not guaranteed (an indication of the uncertainty surrounding its prediction).[95]

IPA says that although it has committed to using the top control technology for control of condensable PM, the significant uncertainty in developing an emissions limit for condensable PM has resulted in reasonably established limits based on available vendor guarantees and case specific factors. IPA additionally claims that it conducted a diligent case-specific analysis that is worthy of TCEQ's reliance; therefore, the PM/PM_{10} limits proposed for CC2 are BACT.

Sierra Club draws attention to a recent coal-fired power plant case in which the Commission lowered the total PM/PM_{10} emission limit from 0.032 lb/MMBtu to 0.025 lb/MMBtu.[96] Based on this recommendation that has now been adopted in a final Commission order, Sierra Club argues that CC2 should at least be required to meet a limit of 0.025 lb/MMBtu for total PM/PM_{10} since that limit has been set in the most recent Texas draft permit for a coal-fired power plant.

---

[94] Sierra Club Cross Ex. 4 at 44-45.

[95] Applicant's Ex. 21 at 41.

[96] SOAH Docket Nos. 582-08-0861 and 582-08-4103; TCEQ Docket Nos. 2007-1820-AIR and 2008-1210-AIR: *Application of NRG Texas Power, LLC for State Air Quality Permit 79188, Prevention of Significant Deterioration Air Quality Permit PSD-TX-1072, and MACT HAP 14 Permit*,(Final Order)(Dec. 11, 2009)(Finding of Fact No. 251)PFD at 31.

Based on the evidence and the arguments of the parties, in particular: (1) the acknowledgement that IPA's proposed total PM/PM_{10} limit is higher than the limit in other recently issued permits, and (2) the Commissions final order recently issued in the NRG case setting the total PM/PM_{10} limit for that similar facility at 0.025 lb/MMBtu, the ALJs recommend that the emission limit of 0.025 lb/MMBtu be adopted as BACT for total PM/PM_{10} for CC2.

4. CO, VOC, and H_2SO_4 Emission Limits

The Draft Permit specifies a CO emission limit 0.12 lb/MMBtu averaged over rolling 30-day and 12-month periods, a VOC emission limit of 0.0034 lb/MMBtu on an annual basis, and a H_2SO_4 emission limit of 0.004 lb/MMBtu on an annual basis. The issue at the center of the parties' dispute is whether there is an inverse relationship between these emissions, such that if controls cause NOx emissions go down, CO, VOC, and H_2SO_4 emissions will go up, and vise-versa. In other words, is it necessary to balance the emission limits for these pollutants to achieve an optimum mix, or, as Protestants contend, does demonstrated low-NOx burner technology exist that enables the emission limits for all the pollutants to be reduced simultaneously, resulting in a win-win solution?

Protestants claim that newer low-NOx burners, such as the DRB-4Z burners developed by Babcock and Wilcox, have been demonstrated to simultaneously achieve low NOx and low CO.[97] Thus, according to Protestants, IPA has failed to satisfy the first Tier of the TCEQ BACT guidance by failing to consider new technological developments.

Protestants argue that the emission limits proposed by IPA and recommended by TCEQ for each of these pollutants, CO, VOC and H_2SO_4, are significantly too high. In support of this position Protestants cite to the testimony of Dr. Sahu[98] and the TCEQ's Preliminary

---

[97] Sierra Club Exs. 300 at 42, 325, and 326.

[98] Sierra Club Ex. 300 at 40-44.

Determination Summary,[99] which reference several other permits with lower limits for each of these pollutants.

IPA responds by criticizing Protestants' witness Dr. Sahu for not providing any tangible support for the assertion that advanced low-NOx burners have no tradeoff between NOx and CO emissions. IPA claims that, in contrast, it and TCEQ have provided the testimony of qualified engineers highly experienced in power plant emission controls who repeatedly substantiated their opinions that NOx, CO, and VOCs are linked.[100] Mr. Fraser testified that "Dr. Sahu denies the scientific fundamentals of combustion theory . . . the reason that these burners can not achieve zero NOx and CO simultaneously is due to the science of combustion, the fundamental rules of which have not changed."[101] IPA further argues that numerous examples of recent NOx control projects showing a corresponding increase in CO are more than sufficient to demonstrate the commonly understood link.[102] IPA also refers to the testimony of TCEQ witness Mr. O'Brien that, "[w]hile some units in the RBLC had a lower CO limit, no one had the combination of the lowest NOx and lowest CO."[103]

With respect to Protestants' contention that the proposed limit of 0.004 lb/MMBtu for H_2SO_4 is too high, IPA responds that Sierra Club itself recognizes that "H_2SO_4 emissions result ultimately from the sulfur in the input fuel,"[104] but then does not cite to any permit that blends fuels with varying sulfur contents in the same manner as CC2.[105] More specifically, Black & Veatch considered lower limits achieved in other permits, but it confirmed that vendors would not guarantee the same limit at CC2 as a result of the up-to-40% blend of bituminous coal

---

[99] Applicant's Ex. 14 at 6.

[100] Applicant's Ex. 84 at 34-36; ED Ex. ED-1 at 15.

[101] Applicant's Ex. 84 at 34.

[102] Applicant's Ex. 83 at 3.

[103] ED Ex. ED-1 at 15.

[104] Sierra Club Closing Argument at 37.

[105] Applicant's Ex. 84 at 37.

proposed to be burned at CC2.[106] IPA proposes the combination of low sulfur coal and the pulse jet fabric filter baghouse working in concert with the spray dryer absorber to control H_2SO_4. Both Mr. Fraser and Mr. Huggins testified that this is the most effective removal technology for H_2SO_4.[107] As Mr. Fraser concluded, "[n]o known similar operating facilities have demonstrated lower long-term continuous compliance with a BACT limitation for H_2SO_4 than that approved for CC2." [108] This is BACT for H_2SO_4.

Based on the preponderance of the evidence, the ALJs find that there is an inverse relationship between NOx emissions on the one hand and CO, VOC, and H_2SO_4 on the other. If controls cause NOx emissions to go down, emissions of CO, VOC, and H_2SO_4 will go up. Therefore, the ALJs conclude that IPA has proposed a proper balance among these emissions and the proposed emission limits for CO and VOC are BACT. The ALJs further conclude that, in view of the proposed blend of up-to-40% of bituminous coal, the proposed emission limit for H_2SO_4 is also BACT.

5. Did IPA and the ED properly rely on PM_{10} as a surrogate for $PM_{2.5}$?

$PM_{2.5}$ represents particles with a size of 2.5 microns or less.[109] PM_{10} includes particles that are equal to or finer than 10 microns.[110] Sierra Club contends that the Applicant failed to conduct a proper analysis of the potential impacts of its emissions of $PM_{2.5}$ from CC2. Instead, they claim that IPA improperly relied solely on a no longer appropriate policy of allowing PM_{10} to serve as a surrogate for $PM_{2.5}$. IPA responds that it properly relied on the Commission's and EPA's long-standing surrogate policy. The ALJs agree with IPA on this point.

---

[106] *Id.*

[107] Applicant's Ex. 21 at 37; Applicant's Ex. 16 at 12.

[108] Applicant's Ex. 21 at 43.

[109] 40 C.F.R. § 50.7(a).

[110] 40 C.F.R. § 50.6(c).

The Commissioners are very familiar with this issue, and the ALJs will try not to belabor it. The TCEQ has long accepted a demonstration of compliance with the PM_{10} NAAQS and PSD increments as a surrogate for a determination of compliance with the $PM_{2.5}$ NAAQS.[111] When asked whether he knew of TCEQ ever rejecting an application for a PSD permit due to an applicant's using the PM_{10}-for-$PM_{2.5}$ surrogate policy, the ED's Mr. O'Brien replied "no."[112]

This surrogate policy originated with EPA. On July 28, 1997, EPA revised the NAAQS for PM to include using $PM_{2.5}$ as an indicator standard for fine particulates.[113] In October of 1997, John Seitz, Director of EPA's Office of Air Quality Planning and Standards, issued a memorandum providing guidance on how to implement PSD for $PM_{2.5}$ in light of "significant technical difficulties" existing at that time.[114] In light of these technical difficulties, the Seitz memorandum proposed an *interim* method for implementing the $PM_{2.5}$ standard. Under it, compliance with PSD and NSR requirements for controlling PM_{10} emissions and for analyzing impacts on PM_{10} air quality would "serve as a surrogate approach for reducing $PM_{2.5}$ emissions and protecting air quality."

EPA finalized regulations to implement the NSR program for $PM_{2.5}$ in 2008.[115] However, the Federal Register notice for the final regulations confirmed that for SIP-approved states such as Texas, the state might continue to implement a PM_{10} program as a surrogate for

---

[111] *Application of Frontier Materials Concrete for Permit by Rule No. 43288;* TNRCC Docket No. 1999-1526-AIR & 2000-1462-AIR; SOAH Docket No. 582-01-2303 (2002)(Order Granting the Application)(Finding of Fact No. 32); *AN ORDER Granting the Application of Sandy Creek Energy Associates, L.P., for Air Quality Flexible Permit No. 70861; PSD Permit No. PSD TX-1039*; Docket No. 2005-0781-AIR; SOAH Docket No. 582-05-5612 (Dec. 21, 2005)(Finding of Fact No. 67); ; *AN ORDER Granting the Application Of KBDJ, L.P., For A New Air Quality Permit No. 55480*, TCEQ Docket No. 2004-1774-AIR, SOAH Docket No. 582-05-4493 (Feb. 28, 2005)(Finding of Fact No. 95 and Conclusion of Law No. 19); *Order Regarding the Applications by NRG Texas Power LLC for State Air Quality Permit 79188, Prevention of Significant Deterioration Air Quality Permit PSD-TX-1072, and Hazardous Air Pollutant Major Source Permit No. HAP-14*, TCEQ Docket Nos. 2007-1820-AIR and 2008-1210-AIR, SOAH Docket Nos. 582-08-0861 and 582-08-4013 (Dec. 11, 2009)(Finding of Fact No. 96).

[112] Applicant's Cross Ex. 19 at 115.

[113] 62 Fed. Reg. 39,852 (July 28, 1997); EDF Ex. 18 at 42.

[114] Applicant's Ex. 38.

[115] Applicant's Ex. 39 (73 Fed. Reg. 28,321 (May 16, 2008)).

$PM_{2.5}$ until the state submitted its SIP for $PM_{2.5}$.[116] Texas has not submitted its SIP for $PM_{2.5}$, so IPA argues that the PM_{10} surrogate policy remains the proper compliance demonstration in Texas.[117]

Despite the above, the Protestants argue that EPA no longer allows an applicant to simply rely on the surrogate policy. On August 12, 2009, the EPA Administrator issued an order finding that an applicant for a permit for a coal-fired electric generation facility had not provided an adequate rationale to support the use of PM_{10} as a surrogate for $PM_{2.5}$ (Trimble Order).[118] The Administrator based her order on two ruling by the U.S. Court of Appeals for the District of Columbia Circuit: one holding that PM_{10} was an arbitrary surrogate for the fraction that is $PM_{2.5}$,[119] and a second in which the same court held that the record included a reasonable rationale for the use of PM_{10} as a surrogate for $PM_{2.5}$.[120] EDF and Sierra Club point to the Trimble Order and claim that IPA improperly relied only on the surrogate policy and offered no such reasonable rationale for using it in its direct case.

IPA notes that it filed its direct case on August 14, 2009, just two days after the Trimble Order was signed, and the Trimble Order was not available to TCEQ until well after the Draft Permit for CC2 had undergone public comment. Notwithstanding the Trimble Order, IPA also claims that reliance on the PM_{10}-for-$PM_{2.5}$ surrogate policy without additional rationale remains current and proper TCEQ policy and is consistent with EPA's $PM_{2.5}$ implementation rule.

Further, IPA contends that in its rebuttal case it offered an adequate rationale for using PM_{10} as a surrogate for $PM_{2.5}$. IPA also argues that technical difficulties remain with

---

116 Applicant's Ex. 39 at 28,341.

117 Applicant's Ex. 84 at 25.

118 *In The Matter Of: Louisville Gas and Electric Company, Trimble County Kentucky, Title V/PSD Air Quality Permit # V-02-043, Revisions 2 and 3, Issued by the Kentucky Division for Air Quality*, Petition No. IV-2008-3 (Aug. 12, 2009). *See excerpt at* EDF Ex. 18.

119 *American Trucking Assns., Inc. v. EPA*, 175 F. 3d 1027, 1054 (D.C. Cir. 1999).

120 *American Farm Bureau v. EPA*, 559 F.3d 512, 534-35 (D.C. Cir. 2009).

implementing PSD for $PM_{2.5}$, which justify continued use of the surrogate policy. Mr. Fraser listed three of those difficulties:

- EPA has not yet formally adopted a Reference Method test procedure to quantify $PM_{2.5}$;
- EPA has not even proposed a reference test method for the condensable fraction of $PM_{2.5}$, due to problems with artifacts; and
- EPA has not published modeling guidance for $PM_{2.5}$ and the secondary precursors SO_2 and NOx, nor has EPA established significant impact levels for $PM_{2.5}$.[121]

Sierra Club and EDF note that in both the NSR Implementation rule and the Trimble Order, the EPA Administrator stated that technical difficulties associated with implementing PSD for $PM_{2.5}$ "have largely been resolved."[122] This leads Sierra Club and the EDF to more vigorously argue that reliance on the PM_{10}-for-$PM_{2.5}$ policy is no longer justified.

The ALJs see no need to referee these arguments over whether EPA has abandoned the PM_{10}-for-$PM_{2.5}$ surrogate policy or requires additional rationale for the use. As they previously indicated, the ALJs are applying Texas law and policy, not federal; and they have no jurisdiction to determine whether the Commission's policy is equivalent to EPA's. Instead, they find that the Commission's policy is to accept PM_{10} as a surrogate for $PM_{2.5}$. Thus, the ALJs conclude that the emission limit of 0.025 lb/MMBtu that is BACT for PM_{10} is also BACT for $PM_{2.5}$.

---

[121] Applicant's Ex. 84 at 26-29.

[122] 73 Fed. Reg. 28,340 (May 16, 2008); EDF Ex. 18 at 44.

6. BACT Summary.

In summary, although Protestants raise some legitimate concerns regarding the CC2 BACT analysis, the ALJs conclude that past Commission determinations resolve those concerns and support the conclusion that the BACT analysis for CC2 satisfies applicable law requirements. Additionally, the ALJs find that a preponderance of the evidence shows that the proposed BACT limits (modified as recommended in this PFD for total PM/PM_{10}) reflect the most stringent limits that are continuously achievable by the currently best available control technology. Therefore, the ALJs find that the BACT analysis and limits are sufficient, if modified as recommended for total PM_{10} and $PM_{2.5}$.

B. MACT

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

> *Maximum achievable control technology (MACT) emission limitation* for new sources means the **emission limitation** which is **not less stringent** than the **emission limitation achieved in practice** by the **best controlled similar source**, 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.[123]

In this case, IPA performed a two-step process for conducting its MACT analysis. First, IPA established a "MACT floor" (the most stringent emission limitation achieved in practice by the best-controlled similar source). Then, IPA performed a "beyond the floor" analysis of other

[123] The TCEQ's definition is found at 30 TAC § 116.15 and mirrors the EPA's definition.

methods for potentially reducing emissions to a greater degree, considering all applicable factors, such as the cost of achieving such emissions reductions and associated energy requirements.[124]

IPA asserts that CC2 will emit only five classes of hazardous air pollutants (HAPs): mercury; non-mercury HAP metals; acid gases, comprising HCl and HF; and organic HAPs.[125] Therefore, in its MACT application, IPA developed emissions limits for only five pollutants, contending that two of these pollutants serve as surrogates for broad categories of pollutants. The five specific emissions limits proposed in the MACT application are for:

- VOC;
- filterable PM;
- mercury;
- HF; and
- HCl.[126]

IPA contends that VOC is an adequate surrogate for organic HAPs, so the VOC emissions limit will serve to ensure that MACT emission limits for organic HAPs will be met. Further, IPA contends that filterable PM is an adequate surrogate for non-mercury metal HAPs, and the filterable PM emissions limit will ensure that MACT emission limits for non-mercury metal HAPs will be met.[127]

Protestants challenge IPA's MACT analysis on numerous grounds. First, they allege that IPA did not consider all of the applicable HAPs set out in the federal CAA. Moreover, they contend that IPA improperly used surrogates for certain HAPs, when it should have conducted a separate analysis for the specific HAPs. They also contend that IPA's failure to specifically identify the control technology it will use for controlling mercury emissions is a fatal flaw in its MACT analysis. Additionally Protestants argue that IPA used too limited a group of "similar

---

[124] Applicant's Ex. 21 at 50-51.

[125] *Id.*

[126] Applicant's Ex. 3 at IPA 0000209; Ex. 21 at 58.

[127] *Id.*

sources" in trying to determine the MACT floor. Thus, Protestants claim that IPA failed to properly consider other similar sources. Each of these arguments is discussed below, along with IPA's response and the ALJs' analysis.

1. Were All Necessary HAPs Considered?

Protestants contend that IPA's MACT analysis failed to properly include all HAPs anticipated to be emitted from CC2. For example, Sierra Club's expert, Dr. Sahu, asserts that compounds such as dioxins and radionuclides were not included in IPA's MACT analysis, nor have specific organic HAPs been identified by IPA. Rather, IPA simply included the broad category of "organic HAPs" without listing and identifying all HAPs to be considered. Further, Dr. Sahu notes that there should be a MACT limit for selenium as well as arsenic.[128]

IPA disputes Protestants' contention and asserts that it did properly consider all applicable HAPs. IPA points to the testimony of Mr. Fraser, who testified that all of the HAPs listed under Section 112 of the federal CAA were considered by him in his MACT analysis. Mr. Fraser testified that the list of pollutants specifically identified in the MACT application are those that would be relevant for the TCEQ to evaluate and establish MACT limits for the type of facility—a coal-fired boiler—at issue in this case.[129]

The ALJs ultimately find Protestants' concern to be a non-issue. Mr. Fraser's testimony clearly indicates that all required HAPs were considered in the MACT analysis. However, the ALJs agree with Protestants that it would be better if the MACT application contained more detailed information regarding the consideration of those HAPs, so that the ALJs and the Commission could see the extent of that consideration. But any dispute over the amount of "analysis" of HAPs by IPA is really subsumed within the bigger issue—namely, whether the emissions limits proposed represent MACT for the HAPs to be emitted by CC2. The reason for

[128] Sierra Club Ex. 300 at 89.

[129] Applicant's Ex. 21 at 49.

considering HAPs is to develop emissions limits and controls for emissions that are protective of human health and the environment. Thus, as long as IPA has proposed emissions limits that reflect MACT for the applicable HAPs to be emitted, the extent of IPA's analysis of the different HAPs is inconsequential—except to the extent that it shows whether the proposed emissions limits can be said to genuinely reflect MACT.

Because IPA has proposed only five emissions limits, what is actually significant is IPA's proposed use of surrogates for the HAPs expected to be emitted from CC2. Therefore, the ALJs find that the extent of IPA's consideration of the HAPs identified in Section 112 of the federal CAA is not a basis for finding the MACT application inadequate. Rather, the ALJs turn to IPA's use of surrogates for determining MACT emissions limits for the HAPs expected to be emitted from CC2, to see whether IPA has properly proposed MACT limits for all applicable HAPs.

2. Was the Use of Surrogates for other HAPs Proper in this Case and are the Emissions Limits Proposed Truly Representative of MACT?

IPA used VOC as a surrogate for organic HAPs and claimed that the VOC emissions limit will ensure that MACT emission limits for organic HAPs will be met.[130] Further, IPA used filterable PM as a surrogate for non-mercury metal HAPs and claimed that the filterable PM emissions limit will ensure that MACT emission limits for non-mercury metal HAPs will be met.[131] Sierra Club's expert Dr. Sahu disagreed with this approach and contended that IPA's groupings and use of surrogates was arbitrary and did not adequately represent the characteristics of the HAPs at issue. Thus, he contended that the surrogates chosen by IPA would not always fairly represent the HAPs to be represented.

For example, Dr. Sahu noted that IPA has grouped dioxins under the "organic HAPs" category, which also includes benzene. But he contended that the formation mechanisms and fate of dioxins after leaving the boiler are very different than for benzene. Dr. Sahu alleged that

---

[130] Applicant's Ex. 21 at 52.

[131] Applicant's Ex. 21 at 56.

this is representative of IPA's failure to explain how the behavior of the pollutants listed under "organic HAPs" is similar—from either a formation or control standpoint.[132]

Similarly, Dr. Sahu disagreed with IPA's decision to group all non-mercury metals and represent them by PM. He pointed out that the EPA has identified four different classes of metals. He argued, for example, that selenium should be grouped with mercury rather than PM, based upon the volatility of the metals. In fact, Dr. Sahu argued further that there should be entirely separate MACT limits for both selenium and arsenic, based upon their characteristics. He also contended that most metal HAPs partition into the fine particulate range (*i.e.*, in the range of $PM_{2.5}$, rather than in the larger PM_{10} range), and that the best controls for $PM_{2.5}$ are different than the best controls for PM_{10} or filterable PM generally. Thus, while he agreed that $PM_{2.5}$ might be a fair surrogate for many of the non-volatile metal HAPs, PM_{10} or PM in general is not.[133] For these reasons, Dr. Sahu claimed that IPA failed to demonstrate that its use of surrogates was proper.

IPA's experts disagreed with Dr. Sahu's assertions. IPA cited to EPA precedent showing the use of surrogates is acceptable,[134] and Mr. Fraser's testimony that "[i]n the case of CC2 the use of surrogate indicators of continuous compliance with the requirement to install and operate the MACT floor control technology represents a reasonable and valid MACT determination."[135]

IPA conceded that there may be varying differences between specific HAPs, but overall each of the grouped organic HAPs have sufficient similarity with the surrogate, VOC, to justify the grouping. For example, while dioxin and benzene will have some differences, dioxin is formed and behaves similarly to VOC in a boiler situation, and the same good combustion

---

[132] Sierra Club Ex. 300, at 87-89.

[133] *Id.* at 89.

[134] Applicant's Ex. 21 at 51; Applicant's Ex. 84 at 39-40.

[135] *Id.* at 39.

practices that control VOC emissions will similarly control dioxin. Therefore, IPA contended that the use of VOC as a surrogate for organic HAPS is clearly justified.[136]

Mr. Fraser explained that selenium, dioxins, and furans in particular were "exceptions" to the general groupings made by IPA because they were actually controlled by combinations of proposed control technologies. As Mr. Fraser explained in his rebuttal testimony:

> Selenium, dioxins and furans are examples of HAP emissions that are controlled by more than one mechanism. Evaluation of their control requires consideration of the entire air pollution control train working in concert. The total air pollution control system proposed for CC2 will also control these to the level being achieved by the best-controlled similar source.[137]

Regarding selenium, Mr. Fraser testified that it has varying characteristics, and he concluded that it is maximally controlled in its *particulate* form in the pulse jet fabric filter and after neutralization from its acid gas form in the spray dryer absorber.[138] IPA contended that Dr. Sahu ignored IPA's thorough treatment of selenium when he argued that it should be classified primarily as a gas. Moreover, IPA pointed out that the very support relied on by Dr. Sahu actually demonstrates that his classification of selenium as a vapor is incorrect.[139] IPA further argued that Mr. Fraser's determination for the MACT limit for selenium is based on EPA's own determination that particulate control is a good surrogate for the control of selenium.[140] EPA has stated:

> The particulate matter standard is a necessary, effective, and appropriate surrogate to control nonmercury metal HAPs. The record demonstrates overwhelmingly that when a hazardous waste combustor emits particulate matter, it emits non-mercury HAP metals as part of that particulate matter, and that when that

---

[136] Applicant's Ex. 84 at 40.

[137] *Id.*

[138] *Id.* at 39.

[139] Applicant's Cross Ex. 27 at 3-12.

[140] Applicant's Cross Ex. 22 at 59459

> particulate matter is removed from emissions the non-mercury metal HAPs are removed with it.[141]

IPA further indicated that even the court case primarily relied on by Sierra Club, *Sierra Club v. EPA,*[142] specifically holds that the use of PM as a surrogate for metal HAPs, including selenium, is reasonable. Therefore, IPA contended that its decision to use filterable PM as a surrogate for non-mercury metal HAPs, including selenium, is supported by clear EPA practice and precedent.

For dioxins and furans, IPA acknowledged that these HAPs do not behave in exactly the same way as other organic HAPs. As Mr. Fraser explained:

> Another example is dioxins and furans, which form in high chlorine applications such as municipal solid waste incinerators due to recombination of un-oxidized VOC and chlorine within a specific temperature window. PC boilers rapidly quench flue gas temperatures to extract heat as steam, and in the case of CC2 will utilize low chlorine fuel and acid gas control, in combination with good combustion control to effectively oxidize organics, to minimize the formation of these compounds. This is precisely the same set of controls employed by the best-controlled similar source to minimize the formation of dioxins and furans, and as a collection of state-of-the-art control technology represents case-by-case MACT for CC2.[143]

However, according to IPA, although dioxins and furans may form or behave differently than VOC, they are still most effectively controlled through good combustion practices. Also, IPA's grouping of dioxins, benzene, and furans has been demonstrated to be acceptable by EPA.[144] Emissions of dioxins, furans and benzene, do "occur as a result of incomplete combustion," and thus will be controlled by good combustion practices.[145] IPA concluded that

---

[141] *Id.*

[142] 353 F.3d 976, 986 (D.C. Cir. 2004).

[143] Applicant's Ex. 84 at 40.

[144] Applicant's Cross Ex. 25 at 7-49.

[145] Applicant's Cross Ex. 24 at 4-56.

the control of chlorine through the control of HCl, the control of temperature, and good combustion practices would minimize the formation of benzene, dioxins, and furans and represent MACT.[146]

Although Dr. Sahu presents some questions concerning IPA's use of surrogates, his testimony is effectively rebutted by Mr. Fraser's testimony. Moreover, the EPA has sanctioned the use of the same surrogates that IPA proposes in this case. The ALJs find Mr. Fraser's reasoning – as well as that presented by the EPA – to be persuasive and justify the use of surrogates as proposed by IPA. The ALJs conclude that IPA's use of surrogates is appropriate and that IPA's MACT demonstrations satisfy applicable requirements and establish proper MACT emissions limits.

As to the specific emissions limits, those proposed for VOC, filterable PM, and mercury are addressed elsewhere in this PFD. The emissions limits proposed for HF (0.00067 lb/MMBtu) and HCl (0.00078 lb/MMBtu) have not been seriously challenged, and the ALJs find that the preponderance of the evidence supports the finding that they are MACT.

3. Does IPA's MACT Process Meet Applicable Requirements?

Protestants made several arguments contending that IPA failed to satisfy applicable MACT requirements. These arguments, IPA's response, and the conclusions of the ALJs are addressed separately as follows:

First, Protestants contended that IPA impermissibly narrowed its review of similar sources for the MACT analysis. They argued that instead of limiting the review to PC boilers, all other sources that use coal as a primary fuel source, including circulating fluidized boilers (CFB) and Integrated Gasification Combined Cycle (IGCC) boilers should have been

[146] Applicant's Ex. 84 at 40.

considered.[147] IPA responded that similar sources under MACT are specifically defined to be structurally similar in design: "[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 control technology."[148]

IPA also responded that it has been established for BACT that PC boilers use different combustion processes and controls and are a different structural design than CFB and IGCC boilers.[149] Thus, according to IPA, it would be illogical to conclude that these sources are significantly different for establishing BACT but then include them in determining MACT. In its rulemaking process EPA determined that it was appropriate to subcategorize electric generating units based on coal rank (*i.e.*, bituminous, subbituminous, lignite, etc) and generating technology (scale, combustion characteristics, applicability of controls, etc). These principles, as well as 40 C.F.R. Part 63 and various EPA guidance documents were relied on by IPA to determine that MidAmerica Council Bluffs 4 (a.k.a. Walter Scott Unit 4) represents the newest and best-controlled operating similar source to CC2.[150]

Second, Sierra Club noted that BACT and case-by-case MACT require different analyses.[151] In response, IPA acknowledged that BACT and MACT require different analyses and affirmed that it performed each one independently. However, because MACT is the most stringent emissions limitation achieved in practice by the best-controlled similar source, MACT can equal BACT.[152] Sierra Club alleged that IPA conducted a limited case-by-case MACT analysis that "only had to consider the controls it previously analyzed in its PSD application for BACT purposes."[153] However, IPA claimed that was not true. Rather, as Mr. Fraser testified,

---

[147] Sierra Club Closing Argument at 44; EDF Reply Brief at 14-16.

