

SOAH DOCKET NO. 582-09-3008
TCEQ DOCKET NO. 2009-0283-AIR

APPLICATION BY WHITE STALLION § BEFORE THE
ENERGY CENTER, LLC FOR §
PERMIT NOS. 86088, HAP28, PAL26, § TEXAS COMMISSION ON
AND PSD-TX-1160 § ENVIRONMENTAL
BAY CITY, MATAGORDA COUNTY § QUALITY

TEXAS
COMMISSION
ON ENVIRONMENTAL
QUALITY
2009 OCT - 2 PM 5:10
CHIEF CLERK'S OFFICE

EXECUTIVE DIRECTOR'S RESPONSE TO PUBLIC COMMENT

The Executive Director (ED) of the Texas Commission on Environmental Quality (the commission or TCEQ) files this Response to Public Comment (Response) on the New Source Review Authorization application and Executive Director's preliminary decision.

As required by Title 30 Texas Administrative Code § 55.156 (30 TAC § 55.156), before an application is approved, the ED prepares a response to all timely, relevant and material, or significant comments. The Office of Chief Clerk timely received comment letters from the following persons: see attached list.

This Response addresses all timely public comments received, whether or not withdrawn. If you need more information about this permit application or the permitting process please call the TCEQ Office of Public Assistance at 1-800-687-4040. General information about the TCEQ can be found at our website at www.tceq.state.tx.us.

BACKGROUND

Description of Facility

White Stallion Energy Center, LLC (Applicant or WSEC), has applied to the TCEQ for issuance of State Air Quality Permit Number 86088, Hazardous Air Pollutant (HAP) Major Source [FCAA § 112(g)] Permit Number HAP28, Plant-Wide Applicability Limit (PAL) Permit Number PAL26, and Prevention of Significant Deterioration (PSD) Air Quality Permit Number PSD-TX-1160, which would authorize construction and operation of a petroleum coke and coal-fired power plant located south of Bay City, approximately 2 miles south of the Celanese Plant, between FM2668 and the Colorado River, in Matagorda County, Texas. The proposed facilities will emit the following air contaminants: sulfur dioxide (SO₂), nitrogen oxides (NO_x), carbon monoxide (CO), particulate matter, including particulate matter less than 10 microns and less than 2.5 microns in diameter (PM/PM₁₀, PM_{2.5}), volatile organic compounds (VOC), sulfuric acid (H₂SO₄), fluorides (as hydrogen fluoride) (HF), lead (Pb), mercury (Hg), ammonia (NH₃), hydrochloric acid (HCl), and other products of petroleum coke and coal combustion and emission control.

Procedural Background

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 from the commission. This permit application is for a State Air Quality permit, a PSD permit, a PAL permit, and a HAP permit. The permit application was received on September 5, 2008 and declared administratively complete on September 11, 2008. The Notice of Receipt and Intent to Obtain an Air Quality Permit (first public notice) for this permit application was published on October 1, 2008 in the *Victoria Advocate* and *The Bay City Tribune*. The Application was direct referred to the State Office of Administrative Hearings (SOAH) at the request of the Applicant on February 27, 2009. The Notice of Application and Preliminary Decision (second notice) and notice of preliminary hearing were published on March 15, 2009 in the *Victoria Advocate* and *The Bay City Tribune*. The TCEQ held a public meeting in Bay City on March 30, 2009. A preliminary hearing on the matter was held on April 20, 2009 in Bay City. Since this application was administratively complete after September 1, 1999, this action is subject to the procedural requirements adopted in accordance with House Bill 801, 76th Legislature, 1999.

COMMENTS

Comment 1 (Health Effects): Commenters express concern that emissions from the proposed power plant will adversely affect air quality, or will cause or contribute to air pollution (*Judith Allen, E. Marguerite Bundrick, Paula Browning, George Burlingame, Environmental Defense Fund (EDF), Joe Gonzales, A.C. Herreth, Georgia Herreth, Barbara Holloway, Bryan Hutson, John Hutson, Susie Hutson, Nate MacDonald, Eva Malina, Robert Malina, Connie Milliff, No Coal Coalition (NCC), Lillian Orsak, Public Citizen, Sustainable Energy and Economic Development (SEED) Coalition, Sierra Club, Muriel Tipps*).

Commenters express concern regarding potential health impacts of air emissions from the proposed power plant on: **themselves** (*Connie Milliff, Lillian Orsak*); **children / infants / unborn children** (*Virginia Burlingame, Susan Dancer, Crystal Eubanks, Joe Gonzales, A.C. Herreth, Georgia Herreth, Barbara Holloway, Bryan Hutson, John Hutson, Susie Hutson, Robert Malina, Eva Malina, Connie Milliff, Mike O'Day, Lillian Orsak, Public Citizen*); **the elderly** (*Virginia Burlingame, Barbara Holloway, Bryan Hutson, John Hutson, Susie Hutson, Crystal Eubanks, Eva Malina, Robert Malina*); **the public and local community** (*Judith Allen, Susan Dancer, Crystal Eubanks, Barbara Holloway, Bryan Hutson, John Hutson, Susie Hutson, Eva Malina, Robert Malina, Connie Milliff, Public Citizen*); **students and staff at the nearby schools** (*Public Citizen*); **those working nearby** (*NCC, Public Citizen, SEED Coalition*); **its members** (*NCC, Public Citizen, SEED Coalition, Sierra Club*).