[148] 40 C.F.R. § 63.41.

[149] 40 CFR § 63.41; ED Ex. ED-11 at 17; Applicant's Exs. 25 and 26.

[150] Applicant's Ex. 21 at 49-50.

[151] Sierra Club Closing Argument at 41.

[152] Applicant's Ex. 84 at 40.

[153] Sierra Club Closing Argument At 45.

IPA set MACT floors by identifying, as required, the "emissions limitation achieved in practice by the best controlled similar source."[154] IPA asserted that a MACT floor was determined in the Application for every HAP or category of HAPS that may be emitted from the CC2 boiler.[155] Moreover, IPA argued that it is not necessary to look any further than the results of IPA's case-by-case MACT analysis to recognize that the review was not a "self-fulfilling prophesy" as the Protestants claim – the case-by-case MACT emission rate for multiple pollutants is lower than the same pollutants' BACT emission rates as a result of IPA's work to identify the MACT floor and then look beyond-the-floor to ensure MACT compliance.[156]

Third, Sierra Club claimed that IPA did not provide sufficient details regarding the control technology proposed for mercury as required by applicable EPA regulations that state:

> (1) An application for a MACT determination. . .**shall specify a control technology** selected by the owner or operator that, if properly operated and maintained, will meet the MACT emission limitation. . .[157]
>
> (2) . . .the application for a MACT determination **shall** contain the following information:
>
> . . .
>
> (xi) The selected control technology to meet the recommended MACT emission limitation, **including technical information on the design, operation, size, estimated control efficiency of the control technology**. . .[158]
>
> **(xii) Supporting documentation including identification of alternative control technologies considered by the applicant to meet the emission limitation, and analysis of cost and non-air quality health environmental impacts or energy requirements for the selected control technology.**[159]

---

[154] Applicant's Ex. 21 at 50.

[155] Applicant's Ex. 84 at 38.

[156] Applicant's Ex. 3 at IPA 0000344- IPA 0000347; Applicant's Ex. 21 at 54-55.

[157] 40 C.F.R. § 63.43(e)(1).

[158] 40 C.F.R. § 63.43(e)(2)(xi).

[159] 40 C.F.R. § 63.43(e)(2)(xii).

(Emphasis added.)

Sierra Club then referred to the testimony on cross-examination of Mr. O'Brien, TCEQ's permit engineer, contending that it revealed his lack of knowledge of the design of the control technology proposed by IPA:

> Q (Ms. Mann) What is the method of control proposed by the applicant to control mercury?
>
> A Some kind of sorbent injection.
>
> Q Do you know anything further? It is specified in the draft permit?
>
> A Not which specific sorbent. It's in the application that that's the technology they're using.
>
> Q If you had the application in front of you, would you be able to find in the application which specific sorbent injection they are proposing to utilize?
>
> A I don't believe they identified one specific sorbent; it was halogenated activated carbon or some newer technology of sorbent.
>
> Q So sitting here today, you don't know exactly which kind of sorbent injection system that the applicant intends to utilize to control mercury emissions. Is that correct?
>
> A Yes.

IPA argued in response that Sierra Club has nothing to support its claim that IPA has provided inadequate technical information other than a single citation in the trial transcript where Mr. O'Brien was momentarily unable to remember offhand what specific sorbent will be used in the sorbent injection system proposed for mercury control at CC2. IPA then pointed out that it has specifically determined and made a part of the record that powdered activated carbon is the sorbent to be used for the control of mercury at CC2.[160] Thus, IPA claimed it is misleading for

[160] Applicant's Ex. 1 at 9.

Sierra Club to suggest that Mr. O'Brien's mere inability to remember the specific sorbent that will be used proves that the control technology has not been adequately specified. Moreover, IPA pointed out that Sierra Club has not challenged that sorbent injection is the appropriate MACT control technology for mercury. Furthermore, according to IPA, Sierra Club's belief that more details are necessary, such as "how much sorbent" will be used, is not supported by any evidence. The quantity of sorbent to be used is not necessary for TCEQ to conclude that the proposed control technology will meet the beyond-the-floor MACT limit proposed by IPA. In conclusion IPA contended that without any support to suggest that such details matter, Sierra Club's demand for more information on the quantity of sorbent to be used lacks any merit.

Lastly, Sierra Club argued that IPA's MACT limit for mercury (0.012-0.015 lb/GW-hr) cannot be based on a sliding scale depending on fuel blends. However, IPA contended that the record of this proceeding provides no support for Sierra Club's assertion, and it referenced the NRG case, in which the Commission approved issuance of the permit with the same sliding-scale limit.[161] IPA further argued that Sierra Club's claim is particularly misplaced because IPA's proposed lowest limit for mercury is a "beyond the floor" MACT limit.[162] Because IPA will be using a blend of sub-bituminous and bituminous coals, it proposed a weighted average with a lower beyond-the-floor MACT limit of 0.012 lb/GW-hr. IPA concludes that considering this is a beyond-the-floor limit for MACT, Sierra Club's contention that a range is not allowable is simply unsupportable.

Based on the preponderance of the evidence and the arguments presented, the ALJs find that: (1) the Walter Scott Unit 4 in Iowa is the best example of the MACT floor for facilities burning subbituminous coal such as CC2; (2) as evident from the case-by-case MACT emission rates for many pollutants that are lower than the BACT emission rates for the same pollutants, IPA properly identified the MACT floor and properly looked beyond the MACT floor to ensure MACT compliance; (3) IPA has adequately specified the proposed technology to control

[161] *NRG* (Final Order) (Finding of Fact No. 290).

[162] Applicant's Ex. 21 at 55.

mercury as "powdered activated carbon injection upstream of the SDA/fabric filter;" and (4) IPA's proposed sliding scale emissions limit for mercury (0.012-0.015 lb/GM-hr) is representative of MACT. Protestants have not presented sufficient controverting evidence to conclude otherwise.

C. PM CEMS

The Draft Permit provides that compliance with total PM emission limits will be monitored by annual stack testing and continuous monitoring of fabric filter performance with broken bag leak detectors. Additionally, a continuous *opacity* monitoring system (COMS) will be used to aid compliance with PM emission limits. However, OPIC and Sierra Club contend that PM continuous *emission* monitoring systems (CEMS) are necessary to demonstrate compliance.[163] IPA and the ED both respond that neither Texas nor federal law requires IPA to monitor PM emissions with a CEMS. There is no federal regulatory requirement in the PSD regulations or NSPS, or in any section of the TCEQ rules requiring the installation of PM CEMS on CC2.[164] The ED further points out that the EPA recently specifically opted not to require PM CEMS for coal-fired power plants as part of NSPS Subpart Da.[165] Even Sierra Club's expert Dr. Armendariz agreed that he could not "identify any law or rule that requires IPA to install any CEMS for the emissions at this boiler."[166]

OPIC's rationale for recommending PM CEMS was based, in major part, on the belief that a bag-leak detection system and COMS do not directly measure PM emissions; thus, they are inferior surrogates for direct measurement by a CEMS. IPA responded in rebuttal that there are many problems with PM CEMS that make IPA's chosen compliance demonstration technology preferable. PM CEMS at best only measures filterable PM (and are unable to

---

[163] Sierra Club Ex. 100 at 32; OPIC Closing Argument at 6-7.

[164] Applicant's Ex. 84 at 41; Tr. 1113.

[165] ED Ex.ED-11 at 15; Standards of Performance for New Stationary Sources, 73 Fed. Reg. 33,642, 33,650 (proposed June 12, 2008) (to be codified at 40 C.F.R. part 60).

[166] Tr. 830.

measure condensable PM); do not differentiate the size fraction of filterable PM; and, there is no established relative accuracy audit track record to insure that the data being measured is compliance type data. IPA argues that bag leak detectors are vastly superior because they provide a diagnostic indication of which compartment has developed a leak, whereas PM CEMS only measure filterable PM in the stack from all operating compartments. Therefore, PM CEMS would be less sensitive to detection of a gas bypass in an individual compartment and would provide no indication of how to remedy the problem prior to exceeding the Maximum Allowable Emission Rate Table (MAERT) limitation.[167]

Based on: (1) the absence of any TCEQ or EPA rule or regulation requiring PM CEMS; (2) the EPA's recent indication that PM CEMS are not required for coal-fired power plants; and (3) the functional short-comings of PM CEMS, the ALJs agree with TCEQ witness Mr. O'Brien that "bag leak detection combined with annual stack test for particulate matter satisfies the requirement for continuous monitoring."[168] Thus, the ALJs recommend that IPA not be required to install PM CEMS.

VIII. CONTROL OF AIR POLLUTION

IPA claims that its air-dispersion modeling demonstrates that the maximum predicted impacts of the CC2 project would not exceed any applicable NAAQS, PSD increment, or State property-line standard. The ED agrees,[169] but the Protestants and OPIC do not.[170]

---

[167] Applicant's Ex. 84 at 41.

[168] Tr. 1113.

[169] ED Ex. ED-19 (Modeling Audit Memorandum).

[170] OPIC disagrees with IPA's modeling only as it concerns short-term PM_{10} emissions from haul roads.

A. Summary of IPA's Modeling Results

1. NAAQS and PSD Increments

IPA first conducted modeling to determine if the maximum predicted off-property impacts of the CC2 project sources would exceed the NAAQS and PSD increment "significant impact levels," or SILs, established in 40 C.F.R. § 51.165(b).[171] The results of IPA's analysis are presented below:

NAAQS Modeling De minimis Results[172]				
Pollutant	**Averaging Period**	**Maximum Predicted Off-Property Concentration** ($\mu g/m^3$)	**NAAQS and PSD Increment Significance Levels** ($\mu g/m^3$)	***Exceed NAAQS and PSD Increment Significance Level?***
NO_2	Annual	0.96	1	*No*
CO	1-Hour	64.09	2,000	*No*
	8-Hour	35.26	500	*No*
SO_2	3-Hour	33.55	25	*Yes*
	24-Hour	14.46	5	*Yes*
	Annual	0.78	1	*No*
PM_{10}	24-Hour	4.71	5	*No*
	Annual	0.93	1	*No*
Lead	Quarter	0.0003	0.01	*No*
Fluorides	24-Hour	0.18	NA	No

[171] Applicant's Ex. 28 at 30.

[172] Applicant's Ex. 3 at IPA 0000259 (Application); Applicant's Ex. 28 at 32.

For those pollutants and averaging times that the predicted off-property impacts would fall below the SILs, the project is deemed *de minimis* and the demonstration is complete.[173] When an SIL would be exceeded, compliance with the NAAQS and PSD increments is based on cumulative modeling of project sources, existing facility sources, and background sources.[174]

The only averaging periods for which IPA's modeling predicted that maximum impacts would exceed the SILs were the 3-hour and 24-hour SO_2 NAAQS. For those, IPA conducted full NAAQS modeling that considered:

- the emission impacts of the CC2 project and other Coleto Creek Power Station sources,
- what IPA claims was a conservative monitored background concentration, and
- a "retrieval" of other point sources of emissions that could have an impact on receptors within the CC2 project's area of significant impact (AOI).[175]

The results of IPA's full NAAQS modeling for 3-hour and 24-hour SO_2 are set out below:

NAAQS Modeling Results[176]						
Pollutant	**Averaging Period**	**Maximum Predicted Off-Property Concentration from Project and Non-Project Sources** ---------- **μg/m³**	**Background Concentration**	**Maximum Predicted Off-Property Concentration from Project, Non-Project and Background Concentration** ---------- **μg/m³**	**NAAQS** ---------- **μg/m³**	***Exceed NAAQS?***
SO_2	3-Hour	258.1	52.4	310.5	1300	*No*
	24-Hour	83.3	15.7	99.0	365	No

---

173 Applicant's Ex. 28 at 31.

174 Applicant's Ex. 28 at 32- 33.

175 Applicant's Ex. 3 at IPA 0000258-0000259 (Application).

176 Applicant's Ex. 3 at IPA 0000270 (Application). See also ED Ex. ED-19 at Table 8 (Modeling Audit Memorandum).

PSD increments have been established by EPA and represent the maximum allowable increase in ambient concentration of a criteria pollutant that is allowed to occur above a baseline concentration.[177] IPA performed PSD increment modeling for 3-hour and 24-hour SO_2, the same pollutants and averaging times for which it performed full NAAQS modeling. Increment modeling compares the predicted concentration generated by modeling (1) the project, (2) other on-site "increment-consuming" sources, and (3) off-site increment-consuming sources that could affect receptors within the CC2 project's impact area, or AOI.[178] A source is considered increment-consuming if the emissions from that source have occurred (*i.e.*, the emissions of a new source or the emissions increase of a modified source) after the applicable "baseline" date that EPA has established for the analysis.[179]

As an added measure of conservatism for its PSD increment modeling, IPA included all NAAQS sources, not just the sources constructed or modified after the baseline date, in modeling cumulative impacts for purposes of comparison to the applicable PSD increments.[180] The results of IPA's increment modeling for 3-hour and 24-hour SO_2 are presented below:

PSD Increment Results[181]				
Pollutant	**Averaging Period**	**Maximum Predicted Off-Property Concentration from Increment Consuming Project and Non-project Sources** ------------------- **($\mu g/m^3$)**	**PSD Increment Consumption Limit** ---------------- **($\mu g/m^3$)**	***Exceed PSD* Increment*?***
SO_2	3-Hour	258.1	512	*No*
	24-Hour	83.3	91	*No*

[177] Applicant's Ex. 28 at 38.

[178] *Id.*

[179] *Id.*

[180] *Id.*

[181] Applicant's Ex. 3 at IPA 0000270 (Application).

IPA claims that the above demonstrates that it will comply with the PSD increments for the SO_2 averaging periods for which CC2 project emissions exceeded the significance levels. No party disputes that, and the ALJs agree with it.

2. Modeling for the Perdido Creek Area

In support of the Application, IPA initially conducted and submitted modeling using two different receptor grids: one for the NAAQS and PSD evaluation and another for the property line and adverse-effects evaluation (state effects review). The difference between the two modeling grids was a small area adjacent to the Coleto Creek Station on and near Perdido Creek (Perdido Creek Area). The Perdido Creek Area is owned by Coleto Creek Power, LP (CCP), which currently allows use of that area for boating and fishing.[182]

IPA claims that it was not required to model the Perdido Creek Area for state effects review because that area was not off property. IPA bases that argument on TCEQ guidance as well as a recent PFD issued in another case. Despite its claiming that the Perdido Creek Area is off-property, IPA later prepared and submitted additional modeling for the area. It was submitted after the ED had already declared the Application technically complete, issued a Draft Permit, responded to public comment, and concluded—based on an initial state effects review—that the impacts were allowable.

However, after learning that EDF would argue that the effects on receptors along the creek should be considered, the Applicant submitted additional modeling to the ED for review. The impacts were provided to TCEQ's toxicologist, Dr. Jong-Song Lee, on October 2, 2009, and he completed his review by October 6, 2009.[183]

---

[182] Applicant's Ex. 28 at 26-27 and 44.

[183] Applicant's Cross Exs. 3 and 4.

EDF argues that the Perdido Creek Area is off IPA's property. It claims that modeling for the Perdido Creek Area was required but not timely included as part of IPA's Application.

The ALJs see no reason to disregard the supplemental modeling evidence for the Perdido Creek Area just because it was developed at a later date. Moreover, as set out later in the PFD, the ALJs conclude that the additional modeling and toxicological review shows that no property line standard would be exceeded and no adverse effect would occur in the Perdido Creek Area due to IPA's emissions.

Given that, the ALJs see no need to determine whether the Perdido Creek Area is on or off property. At this point, the answer to that question is mostly theoretical. IPA's modeling results set out below for both the state property line review and the state effects review are those that include the Perdido Creek Area.

3. State Property-Line Standard Modeling

Chapter 112 of TCEQ's rules establishes property-line standards for two sulfur compounds: SO_2 and H_2SO_4. The Chapter 112 standards are the maximum off-property ground-level concentrations of those sulfur compounds that are allowed from all emissions sources on a site. IPA claims that it demonstrated compliance with those standards through site-wide SO_2 and H_2SO_4 modeling.[184] The below table presents the results of that analysis:

[184] Applicant's Ex. 28 at 42.

State Property-Line Standards[185]				
Pollutant	**Averaging Period**	**Maximum Predicted On-Property Ambient Air Concentration from Coleto Creek Power Station Sources** ($\mu g/m^3$)	**State Property-Line Standard (30 TAC Chapter 112)** ($\mu g/m^3$)	**Exceed State Property-Line Standard?**
SO_2	1-Hour	338.24	1,021	No
H_2SO_4	1-Hour	2.13	50	No
	24-Hour	0.77	15	No

No party questions that CC2 will comply with those SO_2 and H_2SO_4 standards, and the ALJs find that it will.

4. State Effects Review Modeling

The state effects review is based on the TCAA's requirement to protect health, welfare, property, and uses.[186] IPA conducted modeling to determine the maximum predicted off-property impacts of "non-criteria" pollutants, which are not subject to a NAAQS or state property-line standard.[187] As a first step, those were compared to effects screening levels (ESLs), which are guideline concentrations derived by the TCEQ's Toxicology and Risk Assessment Section.[188]

IPA conducted modeling to predict the maximum 1-hour and annual off-property impacts of each pollutant for which there is an ESL and which would be emitted from any Coleto Creek

---

[185] Applicant's Ex. 45.

[186] TEX. HEALTH & SAFETY CODE § 382.0518(b)(2); IPA Ex. 36, at 22.

[187] Applicant's Ex. 28 at 5.

[188] Applicant's Ex. 54.

Power Station source, including the CC2 project.[189] The results of that analysis predicted exceedances of only two ESLs: the 1-hour and annual ESLs for coal dust. IPA's modeling results are presented below:

State Effects Review / ESL Modeling[190]			
Pollutant	**Averaging Period**	**TCEQ ESL ($\mu g/m^3$)**	**Max. Predicted Ambient Air Concentration ($\mu g/m^3$)**
Coal Dust	1-Hour	9	36.51
	Annual	0.9	0.91
Limestone Dust	1-Hour	500	2.81
	Annual	50	0.07
Silica	1-Hour	10	9.58
	Annual	1	0.37
VOC (as methyl hydrazine)	1-Hour	0.2	0.00597
	Annual	0.02	0.000182
Hydrogen Chloride (HCl)	1-Hour	75	0.47
	Annual	7.5	0.0142
Hydrogen Fluoride (HF)	1-Hour	25	0.351
	Annual	2.5	0.00236
Antimony (Sb)	1-Hour	0.1	0.00174
	Annual	0.01	0.00000344
Arsenic (As)	1-Hour	0.1	0.00474
	Annual	0.01	0.00000862
Barium (Ba)	1-Hour	5	0.244
	Annual	0.5	0.000863
Beryllium (Be)	1-Hour	0.02	0.00993
	Annual	0.002	0.0000344

[189] Applicant's Ex. 28 at 45.

[190] Applicant's Ex. 45.

State Effects Review / ESL Modeling[190]			
Pollutant	**Averaging Period**	**TCEQ ESL ($\mu g/m^3$)**	**Max. Predicted Ambient Air Concentration ($\mu g/m^3$)**
Cadmium (Cd)	1-Hour	0.1	0.000541
	Annual	0.01	0.000000862
Chromium (Cr)	1-Hour	0.1	0.012
	Annual	0.01	0.0000516
Copper (Cu)	1-Hour	10	0.00587
	Annual	1	0.0000266
Manganese (Mn)	1-Hour	1	0.0262
	Annual	0.1	0.0000673
Mercury	1-Hour	0.1	0.00123
	Annual	0.01	0.00000826
Nickel (Ni)	1-Hour	0.15	0.0158
	Annual	0.015	0.0000438
Selenium (Se)	1-Hour	2	0.00271
	Annual	0.2	0.00000862
Silver (Ag)	1-Hour	0.1	0.0451
	Annual	0.01	0.0000999
Zinc (Zn)	1-Hour	50	0.0178
	Annual	5	0.0000453

B. Criticisms of IPA's Modeling

IPA claims that all of its modeling demonstrations were based on valid model inputs and sound modeling methodologies and were performed in accordance with well-established TCEQ modeling policies and guidelines. It maintains that its modeling conservatively and reliably predicted maximum off-property impacts. The ED agrees, but the Protestants and OPIC do not. They contend that the Applicant should be required to conduct additional modeling using corrected assumptions. The ALJs do not agree with the criticisms.

Per EPA guidance, the Applicant utilized the AERMOD model for its air-dispersion modeling. No party disputes the appropriateness of IPA using that model.

1. Sierra Club's PM_{10} Modeling

To illustrate why its criticism of the Applicant's modeling matters, Sierra Club's meteorological witness, Camille Marie Sears, modeled PM_{10} impacts with alternative assumptions. Ms. Sears is a Bachelor and Master of Atmospheric Science, University of California, Davis. She worked as an air quality regulator for several years for the Santa Barbara County Air Pollution Control District, in California, and has worked for many years as a consulting meteorologist. In all, she has worked in the field for 28 years. She regularly calculates air pollutant emissions, prepares meteorological databases, calculates air pollutant concentrations using modeling, and performs related tasks.[191]

Ms. Sears ran models including short-term, 24-hour road emissions estimated by Sierra Club's engineering expert, Dr. Al Armendariz. He described his estimates as conservative.[192] Ms. Sears also used three sets of meteorological data:

- the 1983 through 1988 (minus 1985) set that IPA used from the TCEQ website;
- a 2002 through 2006 set that Ms. Sears purchased from Trinity Consultants (Trinity); and
- a 1991-1995 set of National Weather Service (NWS) observer-based data.[193]

The modeling using the third set predicted concentrations below the SILs for PM_{10}.[194] The modelings using the first two sets predicted exceedances of the 24-hour PM_{10} SIL of 5.0

[191] Sierra Club Ex. 200 at 5-6.

[192] Sierra Club Ex. 100 at 22-23.

[193] Tr. 893-897; EDF Ex. 200 at 22.

[194] Tr. 893-897.

μg/m^3.[195] Modeling using the Trinity data also predicted annual-average PM10 exceedances of the SIL, both with and without Dr. Armendariz estimates of annual-average haul road emissions.[196]

2. Emission Rates

EPA guidance provides that when modeling emissions for both NAAQS and PSD Increment compliance demonstrations, the emission rate for the proposed new source or modification must reflect the maximum allowable operating conditions as expressed by the federally enforceable emissions limit, operating level, and operating factor for each applicable pollutant and averaging time.[197] Generally, these conditions are referred to as worst-case emissions or maximum emissions.[198] Similarly, for the state effects analysis an applicant must model the maximum allowable emission rate for each new source and the maximum allowable emission rate increase for each modified sources.[199]

The Applicant contends that it ran air-dispersion modeling to determine the maximum air quality impacts associated with CC2.[200] EDF claims that IPA's modeling did not assume maximum emission rates. The specifics are considered below.

a. Allegedly Missing Emissions

The Protestants allege that certain CC2 project emissions sources are missing from IPA's modeling. To a limited extent, OPIC agrees. IPA disagrees and further claims that it purposely

---

[195] Sierra Club Ex. 200 at 21-24.

[196] Sierra Club Ex. 200 at 44-45.

[197] Applicant's Ex. 24 at C-45. (Emphasis added).

[198] *In re Northern Michigan University Ripley Heating Plant*, 2009 WL 443976 (EAB, February 18, 2009).

[199] Applicant's Ex. 36 at 11 ; Applicant's Ex. 37 at 13.

[200] Applicant's Ex. 3 at 2-1; See also Tr. at 434.

included a series of conservative assumptions that over-estimated emissions overall. The ALJs agree with IPA.

(i) Long-term Haul Road Emissions

Sierra Club's expert witness, Dr. Al Armendariz, calculated different annual PM_{10} road emissions rates than did IPA's experts. IPA responds that Dr. Armendariz's recalculation of annual PM_{10} emissions was incorrect. The ALJs agree with IPA.

Dr. Armendariz received a Ph. D. from the University of North Carolina at Chapel Hill's School of Public Health in 2002, with a focus on particulate matter emissions. He also holds a B.A. in chemical engineering from the Massachusetts Institute of Technology and a master's degree in environmental engineering from the University of Florida. Since 2002, he has been on the faculty of the Lyle School of Engineering at Southern Methodist University. He has also worked as a consultant engineer and as an independent outside scientist on environmental projects in many states, including Texas.[201] After the hearing in this case, Dr. Armendariz was appointed Regional Administrator of EPA Region 6.[202]

Dr. Armendariz testified that IPA should not have used an average of all truck weights in making the calculation. Instead, he claims that IPA should have separately calculated averages for loaded trucks and unloaded trucks and summed the two results.[203]

IPA argues that the EPA's Compilation of Air Pollutant Emission Factors (AP-42) and specifically the emission factor for haul road calculations, provides no support for Dr. Armendariz's suggestion to divide the vehicles into two groups before calculating an average weight. Mr. Fraser testified, "the guidance is very clear that average weight of vehicles traveling

[201] Applicant's Ex. 100 at 1-2.

[202] **Any objection to this taking of official notice should be filed as an exception to this PFD**

[203] Sierra Club's Ex. 100 at 12-18 (A. Armendariz).

on the road should be used."[204] Section 13.2.1 of AP-42 was included as an exhibit to Dr. Armendariz's prefiled testimony. The equation is presented on page 13.2.1-4, and it states the following about the variable W ("average weight (tons) of the vehicles traveling the road"):

> **It is important to note that Equation 1 calls for the average weight of all vehicles traveling the road.** For example, if 99% of traffic on the road are 2 ton cars/trucks while the remaining 1% consists of 20 ton trucks, then the mean weight "W" is 2.2. tons. More specifically, Equation 1 is not intended to be used to calculate a separate emission factor for each vehicle weight class. **Instead, only one emission factor should be calculated to represent the "fleet" average weight of all vehicles traveling the road.**[205]

(Emphasis added.)

Dr. Armendariz's testimony appears to be in conflict with the EPA guidance. It is possible that AP-42 is wrong on this point, and Dr. Armendariz has discovered the error. But in the absence of more specific evidence, the ALJs find AP-42 of greater evidentiary weight than Dr. Armendariz's methodology. Accordingly, the ALJs find that IPA correctly calculated the annual haul road emissions of PM_{10}.

(ii) Short-term Road Emissions

It is undisputed that roads are a source of fugitive particulate matter emissions,[206] IPA included road-dust PM emissions in its annual average PM_{10} preliminary impact analysis, which evaluated whether the predicted annual PM_{10} impacts from CC2 project sources would exceed the applicable SIL.[207] However, IPA did not estimate and include PM emissions from haul roads in its 24-hour PM_{10} preliminary impact analysis.

---

[204] Applicant's Ex. 84 at 48.

[205] Sierra Club's Ex. 104 at 13 (AP-42, Section 13.2.1).

[206] Sierra Club Ex. 100 at 3-7.

[207] Applicant's Ex. 28 at 17and 30.

Sierra Club and OPIC argue that by not modeling short-term road emissions, IPA has failed to fully account for its maximum emissions. IPA denies that and argues that it was simply following TCEQ Guidelines and precedent. The ED and the ALJs agree with IPA on this point.

Sierra Club contends that when low-end estimates of PM emissions from haul roads are modeled, the predicted PM impacts exceed the SIL over the 24-hour averaging period. Dr. Armendariz provided very rough estimates for 24-hour emissions by dividing his adjusted annual haul road emissions by 365.[208] When Ms. Sears conducted modeling using Dr. Armendariz's estimates, the peak annual-average PM_{10} impacts exceeded the annual SIL of 1.0 $\mu g/m^3$.[209] According to Sierra Club, that exceedance triggers IPA's obligation to conduct a full impacts analysis.

Both the Sierra Club and OPIC note that federal law and guidance require that fugitive emissions be given the same consideration as point-source emissions.[210] In fact, EPA specifically identifies emissions from roads as a common fugitive emission that should be evaluated.[211] They also note that federal guidance provides a clear mechanism to quantify emissions from roads,[212] and AP-42 provides formulas to calculate short-term PM emissions from roads, and additional methods to improve the reliability of those calculations exist.[213]

The ALJs need not reach these federal law and guidance arguments. As previously indicated, the ALJs' task is to apply state law and precedent, which is clear.