Commenters state that emission limits are not protective of public health for Matagorda County (*SEED Coalition, Sierra Club*).

Commenters are concerned the operation of the proposed power plant may cause or adversely affect those who already have the following conditions: allergies, asthma, autism, bronchitis,

cardiovascular problems, heart attacks, lung cancer, lung disease, premature death, and respiratory illnesses (*Paula Browning, Susan Dancer, EDF, Crystal Eubanks, Joe Gonzales, Barbara Holloway, Bryan Hutson, John Hutson, Susie Hutson, Connie Milliff, Eva Malina, Robert Malina, NCC, Public Citizen, SEED Coalition, Sierra Club*).

Commenters are concerned the operation of the power plant will adversely affect the use and enjoyment of the outdoors and limit recreational activities (*NCC, Public Citizen, SEED Coalition*). Some commenters feel the proposed plant will harm the serenity, aesthetic beauty, or quality of life in the area (*Crystal Eubanks, Barbara Holloway, Bryan Hutson, John Hutson, Susie Hutson, Robert Malina, Eva Malina, NCC, Public Citizen, SEED Coalition*).

Commenters are concerned that pollutants released into the environment may enter the food chain and endanger people who consume fish (*A.C. Herreth, Georgia Herreth, Mike O'Day*).

One commenter is concerned that the proposed plant may cause an increase in the number of emergency room visits (*Public Citizen*). Commenter is concerned that the health effects from the proposed power plant will lead to lost work time and increased sick days (*Public Citizen*).

Commenter asks whether the applicant will be held financially responsible for any adverse health effects caused by the proposed plant and how much money the applicant will set aside for this purpose. Commenter also asks whether TCEQ could actually determine whether the emissions from a particular plant are responsible for adverse health effects (*Muriel Tipps*).

Commenters express concern about potential environmental impacts of air emissions from the proposed plant (*Susan Dancer, Crystal Eubanks, Barbara Holloway, Bryan Hutson, John Hutson, Susie Hutson, Judy Jurek, Eva Malina, Robert Malina, Public Citizen*).

Some commenters state they or others use the Matagorda Bay area for recreational purposes and outdoor activities and are concerned the operation of the power plant will adversely affect their use and enjoyment of the bay area and limit outdoor activities (*Judith Allen, Joe Gonzales*).

Commenter expresses concern about the effect of the proposed plant on endangered species in the area (*Muriel Tipps*).

Commenter is a company that operates large brine storage ponds and is concerned that the ponds will be adversely affected by air emissions from the proposed plant. Commenter states that their sodium chloride brine cannot tolerate any lead, mercury, ammonia, or other heavy metals in the brine (*Underground Services Markham, LLC*).

Some commenters are concerned the operation of the power plant will have adverse health effects specifically on: livestock (*Public Citizen*); wildlife/animals (*Judith Allen, E. Marguerite Bundrick, George Burlingame, Crystal Eubanks, Barbara Holloway, Bryan Hutson, John Hutson, Susie Hutson, Eva Malina, Robert Malina, Public Citizen, Muriel Tipps*); fish/aquatic life (*Public Citizen, George Burlingame*); plant life or crops (*Public Citizen*); waterways, bays and estuaries (*George Burlingame, Crystal Eubanks, Barbara Holloway, Bryan Hutson, John*

Hutson, Susie Hutson, Judy Jurek, Eva Malina, Robert Malina, Connie Milliff, Public Citizen, Muriel Tipps); and wetlands (*George Burlingame*).

Commenter is concerned that the proposed plant may destroy the pristine areas of Matagorda County (*Mitch Thames*).

Response 1: For permits such as this, potential impacts to human health and welfare or the environment are determined by comparing air dispersion modeling predicted emission concentrations from the proposed facility to appropriate state and federal standards and effects screening levels.¹ The specific health-based standards or guidance levels employed in evaluating the potential emissions include the National Ambient Air Quality Standards (NAAQS); TCEQ standards contained in 30 Texas Administrative Code (30 TAC) Chapter 112, specifically, 30 TAC § 112.3, and 30 TAC § 112.41; and TCEQ Effects Screening Levels (ESLs).²

The NAAQS, as defined in Title 40 of the Code of Federal Regulations (CFR) § 50.2, were created and are periodically reviewed by the EPA. The NAAQS include both primary and secondary standards. The primary standards are those which the Administrator of the EPA determines are necessary, with an adequate margin of safety, to protect the public health, including sensitive members of the population such as children, the elderly, and individuals with existing lung or cardiovascular conditions.³ Secondary NAAQS are those which the Administrator determines are necessary to protect the public welfare and the environment, including animals, crops, vegetation, and buildings, from any known or anticipated adverse effects associated with the presence of an air contaminant in the ambient air. The standards are set for criteria pollutants: ozone, lead, CO, SO₂, nitrogen dioxide (NO₂), and respirable PM, which includes PM₁₀ and PM_{2.5}. "Criteria pollutants" are those pollutants for which a NAAQS has been established.