---

[208] Sierra Club Ex. 100 at 23.

[209] Sierra Club Ex 200 at 44 and 45.

[210] *See* Clean Air Act, Title III, Section 302 (j) and 40 C.F.R. § 52.21 (b) (20) (vii).

[211] Sierra Club Ex. 100 at 6.

[212] Section 13.2.1 from the AP-42. Sierra Club Ex. 104.

[213] Sierra Club Ex. 100 at 13-14.

This is a perennial argument that the Commission has heard and ruled on many times before, so the ALJs will keep the discussion short. Both the TCEQ's Air Quality Modeling Guidelines and a February 25, 2000 TCEQ memorandum from John Steib, then-Director of the Air Permits Division, indicate that road emissions for short-term averaging periods should not be included in modeling analysis.[214] In his memo, Mr. Steib explained that there are no reliable methods for calculating road emissions for shorter time periods and that best management practices will minimize the creation of road dust and prevent nuisance conditions. In its final orders in several cases, including three recent cases concerning air permits for coal-fired power plants, the Commission has cited that guidance and found that modeling of road dust is explicitly excluded for short-term averaging permits.[215]

The ALJs conclude that Commission policy and precedent are clear that short-term PM emissions are not reliable and should not be calculated for permitting purposes. Instead, best management practices will minimize the creation of road dust. Based on the Commission precedent, the ALJs conclude that IPA did not fail to model all emissions by not including short-term PM emission from Facility roads.

(iii) Coal Delivery Truck Emissions

IPA did not calculate road emissions associated with the delivery of coal by truck, nor did it model the predicted impacts of the truck delivery of coal to the Coleto Creek Station. However, IPA contends that coal delivery by truck is "beyond reason."[216] IPA also notes that it

---

[214] Applicant's Ex. 30 at 58 (TCEQ Air Quality Modeling Guidelines); Applicant's Ex. 33 at 1 (TCEQ Interoffice Memorandum, Policy on Road Emissions (2000)).

[215] *Oak Grove,* Applicant's Ex. 27, Finding of Fact No. 29; *Sandy Creek,* Applicant's Ex. 26, Finding of Fact No. 30; *Order Regarding the Applications by NRG Texas Power LLC for State Air Quality Permit 79188, Prevention Of Significant Deterioration Air Quality Permit PSD TX 1072, and Hazardous Air Pollutant Major Source Permit No. HAP-14 (NRG),* TCEQ Docket Nos. 2007-1820-AIR and 2008-1210-AIR, SOAH Docket Nos. 582-08-0861 and 582-08-4013, (Finding of Fact Nos. 54-56) (Dec. 11, 2009).

[216] Tr. 1443.

does not seek authorization in the Application for additional truck traffic for the delivery of coal to be fired in CC2.

Citizens contend that either coal delivery by truck should be prohibited or the Application must be found incomplete and the permit cannot be issued. The ALJs do not agree.

IPA's witness Mr. Fields testified that on one past occasion, due to a rail interruption and the inability of Union Pacific to deliver coal to the Coleto Creek Station by train, coal was trucked to the Coleto Creek Station from Corpus Christi.[217] As Mr. Fields explained, however, supplying the 9,000 tons per day of (tpd) coal combusted by just the existing Unit 1 would require 360 truck deliveries per day.[218] That suggests that a total of 720 trucks per day would be required to supply coal for both CC1 and CC2.

A delivery truck can hold approximately 25 tons of coal. According to Mr. Fields, no more than 50 trucks per day could be made available to IPA to transport coal.[219] Delivering coal by ships combined with trucks would not be a realistic either. One shipload would provide less than 60,000 tons of coal,[220] only a bit more than a three-day supply. Mr. Fields agreed that in theory a truck could make two deliveries from the port at Corpus Christi to the Facility.[221] But in one day the 50 available trucks making two trips per day would only deliver a total of 100 tons of coal, less than 1/7th of what API would need to keep both CC1 and CC2 in operation.

Based on the above, the ALJs agree with IPA that it is beyond reason to assume that IPA would be able to deliver coal to the Facility by trucks or a combination of ships and trucks. The ALJs conclude that IPA had no obligation to conduct modeling that assumed road emissions due

---

[217] Tr. 109-110.

[218] Tr. 1443.

[219] Tr. 1441.

[220] Tr. 128.

[221] Tr. 1444.

to 720 coal delivery trucks visiting the Facility each day when there was no reasonable possibility that would occur. Citizens' contention that the Application is incomplete without that modeling is incorrect.

Is it necessary to include a permit provision prohibiting delivery of coal to the Facility by truck, as Citizens suggest? The ALJs conclude that it is not. As the ALJs understood IPA's case, it has no plans to deliver coal by truck to fully supply CC1 and CC2. That does not mean that one or two trucks of coal might not need to be delivered at some time for some unanticipated reason. There is no evidence to indicate that such an unlikely and small delivery would substantially increase road emissions beyond what IPA has modeled based on other truck traffic. Under those circumstances, the ALJs see no reason to completely prohibit truck deliveries of coal–as Citizens suggest–and constrain IPA's ability to deal with some unanticipated future circumstance.

(iv) Increased Dust Emissions

EPA's AP-42 Section 13.2.4 has emission factor equations for aggregate handling and storage piles.[222] This is the Section of AP-42 relied upon by the Applicant in estimating emissions from its drop operations.[223] However, drop operations are just one of the sources of emissions from storage piles. As explained in Section 13.2.4.3:

> Total dust emissions from aggregate storage piles results from several distinct source activities within the storage cycle:
>
> > Loading of aggregate onto storage piles (batch or continuous drop operations);
> > Equipment traffic in storage area;
> > Wind erosion of pile surfaces and ground areas around piles; and

---

[222] EDF Cross Ex. 8.

[223] Applicant's Ex. 3 at IPA0000193.

> Loadout of aggregate for shipment or for return to the process stream (batch or continuous drop operations).[224]

Trucks and equipment will drive on both CC2's ash pile (by-products storage area) and coal pile.[225] AP-42 recognizes that the movement of trucks and loading equipment in the storage pile area is a substantial source of dust.[226] The term "aggregate storage pile" includes both ash and coal piles.[227] As recognized by AP-42, equipment traffic on the storage piles results in emissions of particulate matter. Watering of the storage piles typically has only a very temporary slight effect on total emissions.[228]

Based on the above, EDF argues that IPA should have but failed to account for increased emissions from equipment traffic activities on its coal pile, by-products storage area, and ash pile.

(A) Coal Pile Emissions

When questioned about the lack of increased dust emissions from equipment traffic activities on its coal pile due to CC2, IPA's Mr. Fraser conceded that it was hard to explain.[229] He testified that there would be no increase due to two factors: (1) CC1's permit already authorizes equipment traffic activities related to the coal pile, and (2) the addition of CC2 will actually cause a net reduction in equipment traffic activities.[230]

---

[224] EDF Cross Ex. 8 at 13.

[225] Tr. 1433; EDF Ex. 113.

[226] EDF Cross Ex. 8 at 13.2.4.1.

[227] Tr. 318.

[228] EDF Cross Ex. 8 at 13. EDF Ex. 113 includes a series of photographs of the coal piles and the only active sprinkler observed during the site visit.

[229] Tr. 388.

[230] Tr. 389.

There will only be a single coal pile at the Facility that will be used for both the existing CC1 and the proposed CC2.[231] Mr. Fraser testified that he calculated fugitive PM_{10} emissions of 0.011 lb/hr and 0.09 lb/day for working the coal pile.[232] Mr. Fraser further testified that those emissions are already included in the overall emission estimate for the coal pile in the CC1 permit.[233] But Mr. Fraser admitted that he was not involved in preparing and did not calculate that CC1 estimate.[234] When asked whether the emission factors were calculated based on the drop operation equations, Mr. Fraser testified it was very difficult for him to tell.[235]

EDF's Mr. Srackangast testified that the emission factor of 0.0015 lbs/ton shown in the emission summary for CC1's renewal application[236] was based on the drop operation equation and not the equation for vehicle traffic on unpaved surfaces.[237] A review of the sample equations in support of the emission calculations shows that only the drop operation equation and wind erosion equation were used to determine the emission factors. There is no reference to the equation for vehicle traffic on unpaved surfaces, which is identified in AP-42 Section 13.2.2 as the recommended equation for emissions from equipment traffic (trucks, front-end loaders, dozers, etc).[238] AP-42 recommends that emissions from equipment traffic (trucks, front-end loaders, dozers, etc) traveling between or on piles be calculated based on the equations for vehicle traffic on unpaved surfaces.[239]

Rather than an underestimate, Mr. Fraser testified that the CC1 permit substantially *overestimated* actual fugitive dust emissions of PM_{10}. While the dispersion modeling performed

---

[231] Tr. 43.

[232] Applicant's Ex. 84 at 50.

[233] *Id.*

[234] Tr. 321, 323, and 324.

[235] Tr. 324.

[236] EDF Cross Ex. 1 at B-7.

[237] Tr. 730-731

[238] Tr. 322; EDF Cross Ex. 1 at B-8.

[239] EDF Cross Ex. 8 at 13.

for the state effects review relied on an estimate of PM_{10} emissions from the existing and expanded coal pile, coal dust emissions from all of the existing material handling emission sources were based on total PM. Yet less than half of the PM from such operations, according to AP-42, is PM_{10}. As a result of this conservatism, the coal dust PM_{10} emission rate used as a model input for the state effects review modeling over-predicted total material handling emissions for operations at the Coleto Creek Station following the addition of CC2.[240]

The vehicle-related coal pile emissions due to CC1 have already been permitted. Reconsideration of whether they were properly estimated when the CC1 permit was renewed is not within the scope of this case, which concerns only the proposed permitting of CC2. But assuming for the sake of argument that they were not accounted for when CC1 was repermitted, must IPA account for it now? The ALJs conclude that IPA need not.

Although more coal will be delivered to the Facility and consumed due to the addition of CC2, both Mr. Fraser and Mr. Fields testified that fugitive dust emissions from heavy equipment working the coal pile will actually *decrease*.[241] Emissions due to equipment working the coal pile increase when coal consumption does not match coal delivery.[242] IPA tries to match coal deliveries to coal consumption to minimize the amount of coal that must be taken from or put into the stockpile.[243] Mr. Fields testified that that the operation of CC2 will result in a better match between coal deliveries and overall coal consumption. More coal will be placed directly into the bunkers when delivered and less coal will be delivered to and from the coal stockpile.[244]

There is no evidence to contradict Mr. Fields' and Mr. Fraser's testimony on these points. The ALJs conclude that emissions due to working the coal pile will actually decrease after CC2

---

[240] Applicant's Ex. 84 at 50.

[241] Tr. 388-390; Applicant's Ex. 82 at 2.

[242] Applicant's Ex. 82 at 2.

[243] *Id.*

[244] *Id.*

is permitted because incoming coal will less often go into the pile due to a better match between coal deliveries and the immediate need to burn coal in CC1 and CC2.

Because there will be no increase in fugitive dust emissions associated with working the coal pile, IPA claims that it was not required to include PM_{10} from working the coal pile in its preliminary NAAQS AOI modeling. Nevertheless, IPA was required to include coal dust emissions associated with working the pile in the site-wide modeling for the state effects review, and those emissions were modeled.

The ALJs find that the greater weight of the evidence supports IPA's position that the coal-pile emissions were, if anything, overestimated in its modeling. That is partly due to the reduction in incoming coal that will go to the pile, since the combined demand of CC1 and CC2 will better match the pace of coal deliveries than CC1 alone. Additionally, because PM_{10} emissions are approximately one-half total PM emissions, IPA's use of total PM emissions estimates in its modeling provided a 100% margin of error.

(B) By-Products Storage Area Emissions

The by-products storage area is where fly, scrubber, and bottom ash from CC2 will be managed.[245] Trucks and other vehicles will be driven on the by-products storage area, just like the trucks driving on the plant roads.[246] Yet the Applicant assumed that there would be no emissions associated with CC2 from the by-products storage area.[247]

EDF argues that emissions from equipment traffic (trucks, front-end loaders, dozers, etc) are quantifiable and should generally be calculated based on the equations for vehicle traffic on

---

[245] Tr. 72-73; Tr. 1431-1432.

[246] Tr. 1433.

[247] Tr. 1368.

unpaved surfaces/roads (AP-42 13.2.2).[248] According to EDF, Applicant has not shown why driving on the by-products storage area will not cause the same or similar particulate matter emissions as driving on a road. Therefore, EDF claims the Applicant's exclusion of emissions from the activities associated with the by-products storage area is not conservative.

IPA contends that ash will be unloaded wet at the by-products storage area, and then it will "set up" similar to weak cement.[249] IPA's Mr. Fields testified that the wet fly ash byproduct has "cementitious" properties and hardens when it dries.[250] Mr. Fields explained how material would be transferred to and placed in the by-product storage area. Fly ash will be mixed with scrubber sludge and transported by pipe to a silo at the by-product storage area. There is no plan to transport it by truck. Bottom ash can be trucked or piped. From the silo, fly ash goes through a conditioner that wets the material, goes into trucks, and is placed into cells in the by-product storage area. Trucks will lay the ash down in lifts, shaping as well as laying the ash. Once the trucks unload ash at the predetermined location, there will be no further handling of the ash.[251]

Mr. Fraser also explained why the traffic associated with placement of material in the byproduct storage area would not be a source of fugitive dust. Bulldozers will spread it in the wet state that does not represent a source of dust. Once placed, the material will set up and harden such that it will not emit fugitive dust. It is not anticipated that this material would be bulldozed after it is placed and hardened; therefore, there are no expected PM_{10} emission increases due to handling FGD residue or bottom ash from CC2.[252]

---

[248] EDF Cross Ex. 8 at 13.

[249] Applicant's Ex. 3 at IPA0000035.

[250] Tr. 77.

[251] Tr. 1431-1433.

[252] Applicant's Exs. 21 at 13 and 84 at 49.

The ALJs found Mr. Fields' and Mr. Fraser's testimony on this issue persuasive and not contradicted by other witnesses. The ALJs conclude that there will be no emissions associated with CC2 from the by-products storage area.

(C) Reclaimed Ash Emissions

Coleto Coal Combustion Products (CCCP) reclaims the bottom ash from CC1.[253] CCCP operates within the plant site and conditions can be dusty.[254] Another company, Boral Material Technologies (Boral) manages CC1's fly ash.[255] The CC1 fly ash is primarily sold for beneficial reuse. Any ash not sold for beneficial reuse is put into an existing ash pond that is due north of the existing CC1 unit and due east of the by-products storage area.[256]

EDF claims these ash-handling activities can result in the emission of particulate matter (*i.e.*, loading and equipment traffic). However, emissions from Boral's and CCCP's activities within the plant property are not included in CC1's permit.[257] Nor were they included in the Application for CC2. EDF contends that emissions associated with Boral's and CCCP's management and reclamation of ash from CC2 are secondary emissions that should have been included in IPA's source impact analysis (modeling).

IPA denies that recycling of fly ash or bottom ash from CC2 will increase secondary emissions. Mr. Fields testified that Boral would not recycle the fly ash from CC2. Instead, CC2's fly ash will be mixed with scrubber sludge, rendering the combined material unavailable for resale, unlike the segregated fly ash from CC1.[258] Similarly, bottom ash from CC2 will not

---

[253] Tr. 80.

[254] EDF Ex. 28.

[255] Tr. 79.

[256] Tr. 73-76.

[257] Tr. 732.

[258] Applicant's Ex. 82 at 3.

be recycled by Coleto Coal Combustion Products, because CC1 currently produces more bottom ash than CCCP can recycle.[259] As a result, IPA has no contract with CCCP or any future expectation to provide CCCP additional bottom ash from CC2.[260]

Mr. Fields testified that there was a possibility that some bottom ash from CC2 may go to the CC1 ash pond.[261] From the tone of his voice, the ALJs understood that as Mr. Fields' acknowledging that anything was possible. Yet EDF latches on to that statement to argue that the Application is deficient because IPA has not quantified the emissions that would result due to bottom ash managed at the ash pond. But as at the by-products storage area, the cementitious properties of the fly ash in the ash pond will cause it to set up.[262] That leads the ALJs to conclude that the fly ash and any bottom ash that might be placed in the ash pond will set up together. Thus, for the same reason that there will be no emissions from the by-products storage area, there will be no emissions from the ash pond, even if bottom ash is placed there.

The ALJs conclude that no additional emissions from ash reclamation would result if CC2 were permitted.

b. Coal Handling and the Moisture Content of Coal

The Applicant used an AP-42 drop point emission factor equation to estimate emissions from various material handling transfer points.[263] One of the required inputs for the emission-factor equation for drop operations is the moisture content of the coal.[264] When calculating the

---

[259] *Id.*

[260] *Id.*

[261] Tr. 167.

[262] Tr. 77.

[263] Applicant's Ex. 3, at IPA00000000106, 192, and 193.

[264] *Id.*

emissions from coal handling drop operations, the Applicant assumed that the coal brought to the Facility to fuel CC2 would have a moisture content of 30.6%.[265]

EDF claims that assumption was too high, not conservative, and led to an under-estimation of emissions. Further, EDF notes that nothing in the Draft Permit would require the Applicant to maintain a moisture content of 30.6% in any of the coal handled by CC2.

Mr. Fraser's testimony and a review of the emission factor equation shows that different coal moisture contents can have a significant impact on the emission factor.[266] For example, changing the moisture content to 5% results in an order of magnitude increase in the emission factor.[267] EDF notes that EPA's AP-42 contains a table that lists typical moisture contents of coal received at coal-fired power plants. The range is from 2.7% to 7.4%, with a mean of 4.5%.[268]

But coals burned at power plants are not all the same. CC2 was designed to use Western subbituminous coal, principally PRB coal.[269] Mr. Fraser explained that there is a wide range of Western coals, but their properties are more like PRB coals and very different from Eastern coals. Additionally, as soon as the coal is delivered from the railcars, IPA will water it, specifically to suppress dust. The coal is watered again as it is handled at each transfer point. Mr. Fraser also explained that because of the size distribution of Western coal, it retains a lot of moisture to begin with.[270]

---

[265] *Id.*

[266] Tr. 306-308.

[267] EDF Cross Ex. 9.

[268] EDF Cross Ex. 8, at 13.

[269] Applicant's Ex. 1 at 8; Applicant's Ex. 3 at IPA 0000030.

[270] Tr. 378 -379.

IPA's witness Roosevelt Higgins testified that bituminous coal typically has lower moisture content than subbituminous coal, in the range of 10%.[271] A Black & Veatch spreadsheet identifies a moisture range of 26.3% to 30.4% for PRB coal.[272] Although he is a Black & Veatch employee, IPA's witness Huggins was not familiar with the data on that spreadsheet, which is kept by another group within his company.[273]

EDF notes that bituminous coal from South America has also been burned at CC1.[274] The Black & Veatch's spreadsheet identifies a moisture range of 5.2% to 12.5% for South American coal.[275] There is no evidence, however, that South American coal, much less South American coal with such low moisture contents, would likely come to dominate the supply for the Facility so as to reduce the moisture content to such low levels.

IPA intends to use one commingled coal storage pile for both CC2 and its existing CC1 unit.[276] IPA burns both subbituminous and bituminous coal at CC1.[277] EDF argues that the emission factor that IPA calculated and included in the 2007 renewal application for CC1 assumed a 5% moisture content,[278] but that is not clear to the ALJs from the evidence that EDF cites.

When CC1's PSD permit was renewed in 2007, the renewal application specified a moisture range of 9.0% to 33% for subbituminous coal.[279] IPA's Mr. Field could not recall a

---

[271] Tr. 189.

[272] CCE Cross Ex. 3.

[273] Tr. 264-266.

[274] *Id.*; EDF Cross Ex. 4, at Table.

[275] CCE Cross Ex. 3.

[276] Tr. 43-44; Tr. 105. However, see Tr. 150, where Mr. Fields also testifies that bituminous coals and the Powder River Basin coals have significantly different characteristics and will need to be segregated. Although, there is no permit condition that requires IPA to segregate its coal.

[277] Tr. 58; Tr. 105.

[278] EDF Closing at 11, *citing* Tr. 730-731; EDF Cross Ex. 1; EDF Cross Ex. 2; and EDF Cross Ex. 3.

[279] EDF Cross Ex. 1 at A-11.

shipment of coal being rejected at CC1 based on the coal analysis, which would include an analysis of moisture content.[280] That is some evidence that the moisture content of coal delivered to the Facility has fallen into that broad 9-to-33% range, but not necessarily 30.6% as IPA assumed for this Application.

IPA argues that past estimates for CC1 do not affect the validity of the 30.6% coal moisture that it assumed for this Application. Moreover, no testifying expert joined in EDF's criticism of IPA's moisture-content assumption. Instead, Mr. Fraser testified that a 30.6% coal-moisture content was a reasonable estimate for this project.[281] Without going into detail, Sierra Club's Dr. Armendariz thought that all of IPA's drop point calculations, which included the 30.6% moisture-content assumption, were "OK."[282]

Additionally, IPA points to two important, conservative assumptions that significantly over-estimated the transfer point emission calculations. Emission calculations for the coal-handling sources were based on the rated capacity of the conveyor belts; however, that rate could not be achieved because it is 18% faster than IPA personnel could unload the trains to feed the belts.[283] IPA also calculated emissions from coal handling based on assumptions that 100% of the coal would be stacked, reclaimed, and fed to the boilers. In actuality, a significant portion of the coal would not be stacked or reclaimed, but will be conveyed directly to the bunkers for feeding to the boilers.[284]

As a result of these assumptions, IPA claims that the throughputs used for the drop point equations are significantly higher than will ever be experienced in practice. Thus, according to

---

[280] Tr. 117; Tr. 172.

[281] Tr. 307-309, 378, and 396-397.

[282] Applicant's Cross Ex. 7 at 2; Tr. 811.

[283] Tr. 380.

[284] Tr. 382.

IPA, the overall emission estimates are conservative despite any variation in the moisture content of the coal.

The ALJs agree with all of the experts. They find that IPA reasonably assumed for modeling purposes that the coal received at the Facility will have a 30.6% moisture content. The ALJs also agree that IPA made conservative coal throughput assumptions to offset any downward variation in the assumed 30.6% moisture content.

c. Control Efficiencies for Transfer Points

Besides the emission factor, another important part of an emission rate calculation is the control efficiency.[285] For a number of the emission points listed in IPA's Coal Storage and Handling Emissions Summary, the assumed control efficiency is 95%. EDF challenges that assumption. IPA argues that the assumption was reasonable and generated a conservative estimate of transfer point emissions. The ALJs agree with IPA.

The Applicant's choice of a 95% control efficiency is based upon two factors: (1) the enclosure of the operation, and (2) the wetting of the material. Mr. Fraser testified:

> You really have to look at each point by itself, and they happen to be all 95%. For example, for the coal TP-1, which is the rail unloader, that coal is unloaded in an enclosed structure. The rail dumper is enclosed and the wet suppression or watering is used as the car is being dumped.
>
> So based on those two factors, my estimation of 95% control is reasonable and appropriate. The rest of the conveyors that are discussed here are existing -- except for one -- are existing conveyors at CC1.
>
> They are enclosed. . . . So all of these conveyors are enclosed. Their transfer points are enclosed. So at no point in that process is there exposure to the open air or the wind, and all of them have watering at each transfer point for dust

---

[285] Tr. 1068.

> suppression. And so based on that combination of controls, I also feel 95% is appropriate.
>
> We already talked about the stackers, and for all those same reasons I believe that 95% control is appropriate there. So, again, after sort of reconsidering and refreshing my memory about what's existing on-site, I believe those to be very reasonable assumptions.[286]

Mr. Fraser also noted that, for similar transfer points, a higher control efficiency of 98% was used to calculate emissions in the 2007 renewal application.[287]

EDF argues that when calculating the emission rate for an enclosed transfer point, the Applicant adjusted both the emission factor and control efficiency to take advantage of the fact that the transfer point is enclosed. According to EDF, that means the Applicant double-counted the effects of the enclosure, resulting in an artificially high 95% control efficiency. EDF cites bits of evidence but no supporting expert testimony to make that argument.[288]

Instead, all of the experts who addressed the point indicated that assuming a 95% control efficiency was reasonable. That includes the ED's Mr. O'Brien.[289] As previously indicated, the Sierra Club's Dr. Armendariz thought that the drop point and conveyor calculations, which included the 95% control efficiency, were "OK."[290]

The ALJ found the unanimous testimony of the experts persuasive. They find that IPA reasonably assumed a 95% control efficiency.

---

[286] Tr. 384-394.

[287] Tr. 305; EDF's Cross Ex. 1 at B-7 (2007 renewal application).

[288] EDF Argument at 12, citing Tr. 314-316; IPA Ex. 3 at IPA0000193.

[289] Tr. 1068-1069.

[290] Applicant's Cross Ex. 7 at 2; Tr. 811.

3. Meteorological Data

a. Source of Meteorological Data

Sierra Club contends that IPA did not use an appropriate set of meteorological data to conduct its modeling. IPA and the ED disagree. The ALJs find that IPA used appropriate meteorological data for its air-dispersion modeling.

The Applicant used five years of NWS observer-based data recommended by TCEQ for any air-permitting project in Goliad County. The data was collected at the Victoria Regional Airport.[291] The ED provides applicants with pre-processed meteorological data sets for each county in Texas. Each set is processed with three different surface roughness settings: low, medium, and high.[292] TCEQ's Air Quality Modeling Guidelines state:

> Required years for PSD modeling are the most recent, readily available five years of data for both short-term and long-term modeling. Most recent, readily available means that the data are available on the EPA SCRAM or the [TCEQ] ADMT Internet page.[293]

No party disputes that IPA followed the TCEQ Staff's recommendation to use the pre-processed data found on the TCEQ's website. However, Sierra Club claims this practice was inappropriate because it failed to comply with EPA guidance. IPA contends that Sierra Club's argument is a wholesale challenge to TCEQ's practices and would invalidate the use of the pre-processed meteorological data that the TCEQ Staff recommends.

The ED's witness Dan Schultz is an Engineering Specialist for the TCEQ and serves on the Air Dispersion Modeling Team. He has a Bachelor of Science in meteorology from the

---

[291] IPA Ex. 3 at 2-1.

[292] EDF Ex. 100 at 6.

[293] Applicant's Ex. 30.

University of Wisconsin and has had additional training in atmospheric dispersion modeling, computer modeling, air pollution control, and dispersion modeling using AERMOD and CALPUFF. In sixteen years with the TCEQ, he has reviewed hundreds of air-dispersion modeling projects, mostly as the primary reviewer.[294] Mr. Schultz testified that Air Dispersion Modeling Team considers the NWS observer data made available on the agency website to be reliable for use in conducting modeling with AERMOD.[295]

Ms. Sears and Sierra Club claim that it was not appropriate for IPA to use the pre-processed data from TCEQ. She points to the definition of preferred data found in EPA's Guideline on Air Quality Models at Section 8.3.1.2:

> Five years of representative meteorological data should be used when estimating concentrations with an air quality model. Consecutive years from the most recent, readily available 5-year period are preferred. The meteorological data should be adequately representative, and may be site specific or from a nearby NWS station.[296]

Ms. Sears claimed that the data IPA used did not meet that standard because the data for 1985 was missing; hence, five years of date were used, but they were not consecutive. The data set that Ms. Sear recommended was prepared by and purchased from Trinity for $1,275. The Trinity set included data from 2002 through 2006 and included surface data from Victoria and upper air data from Corpus Christi, which is approximately 60 miles from the Facility.[297]

The NWS has been updating airport weather stations. The automated surface observing station (ASOS) replaced the observer-based system in approximately December 1995 at the Victoria Airport.[298] Since then, meteorological data from the Victoria Airport is ASOS data. For

---

[294] ED Ex. ED-14 at. 3-4.

[295] Tr. 1129-1130.

[296] Sierra Club Ex. 200 at 23 and 40 C.F.R. Part 51, Appendix W, § 8.3.1.2.

[297] Sierra Club Ex. 200 at 26.

[298] Tr. 936.

various reasons, IPA argues that the ASOS data, which is included in the Trinity data set that Ms. Sears advocates, is actually less reliable than the pre-1995 data that IPA used for modeling.[299]

The ALJs finds that the data that IPA used for modeling complied with both TCEQ's and EPA's guidelines and was suitable for modeling. The EPA guideline does not set strict rules. Instead, it contains lists of preferences, as indicated by the words "preferred" and "should." The data set that IPA used complies with most of those preferences. It included five years of data, was readily available, and came from a nearby NWS station. The short distance between the station and IPA's site also indicates that data from the station was representative of conditions that might be expected at the Facility site.

Ms. Sears put special emphasis on two of the preferences in the EPA guideline: that the data be from consecutive and the most recent years. IPA used five years of data that were not consecutive, but not because IPA chose to drop a year to skew the modeling results. Instead, data from one of the consecutive years was incomplete and TCEQ dropped that year from its set of pre-processed data.[300] The data set that Ms. Sears recommended included more recent years than the set IPA used. However, her recommended set included some data from Corpus Christi, which is farther away and for that reason less obviously representative of conditions at IPA's location than the Victoria Regional Airport, where the data that IPA used was gathered.

Additionally, IPA relied on a free, downloadable set of data from one of the specific sources recommended by the TCEQ staff to all applicants. That clearly is more readily available than the data set that Ms. Sears chose, which she had to pay for. The AERMOD-ready data supplied by TCEQ had already been quality assured and approved by the TCEQ for use in regulatory applications.[301] The ED's witness Mr. Schultz testified about the data checking and

---

[299] Applicant's Ex. 65 at 6, 7, and 10.

[300] Applicant's Ex. 65 at 9.

[301] Applicant's Ex. 65 at 10.

filling of missing data performed by the TCEQ prior to making a meteorological data set available for modeling.[302]

If IPA had chosen to use an independent vendor's data set, as Ms. Sears contends it should have, that would have required additional expense and introduced a whole series of questions and delays concerning the qualifications of the vendor, the vendor's choice of data, and why that vendor was selected over others. Mr. Schultz testified that an applicant that chooses not to use the meteorological data that has been pre-processed by TCEQ must submit that data to TCEQ in advance of conducting modeling. Then, TCEQ would review the data to ensure the underlying data set and the decisions that the applicant has made in preparing the data for modeling are consistent with EPA and TCEQ requirements and that the data is a reliable model input.[303] In short, the Trinity meteorological data that Ms. Sears advocates, contrary to EPA's and TCEQ's preference, would have been far less readily available than the data that IPA used.

Finally, using the data set that the TCEQ recommends to all applicants indicates to the ALJs that IPA chose it without trying to tweak the modeling predictions that it would yield. In contrast, Mr. Sears modeled using three sets of data and then advocated the only set that predicted an SIL exceedance based on IPA's other assumptions; hence, a basis for denying the Application or requiring additional delay and remodeling. To the ALJs, that indicated that Ms. Sears' data choice was not objective. Rather she picked it to support an outcome she desired, which made her choice less persuasive to the ALJs.

b. Wind Speed

To calculate emissions from transfer points at the Facility, IPA used an equation set out in EPA's AP-42. One of the factors that the equation requires is mean wind speed.[304] IPA used

---

[302] Tr. 1130-1131.

[303] Tr. 1132; Applicant's Ex. 30 (TCEQ, Air Quality Modeling Guidelines).

[304] EDF Cross Ex. 8 at 13. (AP-42 Section 13.2.4).

the highest annual average wind speed from the five years of meteorological data supplied by TCEQ: 10.38 miles per hour (mph).[305]

EDF argues that due to its wind-speed choice, IPA only calculated an average emission rate, not the worst-case or maximum emission rate, for the drop operations. EDF notes that at least 28.4% of the time the wind speed will exceed 12 mph.[306] EDF claims that if IPA had used a higher wind speed it would have calculated a higher emission factor and a higher emission rate. IPA responds that EDF's position is perplexing and incorrect. The ALJs agree with IPA.

EDF established no basis for diverging from the directions concerning wind speed that are given in AP-42. In fact, EDF's own expert, Mr. Srackangast, advocated the use of the same Section 13.2.4 of AP-42 that sets out the equation requiring the use of mean, not highest, wind speed.[307] If anything, IPA biased its emission results upward by using the highest mean wind speed of the five years of data, rather than the mean for all five years.

4. Surface Roughness

One of the inputs that the AERMOD model requires to estimate potential impacts of a project's air emission on ambient air is an estimate of the roughness of the surface in the vicinity of its emission sources.[308] An AERMOD Training document states:

> The surface roughness length is related to the height of obstacles to the wind flow and is in principle the height at which the mean horizontal wind speed is zero. Values range from less than .001 meter over a calm water surface to 1 meter or more over a forest or urban area.[309]

---

[305] Applicant's Ex. 3 at IPA 0000163 (Application).

[306] Applicant's Ex. 3 at IPA0000195.

[307] EDF Ex. 100 at 21.

[308] Applicant's Ex. 28 at 22 and Ex. 30 at 41-43; Tr. 1153.

[309] Applicant's Ex. 35 at 3.

IPA classified the surface roughness in the vicinity of its Facility sources as medium. EDF contends that IPA failed to show that was a reasonable classification. IPA and the ED disagree with EDF, as do the ALJs.

According to EDF's modeling expert, Arnold Srackangast, the AERMOD model can be very sensitive to the surface roughness parameter.[310] No party disagrees with Mr. Srackangast on that point.

TCEQ guidance document RG-25 addresses the classification of land use that is necessary for modeling.[311] The goal is to estimate the percentage of the area within a certain radius of the source that is either urban or rural based on twelve land-use types.[312] TCEQ has three classifications for surface roughness: low, medium, and high.[313] Each classification has a corresponding numerical surface roughness range. Low is defined as between 0.001 to 0.1 meters. Medium is defined at 0.1 to 1.0 meters. High is defined as 0.7 to 1.5 meters.[314]

IPA's Mr. Stormwind testified that the area near the CC2 site is primarily a mixture of high and low elements: trees, shrubs, grassland, water, buildings, and facility structures. Water and trees represent the extremes in surface roughness values.[315] Before performing any modeling, Mr. Stormwind concluded that the area was medium rough. He testified that it took him only five minutes, using his extensive modeling experience, to determine that the roughness was clearly medium.

---

[310] EDF Ex. 100 at 7.

[311] Applicant's Ex. 30 at 41-43; *See also* ED Ex. ED-18.

[312] *Id.*

[313] EDF Ex. 100 at 6; Applicant's Ex. 35 at 4.

[314] *Id.*

[315] Tr. 415-416. "Those two land use types that bracket, you know, the extremes."

The TCEQ staff agreed with Mr. Stormwind's early and quick determination that the area was medium rough.[316] The ED's Mr. Shultz testified that the area around CC2 was medium rough and used layperson's terms to explain the three roughness categories:

> Well, low roughness would be something very flat, like a body of water or a desert. Medium would be a mixture of grasses and trees, shrubs. High roughness would be thick forest or an urban environment with tall buildings.[317]

Looking at an aerial photo of the area near the CC2 sources tends to support Mr. Stormwind's description that the land use is mixed; hence, the area is medium rough.[318] It certainly is not a desert. There are open water bodies in the vicinity, principally the reservoir on Perdido Creek, but also IPA's ash pond. However, those very flat areas do not dominate the photo.

Despite that, EDF claims that Mr. Stormwind's early surface-roughness estimate was no more than a guess. Per TCEQ guidance, when the surrounding area has extreme variations in land use then the Applicant should perform a land-use analysis.[319] EDF claims that these extreme variations in land use near the Facility required the Applicant to perform a land-use analysis to determine surface roughness.

After AERMOD became the air dispersion model of choice, EPA developed a program called AERSURFACE, which EPA now recommends using to determine surface roughness for a user-defined location.[320] AERSURFACE provides a user with a numerical value for surface roughness, which can then be compared to TCEQ's surface roughness ranges to determine the proper roughness classification. The AERSURFACE program uses publicly available national

[316] Tr. 418-419.

[317] Tr. 1134.

[318] Applicant's Ex. 99.

[319] Applicant's Ex. 35 at 4 and 44.

[320] EDF Ex. 100 at 7; EDF Ex. 102 at 2.

land cover datasets from the U.S. Geological Survey (USGS). The USGS data classifies land cover based on a 21-category scheme.[321] Each of the 21 land cover categories in the USGS data is linked within AERSURFACE to a set of seasonal surface characteristics, which vary depending on the season.[322] According to EDF's Mr. Srackangast, the use of the AERSURFACE program results in a reviewable, repeatable, and reliable quantification of surface roughness.[323]

The TCEQ currently recommends the use of AERSURFACE for air permit applications,[324] and some states even require its use.[325] Although its use is not presently required by either TCEQ or EPA, EPA's AERSURFACE User's Guide indicates that the methodology contained in the AERSURFACE program should be followed unless case-by-case justification is provided for an alternative method.[326]

Even if not specifically required, EDF argues that there was no reason for the Applicant's failure to use AERSUFACE or another method of land-use quantification as part of the dispersion modeling that it filed with the ED for review. The Applicant's consultant is familiar with AERSURFACE, and he has used it for other applications.[327] The TCEQ generally recommends that Applicants wait to perform modeling until *after* the submittal date.[328] This is because certain modeling inputs (emission rates) must be approved before the modeling can be conducted. A dispersion model can be setup without consideration of surface roughness since surface roughness only impacts the selection of the meteorological data set, which is easy to

---

[321] *Id.*

[322] *Id.* at 4.

[323] Tr. 733.

[324] Tr. 1156.

[325] Tr. 427.

[326] EDF Ex. 102 at 7.

[327] Tr. 421.

[328] Tr. 1160.

change.[329] IPA submitted its Application in January 2008, but did not submit its AERMOD modeling until June 2008. AERSURFACE became available to the Applicant in January 2008.[330]

The ALJs agree that the evidence derived from AERSURFACE is relevant to determine surface roughness. However, they see no basis for EDF's claim that IPA should have used AERSURFACE when no law or applicable TCEQ policy required its use.

If IPA had originally used AERSURFACE, EDF contends that IPA would have determined that the surface roughness near the Facility was low. EDF's Mr. Srackangast ran AERSURFACE for both CC2 and the Victoria Regional Airport. He testified that both locations were run utilizing the recommended settings. He centered his CC2 analysis on the CC2 boiler stack, the largest emitter of pollutants at CC2. AERSURFACE computed a surface roughness of 0.05 meters, which fell into the low category.[331] Mr. Srackangast's run for Victoria Regional Airport computed a result of 0.027 meters, which also falls under the low category. If the Applicant had used the meteorological data for a low surface roughness, EDF claims that the preliminary impact analysis for 24-hour and annual PM_{10} would have shown that a full PSD Increment and NAAQS analysis was required.[332]

Mr. Stormwind testified that there were obvious problems with the USGS land cover data that Mr. Srackangast used for his first AERSURFACE run. In large part this was due to the USGS data being derived from satellite images from 1992, which EPA has acknowledged as a problem.[333] Land uses, hence roughness, have changed over time. For example, the existing coal pile, boiler area, and industrial structures at the IPA Facility are represented in the USGS

---

[329] Tr. 1151-1152.

[330] Tr. 284.

[331] EDF Ex. 100 at 8.

[332] EDF Ex. 100 at 9; EDF Ex. 104.

[333] Tr. 426.

data as quarry/strip mine, shrub land, grasslands, and open water. Additionally, the USGS data does not reflect the proposed CC2 unit and associated buildings and structures, which would alter the surface roughness and affect the dispersion of IPA's emissions. The areas where those proposed structures would be built are represented as open water, wetlands, or grassland in the USGS data.[334]

Mr. Srackangast conceded that at least some of those areas have or would have a rougher texture than the USGS data indicated.[335] After he corrected the USGS data for the problems he acknowledged, Mr. Srackangast testified that AERSURFACE categorized the overall surface roughness near IPA as 0.075 meters, which was still low.[336].

According to Mr. Stormwind, Mr. Srackangast placed the center point for the Facility at the wrong point when he calculated surface roughness using AERSURFACE. Mr. Srackangast placed the center point at the largest emission source, the CC2 main stack.[337] Mr. Stormwind placed the center point to the northwest of the main stack.[338]

In response to EDF's criticisms, Mr. Stormwind later used AERSURFACE to calculate surface roughness and compared his results to Mr. Srackangast's. Changing none of Mr. Srackangast's assumptions, other than to put the center point in the correct location as indicated by the user guide, AERSURFACE estimated that the average surface roughness was 0.123 meters, or medium, according to Mr. Stormwind. Making other corrections Mr. Stormwind deemed warranted, AERSURFACE estimated the average surface roughness was 0.149 meters, also medium.[339]

---

[334] Applicant's Ex. 2 at 256; Ex. 65 at 25; Ex. 100; Cross Ex. 2; and Tr. 1289.

[335] Tr. 707.

[336] Tr. 743.

[337] Tr. 716-717.

[338] Tr. 1310-1311; Applicant's Ex. 3 at 137 (pink squares) and Ex. 99 (green stars).

[339] Tr. 1294.

EDF claims that Mr. Stormwind simply moved the center point in his AERSURFACE calculations in order to achieve a desired result: a medium surface roughness that would lead AERMOD to predicting lower maximum ground level concentrations. But that is not what the evidence indicates.

For his analyses, Mr. Stormwind used the center point he first identified in 2007 using a computer program developed to identify the center point of all project sources (*i.e.*, all new project sources and all sources with an emissions increase resulting from the project). That was when IPA originally established the receptor grids for the modeling analysis.[340] IPA's center point was also consistent with EPA's AERSURFACE User's Guide,[341] which directs modelers to use "the center of the site location" as the center point of the AERSURFACE analysis.[342] The User's Guide also refers to the center point as the "site center" and "the center of the study area."[343]

EDF contends that it would have made more sense to center AERSURFACE at the largest source of air pollutants, which would have been more conservative and necessitated a full PSD Increment and NAAQS analysis that included other emission sources beside CC2. EDF contends that such an analysis was both required and would be prudent given the vintage of the existing CC1 facility and its significant emissions.[344]

Despite its reference to CC1, EDF points to no law or guidance indicating that a fuller level of review was required. Instead, EDF seems to argue that the user guide for AERSURFACE should be ignored when setting the center-point if doing so leads to the

---

[340] Tr. 1293.

[341] Tr. 1292.

[342] EDF's Ex. 102 at 10.

[343] *Id.*

[344] Applicant's Ex. 97, at MAERT. Some of CC1's emissions are more than double those in CC2's Draft Permit.

conclusion that even more analysis is required. That may be more conservative, but it is little more than a demand by EDF for more analysis, when no law or guidance indicates that it is warranted. The ALJs do not agree with EDF on this point.

Additionally, when the advocated center points are superimposed on an aerial photo, it is visually obvious that EDF and Mr. Srackangast are advocating a center point near the edge of the Perdido Creek reservoir. The virtually flat surface of the reservoir becomes the dominant landform in an area that is otherwise quite varied in roughness. The ALJs conclude that moving the center point as EDF advocates would distort the calculated surface roughness rather than make it more accurate.

Overall, the ALJs found Mr. Stormwind's analysis more persuasive. They conclude that IPA's modeling properly assumed that the surface roughness was medium.

5. Summary Concerning Modeling Criticisms

Based on the above, the ALJs do not agree with the Protestants criticisms of IPA's modeling. Instead, the ALJs conclude that IPA appropriately conducted air dispersion modeling of the proposed emissions from CC2.

C. Emissions from CC2 Will Not Cause or Contribute to any NAAQS Exceedance

Even if IPA correctly modeled the dispersion of its emissions from CC2, the Protestants argue that IPA has not shown that the emissions will not cause or contribute to exceedances of the NAAQS for 24-hour PM_{10}, $PM_{2.5}$, and ozone. They do not raise a similar argument as to the other NAAQS. IPA argues that it has carried its burden of proof as to all NAAQS. The ALJs agree with IPA.

1. Particulate Matter

a. Maximum 24-hour Concentrations of PM_{10} Will Be Insignificant

With the ED's approval, IPA used 5 $\mu g/m^3$ as the SIL for both the 24-hour PM_{10} NAAQS and PSD increment modeling analyses. Sierra Club's witness Camille Sears questions using the SILs for PSD increment compliance.[345] IPA contends that Ms. Sears was wrong on this point.

Sierra Club does not appear to advocate this position taken by its expert. Nevertheless, the ALJs will briefly address it, in case they have misunderstood Sierra Club's position. The ALJs conclude that Ms. Sears is incorrect.

The TCEQ's primary dispersion modeling guidance document, the Air Quality Modeling Guidelines,[346] states that Step 2 of a PSD increment modeling requires the applicant to establish a radius of significant impact (ROI) for each pollutant with an area of significant impact (AOI) and directs the applicant to Section 3.9 of the document. Section 3.9 states that an applicant must first "[c]ompare the predicted high concentration at or beyond the fence line for each pollutant and each averaging time to the appropriate NAAQS *de minimis* level in Appendix A." Appendix A, titled "Values for Comparison with Modeling Results," identifies the SILs established in 40 C.F.R. § 51.165(b) as the applicable *de minimis* levels for NAAQS and PSD increment analyses.

That is consistent with EPA's New Source Review Workshop Manual,[347] which states:

> The proposed project's impact area is the geographical area for which the required air quality analysis for the NAAQS and PSD increments are carried out. This area includes all locations where the significant increase in the potential emissions

---

[345] Sierra Club's Ex. 200 at 17.

[346] Applicant's Ex. 30 (TCEQ, Air Quality Modeling Guidelines (Feb. 1999)).

[347] Applicant's Ex. 24 (EPA, New Source Review Workshop Manual (Draft 1990)) .

of a pollutant from a new source, or significant net emissions increase from a modification, will cause a significant ambient impact (*i.e.*, equal or exceed the applicable significant ambient impact level, as shown in Table C-4).

Table C-4, titled "Significance Levels for Air Quality Impacts in Class II Areas," identifies 5 $\mu g/m^3$ as the 24-hour PM_{10} significance level.

In a 2007 Federal Register entry, EPA again recognized the use of the SILs in evaluating PSD increment compliance.[348] EPA stated:

> In draft guidance for permit writers, EPA advised that SILs may be used to determine whether a source needs to conduct cumulative or "full" impact analysis to demonstrate that in conjunction with all other increment consuming sources, it will not cause or contribute to violation of the NAAQS or PSD increment in an attainment or unclassifiable area. Permitting authorities followed this guidance, and this approach remains an accepted aspect of PSD program implementation. If based on a preliminary impact analysis, a source can show that its emissions alone will not increase ambient concentrations by more than the SILs, EPA considers this to be a sufficient demonstration that a source will not cause or contribute to a violation of the NAAQS or increment.

Applicant's expert witness Brian Stormwind, the ED's Mr. Schultz, and EDF's Mr. Srackangast all indicated that the SILs established in 40 C.F.R. § 51.165(b) have long been used to evaluate PSD increment compliance in Texas and other states.[349]

Ms. Sears did not point to an alternative SIL for 24-hour PM_{10} increment; rather, she relied on the fact that 40 C.F.R. § 51.165(b) does not include the word "increment."[350] Nevertheless, she acknowledged that the SILs established in § 51.165(b) are "used by various air

---

[348] Applicant's Exhibit. 75 (72 Fed. Reg. 54,112 at 54,117 (Sept. 21, 2007)).

[349] Applicant's Ex. 65 at 20-22; ED Ex. ED-14 at 16; EDF Ex. 100 at 9.

[350] Sierra Club's Ex. 200 at 15-16.

agencies for PSD increment compliance."[351] In fact, many of Ms. Sears's own exhibits reflect the use of the SILs for both NAAQS and PSD increment compliance.[352]

The ALJs find that IPA correctly applied the 24-hour PM_{10} SIL in evaluating PSD increment compliance.

b. Using PM_{10} as a Surrogate for $PM_{2.5}$

As previously discusses, the Commission's policy is clear that an applicant may use PM_{10} as a surrogate for $PM_{2.5}$. Thus, IPA,s reliance on that policy does not render its modeling insufficient in this case. Additionally, because IPA's modeling shows that PM_{10} significance levels will not be exceeded, the ALJ's find, in accordance with the surrogate policy, that neither IPA's PM_{10} emissions nor its $PM_{2.5}$ emissions due to CC2 will be significant.

2. Ozone

Ozone is formed by the complex interactions of VOC with NOx in the presence of light.[353] Citizens argue that the Application and evidence show that emissions from the proposed power plant will cause or contribute to air pollution in excess of the NAAQS for ozone. IPA disagrees. The ALJs find that the proposed emissions will not cause or contribute to an exceedance of the ozone NAAQS.

---

351 Sierra Club's Ex. 200 at 18.

352 *See, e.g.*, Sierra Club's Ex. 221 at 9 (Connecticut Dep't of Environmental Protection modeling guidance); Sierra Club's Ex. 212 at 8 (Modeling Report submitted to the Missouri Dep't of Natural Resources); Sierra Club's Ex. 215 at 4-1 (Modeling Report submitted to Illinois Environmental Protection Agency); Sierra Club's Ex. 220 at Section V.B., Table 3 (Modeling Report submitted to the Alabama Dep't of Environmental Management).

353 Applicant's Ex. 47 at 7.

a. VOCs Emissions will be Below the *De Minimis* Level Related to Ozone

IPA claims and the ALJs agree that its proposed VOC emissions would fall below the established *de minimis* level, which eliminates any need to further study CC2's potential impact on ozone. Although Sierra Club and Citizens raise other objections to IPA's ozone analysis, they do not argue that the VOC emissions will be above the *de minimis* level. Given the *de minimis* VOC emissions, however, the Protestants' other ozone objections are moot.

IPA included an ozone impact analysis in its Application.[354] The ED's Mr. Schultz reviewed it and concluded that it was prepared in accordance with current TCEQ guidelines and indicated that CC2's impact on ozone would be insignificant.[355]

Mr. Schultz also testified that the two precursors of ozone are VOC and NOx. If VOC dominates, more NOx is needed to produce ozone, and vice versa. He also testified that the Victoria, Austin, San Antonio, and DFW areas are NOx dominated and VOC-limited, while the Houston and Corpus Christi areas are VOC dominated and NOx-limited.[356] No party disagrees with Mr. Schultz on these points.

More specifically, IPA demonstrated that Goliad County, where CC2 would be located, is NOx-dominated and VOC-limited.[357] The TCEQ guidelines require the identification of representative ambient ozone monitoring data for the facility and the determination of methane-normalized VOC to NOx ratio using the proposed emissions of VOC and NOx from the CC2 project for the required ozone analysis.[358] The ozone analysis developed by the ED is based on results from EPA's EKMA (Empirical Kinetic Modeling Approach) model. The EKMA model

---

[354] Applicant's Ex. at 3 at IPA0000271, IPA0000261.

[355] ED Ex. ED-14 at 17; ED Ex. ED-18 at 31-32 (TCEQ Air Quality Modeling Guidelines); Applicant's Cross Ex. 20.

[356] Tr. 1189-1190.

[357] Applicant's Ex. 3 at IPA 0000271.

[358] ED Ex. ED-14 at 17.

evaluates control strategies for reducing peak ozone concentrations based on controlling VOC and/or NOx emissions.[359]

The Application included an identification of representative ambient ozone levels from the ozone regulatory monitor in Victoria, Texas, and a determination that the CC2 project, with potential VOC emissions of 99.7 tons per years (tpy) and NOx of 1,471 tpy, is NOx-dominated and therefore VOC-limited.[360] The 99.7 tpy ceiling on VOC emissions from CC2 is included in the Draft Permit.[361]

In another permitting matter, EPA commented, "40 C.F.R. 52.21(i)(8) requires an ambient impact analysis for [ozone], if the source's VOC emissions subject to PSD exceeds 100 tons/year."[362] This regulatory threshold is also reflected in Appendix A of the TCEQ's Air Quality Modeling Guidelines, which identifies 100 tpy of VOCs as the *de minimis* level for ozone.[363] That means that the 99.7 tpy of VOC from the CC2 project are considered *de minimis* with respect to ozone.

The ED's Preliminary Determination Summary stated, "[t]he ozone analysis conducted by the applicant shows that the project is [ozone]-neutral. Based on historical analysis using the EKMA model, [ozone]-neutral sources would not be expected to have a discernable impact on the maximum ozone concentration in an area."[364] Also Mr. Schultz testified that "[b]ased on the lack of VOCs, the NOx from the site would not significantly increase ozone formation in this near area and would likely reduce it depending on local meteorology, precursor emissions, and formed emissions on any given day."[365]

---

[359] ED Ex. ED-14 at 18: ED's Ex. ED-11 at 477 (Response to Public Comments).

[360] Applicant's Ex. 3 at IPA0000271; IPA0000261.

[361] ED Ex. ED-9 at 441-442 (MAERT).

[362] CCE Ex. 9 at 7.

[363] ED Ex. ED-18, Appendix A at A-1.

[364] ED Ex.ED-8 at 418.

[365] ED Ex. ED-14 at 18.

The ALJs conclude that Goliad County is VOC-limited, and the proposed emissions from CC2 would be below the 100 tpy *de minimis* level for VOC; hence, emissions from CC2 would not cause or contribute to exceedances of the ozone NAAQS.

b. The Victoria County Ozone Maintenance Plan and NOx

Citizens argue that the 8-hour ozone maintenance plan for the Victoria County ozone attainment area depends upon a trend analysis showing an overall decrease in NOx and VOC emissions. They also claim that the proposed plant will increase NOx emissions by at least 53.18 tons per day. This leads Citizens to argue that the NOx emission from CC2 would derail the Victoria County ozone attainment plan. That is incorrect.

IPA correctly argues that Citizens are wrong when they claim that CC2 will emit 53.18 tpd of NOx. The Draft Permit does not allow emissions of greater than 4.8 tons per day from the CC2 boiler during normal operations.[366] Even on those infrequent days when there is a start up of the new unit, NOx emissions are limited by the Draft Permit to 6.7 tons per day.[367]

Citizens do not cite and the ALJs can find no evidence to support their claim that CC2 would increase NOx emissions by 53.18 tpd. Even if the evidence showed that, the ALJs would not conclude that such an increase in NOx emissions from CC2 would cause or contribute to ozone exceedances in Victoria County or even move the county toward an ozone exceedance.

It is true that Victoria County's ozone maintenance plan assumes that on an average day during the ozone season point sources, like CC2, would emit 16 tpd of NOx in 2010, 17 tpd of NOx in 2014, 3.30 tpd of VOC in 2010, and 3.60 tpd of VOC in 2014.[368] That reconfirms, as discussed above, that Victoria County is NOx dominated. Consequently, additional NOx

---

[366] Tr. 149.

[367] *Id.*

[368] CCE Ex. 19 at 3-1 thru 3-2.

emissions from CC2 would be irrelevant to the formation of additional ozone in Victoria County. Nothing in the Victoria County plan suggests otherwise.

c. *De Minimis* Level for Ozone

Because IPA's proposed emission of VOC is in a VOC-limited area and below the *de minimis* level related to ozone, IPA had no legal need to offer additional evidence concerning the impact its emissions would have on ozone levels. Nevertheless, IPA offered additional photochemical ozone modeling evidence to further prove that its emissions would not have a significant impact on ozone. That raises the question of whether there is a level of ozone increase that is insignificant.

Citizens and Sierra Club argue that a *de minimis* impact level for ozone does not exist, apparently meaning that the Application may not be approved if any increase in ozone is predicted anywhere. They note that EPA has promulgated *de minimis* exceptions for certain pollutants, which TCEQ has adopted as well.[369] The TCEQ rule does not define a *de minimis* level for ozone.

EPA has stated that a new or modified source will not be considered to cause or contribute to a violation of a NAAQS if the air quality impact is less than the "specified significance levels."[370] EPA limited the exceptions to specified criteria pollutants (SO_2, particulate matter, NO_2, and CO).[371] EPA clearly stated that "significance increments are not specified for photochemical oxidants" (*i.e.*, VOCs and NOx which are emitted by the source and chemically form ozone).[372] Citizens argue that this remains EPA's position today.[373] They cite a

---

369 30 TAC § 101(25).

370 44 Fed. Reg. 3,274, 3,277 (January 16, 1979).

371 43 Fed. Reg. 26,380, 26,398 (June 19, 1978).

372 44 Fed. Reg. 3,274, 3,277 (January 16, 1979).