TCEQ standards stated in 30 TAC Ch. 112 address maximum ground level concentrations (GLC_{max}s) at or beyond the property line for sulfur compounds. ESLs are constituent-specific guideline concentrations used in TCEQ's evaluation of constituent concentrations in air. These guidelines are developed by the Toxicology Division of the TCEQ and are based on a constituent's potential to cause adverse health effects, odor nuisances, and/or effects on vegetation.⁴ These health-based screening levels are set at concentrations lower than those reported to produce adverse health effects, and are set to protect the general public, including sensitive subgroups such as children, the elderly, or people with existing respiratory conditions. Adverse health effects are not expected to occur if the predicted air concentration of a constituent is below its ESL. Because of these conservative concentrations, if an air concentration of a

¹ Documents referenced in this response are available on the TCEQ website at www.tceq.state.tx.us and are also available in printed form at a small cost from the TCEQ Publications office at 512-239-0028.

² To view the ESL list or obtain more information on ESLs, visit the TCEQ website at http://www.tceq.state.tx.us/implementation/tox/esl/list_main.html.

³ EPA considered animal studies indicating allergic responses to PM as well as studies in children indicating increased allergic responses to traffic-related gases and particles when they established the most recent NAAQS. Therefore, emissions below the applicable NAAQS would not be expected to exacerbate allergic conditions.

⁴ See Response 23 for more information on the development of ESLs.

constituent exceeds the screening level, it is not necessarily indicative that an adverse effect will occur, but rather that further evaluation is warranted.

The likelihood of whether adverse health effects caused by emissions from this facility could occur in members of the general public, including sensitive subgroups such as children, the elderly, or people with existing respiratory conditions, was determined by comparing the facility's predicted air dispersion computer modeling concentrations to the relevant state and federal standards and ESLs. The Applicant assumed a worst-case scenario, i.e., all processes at the site operating simultaneously at worst-case emission rates and worst-case meteorological conditions. The overall evaluation process provides a conservative prediction that is protective of the public and the environment. For this specific permit application, appropriate air dispersion modeling was performed using the AERMOD (Version 07026) model. TCEQ staff used modeling data from this facility to verify that ground level concentrations from the proposed facility are not likely to adversely impact off-property receptors. The modeling predictions were reviewed by the TCEQ Air Permits Division, and the modeling analysis was deemed to be acceptable.

For all constituents modeled in this application, only the GLC_{max} for vanadium, silica, hydrogen chloride, and nickel exceeded their current one-hour ESL. These constituents underwent a detailed health effects review and the Toxicology Division determined these exceedances were acceptable. No other compound modeled was predicted to exceed its respective short and long term ESL.

As previously noted, secondary NAAQS are those that the Administrator determines are necessary to protect the public welfare and the environment, including animals, crops, vegetation, and buildings, from any known or anticipated adverse effects associated with the presence of an air contaminant in the ambient air.⁵ Because the emissions from this facility should not cause an exceedance of the NAAQS, air emissions from this facility are not expected to adversely impact land, livestock, crops, or visibility, nor should emissions interfere with the use and enjoyment of surrounding land or water. The Texas Clean Air Act does not give the TCEQ authority to regulate air emissions beyond the direct impacts (inhalation) that the air emissions have to human health or welfare. Therefore, the TCEQ does not set emission limits on the basis that emissions may have impacts (by themselves or in combination with other contaminants or pathways) after being deposited on land or water or incorporated into the food chain.

Furthermore, the permit application must meet allowable standards outlined in the Texas Clean Air Act and applicable state and federal rules and regulations. Specifically, applicants must comply with 30 TAC §101.4, which prohibits nuisance conditions. The rule states, "No person shall discharge from any source whatsoever one or more air contaminants or combinations thereof, in such concentration and of such duration as are or may be injurious to or to adversely

⁵ Section 302(h) of the Federal Clean Air Act (FCAA), 42 U.S.C. § 7602, defines effects on welfare to include effects on soils, water, crops, vegetation, manmade materials, animals, wildlife, weather, visibility and climate, damage to and deterioration of property, hazards to transportation, and impacts to personal comfort and well-being, whether caused by transformation, conversion, or combination with other air pollutants.

affect human health or welfare, animal life, vegetation, or property, or as to interfere with the normal use and employment of animal life, vegetation, or property.”

In summary, based on potential concentrations reviewed by the Executive Director's staff, it is not expected that existing health conditions will worsen, or that there will be adverse health effects in the general public, sensitive subgroups, or animal life as a result of exposure to the expected levels of emissions from this site.