373 CCE Ex. 7; CCE Cross Exs. 6 and 7.

comment letter from EPA Region 6 on another application before the Commission, which states, "EPA does not have an established significant impact level for ozone and TCEQ should not assume that the threshold for PSD purposes is an impact of 2.0 parts per billion or more."[374]

IPA disagrees that the absence of a significance level specified in a rule means that any increase in ozone causes or contributes to a NAAQS exceedance. The 1997 8-hour ozone NAAQS is 0.08 ppm, which is equivalent to 80 parts per billion (ppb). The 2008 8-hour ozone NAAQS is 0.075 ppm, which is equivalent to 75 ppb. IPA notes that modern ambient ozone monitors can detect ozone levels only down to about 5 ppb.[375] Based on similar evidence, the Commission found in the *Sandy Creek, Oak Grove,* and *NRG* permitting matters that predicted ozone concentrations below the detection level would not measurably influence ambient ozone.[376]

On judicial review of the *Sandy Creek* case, the Amarillo Court of Appeals overruled appellants' claims that the Commission erred in approving the permit.[377] As in this case, the appellants in *Sandy Creek* noted that EPA and the Commission had no rule setting a *de minimis* level for ozone and argued that the Commission erred by approving the permit when evidence showed that there would be an extremely small increase in ozone. The Court found that that it was reasonable and consistent for the Commission to determine that an insignificant increase in ozone in a nonattainment area would not cause or contribute to a NAAQS violation. The Court also found that there was substantial evidence to support the Commission's finding that the increase was insignificant when the predicted increase would be below the monitor detection

---

[374] CCE Ex. 8, Comment 5. The specific mention of 2.0 ppb apparently refers to the maximum predicted increase due to that other application.

[375] Applicant's Ex. 47 at 8.

[376] Applicant's Ex. 26, Finding of Fact Nos. 74-78 (Sandy Creek Final Order); Applicant's Ex. 27, Finding of Fact Nos. 78-81 (Oak Grove Final Order); Findings of Fact Nos. 103-107 (NRG Final Order).

[377] *Blue Skies Alliance v. Texas Comm. on Environmental Quality*, 283 S.W.3d 525, 529-533 (Tex.App. Amarillo 2009).

limit and appellants identified no evidence showing that the extremely small increase would have a tangible impact.

Despite the absence of a specific rule, the Commission's precedent on this point is clear. In this case, as in *Sandy Creek*, the preponderance of evidence shows that 5 ppb is the monitor detection limit for ozone, and there is no evidence that an increase in predicted ozone concentrations of less than 5 ppb would have any impact on attainment. Based on that, the ALJs conclude an increase in ozone of less than 5 ppb, when the 8-hour ozone standard is 75 to 80 ppb, is insignificant.

d. Results of Photochemical Ozone Analyses

IPA contends that two independent analyses concluded that the CC2 project would not cause or contribute to a violation of either the 0.08 ppm or 0.075 ppm 8-hour ozone NAAQS. The Protestants, and especially Citizens, argue that those studies are insufficient to show that.

Ozone formation is typically predicted by the use of photochemical air quality models. Such models include chemical transformations that are influenced by light. CAMx is a publicly available photochemical model developed by ENVIRON Corporation and widely used for air quality planning across the United States and abroad.[378]

At the request of the City of Victoria, modelers with the University of Texas at Austin conducted photochemical modeling of the potential ozone impacts from Applicant's proposed power plant (UT modeling).[379] They used the CAMx model. The UT modeling predicted that that the maximum ozone concentrations in the 7-county Victoria area associated with the emissions from CC2 would range from 0.770 ppb on September 16 to 2.234 ppb on September 19. Those would be increases of 0.006 ppb on September 16 and 1.862 ppb on

---

[378] Applicant's Ex. 47 at 7.

[379] Tr. 156.

September 19. For the 5-county Austin area, the predicted increase was zero for each day, except September 19 and 20, when ozone would rise by 0.039 ppb and 0.084 ppb, respectively. For the 3-county San Antonio area, the increase would be zero on September 15, 0.0001 ppb on September 16, 0.374 ppb on September 17, and 0.022 ppb on September 18.[380] All of those predicted values are far below the 5.0 ppb significance level for ozone established by the Commission in prior cases.

IPA's ozone-modeling expert, Dennis E. McNally, holds a bachelor of science in civil engineering and a master of atmospheric science. Mr. McNally is deeply qualified in the ozone-modeling field. Since 1987, he has worked in the field of atmospheric modeling, mostly with Alpine Geophysics for whom he is a senior scientist. He has been a central participant in over 50 photochemical modeling studies.[381] He has participated in many photochemical modeling exercises concerning ozone concentrations for air-quality-planning, attainment-demonstration, and SIP purposes throughout the country, including for the Houston-Galveston and Beaumont-Port Arthur areas.[382]

Mr. McNally testified that IPA asked him to review the results of the photochemical modeling of the CC2 project undertaken by the UT modelers. He also testified that the members of the UT team were qualified modelers. Alpine has worked extensively with them and the CAMx model that they used. Mr. McNally had no reason to doubt the credibility of their work.[383] Mr. McNally has extensively used CAMx since it was first developed in the 1990s, and he was even involved in the initial beta testing of the model.[384]

---

[380] CCE Cross Ex. 5 at iii and 1; and Applicant's. Ex. 47 at 11.

[381] Applicant's Ex. 47 at 1-2, and Ex. 48.

[382] *Id.*. at 3-4; Ex. 48 at 1-2; Tr. 512.

[383] Applicant's Ex. 47 at 11.

[384] Applicant's Ex. 47 at 7.

Although Mr. McNally agreed with the ultimate conclusions in the UT report, Alpine separately conducted modeling.[385] Mr. McNally testified that it predicted an incremental impact of zero at all but one monitoring site. At the Victoria monitor, CC2 was projected to increase the 2007 design value by 0.1 ppb (from 72.9 ppb to 73 ppb). Moreover, air quality trends at the Victoria monitor show that observed 8-hour average ozone concentrations have been falling, with a 2008 ozone design value of 66 ppb, well below the 75 ppb ozone standard.[386] The ED's witness, Mr. Schultz, agreed that a 0.1 ppb increase in ozone was a *de minimis* impact.[387]

The MAERT in the Draft Permit would allow 0.27 tpd of VOC from all CC2 sources.[388] The UT team assumed 0.24 tpd of VOC spread out evenly throughout the year. Apparently, that quantity came from an earlier engineering study of the CC2. Mr. McNally testified that 0.03 tpd difference was too small to be a significant limitation on using the UT modeling. He stated that the emissions used in the UT modeling were representative of normal operating conditions based on the highest pound-per-hour level authorized in the MAERT. They were intentionally not based on worst-case start up conditions, which are not expected to occur more frequently than four or five times per year or to last longer than 12 hours. Mr. McNally explained that assuming continuous worst-case conditions would fundamentally change the reactivity of the atmosphere, which would produce unrealistic results.[389]

For its modeling, Alpine took a slightly different approach than the UT modelers. Alpine evaluated incremental ozone impacts using a relative response factor (RRF)[390] approach. This approach is included in EPA's "Guidance on the Use of Models and Other Analyses in Attainment Demonstrations for the 8-hr Ozone, $PM_{2.5}$ and Regional Haze NAAQS" (EPA

---

[385] Applicant's Ex. 3 at IPA0000271, IPA0000315-330.

[386] Applicant's Ex. 3 at IPA 0000327 (Application, Tables 3 and 4); Applicant's Ex. 47 at 16; Tr. 608.

[387] Tr. 1209.

[388] Applicant's Ex. 12 (MAERT on last four pages).

[389] Applicant's Ex. 47 at 13-14.

[390] Sometimes less correctly referred to as the relative reduction factor approach, but the approach does not always result in a reduction. Tr. 533-534.

Attainment Demonstration Guidance).[391] This relative approach was used and approved by the Commission in the recent *NRG* case.[392]

Mr. McNally conceded that no air quality model is perfect. Air quality models tend to overestimate in some regions at times and to underestimate at others.[393] He testified that the UT modelers had done an analysis in an absolute sense, while Alpine examined that analysis and felt that it could be further extended by using a somewhat more contemporary approach of using the relative response factor approach.[394] Mr. McNally explained using the RRF approach allows future year concentrations to be divided by base year concentrations to try to remove any biases in the model.[395]

Mr. McNally concluded, "In my opinion, emissions from the CC2 project will only result in ozone impacts that are far below 5 ppb and are therefore not significant according to TCEQ precedent."[396] No expert witness disputed the models or methods that Mr. McNally used or the conclusions he reached concerning ozone concentrations.

e. EPA's Criticisms of Photochemical Ozone Analysis

Despite the lack of criticism from expert witnesses, Citizens contends that EPA's comments on the Draft Permit in this case and other cases indicate that the photochemical ozone modeling in this case is unreliable. As previously indicated, the ALJs have no authority to determine and need not consider Protestants' arguments that the TCEQ's program is not equivalent to federal regulation under the FCAA. However, to determine if the UT and Alpine

---

[391] Applicant's Ex. 47 at 6.

[392] *See* Tr. 516 -519.

[393] Tr. 518-519, 644.

[394] Tr. 628.

[395] Applicant's Ex. 47 at 15.

[396] Applicant's Ex. 47 at 10; *see also* Tr. 525 - 527.

photochemical ozone modeling is unreliable, the ALJs can and will evaluate EPA's comments as evidence. The ALJs find that the EPA comments lack sufficient evidentiary weight to show that the modeling is unreliable.

Citizens argue that EPA has informed TCEQ in other cases that the agency is failing to properly assess ozone impacts from proposed facilities.[397] In commenting on one permit application, EPA Region 6 stated, "EPA Region 6 will consider available Clean Air Act enforcement authorities or objecting to the subsequent Title V permit for this facility if an appropriate ozone analysis is not conducted for this facility."[398] These comments are non-specific and inapplicable to this particular case; hence, the ALJs do not assign any evidentiary weight to them.

In his comments to the ED concerning the Application in this case, Jeff Robinson, Chief of the Air Permits Section at EPA Region 6, stated that EPA:

- had previously commented on the inaccuracy of using Scheffe Point Source Screening Tables for determining ozone ambient impacts,
- was concerned about the approach the Applicant used in attempting to assess ozone impacts from the proposed unit,
- recommended the development of a modeling protocol consistent with the Texas SIP, and
- wanted to work with TCEQ to facilitate an appropriate ozone impact analysis for CC2.[399]

Only the concern about using the Scheffe Tables is somewhat specific, but it is misplaced. The ED recognizes that those tables are based on outdated science. More

[397] CCE Ex. 8, Comment 5; CCE Ex. 9, Comment 27 (May 20, 2004) and Comment 2 (May 25, 2004); CCE Ex. 10, Items 5 and 6, and the letters dated March 6, 2006 and March 29, 2006; CCE Ex. 11, Comment 8; CCE Ex. 12, Comment 25 (Feb. 20, 2004) and 1 (July 6, 2004);

[398] CCE Ex. 8 at 4.

[399] CCE Ex. 7, Comment 4

importantly, the Scheffe Tables were not used for the UT modeling, the Alpine modeling, or the ED's review of that modeling.[400]

Evidence of a modeling protocol or EPA's work with TCEQ on an ozone impact analysis concerning this Application might have lent support for or against the UT or Alpine modeling, but the absence of a protocol or work by EPA does not indicate that the UT or Alpine modeling is unreliable evidence. That is especially true when there was no requirement to submit photochemical modeling to the ED, much less EPA. Nor is Mr. Robinson's extremely general concern about the Applicant's assessment of ozone impacts of sufficient evidentiary weight to lead the ALJs to discount the otherwise persuasive evidence indicating that ozone levels would not be impacted.

Citizens also note that, in responding to comments, the ED indicated that EPA had informed TCEQ that the EPA Attainment Demonstration Guidance was not applicable to this PSD permit review.[401] An attainment demonstration is developed as part of a state implementation plan to simulate what the air quality impacts would be from a set of proposed rules and whether those would result in an area being in attainment of the ozone NAAQS.[402] Obviously, guidance concerning attainment demonstrations is not, strictly speaking, applicable to the evaluation of a permit application. Additionally, as the ED tells it, EPA indicated that the attainment guidance was not applicable because photochemical modeling was not required for the permitting.[403]

Mr. McNally acknowledged that he was not aware of EPA ever approving the use of its Attainment Demonstration Guidance to interpret photochemical modeling in a PSD permit

---

[400] ED Ex. ED-11 at 477; Tr. 1118, 1196-1198, and 1202.

[401] ED Ex. ED-11, Response 9; see also, ED Ex. ED-17 at 553.

[402] Tr. 497.

[403] ED Ex. ED-11, Response 9; see also, ED Ex. ED-17 at 553.

review.[404] Nevertheless, Mr. McNally, as a scientist, thought it reasonable to use the spirit of the attainment guidance's approach in the modeling he conducted.[405] The ALJs see no basis for discounting Alpine's modeling results because Alpine used EPA guidance in that way.

In fact, EPA's comments on some recent permitting cases seem to suggest that it agreed, at least in part, with the photochemical modeling approach that Alpine took. In the White Stallion Energy Center permitting matter, EPA commented that "[a]t this point, the only modeling technique that would seem technically appropriate for this source would be a CAMx based analysis using available modeling databases."[406] For the current case, Alpine's ozone analysis was a CAMx-based analysis using the available September 1999 modeling database.[407]

In the Midlothian Cement Plant permitting matter, EPA noted that there is "no GAQM App. A approved model" to assess ozone impacts, and that successful methods previously used include "adding the source in previous photochemical modeling and determining the change in ozone due to the new source," as with the CPS power plant and the Toyota plant.[408] In the current case, Alpine used CAMx modeling from prior SIP photochemical modeling studies and compared the ozone impacts with and without the CC2 project.[409]

Finally, Citizens note that EPA's Guideline on Air Quality Modeling states that model users should consult with the EPA Regional Office to determine the most suitable approach on a case-by-case basis.[410] Citizens complain that neither the Applicant nor TCEQ did this. Once again, the ALJs cannot see how the failure to consult EPA on a modeling approach means that the credible modeling evidence in this case should be discounted, especially when TCEQ, not

---

[404] Tr. 518– 524.

[405] Tr. 518.

[406] CCE Ex. 8 at 4.

[407] Tr. 629-632.

[408] CCE Ex. 9 at 8.

[409] Applicant's Ex. 47 at 10-11.

[410] ED Ex. ED-17 at 553.

EPA, is reviewing the Application and neither agency requires the submission of photochemical modeling.

f. IPA Has Not Admitted That Its Emissions Will Impact Ozone Problems

CCE contends that the Applicant has admitted that its emissions will impact the ozone problems faced by the Austin, San Antonio, and Victoria areas. They claim that this requires the Commission to deny the Applicant's air permit.[411] IPA vehemently denies that it admitted that its emissions would impact ozone problems in Austin, San Antonio, and Victoria. The ALJs see no such admission.

It is true, as already discussed, that the Alpine modeling predicted a 0.1 ppb ozone increase at a monitor in Victoria and the UT modeling predicted ozone increases of:

- 0.006 ppb and 1.862 ppb on two days in Victoria County;
- 0.0001 ppb, 0.022 ppb, and 0.374 ppb on three days in the San Antonio area; and
- 0.039 ppb and 0.084 ppb on two days in the Austin area.

But that does not mean that IPA admitted that those increases would impact ozone problems in that area. To the contrary, IPA argued and the ALJs agreed that those increases are all substantially below the 5-ppb level of significance; hence, IPA's emissions will not have an impact on ozone problems in Victoria, San Antonio, or Austin.

---

[411] CCE Argument at 5.

g. Geographic Scope of Ozone Analyses

Citizens argue that the geographic scope of IPA's ozone analyses was inappropriately small. IPA disagrees, as do the ALJs.

Citizens note that the Houston area is classified as nonattainment for ozone.[412] Additionally, they contend that TCEQ has recommended to EPA that Travis and Bexar Counties and portions of the Houston-Galveston-Brazoria area be classified as nonattainment for the 2008 8-hour ozone standard of 0.075 parts per millions (also referred to as 75 ppb).[413] Despite that, Citizens complain that neither the Applicant nor TCEQ reviewed whether CC2's emissions would cause or contribute to a violation of the ozone NAAQS in those geographic areas.

It does appear true, as Citizens contend, that the TCEQ Staff did not review any information concerning ozone impacts occurring in an area beyond 5 kilometers from the stack.[414] The TCEQ Staff only reviewed the ozone impact analysis that IPA submitted under the TCEQ guidelines. It showed that the VOC emissions would be below 100 tons per year, and no further analysis was required. The ED's Mr. Schultz testified that the Commission staff did not review the photochemical modeling evidence submitted by the Applicant because there is no current requirement to submit that type of analysis.[415]

As already discussed, however, the UT and Alpine modeling considered impacts in a much larger area and predicted concentrations of ozone in the Victoria, Austin, and San Antonio areas. Confusingly, Mr. McNally referred to the area he studied as a "4 km domain," which the ALJs initially took to mean four kilometers. But Mr. McNally included a map showing a much

---

[412] Tr. 503.

[413] CCE Ex. 15. Actually many more counties were proposed for nonattainment status as of December 11, 2008. It is not clear from the exhibit which counties were non-attainment prior to that letter.

[414] ED Ex. ED-19 at 744 (stating that the "photochemical modeling included in section 6.1 was not reviewed."); ED Ex. ED-10 at 459; Tr. 1168.

[415] ED Ex. ED-14 at 530.

larger area and described the region as including the Victoria, Corpus Christi, San Antonio, and Austin."[416] As already discussed, predicted ozone increases at all locations within that area were well below the 5 ppb significance level.

Should IPA have modeled ozone concentrations in an even larger area that included Houston and Dallas? The ALJs conclude that there was no need to.

First, the potential VOCs from CC2 will be less than the 100-tpy *de minimis* level beyond which an ambient impact analysis for ozone is required. Second, the domain that Alpine modeled included all of designated air quality control region in which the CC2 project is located.[417] Third, the credible UT and Alpine modeling predicted ozone concentration increases that are below the 5 ppb significance level that is detectable by a monitor.

Fourth, Mr. McNally credibly explained that after a certain distance the concentration of ozone that forms due to a source does not increase with additional distance from the source. He testified that NOx emitted by an industrial process primarily comes out as NO, nitrogen oxide. That NO reacts with the ozone, or O_3, that is in the atmosphere already, yielding NO_2 and oxygen, O_2. As the NO_2 moves farther downwind, it reacts—in the presence of sunlight and radicals from VOC emissions—to form more ozone until it reaches a maximum level, then falls back down again. Thus, as you move away from the source in the very near field, the ozone would go down. As you move further out, the ozone would come up to a maximum then decline.[418] That pattern of decline is consistent with the UT modeling, which predicted incremental peaks of 1.862 ppb in Victoria, 0.374 ppb in San Antonio, and 0.084 ppb in Austin, falling rapidly with distance from the source.[419]

---

[416] Applicant's Ex. 47 at 17 - 18.

[417] *See* 40 C.F.R. § 81.344.

[418] Tr. 493-494.

[419] CCE Cross Ex. 5 at iii and 1, and Applicant's Ex. 47 at 11.

Fifth, Mr. McNally testified that the DFW and Houston-Galveston nonattainment areas "were outside the 4 km modeling domain and well outside the area expected to be significantly impacted by emissions from the CC2 project."[420]

Sixth, both the DFW and Houston-Galveston nonattainment areas are more than 200 kilometers from IPA's Facility.[421] EPA has adopted guidance that limits the geographical extent to which emissions of ozone precursors are presumed to impact ozone nonattainment areas. Theresa Pella is manager of the Commission's Air Quality Planning Section, and her deposition was admitted as evidence.[422] Ms. Pella stated that EPA would only allow states to take credit in an attainment demonstration for control strategies that are undertaken within a maximum of 200 kilometers from a non-attainment area.[423] If it is reasonable to use a maximum radius of 200 kilometers to determine if a regulatory change would impact an entire region's attainment, then the ALJs find that there is no reason to expect a single source, such as CC2 to have an impact beyond a 200-kilometer radius.

Based on the above, the ALJs conclude that the geographical scope of IPA's analysis of the potential that emissions from CC2 would impact the ozone NAAQS was more than adequate. In fact, given that the proposed VOC emissions are below the 100-tpy *de minimis* level, any further analysis was legally unnecessary.

h. Ozone Summary

Based on the above, the ALJs conclude that emissions from CC2 will not cause or contribute to an exceedance of the ozone NAAQS.

---

420 Applicant's Ex. 47 at 18.

421 Tr. 541-542 and 575; CCE Cross Ex. 4 (Map).

422 CCE Ex. 20 at 4.

423 CCE Ex. 20 at 39-40.

D. Emissions Will Not Result in Exceedances of State Property-Line Standards

If IPA's modeling was performed correctly, the Protestants do not further contend that any state property-line standard would be exceeded. The ALJs conclude that the emissions from CC2 will not result in an exceedance of a state property-line standard.

E. Emissions Will Not Cause Adverse Effects

IPA and the ED contend that emissions from CC2 will not cause adverse effects. Beyond the modeling and other arguments already considered, the Protestants assert that IPA has not shown that. EDF especially notes that the maximum concentrations of coal dust that IPA predicted in the Perdido Creek Area were higher than the ESLs and that the ED's review and approval of them was hasty and inconsistent with prior Commission practice; hence, unreliable.

The ALJs conclude that emissions from CC2, including coal dust and its resulting maximum concentrations in the Perdido Creek Area, will not cause adverse effects.

1. Concentrations Below the NAAQS, ESLs, and Property-Line Standards Would Not Result In Adverse Effects

IPA's expert witness toxicologist, Dr. Thomas Dydek, testified that he did not expect any adverse health or welfare effects from pollutants that would be emitted by CC2. His conclusion pertained to pollutants subject to NAAQS, subject to the state property-line standards, on the ESL list, mercury, particulate matter equal to or less than four microns (PM_4), and radionuclides, and included effects due to acid rain, corrosion, and synergistic and cumulative effects. It also took into account the predicted concentrations in the Perdido Creek Area.[424] Similarly, after reviewing the same modeling results that included the Perdido Creek Area, the ED's toxicology expert, Dr. Jong-Song Lee, testified that operation of the Facility would not be detrimental to

---

[424] Applicant Exs. 49 and 88.

public health or welfare, animal life or vegetation, or cause any nuisance condition that would affect the normal use and enjoyment of property.[425]

Both Dr. Dydek and Dr. Lee are deeply qualified and experienced in the field of toxicological review of air emissions.[426] IPA's expert, Maria Remmert, holds a master's degree in biology and is well qualified and experienced in the field as well.[427] Dr. Lee is and Dr. Dydek and Ms. Remmert were senior toxicologists with the TCEQ. No party questions their qualifications of any of the three.

As previously discussed, IPA's supplemental modeling, which included the Perdido Creek Area, predicted maximum concentrations lower than the ESLs for all emissions except coal dust. ESLs are based on a pollutant's potential to cause adverse health effects, odor nuisances, vegetation effects, or materials damage.[428] They are used to evaluate the potential for effects to occur as a result of exposure to concentrations of constituents in the air. However, ESLs are not ambient standards, and if a constituent exceeds them, adverse health or welfare would not necessarily be expected to result. Instead, an ESL exceedance would trigger a need for a more in-depth review.[429]

In establishing ESLs for a majority of the constituents, the ED has relied on occupational exposure limits as the first step.[430] The occupational exposure limits are developed based upon an assumption of a healthy adult male.[431] The TCEQ then applies a margin of safety to the occupational exposure limits to account for the more sensitive members of the general

---

[425] ED Ex. ED-32 at 19.

[426] Applicant's Ex. 50 and ED Ex. ED-33.

[427] EDF Ex. 201.

[428] ED Ex. ED-32 at 10; Applicant's Ex. 28 at 43.

[429] Applicant's Ex. 54 at 1.

[430] Tr. 974-975.

[431] Tr. 976.

population.[432] Such members include children, elderly, and people with chronic illnesses.[433] Short-term ESLs are generally set at 1/100th and long-term ESLs at 1/1,000th of the level found to be safe for exposed, healthy, male workers.[434]

No party claims that concentrations below the NAAQS would cause adverse effects. Additionally, the evidence shows ESLs are very protective, and no party argues otherwise. The ALJs conclude that a predicted maximum concentration of a substance that is at or below a NAAQS or an ESL would not be injurious to or adversely affect human health or welfare, animal life, vegetation, or property or interfere with the normal use or enjoyment of animal life, vegetation, or property.

2. Predicted Concentrations of Coal Dust Would Not Cause Adverse Effects

Initially, IPA did not submit state-effects-review modeling for the Perdido Creek Area.[435] As previously discussed, IPA claims that area is on-site and that it was not obliged to submit modeling for it. As previously discussed, there is no need to determine if IPA was required to submit modeling for the Perdido Creek Area because it ultimately did submit modeling for that area.

After learning that EDF would argue the effects on receptors along the creek should be considered, the Applicant submitted additional modeling results to the ED for review. The supplemental modeling predicted that no state-property line value would be exceeded and only two ESLs would be exceeded, both for coal dust.[436] The ESL exceedances as set out below:

---

[432] *Id.*

[433] Tr. 977.

[434] Applicant's Ex. 49 at 18-19.

[435] Applicant's Ex. 28 at 26-27.

[436] Applicant's Ex. 45.

State Effects Review / ESL Modeling[437]			
Pollutant	**Averaging Period**	**TCEQ ESL ($\mu g/m^3$)**	**Max. Predicted On-Property Ambient Air Concentration ($\mu g/m^3$)**
Coal Dust	1-Hour	9	36.51
	Annual	0.9	0.91

Those impact results, which included the Perdido Creek Area, were provided to TCEQ's toxicologist, Dr. Jong-Song Lee, who reviewed them and concluded that they would not result in adverse health effects.[438]

EDF criticizes Dr. Lee's supplemental review of the coal-dust ESL exceedances on several grounds. It notes that Dr. Lee took only four hours to review the impact of the short-term exceedance and only 34 minutes to review the long-term exceedance.[439] Absent something more specific, the ALJs see no basis for discounting Dr. Lee's reviews simply because they took a short amount of time. Perhaps he found it easy to make the determinations. However, EDF also raised more substantive contentions that the ED's review of the coal-dust exceedances was flawed.

Waterways are included in the definition of a non-industrial receptor,[440] and it is undisputed that children and other members of the general public recreate on Perdido Creek.[441] Dr. Lee agreed that the Perdido Creek Area should be evaluated as a non-industrial receptor.[442] Dr. Lee also testified that the goal of the TCEQ Staff is generally to limit the short- and long-term maximum concentrations to two times the ESLs at industrial receptors and less than the

[437] *Id.*

[438] Applicant's Cross Exs. 3 and 4.

[439] Compare dates and times of activities in Applicant's Cross Ex. 4.

[440] Applicant's Ex. 36 at 18; Applicant's Ex. 37 at 20.

[441] EDF Ex. 100 at 16; EDF Ex. 109.

[442] Tr. 977-978.

ESLs at the maximally affected non-industrial receptor.[443] Yet the maximum predicted concentration of coal dust at any modeled location was 4.06 times the 1-hour ESL and 1.01 times the annual-ESL, both at points in the Perdido Creek Area.

a. Annual Highest Concentration of Coal Dust

As to the coal-dust annual ESL exceedance, Dr. Lee noted that it was only at one point directly outside the fence line and the exceedance of the ESL was "indifferent," apparently meaning only 0.01 above the 0.90 $\mu g/m^3$ ESL. Moreover, he found it unreasonable to expect that any person would drop anchor and stay at that exact point on Perdido Creek for an entire year.[444]

Dr. Dydek also thought that the exceedance of the annual coal-dust ESL was trivial and there was not a reasonable possibility that anyone would be exposed to it for an entire year. No one is going to be fishing in a boat 24 hours per day, 365 days per year.[445] The ESL for coal dust is one of the ESLs derived from an occupational exposure limit.[446] Ms. Remmert never disagreed with the reasoning of Dr. Dydek and Dr. Lee on these points. In her testimony, she never argued that the predicted very small exceedance of the annual-ESL for coal dust would have adverse effects.

The ALJs found Dr. Dydek's and Dr. Lee's analysis persuasive. They find that the emissions of coal dust from CC2 will not cause adverse effects due to long-term exposure.

---

[443] ED Ex. ED-32 at 17.

[444] Applicant's Ex. 4 at 1.

[445] Applicant's Ex. 88 at 5.

[446] Tr. 976.

b. One-hour Peak Concentration of Coal Dust

As to the 1-hour ESL for coal dust, the modeling predicted that it would be exceeded 46 hours per year. For 15 hours per year, it would be more than double the ESL. At peak, the concentration would be 4.06 times the ESL.[447] Dr. Lee indicated that the TCEQ Toxicology Section would not normally approve that high of an ESL exceedance; however, he concluded that the exceedance would not have adverse health effects under the circumstance of this Application. He noted:

- The modeling results for coal dust are based on the conservative and unlikely assumption that all coal operations would occur simultaneously;
- The frequency of predicted exceedances is small;
- No individual is likely to be the same receptor; and
- The ESLs are primarily set to protect against chronic effects, *e.g.* fibrosis and chronic obstructive pulmonary disease. [448]

That is consistent with Dr. Dydek's testimony. He noted that 46 hours, when there would be a predicted ESL exceedance, is only 0.5% of the year. Since the impacts are on a creek used for recreational purposes, he testified that it is very unlikely that someone would be there at exactly those times. He also testified that the long-term impacts of coal dust exposure are of concern toxicologically, not the short-term impacts.[449]

Dr. Dydek also testified that the predicted impacts were very conservative because the modeling assumed wind speeds were high in order to maximize the amount of coal dust blowing from piles, while maximum concentrations only occur under the opposite condition, when winds are very still.[450] Mr. Fraser testified that there would be no emissions of coal dust when the wind

---

[447] Applicant's Cross Ex. 3; Applicant's Ex. 88 at 5; Tr. 781-784; Tr. 972.

[448] Applicant's Cross Ex. 3.

[449] Applicant's Ex. 88 at 5.

[450] Applicant's Ex. 49 at 32-33.

speed was only 12-mph.[451] Mr. Stormwind re-ran the modeling assuming that wind speed, and the 1-hour concentration of coal dust dropped from 36.51 $\mu g/m^3$ to 15.73 $\mu g/m^3$.[452] That would still be higher than the 9.0 $\mu g/m^3$ 1-hour ESL, but less than twice it.

Ms. Remmert disagreed with Dr. Dydek and Dr. Lee on several of these points. She noted that in prior proceedings Dr. Lee testified that 24 hours was an insignificant exceedance.[453] That is not necessarily at odds with his testimony in this case that 46 hours is also insignificant, and Dr. Lee explained how other factors made even 46 hours insignificant.

Ms. Remmert testified that short-term ESLs are not necessarily designed to protect against chronic diseases. She testified that there are also acute effects from exposure to coal dust, including coughing, wheezing, and shortness of breath.[454] She did not state, however, that the predicted concentrations have been known to trigger those effects, and the ALJs do not infer that they would. To do so would suggest that worker-exposure standards, which are nearly 25 times higher, leave workers frequently coughing, wheezing, and short of breath. The ALJs decline to infer that worker-exposure standards are so lax.

To refute the suggestion that it was unlikely that anyone would be at the point of maximum exceedance during one of the 46 hours when an exceedance occurred, Ms. Remmert testified that she "thought" there were other locations where there were exceedances.[455] Even assuming that was true, Ms. Remmert did not explain how those other peaks differed in time from the highest peak, so the ALJs do not conclude that there were additional opportunities for exposure.

---

[451] Applicant's Ex. 21at 11-12.

[452] Applicant's Ex. 28; Applicant's Ex. 45 at 1.

[453] EDF Ex. 200 at 12; Tr. 783.

[454] Tr. 786-787.

[455] Tr. 784-786.

EDF claims that the ED's review was standard-less and not reviewable. EDF argues that if the review had followed prior TCEQ practice, the Perdido Creek impacts would not have been deemed allowable. EDF asks that the Commission either deny the Application or remand it for further comment and review because the State Effects Review was deficient and incomplete. The ALJs disagree with EDF on these points.

The ALJs find that the emissions of coal dust from CC2 would not cause adverse effects due to short-term exposure. While the peak 1-hour concentration of coal dust would be 4.06 times the ESL, the weight of the evidence shows that would be approximately 1/25th of the concentration protective of workers exposed to it over the long term, since short-term ESLs are set at 1/100th of that worker-exposure level. Moreover, that peak short-term concentration would occur only 0.5% of the year at a point or points on a water body, which would not be locations that would lend themselves to a frequent presence. Under these circumstances, the ALJs agree with Dr. Dydek and Dr. Lee. They would not expect adverse effects due to short-term exposure of coal dust emissions from CC2.

3. Adverse Effects Summary

Based on the above, the ALJs conclude that the emissions from CC2 will not cause adverse effects.

F. Air Pollution Summary

Based on the above, the ALJs conclude that the emissions from CC2 will not cause air pollution; hence, they will not contravene the intent of the TCAA.

IX. TRANSCRIPT COSTS

Because the hearing was scheduled for more than one day, the ALJs ordered the Applicant to arrange for and pay a court reporter to record and transcribe the hearing on the merits and to deliver the original transcript to the ALJs and two copies to the TCEQ's Chief Clerk on an expedited basis after the end of the hearing. The Applicant agreed to pay without reimbursement any additional cost required to expedite delivery of the transcript.

EDF and Sierra Club argue that the Applicant should bear all of the transcript costs. No other party addresses the issue. The ALJs agree that IPA should pay all of the transcript costs.

The Commission's rules provide that the Commission will not assess transcript costs against the ED or the OPIC[456] and that it will consider the following relevant factors in allocating reporting and transcription costs among the other parties:[457]

- the party who requested the transcript;
- the financial ability of the party to pay the costs;
- the extent to which the party participated in the hearing;
- the relative benefits to the various parties of having a transcript;
- the budgetary constraints of a state or federal administrative agency participating in the proceeding;
- in rate proceedings, the extent to which the expense of the rate proceeding is included in the utility's allowable expenses; and
- any other factor which is relevant to a just and reasonable assessment of costs.

---

[456] 30 TAC § 80.23 (d)(2).

[457] 30 TAC § 80.23 (d)(1).

The ALJs agree with EDF's analysis of the allocation factors. With minor changes by the ALJs, EDF's analysis follows:

CRITERIA FROM SECTION 80.23(d)(1)	EDF'S ARGUMENT
The party who requested the transcript.	Not Applicable. The ALJs required the court reporter and transcript, so no specific party actually requested it.
The financial ability of the party to pay the costs.	There is no specific evidence on the financial status of the various parties, although it is a matter of public knowledge that IPA has greater financial ability to pay than the non-profit protestants.
The extent to which the party participated in the hearing.	All of the parties participated in the hearing. However, IPA presented the most direct witnesses (7 in total) and the only rebuttal witnesses (5 in total). The Protestants presented 6 direct witnesses.
The relative benefits to the various parties of having a transcript.	All Parties relied on the transcript in their Closing Briefs.
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.	The Applicant requested direct referral of its Application making all air permitting issues relevant and therefore benefits the most from a hearing transcript.

The ALJs recommend that the Commission allocate all of the transcript costs to the Applicant.

X. SUMMARY

As set out above, the ALJs conclude that IPA has prevailed on all issues except the BACT emission limit for total PM/PM_{10}. Thus, the ALJs recommend that the Commission adopt the attached Proposed Order and approve IPA's Application as modified by reducing the BACT emission limit for total PM/PM_{10} from 0.032 lb/MMBtu to 0.025 lb/MMBtu. The Proposed Order contains additional finding of fact and conclusion of law that are not discussed in this PFD because they are not contested.

SIGNED February 8, 2010.

WILLIAM G. NEWCHURCH
ADMINISTRATIVE LAW JUDGE
STATE OFFICE OF ADMINISTRATIVE HEARINGS

RICHARD R. WILFONG
ADMINISTRATIVE LAW JUDGE
STATE OFFICE OF ADMINISTRATIVE HEARINGS

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

AN ORDER
GRANTING THE APPLICATION OF IPA COLETO CREEK, LLC FOR STATE AIR QUALITY PERMIT 83778 AND PREVENTION OF SIGNIFICANT DETERIORATION AIR QUALITY PERMIT PSD-TX-1118 AND FOR HAZARDOUS AIR POLLUTANT MAJOR SOURCE [FCAA § 112(g)] PERMIT HAP-18
SOAH DOCKET NO. 582-09-2045
TCEQ DOCKET NO. 2009-0032-AIR

On ___________________, the Texas Commission on Environmental Quality (TCEQ or Commission) considered the application of IPA Coleto Creek, LLC (IPA or Applicant) for State Air Quality Permit 83778, Prevention of Significant Deterioration Air Quality Permit PSD-TX-1118, and Hazardous Air Pollutant Major Source [FCAA § 112(g)] Permit HAP-18. A Proposal for Decision (PFD) was presented by Richard R. Wilfong and William G. Newchurch, Administrative Law Judges (ALJs) with the State Office of Administrative Hearings (SOAH), who conducted a contested case hearing in this case from October 13 through 20, 2009, in Austin, Texas.

After considering the ALJs PFD, the Commission adopts the following Findings of Fact and Conclusions of Law:

I. FINDINGS OF FACT

Introduction and Procedural History

1. IPA has requested permits to construct a new pulverized coal-fired steam electric generating unit that is nominally rated at 650 MW (net) (Coleto Creek Unit 2 or CC2) and ancillary equipment (collectively, the CC2 project).

2. The CC2 project will be located at the existing approximate 8,000-acre Coleto Creek Power Station (Station) in Goliad County, Texas, two miles north of Fannin, Texas, and 14 miles southwest of Victoria, Texas, on FM 2987, and will be the second coal-fired steam electric generating unit at the Station.

3. CC2 will use low sulfur Western subbituminous coal, primarily from the Powder River Basin, as its primary fuel source, although up to 40 percent low sulfur bituminous coal, principally from South America, may also be used on an annual basis. Low sulfur (0.05% sulfur) distillate fuel oil will be used for start-up of CC2.

4. Pursuant to 30 TEX. ADMIN. CODE § 116.111(a)(1), IPA filed a PI-1 General Application with necessary supporting information with the TCEQ to comply with all requirements for State air quality, PSD review, and Hazardous Air Pollutant Major Source, federal Clean Air Act (FCAA) § 112(g), Case-by-Case Maximum Achievable Control Technology (MACT) review. The Application was initially filed with the Executive Director (ED) of the TCEQ on January 4, 2008, and supplemented from time to time thereafter.

5. The Application was declared administratively complete on January 15, 2008, and technically complete on November 25, 2008, on which date the ED rendered his preliminary decision to approve the Application.

6. On November 25, 2008, the ED also issued Draft Permit Nos. 83778, PSD-TX-1118, and HAP-18 (collectively, the Draft Permit). The ED transmitted his Response to Public Comments and rendered his final decision to approve the Application and issue Draft Permit Nos. 83778, PSD-TX-1118, and HAP-18 on April 1, 2009.

7. IPA published "Notice of Receipt of Application and Intent to Obtain Air Permit" in *The Victoria Advocate* on February 6, 2008, and in *Revista de Victoria* on February 7, 2008.

8. IPA published "Notice of Application and Preliminary Decision for an Air Quality Permit" in *The Victoria Advocate* on December 1, 2008, and in *Revista de Victoria* on December 3, 2008.

9. The Application was made available for public inspection at the Goliad Public Library in Goliad, Goliad County, Texas, during the entire public notice period.

10. Notification of the Application was made to all agencies, regulatory bodies, and other persons and entities to which notification was required.

11. After proper mailing and publication of public notice, on February 3, 2009, and February 5, 2009, respectively, a preliminary hearing was held before the State Office of Administrative Hearings (SOAH) on March 9, 2009, and a case schedule was established.

12. On October 13-21, 2009, the hearing on the merits was held before SOAH Administrative Law Judges William G. Newchurch and Richard R. Wilfong. The following parties appeared and participated in the hearing: (1) IPA; (2) the Sierra Club; (3) Environmental

Defense Fund, Inc. (EDF); (4) Citizens for a Clean Environment (CCE); (5) the ED; and (6) the TCEQ's Office of Public Interest Counsel (OPIC).

13. The hearing record closed on December 11, 2009, after replies to written closing arguments were filed.

Completeness of the Application

14. The Application was complete and included all necessary supporting information and appropriate TCEQ forms.

15. The Application addressed all sources of air emissions associated with the CC2 project that are subject to permitting under TCEQ rules.

16. The Applicant properly identified the CC2 project sources and emissions increases.

17. The Applicant employed appropriate emission factors and assumptions in calculating emissions from CC2 project sources.

18. The Application addressed applicable TCEQ Disaster Review requirements triggered by the CC2 Project. CC2 is not subject to TCEQ Disaster Review.

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

20. The Application was submitted under the seal of a Texas registered professional engineer.

21. TCEQ staff reviewed the Application and determined it to be complete and in compliance with all applicable rules and policies as documented in the Administrative Record. The Applicant is not delinquent in the payment of any fee, tax, or penalty owed to the State.

Demonstrations Under 30 TEX. ADMIN. CODE § 116.111: Protection of Public Welfare Air Dispersion Modeling

IPA's Air Dispersion Modeling

22. IPA performed air dispersion modeling, which was summarized in its June 2008 Air Quality Analysis Report, as supplemented on June 20, 2008, August 18, 2008, and in the testimony of Applicant's expert witness Brian Stormwind.

23. IPA performed the modeling using the U. S. Environmental Protection Agency's (EPA's) AERMOD model. This model was recommended by both the TCEQ and EPA for modeling complex industrial sources like the Station.

24. The modeling that IPA included in the Application was performed in accordance with applicable air quality rules and guidance, and in accordance with the modeling protocol cooperatively developed for this project by IPA and TCEQ's air dispersion modeling team.

25. There are no schools located within 3,000 feet of the facilities to be authorized under the Draft Permit.

26. In performing the air dispersion modeling, IPA modeled emissions from all emissions sources at the Station, including CC1 and the proposed CC2 facilities, where appropriate.

27. Under TCEQ's modeling guidance, modeling of particulate emissions from plant roads is excluded for long-term averaging periods if the emissions will not be generated in association with transport, storage, or transfer of road-base aggregate materials and if best management practices are used to control dust emissions.

28. IPA will not be transporting road-base aggregate materials at the Station and will employ best management practices to minimize dust, such as watering plant roads as needed to control fugitive dust emissions.

29. As a conservative measure, IPA estimated particulate emissions from plant roads on an annual basis and used those estimates in its air dispersion modeling to demonstrate compliance with the annual National Ambient Air Quality Standard (NAAQS) for particulate matter consisting of particles with diameters less than or equal to 10 microns (PM_{10}).

30. Under TCEQ's modeling guidance, modeling of particulate emissions from plant roads is explicitly excluded for short-term averaging periods, including the 24-hour PM_{10} NAAQS, because of a lack of agency confidence in emissions estimates for short-term periods, the tendency of air dispersion models to unrealistically over-predict impacts, and since there is no reliable calculation methods for shorter time periods.

31. In the Application, IPA did not estimate and properly excluded particulate emissions from plant roads on a short-term basis from its 24-hour PM_{10} NAAQS modeling, in accordance with TCEQ modeling guidance.

32. IPA's air dispersion modeling was conservative, that is, it tended to over-predict off-property ambient concentrations.

    a. IPA used worst-case emission rates for CC2 project facilities, for every hour of the five-year meteorological data base modeled.

    b. IPA assumed that all sources at the Station would be operating simultaneously and emitting their maximum rates at the same time, which will not occur in practice.

c. IPA coupled worst-case meteorological dispersion conditions with the worst-case emissions scenario to calculate maximum off-property impacts.

d. IPA used conservative background concentrations in the modeling analyses.

33. Conducting its modeling, IPA properly relied on the pre-processed National Weather Service (NWS) meteorological data supplied by the TCEQ.

34. IPA selected NWS meteorological data from the Victoria Regional Airport that consisted of both surface meteorological data and upper air meteorological data. The TCEQ recommends using meteorological data from the Victoria Regional Airport for projects in Goliad County because the data is representative of the conditions at locations in Goliad County.

35. The NWS meteorological data used by the Applicant are the "most recent, readily available" data as defined in the TCEQ's Air Quality Modeling Guidelines and satisfy the requirements of EPA's Guideline on Air Quality Models.

36. Modeled background concentrations of SO_2 from Corpus Christi, Nueces County, are conservative for the Application. TCEQ found modeled background concentrations of SO_2 from Nueces County to be conservative and appropriate for use as background concentrations for Goliad County.

37. IPA sought and TCEQ approved exemptions for ambient air quality monitoring for ozone and SO_2. Applicable rules and TCEQ guidelines provide that an Applicant may rely on representative regional monitoring data in lieu of conducting preconstruction or post construction ambient air quality monitoring. IPA properly used Corpus Christi ambient

air monitoring data for SO_2 and Victoria ambient air monitoring data for ozone, which provide conservative background values for the NAAQS analyses.

38. TCEQ's modeling staff performed an audit of IPA's modeling and found it acceptable.

39. The standards and guidelines applicable to the Application's maximum modeled pollutant concentrations are: NAAQS, PSD increments, State Property Line standards, and (ESLs).

Ambient Air and Public Access to the Plant Site

40. EPA rules define ambient air as "that portion of the atmosphere, external to buildings, to which the general public has access." 40 C.F.R. § 50.1(e).

41. IPA controls access to the Plant Site, which constitutes approximately 1,000 acres and contains the power plant and associated facilities, with fencing and/or natural physical barriers that prevent public access. The Plant Site is monitored 24 hours a day, seven days a week, by closed-circuit security cameras and televisions, and access through the main gate is controlled with a security access card and call station. "No Trespassing" signs are posted along the boundaries and water booms bar access by boaters. Station staff are trained to identify unauthorized visitors to the Plant Site, and they make periodic rounds throughout the Plant Site to ensure no trespassers enter.

42. Ambient air does not exist within the Plant Site because access by the general public is prohibited. 40 C.F.R. § 50.1(e).

43. For its federal NAAQS and PSD analyses in the Application, IPA properly used an air dispersion modeling boundary that corresponded to the boundaries of the Plant Site where access by the general public is restricted (in ambient air as defined in EPA rules). For its State property line and ESL analyses in the Application, IPA used an air dispersion

modeling boundary that corresponded to the property boundaries of the Station that are beyond the Plant Site (in ambient air as defined in TCEQ's MERA guidance).

44. At the hearing, IPA presented acceptable air dispersion modeling for its State property-line and ESL analyses using the boundaries of the Plant Site as with its NAAQS and PSD analyses.

NAAQS and PSD Analyses

45. Primary and secondary NAAQS have been established for NO_2, CO, SO_2, PM_{10}, $PM_{2.5}$, ozone and lead. 40 C.F.R. Part 50, adopted by reference at 30 TAC § 101.21.

46. PSD increments have been established for NO_2, SO_2, and PM_{10}. 42 U.S.C. § 7473; 52 Fed. Reg. 24,634 (July 1, 1987); 53 Fed. Reg. 40,656-40,670-72 (Oct. 17, 1988).

47. IPA performed air dispersion modeling of emissions of NO_2, CO, SO_2, PM_{10}, and lead from the CC2 project for the purpose of demonstrating compliance with the NAAQS and PSD increments.

48. EPA has established significant impact levels (SILs) and TCEQ has established *de minimis* levels for NO_2, CO, SO_2, and PM_{10}. If the maximum modeled concentrations resulting from emissions of a contaminant from the CC2 project are predicted to be insignificant (*i.e.,* below the applicable EPA SIL and TCEQ *de minimis* level for that contaminant and averaging time), then the NAAQS and PSD increment analyses for that contaminant are complete and the CC2 project is presumed not to cause or contribute to a violation of the NAAQS or PSD increment for that contaminant and averaging time.

49. For the contaminants and averaging times for which maximum modeled concentrations resulting from emissions from the CC2 project were above the SILs and TCEQ

de minimis levels, IPA performed cumulative modeling to demonstrate compliance with NAAQS and PSD increments using CC2 project sources, existing sources at the Station, and ambient background concentrations reflecting the contribution of background sources.

50. The ambient background concentrations used by IPA for the area of the Station are conservative and in accordance with TCEQ guidance.

SO_2

51. SO_2 NAAQS exist for three averaging periods: three-hour (1,300 $\mu g/m^3$), 24-hour (365 $\mu g/m^3$), and annual (80 $\mu g/m^3$).

52. Background concentrations for SO_2 were obtained by reviewing concentrations measured in Corpus Christi, Texas. Emissions from point sources are much higher in Corpus Christi than in Goliad County, because Corpus Christi is home to a number of refineries and Goliad County is a rural area and relatively isolated from other major SO_2 sources. Since emissions from point sources are included in the modeling retrieval, using Corpus Christi background concentrations is conservative.

53. The maximum modeled 3-hour SO_2 concentration resulting from the Station's emissions, including the CC2 project, in ambient air as defined in EPA rules is 258.1 $\mu g/m^3$; and the ambient background concentration for Corpus Christi is 52.4 $\mu g/m^3$.

54. The Station's SO_2 emissions, when added to the background level of ambient SO_2, will not cause or contribute to an exceedance of the 3-hour SO_2 NAAQS of 1,300 $\mu g/m^3$.

55. The maximum modeled 24-hour SO_2 concentration resulting from the Station's emissions, including the CC2 project, in ambient air as defined in EPA rules is 83.3 $\mu g/m^3$; and the ambient background concentration for Corpus Christi is 15.7 $\mu g/m^3$.

56. The Station's SO_2 emissions, when added to the background level of ambient SO_2, will not cause or contribute to an exceedance of the 24-hour SO_2 NAAQS of 365 $\mu g/m^3$.

57. The maximum modeled annual average SO_2 concentration resulting from the CC2 project's emissions in ambient air as defined in EPA rules is 0.78 $\mu g/m^3$, which is below the EPA SIL and TCEQ *de minimis* level for annual average SO_2 of 1.0 $\mu g/m^3$.

58. The impact of the CC2 project's SO_2 emissions on annual average concentrations is insignificant and will not cause or contribute to an exceedance of annual average SO_2 NAAQS of 80 $\mu g/m^3$.

NO_2

59. NO_2 NAAQS exist for one averaging period: annual (100 $\mu g/m^3$).

60. The maximum modeled annual average NO_2 concentration resulting from the CC2 project's emissions in ambient air as defined in EPA rules is 0.96 $\mu g/m^3$, which is below the EPA SIL and TCEQ *de minimis* level for the annual average NO_2 of 1 $\mu g/m^3$.

61. The impact of the CC2 project's NO_2 emissions on annual average concentrations is insignificant and will not cause or contribute to an exceedance of the annual average NO_2 NAAQS of 100 $\mu g/m^3$.

CO

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

63. The maximum modeled 1-hour average CO concentration resulting from the CC2 project's emissions in ambient air as defined in EPA rules is 64.09 $\mu g/m^3$, which is below the EPA SIL and TCEQ *de minimis* level for 1-hour average CO of 2,000 $\mu g/m^3$.

64. The impact of the CC2 project's CO emissions on 1-hour average concentrations is insignificant and will not cause or contribute to an exceedance of 1-hour average CO NAAQS of 40,000 $\mu g/m^3$.

65. The maximum modeled 8-hour average CO concentration resulting from the CC2 project's emissions in ambient air as defined in EPA rules is 35.26 $\mu g/m^3$, which is below the EPA SIL and TCEQ *de minimis* level for 8-hour average CO of 500 $\mu g/m^3$.

66. The impact of the CC2 project's CO emissions on 8-hour average concentrations is insignificant and will not cause or contribute to an exceedance of 8-hour average CO NAAQS of 10,000 $\mu g/m^3$.

Lead

67. The NAAQS for lead is 0.15 $\mu g/m^3$ on a rolling 3-month average.

68. A PSD NAAQS demonstration for lead was not required because the CC2 project will not result in a significant net emissions increase for lead. IPA performed an acceptable State NAAQS demonstration for lead.

69. TCEQ guidance establishes a quarterly "screening threshold" of 0.01 $\mu g/m^3$ for State NAAQS compliance demonstrations for lead.

70. If the maximum predicted concentration of lead from a project in ambient air as defined in EPA rules falls below the screening threshold, the State NAAQS demonstration for

lead is complete and the project is deemed not to cause or contribute to a violation of the lead NAAQS.

71. The maximum modeled quarterly lead concentration resulting from the CC2 project's emissions is 0.0003 $\mu g/m^3$, which is below the TCEQ's screening level of 0.01 $\mu g/m^3$ and therefore will not cause or contribute to an exceedance of the lead NAAQS.

PM_{10}

72. The existing NAAQS for PM_{10} is 150 $\mu g/m^3$ (24-hour) and the former NAAQS for PM_{10} is 50 $\mu g/m^3$ (annual).

73. The maximum modeled 24-hour average PM_{10} concentration resulting from the CC2 project's emissions in ambient air as defined in EPA rules is 4.71 $\mu g/m^3$, which is below the EPA SIL and TCEQ *de minimis* level for 1-hour average PM_{10} of 5 $\mu g/m^3$.

74. The impact of the CC2 project's PM_{10} emissions on 24-hour average concentrations is insignificant and will not cause or contribute to an exceedance of 24-hour average PM_{10} NAAQS of 150 $\mu g/m^3$.

75. The maximum modeled annual average PM_{10} concentration resulting from the CC2 project's emissions in ambient air as defined in EPA rules is 0.93 $\mu g/m^3$, which is below the EPA SIL and TCEQ *de minimis* level for annual average PM_{10} of 1 $\mu g/m^3$.

76. The impact of the CC2 project's PM_{10} emissions on annual average concentrations is insignificant and will not cause or contribute to an exceedance of the former annual average PM_{10} NAAQS of 50 $\mu g/m^3$.

$PM_{2.5}$

77. $PM_{2.5}$ is that portion of PM_{10} with a mean particle diameter of 2.5 microns or less. PM_{10} and $PM_{2.5}$ are both portions of the regulated PSD pollutant PM. At this time, both EPA and TCEQ accept demonstration of compliance with the PM_{10} PSD requirements as a surrogate for demonstration of compliance with the $PM_{2.5}$ PSD requirements in SIP-approved states like Texas (the PM_{10} surrogate policy).

78. Technical and regulatory barriers remain to further analysis of $PM_{2.5}$ emissions from the CC2 project.

Ozone

79. In 1997, EPA promulgated an ozone NAAQS of 0.08 ppm measured over an 8-hour period. The 8-hour standard was defined as the average of the fourth-highest ozone concentration over three years. Because of EPA's rounding and rules, the ozone standard is exceeded when the three-year average of the fourth highest concentration exceeds 0.085 ppm. In 2008, EPA lowered the ozone NAAQS to 0.075 ppm while preserving the form of the standard.

80. The CC2 project will emit NOx and volatile organic compounds (VOCs), which, in the presence of sunlight, can form ozone in the atmosphere.

81. An area that meets the NAAQS for a particular criteria pollutant is deemed to be in "attainment" for that pollutant. An area that does not meet the NAAQS is a "nonattainment" area. An area that cannot be classified due to insufficient data is "unclassifiable," which allows the area to be treated for regulatory purposes as though it

were an attainment area for the particular criteria pollutant in question. 42 U.S.C. § 7407(d).

82. TCEQ guidelines require the use of a screening technique to determine whether a proposed source will cause ozone exceedances in a local attainment area.

83. If a source is NOx dominated, then local ozone impacts will be insignificant and the analysis is deemed complete based on EKMA screening analyses.

84. The CC2 project is NOx dominated and IPA's demonstration is acceptable and complete in accordance with TCEQ guidelines.

85. Based on TCEQ guidelines, the CC2 project is not expected to cause any ozone NAAQS exceedances in the local attainment area.

86. TCEQ guidelines do not require an applicant to conduct photochemical modeling to evaluate potential ozone impacts for PSD permitting.

87. Nevertheless, photochemical modeling was conducted for the CC2 project. That photochemical modeling demonstrated that there would not be a significant change to ozone levels due to the emissions from the CC2 project.

88. The CC2 project's maximum incremental contribution to ozone regulatory monitors, based on photochemical modeling, is 0.1 ppb. This value is below the significance level of 5 ppb established in prior Commission Orders, which significance level is at the lower range of detectability of modern ambient air ozone monitors.

89. Emissions from the CC2 project will not cause or contribute to a violation of the 8-hour ozone NAAQS of 0.08 ppm or 0.075 ppm.

NAAQS Summary

90. Emissions from the CC2 project will not cause or contribute to a violation of any NAAQS.

PSD Increment Analysis

91. EPA and TCEQ require that no new major source or major modification will cause or contribute to an exceedance of any PSD increment for SO_2, PM_{10}, or NOx.