Individuals are encouraged to report any concerns about nuisance issues or suspected noncompliance with terms of any permit or other environmental regulation by contacting the Houston TCEQ Regional Office at 1-713-767-3500, or by calling the 24-hour toll-free Environmental Complaints Hotline at 1-888-777-3186. If the facility is found to be out of compliance with the terms and conditions of the permit, it will be subject to possible enforcement action. Citizen-collected evidence may be used in such an action. See 30 TAC § 70.4, Enforcement Action Using Information Provided by Private Individual, for details on gathering and reporting such evidence. The TCEQ has long had procedures in place for accepting environmental complaints from the general public but now has a new tool for bringing potential environmental problems to light. Under the citizen-collected evidence program, individuals can provide information on possible violations of environmental law and the information can be used by the TCEQ to pursue enforcement. In this program, citizens can become involved and may eventually testify at a hearing or trial concerning the violation. For additional information, see the TCEQ publication, “Do You Want to Report an Environmental Problem? Do You Have Information or Evidence?” This booklet is available in English and Spanish from the TCEQ Publications office at 512-239-0028, and may be downloaded from the agency website at www.tceq.state.tx.us (under Publications, search for document no. 278).

See Responses 3 below for more information on mercury, Response 4 for more information on PM, Response 5 for more information on SO₂, Response 6 for more information on lead, Response 7 for more information on organic compounds, Response 8 for more information on NO_x, Response 9 for more information on ozone, Response 10 for more information on CO, Response 11 for more information on radon/radionuclides, Response 12 for more information on cumulative impacts, and Response 23 for more information on ESLs.

Since this is an air quality permit application, water quality is outside the scope of the review. Should the nature of the facility's operations require, the Applicant may need to apply for separate permits to regulate water quality. In addition, the Texas Clean Air Act does not give the TCEQ authority to regulate air emissions beyond the direct impacts (inhalation) that the air emissions have to human health or welfare. Therefore, the TCEQ does not set emission limits on the basis that emissions may have impacts (by themselves or in combination with other contaminants or pathways) after being deposited on land or water or incorporated into the food chain. However, the ESLs for mercury, ammonia, or other heavy metals are set at such conservative levels that no adverse effects from indirect deposition would be expected. Furthermore, as previously noted, because the emissions from this facility should not cause an exceedance of the NAAQS, air emissions of lead from this facility are not expected to adversely

impact land, livestock, crops, or visibility, nor should emissions interfere with the use and enjoyment of surrounding land or water.

Comment 2 (Water): Commenter is concerned that the proposed plant's water use will adversely affect both ground and surface water supplies (*George Burlingame, Gary Ford, Judy Jurek, Eva Malina, Connie Milliff, NCC, Public Citizen, Muriel Tipps*).

Commenter, knowing this is not a water quality permit, asks how water quality questions will be addressed (*Mike O'Day*). Commenter notes that the public meeting was focused solely on air quality. Commenter asks why the meeting did not also address water quality and when a meeting about water quality will be scheduled (*Ronald Duke*).

Commenter asks whether the applicant has decided whether runoff and leaching will be controlled, partly controlled, or uncontrolled. Commenter would also like drawings for containment, collection, treatment, and handling of sludge (*Clyde Williams*). Commenter is concerned that the coal ash slurry retaining ponds may back up and flood during heavy rains (*Gary Ford*). Commenter is concerned that heavy rains will wash pollutants from coal piles into the river and groundwater (*Connie Milliff, Muriel Tipps*). Commenter expresses concern that if the proposed power plant releases brackish water into the canal system, the natural eco-system, crops, and soil may be harmed (*Muriel Tipps*).

Commenter is concerned that the proposed power plant's water usage is too high and asks who has priority when it comes to water rights. Commenter asks how many gallons of water is required to make one kilowatt of electricity and how many kilowatts the proposed plant will produce per day. Commenter asks where the proposed plant will get its water supply (*Muriel Tipps*).

Response 2: Since this is an air quality permit application, water quality is outside the scope of the review. However, WSEC has applied for a wastewater permit, WQ0004882000. Therefore, water quality questions should be addressed as part of the public participation for the water quality permit.⁶

Comment 3 (Mercury): Commenters express concern about the health effects of mercury that will be emitted from the proposed plant (*George Burlingame, Virginia Burlingame, Crystal Eubanks, A.C. Herreth, Georgia Herreth, Barbara Holloway, Bryan Hutson, John Hutson, Susie Hutson, Robert M. Malina, Eva Malina, NCC, Mike O'Day, Public Citizen, SEED Coalition*).

Commenters note that mercury is bio-accumulative and especially harmful to children. Commenters also state that there are no regulations to protect land and water from mercury emissions (*Crystal Eubanks, Barbara Holloway, Bryan Hutson, John Hutson, Susie Hutson, Robert M. Malina, Eva Malina*).

⁶ More information about water quality permits is available at http://www.tceq.state.tx.us/permitting/water_quality.

Commenter notes that mercury can cause permanent brain damage in children, impaired vision and hearing, speech impairment, and learning disabilities. Furthermore, commenter notes that mercury ingested by a mother can be passed to her developing baby. A recent study by the University of Texas has found a correlation between increased rates of autism in children and how close they live to coal plants (*Public Citizen*).

Commenters are concerned that mercury released into the environment may enter the food chain and endanger people who consume fish (*Public Citizen, Sierra Club*).

Commenter suggests that the applicant should reduce mercury emissions down to at least 56 lbs annually or less and offset whatever remains (*Public Citizen*).

Response 3: Adverse effects from mercury exposure are not expected to occur from direct exposure to air emissions from the WSEC plant because the short-term (one-hour) and long-term (annual) GLC_{max} s for mercury are not predicted to exceed the short-term and long-term ESLs. For more information on ESLs see Response 23.