92. Maximum modeled concentrations resulting from emissions from the CC2 project in ambient air as defined in EPA rules are below the EPA SILs and TCEQ *de minimis* levels for SO_2 (1 $\mu g/m^3$, annual averaging period), NOx (1 $\mu g/m^3$, annual averaging period), and PM_{10} (5 $\mu g/m^3$, 24-hour and 1 $\mu g/m^3$, annual averaging periods).

93. The impacts of the CC2 project's emissions of NO_2 and PM_{10} are insignificant and will not cause or contribute to an exceedance of the annual NO_2 PSD increment or the 24-hour or annual PM_{10} PSD increments.

PSD Increment Analysis: SO_2

94. The impacts of the CC2 project's emissions of annual average SO_2 are insignificant and will not cause or contribute to an exceedance of the annual average SO_2 PSD increment.

95. Maximum modeled concentrations resulting from emissions from the CC2 project were above EPA SILs and TCEQ *de minimis* levels for SO_2 (3-hour and 24-hour averaging periods).

96. For SO_2 (3-hour and 24-hour averaging periods), IPA properly incorporated emissions data for other PSD increment-consuming sources from TCEQ's Point Source Database into the model.

97. In addition to the Point Source Database data, IPA incorporated into the model emissions data from a number of recent new or amended TCEQ air quality permits not included in the Point Source Database for units that IPA identified as potentially having an impact on the area of significant impact for CC2.

98. For SO_2 (3-hour and 24-hour averaging periods), the combined impacts from the Station and CC2 project's maximum modeled concentrations and the PSD increment-consuming sources are less than the applicable PSD increment.

99. The maximum modeled 3-hour average SO_2 concentration resulting from the Station's emissions, including the CC2 project, and other PSD increment-consuming sources in the area is 258.1 $\mu g/m^3$.

100. The CC2 project's SO_2 emissions will not cause or contribute to an exceedance of the 3-hour average SO_2 PSD increment of 512 $\mu g/m^3$.

101. The maximum modeled 24-hour average SO_2 concentration resulting from the Station's emissions, including the CC2 project, and other PSD increment-consuming sources in the area is 83.3 $\mu g/m^3$.

102. The CC2 project's SO_2 emissions will not cause or contribute to an exceedance of the 24-hour average SO_2 PSD increment of 91 $\mu g/m^3$.

PSD Increment Analysis: Summary

103. Emissions from the CC2 project will not cause or contribute to exceedances of any PSD increments.

PSD Monitoring Analysis

104. Of the criteria pollutants that will be emitted by the CC2 project in PSD-significant amounts, PSD monitoring significance levels exist for SO_2 (annual averaging period); NO_2 (annual averaging period), PM_{10} (24-hour and annual averaging periods), CO (1-hour and 8-hour), ozone, H_2SO_4 (1-hour and 24-hour), and fluorides (24-hour) (as HF).

105. Maximum modeled concentrations resulting from the CC2 project's emissions in ambient air as defined in EPA rules are below all applicable PSD monitoring significance levels except for 3-hour and 24-hour SO_2 and ozone, for which IPA properly sought and the ED properly approved an exemption from ambient air monitoring based on the use of representative background monitoring data.

106. The emission rate of lead is below its PSD significance threshold, and therefore PSD review is not triggered for lead.

State Property Line Analysis

107. State property-line standards are net ground level concentration standards established by TCEQ.

108. State property-line standards exist for total sulfuric acid (H_2SO_4) for 1-hour and 24-hour averaging periods and for SO_2 for a 30-minute averaging period.

109. IPA modeled site-wide emissions from the Station, including the CC2 project, for comparison to applicable State property-line standards.

110. The maximum modeled concentrations resulting from the Station's site-wide emissions at the Station's property line are below the applicable State property-line standards.

111. The maximum modeled concentrations resulting from the Station's site-wide emissions in the ambient air as defined in EPA rules are below the applicable State property line standards.

State Property Line Analysis: H_2SO_4

112. The maximum 1-hour average H_2SO_4 concentration resulting from site-wide emissions is 1.94 $\mu g/m^3$ at the Station's property line and 2.13 $\mu g/m^3$ in ambient air as defined in EPA rules.

113. The site-wide H_2SO_4 emissions will not cause an exceedance of the 1-hour H_2SO_4 property line standard of 50 $\mu g/m^3$.

114. The maximum 24-hour average H_2SO_4 concentration resulting from site-wide emissions is 0.77 $\mu g/m^3$ at the Station's property line and 0.77 $\mu g/m^3$ in ambient air as defined in EPA rules.

115. The site-wide H_2SO_4 emissions will not cause an exceedance of the 24-hour H_2SO_4 property line standard of 15 $\mu g/m^3$.

State Property Line Analysis: SO_2

116. The maximum 1-hour average SO_2 concentration resulting from site-wide emissions is 337.4 $\mu g/m^3$ at the Station's property line and 338.24 $\mu g/m^3$ in ambient air as defined in EPA rules.

117. 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

118. The emissions from the Station, including the CC2 project, will not cause an exceedance of any applicable State property-line standard.

ESL Analysis

119. 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.

120. For state effects review, TCEQ air permitting guidance specifies that ambient air "starts at the property line."

121. Evaluation of on-property impacts is not required per TCEQ guidance.

122. IPA modeled site-wide emissions from the Station, including the CC2 project, for on-property impacts in the Perdido Creek area, using the same receptor grid used in the NAAQS and PSD increment analysis (ambient air as defined in EPA rules) for comparison to applicable ESLs.

123. The TCEQ uses ESLs 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 is no State or federal air quality standard.

124. 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 1,000 times lower than exposure levels that are designed to be safe for workers exposed to airborne chemicals in occupational settings.

125. 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.

126. 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.

127. Predicted concentrations above an ESL do not indicate that an adverse health or welfare impact will occur. Rather, when the maximum off-property impacts exceed an ESL for a contaminant, additional evaluation is required to determine whether the potential impacts of that contaminant will pose any threat to public health, welfare, or the environment.

128. An ESL analysis is conducted only for sources on the applicant's property.

129. The ESL system currently used by TCEQ adequately protects the health and welfare of the public.

130. IPA modeled the site-wide emissions of the following non-criteria pollutants: coal dust, limestone dust, silica, VOC (as methyl hydrazine), hydrochloric acid, hydrogen fluoride (HF), ammonia, antimony, arsenic, barium, beryllium, cadmium, chromium, copper, manganese, mercury, nickel, selenium, silver, vanadium pentoxide, zinc oxide, and a number of additional pollutants.

131. Site-wide dispersion modeling was performed at the State Property Line to determine the maximum 1-hour and annual off-property air quality impacts associated with non-criteria pollutant emissions from the Station and CC2 project.

ESL Analysis (On-Property)

132. Evaluation of on-property impacts of non-criteria pollutants is not required per TCEQ guidance.

133. IPA modeled site-wide emissions of non-criteria pollutants from the Station, including the CC2 project, for impacts in the Perdido Creek area, using the same receptor grid used in the NAAQS and PSD increment analysis (on-property modeled concentrations) for comparison to the ESLs.

134. IPA's maximum modeled concentrations were below the applicable ESLs, with the exception of coal dust.

ESL Analysis Results

135. For limestone dust, the maximum modeled 1-hour average concentration from the Station and CC2 project's emissions is 2.81 $\mu g/m^3$ in ambient air, which is below the 1-hour ESL of limestone dust of 500 $\mu g/m^3$.

136. The maximum modeled annual average concentration resulting from the Station and CC2 project's emissions of limestone dust is 0.07 $\mu g/m^3$ in ambient air, which is less than the annual ESL of limestone dust of 50 $\mu g/m^3$.

137. For VOC (as methyl hydrazine), the maximum modeled 1-hour average concentration from the Station and CC2 project's emissions is 0.00597 $\mu g/m^3$ in ambient air, which is below the 1-hour ESL of VOC (as methyl hydrazine) of 0.2 $\mu g/m^3$.

138. The maximum modeled annual average concentration resulting from the Station and CC2 project's emissions of VOC (as methyl hydrazine) is 0.000182 $\mu g/m^3$ in ambient air, which is less than the annual ESL of VOC (as methyl hydrazine) of 0.02 $\mu g/m^3$.

139. For hydrochloric acid, the maximum modeled 1-hour average concentration from the Station and CC2 project's emissions is 0.47 $\mu g/m^3$ in ambient air, which is below the 1-hour ESL of HCl of 75 $\mu g/m^3$.

140. The maximum modeled annual average concentration resulting from the Station and CC2 project's emissions of hydrochloric acid is 0.0142 $\mu g/m^3$ in ambient air, which is less than the annual ESL of HCl of 7.5 $\mu g/m^3$.

141. For HF, the maximum modeled 1-hour average concentration from the Station and CC2 project's emissions is 0.351 $\mu g/m^3$ in ambient air, which is below the 1-hour ESL of HF of 25 $\mu g/m^3$.

142. The maximum modeled annual average concentration resulting from the Station and CC2 project's emissions of HF is 0.00236 $\mu g/m^3$ in ambient air, which is less than the annual ESL of HF of 2.5 $\mu g/m^3$.

143. For antimony, the maximum modeled 1-hour average concentration from the Station and CC2 project's emissions is 0.00174 $\mu g/m^3$ in ambient air, which is below the 1-hour ESL of antimony of 0.1 $\mu g/m^3$.

144. The maximum modeled annual average concentration resulting from the Station and CC2 project's emissions of antimony is 0.00000344 $\mu g/m^3$ in ambient air, which is less than the annual ESL of antimony of 0.01 $\mu g/m^3$.

145. For arsenic, the maximum modeled 1-hour average concentration from the Station and CC2 project's emissions is 0.00474 $\mu g/m^3$ in ambient air, which is below the 1-hour ESL of arsenic of 0.1 $\mu g/m^3$.

146. The maximum modeled annual average concentration resulting from the Station and CC2 project's emissions of arsenic is 0.00000862 $\mu g/m^3$ in ambient air, which is less than the annual ESL of arsenic of 0.01 $\mu g/m^3$.

147. For barium, the maximum modeled 1-hour average concentration from the Station and CC2 project's emissions is 0.244 $\mu g/m^3$ in ambient air, which is below the 1-hour ESL of barium of 5 $\mu g/m^3$.

148. The maximum modeled annual average concentration resulting from the Station and CC2 project's emissions of barium is 0.000863 $\mu g/m^3$ in ambient air, which is less than the annual ESL of barium of 0.5 $\mu g/m^3$.

149. For beryllium, the maximum modeled 1-hour average concentration from the Station and CC2 project's emissions is 0.00993 $\mu g/m^3$ in ambient air, which is below the 1-hour ESL of beryllium of 0.02 $\mu g/m^3$.

150. The maximum modeled annual average concentration resulting from the Station and CC2 project's emissions of beryllium is 0.0000344 $\mu g/m^3$ in ambient air, which is less than the annual ESL of beryllium of 0.002 $\mu g/m^3$.

151. For cadmium, the maximum modeled 1-hour average concentration from the Station and CC2 project's emissions is 0.000541 $\mu g/m^3$ in ambient air, which is below the 1-hour ESL of cadmium of 0.1 $\mu g/m^3$.

152. The maximum modeled annual average concentration resulting from the Station and CC2 project's emissions of cadmium is 0.000000862 μg/m^3 in ambient, which is less than the annual ESL of cadmium of 0.01 μg/m^3.

153. For chromium, the maximum modeled 1-hour average concentration from the Station and CC2 project's emissions is 0.012 μg/m^3 in ambient air, which is below the 1-hour ESL of chromium of 0.1 μg/m^3.

154. The maximum modeled annual average concentration resulting from the Station and CC2 project's emissions of chromium is 0.0000516 μg/m^3 in ambient air, which is less than the annual ESL of chromium of 0.01 μg/m^3.

155. For copper, the maximum modeled 1-hour average concentration from the Station and CC2 project's emissions is 0.00587 μg/m^3 in ambient air, which is below the 1-hour ESL of copper of 10 μg/m^3.

156. The maximum modeled annual average concentration resulting from the Station and CC2 project's emissions of copper is 0.0000266 μg/m^3 in ambient air, which is less than the annual ESL of copper of 1 μg/m^3.

157. For manganese, the maximum modeled 1-hour average concentration from the Station and CC2 project's emissions is 0.0262 μg/m^3 in ambient air, which is below the 1-hour ESL of manganese of 1 μg/m^3.

158. The maximum modeled annual average concentration resulting from the Station and CC2 project's emissions of manganese is 0.0000673 μg/m^3 in ambient air, which is less than the annual ESL of manganese of 0.1 μg/m^3.

159. For mercury, the maximum modeled 1-hour average concentration from the Station and CC2 project's emissions is 0.00123 μg/m^3 in ambient air, which is below the 1-hour ESL of mercury of 0.1 μg/m^3.

160. The maximum modeled annual average concentration resulting from the Station and CC2 project's emissions of mercury is 0.00000826 μg/m^3 in ambient air, which less than the annual ESL of mercury of 0.01 μg/m^3.

161. For nickel, the maximum modeled 1-hour average concentration from the Station and CC2 project's emissions is 0.0158 μg/m^3 in ambient air, which is below the 1-hour ESL of nickel of 0.15 μg/m^3.

162. The maximum modeled annual average concentration resulting from the Station and CC2 project's emissions of nickel is 0.0000438 μg/m^3 in ambient air, which is less than the annual ESL of nickel of 0.015 μg/m^3.

163. For selenium, the maximum modeled 1-hour average concentration from the Station and CC2 project's emissions is 0.00271 μg/m^3 in ambient, which is below the 1-hour ESL of selenium of 2 μg/m^3.

164. The maximum modeled annual average concentration resulting from the Station and CC2 project's emissions of selenium is 0.00000862 μg/m^3 in ambient air, which is less than the annual ESL of selenium of 0.2 μg/m^3.

165. For silver, the maximum modeled 1-hour average concentration from the Station and CC2 project's emissions is 0.0451 μg/m^3 in ambient air, which is below the 1-hour ESL of silver of 0.1 μg/m^3.

166. The maximum modeled annual average concentration resulting from the Station and CC2 project's emissions of silver is 0.0000999 $\mu g/m^3$ in ambient air, which is less than the annual ESL of silver of 0.01 $\mu g/m^3$.

167. For zinc, the maximum modeled 1-hour average concentration from the Station and CC2 project's emissions is 0.0178 $\mu g/m^3$ in ambient air, which is below the 1-hour ESL of zinc of 50 $\mu g/m^3$.

168. The maximum modeled annual average concentration resulting from the Station and CC2 project's emissions of zinc is 0.0000453 $\mu g/m^3$ in ambient air, which is less than the annual ESL of zinc of 5 $\mu g/m^3$.

169. For all additional pollutants modeled by IPA, the maximum modeled 1-hour and annual concentrations from the Station and CC2 project's emissions in ambient air are below the applicable 1-hour and annual ESLs.

ESL Analysis: Coal Dust

170. For coal dust, the maximum modeled 1-hour concentration from the Station and CC2 project's emissions in ambient air is 36.51 $\mu g/m^3$, which is approximately four times the 1-hour ESL for coal dust of 9 $\mu g/m^3$.

171. The 1-hour concentration of coal dust would not result in adverse health effects under the circumstances of this application because:

a. The maximum modeled 1-hour average concentration for coal dust is predicted to exceed the 1-hour ESL for only 46 hours per year, which is only 0.5 percent of the year, at a non-residential location on Perdido Creek.

b. It is unlikely that someone would be at that location during the 0.5 percent of the year when the maximum modeled concentration might occur and even less likely that the same person would be repeatedly exposed.

c. The short-term ESL for coal dust is very conservative because it would be approximately 1/25th of the concentration protective of workers exposed to it over the long term, and the long term impacts of coal dust exposure are the primary toxicological concern, not the short-term impacts.

172. The maximum modeled annual average concentration resulting from the Station and CC2 project's emissions of coal dust is 0.19 $\mu g/m^3$ in ambient air as defined in TCEQ's MERA guidance, which is below the annual ESL for coal dust of 0.9 $\mu g/m^3$.

173. The maximum modeled annual average concentration resulting from the Station and CC2 project's emissions of coal dust is 0.91 $\mu g/m^3$, which is insignificantly different from the annual ESL for coal dust of 0.9 $\mu g/m^3$. This is a single exceedance at the fence line directly south of the coal pile.

174. The long-term ESL for coal dust is conservative, since it is only 1/1,000th of the level protective of workers.

175. No person would stay at that exact point on Perdido Creek for an entire year where the maximum modeled annual concentration might occur.

176. No adverse health or welfare effects will result from the public's exposure to emissions of coal dust from the Station and the CC2 project.

ESL Summary

177. No adverse public health or welfare effects would result from the Station and CC2 project's emission of air contaminants for which no specific air quality standards exists.

Additional Findings Concerning Air Emissions: Chapter 111 Standards

178. The CC2 project stationary vents will not exceed the opacity limit of 20 percent over a six-minute period established in 30 TEX. ADMIN. CODE § 111.111(a)(1)(B).

179. CC2 project fugitive emission sources will not exceed the opacity limit of 30 percent over a six-minute period established in 30 TEX. ADMIN. CODE § 111.111(a)(7) and (8).

180. The CC2 project will comply with limits on the emission rate of particulate matter from the engine and material handling stacks, established under 30 TEX. ADMIN. CODE § 111.151.

181. Emissions of particulate matter from the CC2 project boiler will not be greater than 0.3 pound total suspended particulates per MMBtu heat input over a two-hour period during solid fuel firing.

Summary of Protection of Public Health and Welfare

182. The proposed emissions from the CC2 project will comply with all ambient air contaminant standards and guidelines at off-property locations.

Measurement of Emissions: 30 TEX. ADMIN. CODE § 116.111(a)(2)(B)

183. IPA will install, operate, and maintain continuous emissions monitoring systems (CEMS) to provide a continuous demonstration of compliance with limits of NOx, CO, and SO_2 from the CC2 project boiler stack.

184. IPA will install, operate, and maintain a CEMS or sorbent traps to provide a continuous demonstration of compliance with limits of mercury from the CC2 project boiler stack.

185. IPA will install, operate, and maintain a CEMS or an approved alternative to provide a continuous demonstration of compliance with limits of NH_3 from the CC2 project boiler stack.

186. IPA will install, operate, and maintain a continuous opacity monitoring system (COMS) to provide a continuous demonstration of compliance with the limitation on opacity from the CC2 project boiler stack.

187. IPA will perform initial emission testing; quarterly sample solid fuel heat content and trace metal concentrations; perform annual stack testing on the boiler for any pollutant not monitored with a CEMS; and undertake other actions at various emission points throughout the CC2 project site to ensure that emissions are within permit limits and comply with the terms of Draft Permit.

188. IPA's proposed methods for measuring emissions from the CC2 project facilities are adequate to assure compliance with the permit conditions and emissions limitations of the Draft Permit.

189. IPA's permit contains appropriate emissions-measuring provisions for each type of emission from each emission point, with consideration given to the relative significance of each and to any applicable emissions measurement requirements of federal programs such as the New Source Performance Standards (NSPS).

190. IPA has proposed proper compliance assurance monitoring (CAM) plans for PM, H_2SO_4 and fluorides (as HF).

Best Available Control Technology (BACT): 30 TEX. ADMIN. CODE § 116.111(a)(2)(C)

191. The TCEQ defines BACT as "best available control technology with consideration given to the technical practicability and the economic reasonableness of reducing or eliminating emissions from the facility." 30 TEX. ADMIN. CODE § 116.10(3).

192. EPA defines BACT as an emissions limitation (including a visible emissions standard) based on the maximum degree of reduction for each regulated NSR pollutant that would be emitted from any proposed major stationary source or major modification, which the reviewing authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant.

193. In no event shall application of BACT result in emissions of any contaminant which would exceed the emissions allowed by any applicable standard under 40 Code of Federal Regulation (C.F.R.) Parts 60 or 61. If the reviewing authority determines that technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emissions standard infeasible, a design, equipment, work practice, operational standard, or combination thereof, may be prescribed instead to satisfy the requirement for the application of BACT. Such standard shall, to the degree possible, set forth the emissions reduction achievable by implementation of such design, equipment, work practice, or operation, and it shall

provide for compliance by means that achieve equivalent results. 40 C.F.R. § 52.21(b)(12).

194. The TCEQ has provided a draft guidance document entitled "Evaluating Best Available Control Technology (BACT) in Air Permit Applications," setting forth guidance for evaluation of BACT proposals submitted in a New Source Review air permit application.

195. Under the TCEQ's draft guidance document, relied on by the ED in evaluating BACT, the BACT evaluation is conducted using a tiered analysis approach, involving three different tiers. A Tier I evaluation involves a comparison of the applicant's BACT proposal to emission reduction performance levels accepted as BACT in recent permit reviews involving the same process or industry, with an evaluation of new technical developments necessary in some cases. A Tier II evaluation involves consideration of controls that have been accepted as BACT in recent permits for similar air emission streams in a different process or industry. A Tier III evaluation is a detailed technical and quantitative economic analysis of all emission reduction options available for the process under the review. The guidance document also notes that the Tier III evaluation is rarely necessary because technical practicability and economic reasonableness have usually been firmly established by industry practice as identified in the first two tiers.

196. EPA has provided a draft guidance document entitled "1990 NSR Workshop Manual," setting forth guidance for evaluation of BACT proposals submitted in a New Source Review air permit application.

197. Under EPA's draft guidance document, a top-down process is used for BACT evaluations that provides that all available control technologies be ranked in descending order of

achievable emission limitations. The applicant first examines the most stringent, or "top," alternative. That alternative is established as BACT unless the applicant demonstrates, and the permitting authority in its informed judgment agrees, that technical considerations, or energy, environment, or economic impacts justify a conclusion that the most stringent technology is not "achievable" in that case. If the most stringent technology is eliminated in this fashion, then the next most stringent alternative is considered, and so on.

198. IPA's BACT analysis considered both the TCEQ and EPA definitions of BACT and followed both the TCEQ's three-tier methodology and the EPA's top-down methodology.

199. IPA's BACT analysis included an extensive evaluation of recent permit reviews of similar pulverized coal-fired power plants in Texas and other states.

200. IPA's BACT analysis considered information from EPA's RACT/BACT/LAER Clearinghouse (RBLC) and other permitting databases and, where appropriate, actual performance data and vendor information for similar sources, in order to determine what emissions limitations are achievable for CC2.

201. Consistent with EPA policy, TCEQ has determined that an applicant that proposes to construct a pulverized coal-fired boiler is not required to include other fuel combustion technologies, such as Integrated Gasification Combined Cycle (IGCC) technology, in its BACT analysis, because that would require the source as proposed by the applicant to be impermissibly defined. TCEQ's decision on IGCC has been affirmed on appeal. *Blue Skies Alliance, v. Tex. Comm'n on Envt'l Quality*, 283 S.W.3d 525, 537 (Tex. App.–Amarillo, 2009, no pet.).

202. IPA's BACT analysis was complete and properly performed in accordance with TCEQ and EPA guidance and rules. Under TCEQ's draft guidance, IPA's BACT analysis in this case was conducted under Tier I only, because neither Tier II nor Tier III review was required.

203. Based on the BACT analysis contained in the Application and other information available to the ED, the ED rendered a proper BACT determination for the CC2 project as described in the Preliminary Determination Summary and as required by the Draft Permit.

204. CC2 will utilize the following control technologies: low-NOx burners and overfire air with selective catalytic reduction (SCR) for control of NOx; a Lime Spray Dryer Absorber (SDA) and low sulfur fuels for control of SO2 and other acid gases (sulfuric acid mist (H_2SO_4), hydrogen chloride (HCl), hydrogen fluoride (HF)); a pulse jet fabric filter baghouse (PJFF) for PM/PM_{10} control; sorbent injection with powdered activated carbon (PAC) to enhance control of mercury; and good combustion practices for carbon monoxide (CO) and volatile organic compounds (VOC) control. No technical developments in control technologies offer the potential for further emissions reductions from CC2 that are both technically practicable and economically reasonable.

205. IPA's control technologies for the CC2 project facilities will also control emissions of $PM_{2.5}$, and IPA's BACT analysis properly addressed $PM_{2.5}$ emissions from CC2 project facilities as a subset of PM/PM_{10} emissions from the project facilities pursuant to the PM_{10} surrogate policy described above.

206. For the material handling sources, a combination of fabric filters, covered conveyors, enclosed buildings, and water sprays for dust suppression will be used to control the emissions of PM/PM_{10}.

207. For the emergency diesel engines, operation of which will be limited to 500 hours per year each, the use of low sulfur fuel will be used to minimize SO_2 and H_2SO_4 emissions, the use of distillate oil and manufacturer's engine design to meet applicable new non-road engine standards.

208. The emergency engines will meet applicable NSPS for Stationary Compression Ignition Internal Combustion Engines.

BACT for CC2

209. Utilization of good combustion practices to meet an emission limit of 0.12 lb/MMBtu over both a 30-day rolling average and a 12-month rolling average is BACT for CO emissions from CC2.

210. Utilization of low-NOx burners, overfire air, and SCR to meet emission limits of 0.06 lb/MMBtu over a 30-day rolling average and 0.05 lb/MMBtu over a 12-month rolling average is BACT for NOx emissions from CC2.

211. Utilization of a SDA and low sulfur coal to meet emission limits of 0.06 lb/MMBtu over both a 30-day rolling average and a 12-month rolling average is BACT for SO_2 emissions from CC2.

212. Utilization of a PJFF and a SDA to meet an emission rate of 0.012 lb/MMBtu for filterable PM based on periodic stack testing and an emission rate of 0.025 lb/MMBtu based on periodic stack testing for total PM/PM_{10}, rather than the emission rate of

0.032 lb/MMBtu proposed in the Draft Permit, is BACT for PM/PM_{10} emissions from CC2.

213. Utilization of good combustion practices to meet an emission rate of 0.0034 lb/MMBtu based on periodic stack testing is BACT for VOC emissions from CC2.

214. Utilization of a SDA and PJFF to meet an emission rate of 0.004 lb/MMBtu based on periodic stack testing is BACT for H_2SO_4 emissions from CC2.

215. Utilization of a SDA and PJFF to meet an emission rate of 0.0005 lb/MMBtu based on periodic stack testing is BACT for fluorine emissions (as HF) from CC2.

216. Utilization of a SDA, SCR, PJFF, and the use of sorbent injection with powdered activated carbon (PAC), with a sliding scale emissions limit ranging between 0.012 lb/GWh and 0.015 lb/GWh over a 12-month rolling average based upon the fuel burned, is BACT for mercury emissions from the boiler.

217. Lead is already included in the PM/PM_{10} emission limit selected as BACT. Utilization of a PJFF to meet an emission limit of 0.062 lb/hr based on periodic stack testing is BACT for lead emissions from CC2.

218. Utilization of best management practices to meet an emission limit of 10 ppm based on a 3-hour average is BACT for ammonia emissions from CC2.

Start-up and Shut-down BACT

219. Utilization of good pollution control practices and low-sulfur distillate fuel oil to meet the hourly emission limits set forth in the Maximum Allowable Emission Rate Table of the Draft Permit is BACT for start-up and shut-down emissions from CC2.

Materials Handling Systems BACT

220. Use of fabric filters designed to achieve an emission limit of 0.005 grain PM/dry standard cubic foot for limestone and other materials, full or partial enclosures on conveyors, enclosed buildings and water sprays and watering is BACT for emissions of PM/PM_{10} from the material handling sources.

Emergency Diesel Engines BACT

221. Modern diesel engines and limiting operations to less than 500 hours per year, along with the use of low sulfur distillate fuel oil (15 ppm sulfur), good combustion practices, and manufacturer's design and certification of compliance with NSPS Tier 3 and Tier 4 Non-road engine standards is BACT for these diesel engines for emergency generators and fire water pumps.

BACT Summary

222. IPA prepared a complete and appropriate BACT analysis that satisfied all applicable state and federal requirements for each contaminant to be emitted from each emission point for which such an analysis was required.

223. Except as otherwise modified in this order, the emission limitations proposed by IPA and determined by the ED for the CC2 project facilities are BACT.

NSPS: 30 Tex. Admin. Code § 116.111(a)(2)(D)

224. IPA's 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.

225. The CC2 project is expected to meet all applicable NSPS.

226. Compliance with all applicable NSPS requirements is a condition of the Draft Permit.

NESHAPs: 30 TEX. ADMIN. CODE § 116.111(a)(2)(E)

227. There are no national emission standards for hazardous air pollutants (NESHAPs) applicable to facilities of a type comprising the CC2 project.

NESHAPs for Source Categories: 30 TEX. ADMIN. CODE § 116.111(a)(2)(F)

228. The CC2 project emergency diesel engines are expected to comply with 40 C.F.R. Part 63, Subpart ZZZZ, the requirements for NESHAPs for source categories, or MACT standards, for stationary reciprocating internal combustion engines.

229. The CC2 Boiler will comply with the case-by-case MACT determination made for the CC2 project according to FCAA § 112(g).

Performance Demonstration: 30 TEX. ADMIN. CODE § 116.111(a)(2)(G)

230. Draft Permit No. 83778/PSD-TX-1118/HAP-18 contains provisions for demonstrating achievement of the performance specified in the Application, such as conducting performance testing of emissions from the boiler, once the CC2 project is constructed and operating.

231. Provisions for demonstrating achievement of the performance specified in the Application will adequately demonstrate the performance of CC2 project facilities.

Nonattainment Review: 30 TEX. ADMIN. CODE § 116.111(a)(2)(H)

232. The Station is located in Goliad County, which is not located in a designated nonattainment area.

233. Because the Station is not located in an area that is designated nonattainment area for any air contaminant, the CC2 project is not subject to nonattainment review requirements.

PSD Review: 30 TEX. ADMIN. CODE § 116.111(a)(2)(I)

234. The Application included information and analyses that comply with the applicable requirements of 30 TEX. ADMIN. CODE Chapter 116 and 40 C.F.R. Part 52.

235. The CC2 project is subject to PSD review for the following pollutants, which may be emitted in "significant" quantities, as defined in 40 C.F.R. § 52.21(b)(23): CO, NOx, SO_2, $PM/PM_{10}/PM_{2.5}$, VOC, H_2SO_4, and fluorides (as HF).

236. The PSD analysis was complete and included all information necessary for the ED to render PSD determination for the CC2 project boiler.

237. IPA conducted a source impact analysis showing that allowable emissions from the CC2 project will not cause or measurably contribute to air pollution in violation of any NAAQS or PSD increment.

238. IPA conducted an appropriate additional impacts analysis that assessed the potential impairment to visibility, soils, and vegetation as a result of the CC2 project and associated commercial, residential, and industrial growth and assessed air quality impacts as a result of such growth.

239. The CC2 project will not generate sufficient growth in the area to significantly increase air contaminants from secondary sources.

240. Modeling of the CC2 project's emissions shows concentrations that will be protective of soils and vegetation.

241. The CC2 project will not have adverse impacts on visibility since the nearest Class I area is more than 300 kilometers away and because the project will comply with Chapter 111 limits.

242. Modeling of the CC2 project's impact on visibility in a Class I area is not required because the nearest Class I area is more than 300 km from the site of CC2.

Air Dispersion Modeling or Ambient Monitoring: 30 TEX. ADMIN. CODE § 116.111(a)(2)(J)

243. IPA performed air dispersion modeling in order to demonstrate the air impacts from the CC2 project.

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)

244. IPA prepared an FCAA § 112(g) Case-by-Case MACT analysis as part of the Application and applied for a HAP Major Source Permit to establish case-by-case MACT requirements for the CC2 project boiler.

245. 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 CC2 project boiler.

246. TCEQ staff reviewed the case-by-case MACT analysis and determined it to be complete and in compliance with all applicable rules and policies as documented in the Administrative Record.

247. Based on the case-by-case MACT analysis contained in the Application and other information available to the ED, the ED rendered a proper case-by-case MACT determination for the CC2 boiler as described in the Preliminary Determination Summary and as required by the Draft Permit.

248. In accordance with 30 TEX. ADMIN. CODE § 116.111(a)(2)(K), and 30 TEX. ADMIN. CODE §§ 116.400-.406, the CC2 project complies with all applicable requirements of 30 TEX. ADMIN. CODE Chapter 116 regarding case-by-case MACT review.

249. IPA performed the case-by-case MACT analysis in two primary steps. In the first step, IPA established the "MACT floor" or the most stringent limitation achieved in practice by the best controlled similar source. In the second step, IPA performed a "beyond the floor" analysis of the other methods for potentially reducing emissions to a greater degree, considering such factors as the cost of achieving such emissions reductions and any non-air quality health and environmental impacts and energy requirements to establish whether further reductions are achievable. IPA properly considered proposed NESHAP emissions standards proposed by EPA for electric utility steam generating units as part of its MACT analysis.

250. All necessary HAPs were evaluated as part of IPA's MACT analysis.

251. IPA determined that the emission limit of 0.015 lb/GW-hr represents the "MACT floor" for mercury.

252. A more stringent mercury emission limit for CC2 was established by IPA in its "beyond the floor" MACT analysis. The applicable case-by-case MACT mercury emission limit for CC2 will vary with the amount of bituminous coal burned. The applicable case-by-case MACT mercury emission limit for CC2 is reflected in a sliding scale emissions limit, ranging between 0.012 lb/GWh and 0.015 lb/GWh on a rolling 12-month average, based upon the actual blend of subbituminous and bituminous coal burned at CC2. This sliding scale limit is a beyond the MACT floor emission limit for mercury for the CC2 boiler.

253. IPA will utilize sorbent injection with powdered activated carbon (PAC) in conjunction with the proposed SDA and PJFF to meet the MACT emission limit for mercury.

254. IPA determined that the MACT floor for HF is 0.0005 lb/MMBtu, the MACT floor for HCl is 0.00078 lb/MMBtu, and that a SDA and PJFF represents the top level of control and therefore case-by-case MACT controls for HCl and HF.

255. An emission limit of 0.0005 lb/MMBtu based on periodic stack testing is MACT for HF from the CC2 boiler.

256. An emission limit of 0.00078 lb/MMBtu based on periodic stack testing is MACT for HCl for the CC2 boiler.

257. Other HAPs to be emitted by CC2 were properly grouped as either particulate HAPs including non-mercury metallic HAPs and volatile organic HAPs in order to establish enforceable MACT emissions limits.

258. Filterable PM is an appropriate surrogate for ensuring the required MACT level of control for particulate HAPs including non-mercury metallic HAPs because filterable PM and particulate HAPs have common formation mechanisms and control techniques.

259. Utilization of a PJFF to meet an emission limit of 0.012 lb/MMBtu for filterable PM emissions is MACT for particulate HAPs including non-mercury metallic HAPs from the CC2 boiler.

260. VOC is an appropriate surrogate for ensuring the required MACT level of control for volatile organic HAP emissions because volatile organic HAPs are a subset of the regulated PSD pollutant category VOC and have common control technologies.

261. Utilization of good combustion practices to meet an emission limit of 0.0034 lb/MMBtu for VOC emissions is MACT for volatile organic HAPs from the CC2 boiler.

262. Utilization of good pollution control practices to meet the hourly emission limits set forth in the Maximum Allowable Emission Rate Table (MAERT) of the Draft Permit is MACT for start-up and shut down emissions from CC2.

Mass Emissions Cap and Trade: 30 TEX. ADMIN. CODE § 116.111(a)(2)(L)

263. CC2 will not be located in the Houston/Galveston ozone nonattainment area.

Compliance History

264. IPA's person and site compliance history ratings are average.

Permit

265. The MAERT in the Draft Permit accurately identifies all emissions sources and air contaminant emission rates for the CC2 project.

266. The CC2 project has been planned to comply with the emission limits specified in the Draft Permit's MAERT.

267. The CC2 project facilities can be operated to meet the requirements of the Draft Permit.

Transcription Costs

268. IPA has the greatest financial ability to pay the transcription costs.

269. IPA presented the greatest amount of witnesses and most evidence of any party during the contested case hearing.

II. CONCLUSIONS OF LAW

Jurisdiction

1. The Commission has jurisdiction over IPA's Application pursuant to TEX. HEALTH & SAFETY CODE Chapter 382 and TEX. WATER CODE Chapter 5.

2. IPA'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. Proper notice of IPA's Application was provided pursuant to TEX. HEALTH & SAFETY CODE §§ 382.0516, 382.0517, and 382.056, 30 TEX. ADMIN. CODE § 39.601, *et seq*., and TEX. GOV'T CODE §§ 2001.051 and 2001.052.

5. IPA properly submitted a complete Application pursuant to TEX. HEALTH & SAFETY CODE §§ 382.0515 and 382.0518 and 30 TEX. ADMIN. CODE §§ 116.110, 116.111, 116.140, and 116.404.

Burden of Proof

6. Pursuant to 30 TEX. ADMIN. CODE §§ 55.210 and 80.17(a), in a contested case hearing involving an air quality permit application that has been directly referred, the burden of proof is on the applicant to prove by a preponderance of the evidence that the application satisfies all statutory and regulatory requirements.

Unregulated Substances

7. IPA's CC2 project will emit some substances that are not regulated under the FCAA or the Texas Clean Air Act (TCAA), such as water vapor, nitrogen, methane, ethane, and carbon dioxide.

TCAA Standards

8. Under Texas law, IPA may not construct CC2 until it has obtained a permit from the Commission. TEX. HEALTH AND SAFETY CODE § 382.0518(a).

9. TEX. HEALTH AND SAFETY CODE § 382.0518(b) sets out two overarching standards for obtaining a pre-construction permit. It states:

> The commission shall grant within a reasonable time a permit or permit amendment to construct or modify a facility if, from the information available to the commission, including information presented at any hearing held under Section 382.056(k), the commission finds:
>
> > (1) the proposed facility for which a permit, permit amendment, or a special 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 [the TCAA], including protection of the public's health and physical property.

10. Under the FCAA, new major sources of HAPs are prohibited from commencing construction unless the source demonstrates it will achieve an emission standard equivalent to the "maximum achievable control technology emission limitation" for each HAP emitted. 42 U.S. C. § 7412(g).

11. TEX. HEALTH AND SAFETY CODE § 382.0541(a) authorizes the Commission to require certain sources to use BACT, or MACT, if it is more stringent, and to establish MACT requirements. It provides:

(a) The commission may:

* * *

> (3) require facilities or federal sources that are new or modified and are subject to Section 112(g) of the federal Clean Air Act (42 U.S.C. Section 7412) to use, at a minimum, the more stringent of:
>
> > (A) the best available control technology, considering the technical practicability and economic reasonableness of reducing or eliminating emissions from the proposed facility or federal source; or
> >
> > (B) any applicable maximum achievable control technology (MACT), including any MACT developed pursuant to Section 112(g) of the federal Clean Air Act (42 U.S.C. Section 7412);
>
> (4) establish maximum achievable control technology requirements in accordance with Section 112(j) of the federal Clean Air Act (42 U.S.C. Section 7412) . . . .

MACT

12. TCEQ rules 30 TEX. ADMIN. CODE §§ 116.400-406 adopt by reference 40 C.F.R. Part 63, Subpart B, which govern Hazardous Air Pollutant from Constructed or Reconstructed Major Sources.

13. Under 40 C.F.R. § 63.2, a hazardous air pollutant is "any air pollutant listed in or pursuant to section 112(b) of the [federal Clean Air Act]."

14. A "[s]ource" is "[a] point of origin of air contaminants, whether privately or publicly owned or operated. 30 TEX. ADMIN. CODE § 116.10(17).

15. An "affected source" is a "stationary source or group of stationary sources which, when fabricated (on-site), erected, or installed meets the criteria in §116.180(a)(1) and (2) of

this title (relating to Applicability) and for which no MACT standard has been promulgated under 40 C.F.R. Part 63. 30 TEX. ADMIN. CODE § 116.15(1).

16. Major source is defined by 40 C.F.R. § 63.2 as:

> . . . any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit considering controls, in the aggregate, 10 tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants, unless the Administrator establishes a lesser quantity, or in the case of radionuclides, different criteria from those specified in this sentence.

17. The CC2 boiler would be a new major source of HAPs and an affected source as defined at 30 TEX. ADMIN. CODE § 116.15(1).

18. An affected source of HAPs is required to submit a permit application. 30 TEX. ADMIN. CODE § 116.404 states:

> Consistent with the requirements of 40 Code of Federal Regulations § 63.43 (concerning maximum achievable control technology determinations for constructed and reconstructed major sources), the owner or operator of a proposed affected source (as defined in §116.15(1) of this title (relating to Section 112(g) Definitions)) shall submit a permit application as described in §116.110 of this title (relating to Applicability).

19. MACT is defined by 30 TEX. ADMIN. CODE § 116.15(7) 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 executive director, 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.

20. Similarly, but not identically, 40 C.F.R. § 63.41 provides:

> *Maximum achievable control technology (MACT) emission limitation* for new sources means the emission limitation which is not less stringent than the emission limitation achieved in practice by the best controlled similar source, 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. CC2 would be an affected source of HAPs for which no MACT standard is in place.

22. Under 30 TEX. ADMIN. CODE §116.110, before any actual work is begun on the facility, any person who plans to construct any new facility or to engage in the modification of any existing facility which may emit air contaminants into the air of this state shall either obtain a permit under 30 TEX. ADMIN. CODE §116.111, or comply with an alternative requirement.

23. In accordance with 30 TEX. ADMIN. CODE § 116.400, the emission limits for HAPs from the CC2 boiler reflect application of MACT for a new source.

24. Based on the above Findings of Fact and Conclusions of Law, IPA has made all demonstrations required under applicable federal and 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.

25. In accordance with 30 TEX. ADMIN. CODE §§ 116.111(a)(2)(K) and 116.404, an application for a case-by-case MACT determination was properly conducted and

submitted by IPA to establish federally enforceable MACT emission limits for the CC2 boiler.

26. The case-by-case MACT application for the CC2 boiler is complete and complies with all applicable requirements for a HAP major source permit found in 30 TEX. ADMIN. CODE Chapter 116 and 40 C.F.R. Part 63 regarding MACT review.

BACT

27. TCEQ defines BACT as, "[BACT] with consideration given to the technical practicability and the economic reasonableness of reducing or eliminating emissions from the facility." 30 TEX. ADMIN. CODE § 116.10(3).

28. An applicant that is proposing to construct a pulverized coal-fired boiler power plant is not required to include other electric generation technologies, such as integrated gasification/combined cycle (IGCC) technology, in its BACT analysis.

29. The application of BACT, as defined at 40 C.F.R. § 52.21(b)(12), or of EPA's top down methodology, would not result in a more stringent BACT determination for the CC2 project.

30. The proper BACT emission rate for total PM/PM_{10} is 0.025 lb/MMBtu, rather than the emission rate of 0.032 lb/MMBtu in the Draft Permit.

31. In accordance with TEX. HEALTH & SAFETY CODE § 382.0518 and 30 TEX. ADMIN. CODE § 16.111(a)(2)(C), the CC2 project will utilize BACT, with consideration given to the technical practicability and economic reasonableness of reducing or eliminating emissions from its facilities.

NAAQS and PSD

32. In the FCAA, Congress directed EPA to adopt NAAQS. 42 U.S.C. § 7409(a).

33. The current NAAQS, as set out in 40 C.F.R. Part 50, are listed below:

NAAQS				
	Primary Standards		**Secondary Standards**	
Pollutant	**Level**	**Averaging Time**	**Level**	**Averaging Time**
Carbon Monoxide	9 ppm ($10\ mg/m^3$)	8-hour	None	
	35 ppm ($40\ mg/m^3$)	1-hour		
Lead	$0.15\ \mu g/m^3$	Rolling 3-Month Average	Same as Primary	
	$1.5\ \mu g/m^3$	Quarterly Average	Same as Primary	
Nitrogen Dioxide	0.053 ppm ($100\ \mu g/m^3$)	Annual (Arithmetic Mean)	Same as Primary	
PM_{10}	$150\ \mu g/m^3$	24-hour	Same as Primary	
$PM_{2.5}$	$15.0\ \mu g/m^3$	Annual (Arithmetic Mean)	Same as Primary	
	$35\ \mu g/m^3$	24-hour	Same as Primary	
Ozone	0.075 ppm (2008 std.)	8-hour	Same as Primary	
	0.08 ppm (1997 std.)	8-hour	Same as Primary	
	0.12 ppm	1-hour	Same as Primary	
Sulfur Dioxide	0.03 ppm	Annual (Arithmetic Mean)	0.5 ppm ($1300\ \mu g/m^3$)	3-hour
	0.14 ppm	24-hour		

34. The Commission has adopted the NAAQS by reference and specified that they be enforced throughout Texas. 30 TEX. ADMIN. CODE § 101.21.

35. Under 30 TEX. ADMIN. CODE § 116.111(a)(2)(I), a proposed facility located in an NAAQS attainment area must comply with all applicable requirements of 30 TEX. ADMIN. CODE Chapter 116 concerning PSD review.

36. TCEQ rule 30 TEX. ADMIN. CODE §116.161 provides:

> The commission may not issue a permit to any new major stationary source or major modification located in an area designated as attainment or unclassifiable, for any National Ambient Air Quality Standard (NAAQS) under FCAA, §107, if ambient air impacts from the proposed source would cause or contribute to a violation of any NAAQS. In order to obtain a permit, the source must reduce the impact of its emissions upon air quality by obtaining sufficient emission reductions to eliminate the predicted exceedances of the NAAQS. A major source or major modification will be considered to cause or contribute to a violation of a NAAQS when the emissions from such source or modification would, at a minimum, exceed the *de minimis* impact levels specified in § 101.1 of this title (relating to Definitions) at any locality that is designated as nonattainment or is predicted to be nonattainment for the applicable standard.

37. Further, 30 TEX. ADMIN. CODE § 116.160 adopts by reference EPA's rules at 40 C.F.R. § 52.21. In relevant part, 40 C.F.R. § 52.21(k) states the following:

> Source Impact Analysis. The owner or operator of the proposed source . . . shall demonstrate that allowable emission increases from the proposed source . . . , in conjunction with all other applicable emission increases or reductions (including secondary emissions), would not cause or contribute to air pollution in violation of:
>
> > (1) Any [national ambient air quality standard (NAAQS)] in any air quality control region; or
> >
> > (2) Any applicable maximum allowable increase over the baseline concentration in any area.

38. The Station is a major source because it emits more than 100 tpy of any single federally regulated new source review pollutant.

39. The CC2 project constitutes a major modification as defined at 30 TEX. ADMIN. CODE § 116.12(18) because it may result in a significant net emissions increase of federally regulated new source review pollutants; therefore, PSD review is triggered.

40. In accordance with 30 TEX. ADMIN. CODE § 116.111(a)(2)(I) & 116.160, *et. seq.*, an application for a PSD permit was properly conducted and submitted by IPA to establish federally enforceable PSD emission limits for the CC2 boiler.

41. Congress set increments for particulate matter and for sulfur dioxide. 42 U.S.C. § 7473.

42. EPA in 1987 amended the particulate increment to specify that particulate matter smaller than 10 microns in diameter (*i.e.* PM_{10}) would be the subset of particulate matter regulated by the increment. 52 Fed. Reg. 24,634 (July 1, 1987). EPA later set increments for nitrogen dioxide, a pollutant for which Congress had not initially set any increments. 53 Fed. Reg. 40,656-40,670-72 (Oct. 17, 1988).

43. When the maximum modeled concentration of a contaminant from a project is less than the EPA SIL or TCEQ *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.

44. EPA has established SILs and TCEQ has established *de minimis* levels for NO_2, CO, SO_2, and PM_{10}.

45. If the maximum modeled concentrations resulting from emissions of a contaminant from a project are predicted to be insignificant (*i.e.*, below the applicable EPA SIL and TCEQ

de minimis level for that contaminant and averaging time), then the NAAQS and PSD increment analyses for that contaminant are complete and the project is presumed not to cause or contribute to a violation of the NAAQS or PSD increment for that contaminant and averaging time.

46. There is a reasonable relationship between PM_{10} and $PM_{2.5}$ emissions from the CC2 project to support use of the PM_{10} surrogate policy in this case.

47. A demonstration of compliance with the PM_{10} permitting requirements suffices to demonstrate compliance with the $PM_{2.5}$ permitting requirements.

48. Because emissions of PM_{10} from CC2 will not cause or contribute to an exceedance of the former PM_{10} NAAQS, emissions of $PM_{2.5}$ from the CC2 project are not expected to cause or contribute to an exceedance of the $PM_{2.5}$ NAAQS pursuant to the PM_{10} surrogate policy.

49. IPA properly relied on PM_{10} as a surrogate for required $PM_{2.5}$ demonstrations.

50. The PSD application for the CC2 project is complete and complies with all applicable requirements for a PSD permit found in 30 TEX. ADMIN. CODE Chapter 116 and 40 C.F.R. Part 52 regarding PSD review.

51. The emissions from the CC2 project will not cause or contribute to a violation of any NAAQS or PSD increments or impair visibility, soils, or vegetation.

52. Nonattainment review requirements are not applicable to the CC2 project.

Sulfur Compound Rules

53. Chapter 112 of TCEQ's rules establishes property-line standards for sulfur compounds SO_2 and H_2SO_4. The Chapter 112 standards are the maximum off-property ground-level

concentrations of those compounds that are allowed from all emissions sources on a site. The standards are set out below:

State Property-Line Standard		
Pollutant	**Averaging Period**	**$\mu g/m^3$**
SO_2	1-Hour	1021
H_2SO_4	1-Hour	50
	24-Hour	15

Emissions from CC2 would not result in an exceedance of the Chapter 112 rules for SO_2 and H_2SO_4.

Air Pollution

54. The intent of the TCAA is set out in TEX. HEALTH AND SAFETY CODE § 382.002(a), which provides:

> The policy of this state and the purpose of [the TCAA] are to safeguard the state's air resources from pollution by controlling or abating air pollution and emissions of air contaminants, consistent with the protection of public health, general welfare, and physical property, including the esthetic enjoyment of air resources by the public and the maintenance of adequate visibility.

55. Air pollution is defined by TEX. HEALTH AND SAFETY CODE § 382.003(3) as follows:

> "Air pollution" means the presence in the atmosphere of one or more air contaminants or combination of air contaminants in such concentration and of such duration that:
>
> > (1) are or may tend to be injurious to or to adversely affect human health or welfare, animal life, vegetation, or property; or
> >
> > (2) interference with the normal use or enjoyment of animal life, vegetation, or property.

56. In accordance with TEX. HEALTH & SAFETY CODE § 382.0518(b)(2), emissions from the CC2 project 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.

57. The proposed emissions from CC2 will not cause or contribute to air pollution.

58. The proposed emissions from CC2 will not cause adverse public health or welfare effects, including nuisance conditions.

Other TCEQ Rules

59. IPA's application is subject to and complies with TCEQ rules in the following chapters of Title 30 of the Texas Administrative Code:

- Chapter 101 – General Rules
- Chapter 111 – Control of Air Pollution from Visible Emissions and Particulate Matter
- Chapter 113 – Standards of Performance for Hazardous Air Pollutants and for Designated Facilities and Pollutants
- Chapter 114 – Control of Air Pollution from Motor Vehicles
- Chapter 118 – Control of Air Pollution Episodes

60. In accordance with 30 TEX. ADMIN. CODE § 116.111(a)(2)(B), the CC2 project will have provisions for measuring the emission of air contaminants as determined by the Commission's Executive Director.

61. The CC2 project, the boiler; the materials handling system; and the diesel fired emergency engines, including two fire pump engines, will be subject to applicable provisions of four NSPS Subparts: Subpart A-General Provisions, Subpart Da-Electric Utility Steam Generating Units, Subpart Y-Coal Preparation Plants, and Subpart IIII-Standards of Performance for Stationary Compression Ignition Internal Combustion Engines.

62. In accordance with 30 TEX. ADMIN. CODE § 116.111(a)(2)(D), the CC2 project 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.

63. No requirement set forth at 30 TEX. ADMIN. CODE § 116.111(a)(2)(E) regarding compliance with NESHAPs is applicable to the CC2 project.

64. The CC2 project emergency diesel engines are the only type of equipment in the CC2 project subject to a NESHAPs for source categories. In accordance with 30 TEX. ADMIN. CODE § 116.111(a)(2)(F), the emissions from the CC2 project 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.

65. In accordance with 30 TEX. ADMIN. CODE § 116.111 (a)(2)(G) the CC2 project facilities will achieve the performance specified in the permit application.

66. 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 the CC2 project.

67. The requirement set forth at 30 TEX. ADMIN. CODE § 116.111(a)(2)(L) is not applicable to the CC2 project.

68. No pre-construction or post-construction ambient air monitoring for any federally regulated new source review pollutant from the CC2 project is required because either IPA's maximum modeled concentrations were below PSD monitoring significance levels or existing representative background monitoring data was available.

69. The proposed emissions from the CC2 project 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.

70. The proposed CC2 project diesel fuel tanks will only store diesel that meets the specifications set forth in 30 TEX. ADMIN. CODE Chapter 114.

71. The CC2 project 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 Goliad County.

72. The CC2 project 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.

73. The CC2 project 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.

74. The CC2 project is not subject to the emission reduction plan requirements of 30 TEX. ADMIN. CODE Chapter 118.

IPA's Permit

75. IPA's Application is complete and IPA has made all demonstrations required for approval and issuance of a State air quality permit.

76. In accordance with 30 TEX. ADMIN. CODE § 116.111(a)(2)(A)(i), emissions from the CC2 project, as modified by this order, 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.

77. The Draft Permit prescribes requirements for demonstrating initial and ongoing compliance with all applicable requirements of the Draft Permit and the TCAA.

78. The special conditions in the permit are appropriately added under 30 TEX. ADMIN. CODE § 116.115(c)(1) and are consistent with the TCAA.

79. 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 IPA has an "average" site and person compliance history rating as determined in accordance with 30 TEX. ADMIN. CODE Chapter 60.

80. IPA has made all demonstrations required under applicable federal and state laws and regulations regarding air permit applications, including 30 TEX. ADMIN. CODE § 116.111, to be issued an air quality permit with PSD review.

81. The Draft Permit contains all of the applicable conditions required by the TEXAS HEALTH & SAFETY CODE and Commission rules.

82. Pursuant to TEX. HEALTH & SAFETY CODE § 382.0518 and 30 TEX. ADMIN. CODE § 116.111, IPA demonstrated that the emissions from the CC2 project facilities 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 longstanding interpretation of the Commission's rules, regulations, and guidance.

83. The application for Air Quality Permit No. 83778/PSD Permit No. PSD-TX-1118/Air Quality Permit No. HAP-18 should be approved and the attached Air Quality Permit No. 83778/PSD Permit No. PSD-TX-1118/Air Quality Permit No. HAP-18 should be issued, except that on page 4, in special condition 8.B, the Performance Standard for PM/PM_{10} should be changed from 0.032 lb/MMBtu to 0.025 lb/MMBtu.

Transcription Costs

83. All transcription and reporting costs should be assessed to IPA.

NOW, THEREFORE, BE IT ORDERED BY THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY, IN ACCORDANCE WITH THESE FINDINGS OF FACT AND CONCLUSIONS OF LAW, THAT:

1. The application for Air Quality Permit No. 83778/PSD Permit No. PSD-TX-1118/Air Quality Permit No. HAP-18 is approved and the attached Air Quality Permit No. 83778/PSD Permit No. PSD-TX-1118/Air Quality Permit No. HAP-18 is issued, except that on page 4, Special Condition 8.B. shall specify that the Performance Standard for PM/PM_{10} total is 0.025 lb/MMBtu.

2. IPA shall comply with all Findings of Fact and Conclusions of Law contained herein.

3. The attached Air Permit Nos. 83778, PSD-TX-1118, and HAP 18 shall take effect on the date of issuance of this Order.

4. The Executive Director's Response to Public Comment concerning IPA's Air Permit Nos. 83778, PSD-TX-1118, and HAP 18 is adopted and approved. If there is any conflict between the Commission's Order and the Executive Director's Response to Public Comments, the Commission's Order prevails.

5. The Applicant shall pay all of the court reporting and transcript costs for this case.

6. 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.

7. The Chief Clerk of the Commission shall forward a copy of this Order to all parties and issue the attached permit as changed to conform to this Order.

8 All other motions, requests for specific Findings of Fact or Conclusions of Law, and other requests for general and specific relief, if not expressly granted, are denied for want of merit.

9. If any provision, sentence, clause, or phrase of this Order is for any reason held to be invalid, the invalidity of any portion shall not affect the validity of the remaining portions of this Order.

10. The effective date of this Order is the date the Order is final, as provided by 30 TAC § 80.273 and TEX. GOV'T CODE ANN. § 2001.144.

ISSUED:

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Bryan W. Shaw, Ph.D., Chairman
For the Commission