The short-term and long-term mercury ESLs are set conservatively. The short-term ESL has been set at $0.25 \mu\text{g}/\text{m}^3$, which is one-seventh of the level determined to be protective of central nervous system disturbances in offspring. The long-term ESL has been set at $0.025 \mu\text{g}/\text{m}^3$, which is also conservatively set at one-twelfth the protective level for human health effects as determined by EPA's Integrated Risk Information System. The predicted short-term GLC_{max} from this plant is $0.003 \mu\text{g}/\text{m}^3$, which is below the long-term ESL, and therefore, as long as the plant operates in compliance with their permit, adverse health effects are not expected to occur in the general public, including sensitive members, as a result of short-term or long-term inhalation exposure to mercury emissions from this plant.

The 1990 FCAA required the EPA to evaluate HAPs from coal-fired electric generating units (EGUs) and develop regulations if these emissions were found to pose environmental risk. The EPA studied the emissions in the 1990s, and in 2000 formally identified mercury emissions from coal-fired EGUs as needing to be reduced. In 2005 EPA adopted rules requiring nation-wide mercury reductions from EGUs of approximately 70 percent by 2018.⁷ These rules were vacated by a federal court in 2008.⁸ In order to comply with the FCAA, the EPA is expected to develop new mercury emission reduction requirements in 2010 which will replace the rules that were struck down. Until that time the FCAA requires applicants to undergo a case-by-case review for HAPs, including mercury. See Response 42 for more information about mercury.

Since this is an air quality permit application, water quality is outside the scope of the review. The Applicant has applied for a separate permit to regulate water quality (WQ0004882000). In addition, the Texas Clean Air Act does not give the TCEQ authority to regulate air emissions beyond the direct impacts (inhalation) that the air emissions have to human health or welfare. Therefore, the TCEQ does not set emission limits on the basis that emissions may have impacts

⁷ 70 Fed. Reg. 28,606 (May 15, 2005).

⁸ *New Jersey v. EPA*, 574 F3d. 574 (D.C. Cir. 2008).

(by themselves or in combination with other contaminants or pathways) after being deposited on land or water or incorporated into the food chain. However, the ESLs for mercury are set at such conservative levels that no adverse effects from indirect deposition would be expected.⁹

Comment 4 (Particulate Matter): Commenters express concern about the health effects of PM that will be emitted from the proposed plant (*Connie Milliff, Robert M. Malina*). Commenter states that the application fails to demonstrate that the emission of PM_{2.5} will not cause or contribute to air pollution. (*EDF*).

Response 4: Particulate matter consists of solid particles and liquid droplets found in the air. Particles less than 10 micrometers or microns (μm) in diameter (PM₁₀) are referred to as "coarse" particles and particles less than 2.5 μm in diameter are referred to as "fine" particles. The negative health impacts of PM have been recognized for quite some time. To address these effects, the Clean Air Act of 1970 required all coal-fired electric utility boilers built or modified after August 17, 1971 to limit particulate emissions.

Particulates are regulated by EPA's NAAQS. The permit was reviewed under the NAAQS for PM₁₀ based on a twenty-four-hour and an annual time period. The twenty-four-hour and annual total predicted GLC_{max} are 79 $\mu\text{g}/\text{m}^3$ and 29 $\mu\text{g}/\text{m}^3$, respectively. Predicted air concentrations for this facility were below the NAAQS established for PM₁₀ and, therefore, the emissions are not expected to exacerbate existing conditions or cause adverse health effects.

Per the EPA PM_{2.5} surrogate policy, the TCEQ uses the PM₁₀ program as a surrogate for the PM_{2.5} program until the EPA fully implements and integrates PM_{2.5} into the New Source Review program. On October 23, 1997, EPA issued a memorandum providing for PM₁₀ to be used as a surrogate for PM_{2.5}.¹⁰ EPA reaffirmed that conclusion in a memorandum dated April 5, 2005.¹¹ EPA continued to recognize the issue and outstanding difficulties implementing PM_{2.5} in its *Proposed Rule to Implement the Fine Particle National Ambient Air Quality Standards*.¹² EPA also noted in the Final Rule that it did not include final PM_{2.5} requirements and that they would be issued in a later rule.¹³ On May 16, 2008, EPA confirmed that those sources who had submitted applications based on the PM₁₀ surrogate policy would be "grandfathered" and thus would remain subject to the surrogate policy for permitting purposes.¹⁴ Furthermore, EPA has

⁹ Airborne pollution can fall to the ground in precipitation, in dust, or simply due to gravity. This type of pollution is called "atmospheric deposition" or "air deposition." Pollution deposited from the air, such as mercury, can reach water bodies in two ways. It can be deposited directly onto the surface of the water (direct deposition) or be deposited onto land and be carried to water bodies through run off (indirect deposition). For more information please see the EPA's Air Pollution and Water Quality page at <http://www.epa.gov/owow/airdeposition/>.

¹⁰ U.S. EPA Memorandum from John S. Seitz, Director of Office of Air Quality Planning and Standards, *Interim Implementation of New Source Review Requirements for PM_{2.5}*, October 23, 1997.

¹¹ U.S. EPA Memorandum from Stephen D. Page, Director, *Implementation of New Source Review Requirements in PM-2.5 Nonattainment Areas*, April 5, 2005.

¹² 70 Fed. Reg. 65984, 66043 (November 1, 2005).

¹³ 72 Fed. Reg. 20586 (April 25, 2007).

¹⁴ 73 Fed. Reg. 28340 (May 16, 2008). To comply with the grandfathering policy the applicant must meet two conditions: 1) the EPA or its delegate reviewing authority determines the application was complete as submitted, and 2) the completed application is consistent with the requirements as set forth in the EPA memorandum "Interim

added 40 CFR 52.21(i)(1)(xi) to reflect the grandfathering provision.¹⁵ PM₁₀ controls and emissions were modeled and predicted PM₁₀ concentrations were compared to the PM₁₀ NAAQS. Per the surrogate policy, compliance with the PM₁₀ NAAQS was used as the surrogate for compliance with the PM_{2.5} NAAQS.¹⁶

Speciated PM, primarily metals, were modeled and compared to ESLs. As shown in the following tables, all predicted GLCs were below their corresponding ESLs, except for hydrogen chloride, nickel, silica, and vanadium, and these impacts were found to be acceptable. See Response 1 for more information on the ESLs of speciated PM.

Site-wide Modeling Results for Health Effects				
Pollutant & CAS#	Averaging Time	GLCmax ($\mu\text{g}/\text{m}^3$)	GLCni ($\mu\text{g}/\text{m}^3$)	ESL ($\mu\text{g}/\text{m}^3$)
Ammonia 7664-41-7	1-hr	48	< 48	170
Aluminum, Metal and Oxide 7429-90-5	1-hr	3	< 3	50
Arsenic & Inorganic Compounds 7440-38-2	1-hr	0.018	< 0.018	0.1
Beryllium, Particulate 7440- 41-7	1-hr	0.003	< 0.003	0.02
Cadmium & Compounds Not Found	1-hr	0.001	< 0.001	0.1
Calcium Oxide 1305-78-8	1-hr	3	< 3	20
Hydrogen Chloride 7647-01-0	1-hr	82	< 75	75
	Annual	0.15	< 0.15	7.5

Implementation of New Source Review Requirements for PM_{2.5}.”

¹⁵ See *id.*

¹⁶ While EPA granted a petition for reconsideration regarding the surrogate policy on June 1, 2009, this application was submitted under the existing surrogate policy, and met the requirements as stated in the May 16, 2008 Federal Register.

Site-wide Modeling Results for Health Effects				
Pollutant & CAS#	Averaging Time	GLCmax ($\mu\text{g}/\text{m}^3$)	GLCni ($\mu\text{g}/\text{m}^3$)	ESL ($\mu\text{g}/\text{m}^3$)
Chromium (II) & (III) Compounds Not Found	1-hr	0.026	< 0.026	1
Copper Oxide (cuprous oxide; CuO) 1317-38-0	1-hr	0.005	< 0.005	10
Hydrogen Fluoride 7664-39-3	1-hr	2	< 2	25
Iron (As Iron Oxide) 7439-89-6	1-hr	9	< 9	50
Magnesium Oxide (fume), respirable 1309-48-4	1-hr	0.2	< 0.2	50
Manganese Oxide 1344-43-0	1-hr	0.25	< 0.25	2
Mercury, Metal & Inorganic Forms Not Found	1-hr	0.003	< 0.003	0.25
Nickel, metal & Compounds 7440-02-0	1-hr	0.16	0.12	0.15
	Annual	0.01	0.003	0.015
Potassium Oxide (as K) Not Found	1-hr	0.6	< 0.6	50
Selenium & Compounds 7782-49-2	1-hr	0.003	< 0.003	2
Silica-amorphous+ crystalline Not Found	1-hr	29.7	29.7	10
	Annual	0.24	0.05	1
Sodium Oxide 12401-86-4	1-hr	0.29	< 0.29	20
Titanium 7440-32-6	1-hr	0.2	< 0.2	50
Vanadium & Compounds (as Vanadium Pentoxide) Not Found	1-hr	0.7	0.58	0.5
	Annual	0.05	0.02	0.05

Site-wide Modeling Results for Health Effects				
Pollutant & CAS#	Averaging Time	GLCmax ($\mu\text{g}/\text{m}^3$)	GLCni ($\mu\text{g}/\text{m}^3$)	ESL ($\mu\text{g}/\text{m}^3$)
Gasoline, < 1% benzene 8006-61-9	1-hr	1039	< 1039	3500
Diesel Fuel (Vapor) Not Found	1-hr	149	< 149	1000

Hours of Exceedance for Health Effects			
Pollutant	Averaging Time	1X ESL GLCni	2X ESL GLCmax
Silica-amorphous+ crystalline	1-hr	2	1
Vanadium	1-hr	7	0

The draft permit requires the Applicant to control fugitive coal dust from unloading, conveying, and storage, and fly ash dust with fabric filters, wetting agents, and enclosures. In sum, as long as the plant operates in compliance with its permit, adverse health effects are not expected to occur in the general public as a result of short-term or long-term exposure to coarse or fine PM emissions from this plant.

Since 1999, ambient monitoring of $\text{PM}_{2.5}$ has been conducted at numerous sites in Texas and no $\text{PM}_{2.5}$ nonattainment areas have been found. Regulatory programs that are in place are expected to further reduce the levels of sulfate from power plants in Texas. Although the EPA's Clean Air Interstate Rule (CAIR) has been set back in the federal courts, the EPA remains committed to developing a revised CAIR program in order to, among other benefits, reduce ambient $\text{PM}_{2.5}$ nationally. Reducing emissions from existing coal-fired power plants is a central part of these efforts and is expected to further reduce ambient concentrations of $\text{PM}_{2.5}$ in Texas.

Texas has already adopted the CAIR requirements, effective August 3, 2006, which establishes a cap and trade program to reduce SO_2 emissions from power plants in Texas to approximately 40 percent below 2005 levels in 2010 (Phase I), with potential further reductions to approximately 60 percent below 2005 levels in 2015 (Phase II). Since the D.C. Circuit remanded the CAIR to EPA, only Phase I is currently being implemented. A Federal Implementation Plan (FIP) is in place for Phase II, but will also likely be affected by EPA's action on remand.

Because CAIR is a cap and trade program, to predict the future air quality impact of CAIR in Texas it is necessary to predict the choices that electric utilities will make to reduce SO_2 emissions and/or to purchase emission credits. The EPA's Clean Air Markets Division (CAMD) conducted elaborate projection modeling to predict future emissions under the CAIR

requirements. The CAMD's Integrated Planning Model (IPM) predicted that electric utility SO₂ emissions in Texas will decrease to approximately 350,000 tons per year by 2015, which is substantially higher than Texas' allocation of 224,662 tons. This prediction may be higher than actual emissions in 2015 will turn out to be, since the IPM model does not take into consideration the desire of some electric utilities to make more reductions and buy fewer credits to avoid having to buy SO₂ emission credits in unpredictable future markets.

See Response 12 for more information on cumulative effects of power plants.

Comment 5 (SO₂/Acid Rain): Commenters express concern about the health effects of SO₂ that will be emitted from the proposed plant and the impacts of acid rain (*Virginia Burlingame, Connie Milliff, Robert M. Malina, NCC, Public Citizen, SEED Coalition, Muriel Tipps*).

Response 5: SO₂ is a criteria pollutant for which NAAQS have been established. The SO₂ NAAQS, established by the EPA, are based on three-hour, twenty-four-hour and annual time periods. The current three-hour, twenty-four-hour, and annual NAAQS are set at 1300 µg/m³, 365 µg/m³, and 80 µg/m³, respectively. The three-hour, twenty-four-hour, and annual total predicted GLC_{max} are 566 µg/m³, 108 µg/m³, and 13 µg/m³, respectively. Since the total predicted GLC_{max} do not exceed any of the established NAAQS, no adverse health or welfare effects are anticipated.

Acid Rain issues are primarily addressed through the Federal Acid Rain Program. The requirement to obtain an Acid Rain Permit is independent of the requirement to obtain a New Source Review permit prior to construction and operation of facilities that may emit certain air contaminants. The overall structure of the Acid Rain Program is a cap and trade program designed to achieve significant environmental benefits through reductions in emissions of SO₂ and NO_x emissions, the two main precursors of acid rain, by 10 million tons below 1980 levels. The Acid Rain Program is designed to protect the environment from the damaging effects of acid rain.

Comment 6 (Lead): Commenters express concern about the health effects of lead that will be emitted from the proposed plant (*Virginia Burlingame, George Burlingame, Crystal Eubanks, A.C. Herreth, Georgia Herreth, Barbara Holloway, Bryan Hutson, John Hutson, Susie Hutson, Eva Malina, Robert M. Malina, NCC, Mike O'Day, Public Citizen, SEED Coalition*).

Response 6: Lead is a criteria pollutant for which a NAAQS has been established. The lead NAAQS was reduced 90 percent on October 15, 2008, to 0.15 µg/m³. The proposed project has lead emissions of 0.15 ton per year, and did not trigger a federal review for lead (0.6 tons per year). The Applicant did perform air dispersion modeling for lead and predicted a quarterly maximum concentration of 0.00049 µg/m³. The predicted impacts are less than one-third-of-one-percent of the new, more stringent NAAQS. The emissions of lead from the proposed plant do not exceed the new NAAQS; therefore, no adverse health or welfare effects are anticipated.

Comment 7 (Organic Compounds): Commenters express concern about the health effects of organic compounds that will be emitted from the proposed plant (*George Burlingame, Virginia Burlingame, NCC, Public Citizen, SEED Coalition*).

Response 7: As stated in Response 1, based on potential concentrations reviewed by the Executive Director's staff, it is not expected that existing health conditions will worsen, or that there will be adverse health effects in the general public, sensitive subgroups, or animal life as a result of exposure to the expected levels of emissions including organic compounds from this site.

Comment 8 (Nitrogen Oxide): Commenters express concern about the health effects of NO_x that will be emitted from the proposed plant (*Virginia Burlingame, Connie Milliff, Robert M. Malina, NCC, Public Citizen, SEED Coalition*).

Response 8: NO₂ is a criteria pollutant for which a NAAQS has been established. The current NAAQS for NO₂ is 100 µg/m³. The Applicant performed air dispersion modeling for NO₂ and predicted a total annual maximum concentration of 60 µg/m³. The emissions of NO₂ from the proposed plant do not exceed the NAAQS; therefore, no adverse health or welfare effects are anticipated.

Comment 9 (Ozone): Commenters express concern about the health effects of ozone that will be emitted from the proposed plant (*Eva Malina, Connie Milliff, NCC, Public Citizen, SEED Coalition*).

Commenter asks whether the proposed plant will contribute to ozone formation (*Nate MacDonald*).

Response 9: Ozone is not directly emitted by the proposed plant because it is a secondary contaminant formed by the reaction of VOCs and NO_x in the presence of sunlight. Emissions of NO_x do serve as a precursor to ozone formation. However, the applicant's air quality analysis shows that the NO_x 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. Because the WSEC is not predicted to cause or contribute to an exceedance of the NAAQS for ozone, it is not expected that existing health conditions will worsen, or that there will be adverse health effects in the general public, sensitive subgroups, or animal life as a result of exposure to the expected levels of ozone that may be formed as a result of emissions from this site. See Response 19 below for more information on the ozone analysis.

Comment 10 (CO): Commenter asks what the federal NAAQS averaging time is for CO and whether this is the same in Texas (*Muriel Tipps*).

Response 10: CO is a criteria pollutant for which NAAQS has been established. The CO NAAQS, established by the EPA, are based on one-hour and eight-hour time periods. Texas uses the same time periods and standards as the federal NAAQS (30 TAC §116.16(c)(2)(A)).

See Response 1 for more information on the establishment of NAAQS.

Comment 11 (Radon/Radionuclides): Commenter asserts the application and permit should include adequate annual radionuclide stack testing requirements and stack radon continuous emissions monitoring provisions for radionuclide gaseous emissions, such as radon, to ensure a demonstration of continuous compliance. Commenter asserts the applicant should conduct plant site baseline radionuclide ambient air monitoring for Radon, Polonium 210 and Lead 210, especially considering the cumulative impacts from other permitted plants in the region (*Sierra Club*).

Response 11: The particulate controls proposed by the applicant also control radionuclides and remaining radionuclide emissions do not pose a health threat. Radiation emissions from coal-fired electric utility plants in Texas were evaluated almost thirty years ago and potential impacts were found to be minimal. In the report "Releases of Radioactive Isotopes from Coal and Lignite Combustion" (H. Cooper and G. Dakik, UT at Austin, presented at 71st Annual Meeting of the Air Pollution Control Association, Houston, June 1978), researchers concluded that radioactive emissions from coal and lignite-fired power plants could, in a few cases, approach those of nuclear power plants, but could meet the Nuclear Regulatory Commission's (NRC) fence line exposure standards, if they were applicable. With the advance of control technology since 1978, the particulate limit for the boiler exhaust stack in the draft permit is about seven times more stringent than the particulate limits assumed in this 1978 analysis, which increases the margin of safety.

More recently, in the EPA's 1997 Report to Congress, the EPA also found radon emissions from coal combustion to be negligible compared to other sources in the environment. Table 9-7 of the report shows the annual exposure from all outdoor sources to be six percent of residential exposures. The report states that it is generally thought that average radioactivity of soil is about twice that of coal. Another source, "Evaluation of Occupational and Environmental Exposures to Radon and Radon Daughter Products" (Report No. 78, National Council on Radiation Protection and Measurements, 1984) shows that coal combustion contributes less than one-millionth as much radiation from soil. Based on the scientific evaluations conducted by EPA and others, radon emissions from coal combustion are not an issue that needs to be addressed.

Comment 12 (Cumulative Impacts): Commenters are concerned about the effects cumulative emissions from this plant, existing plants, and other proposed plants may have on the health and welfare of the region (*E. Marguerite Bundrick, Crystal Eubanks, Barbara Holloway, Bryan Hutson, John Hutson, Susie Hutson, Robert Malina, Eva Malina, Public Citizen*).

Commenters state that the application and the draft permit fail to adequately analyze and address not only the cumulative impacts of each pollutant from the proposed unit and other sources in the surrounding areas, but also the cumulative impacts resulting from the reactions and/or synergistic effects from the multiple pollutants being emitted at the same time from each proposed unit and other sources in the surrounding areas (*NCC, Public Citizen, SEED Coalition*).

Response 12: The review of the Applicant's air quality permit application includes computer air dispersion modeling to predict the off-property concentration of the pollutants. The Applicant performed a cumulative air dispersion modeling analysis with the worst-case operating scenario for the criteria pollutants SO₂, NO₂, and PM₁₀, that is consistent with EPA guidance (1990 EPA Draft Guidance for PSD). When predicted concentrations of a criteria pollutant for the proposed project were greater than an applicable *de minimis* value, the Applicant evaluated all known sources of that pollutant within the Area of Impact (AOI), which is the farthest distance from the sources under review to the location where concentrations are predicted to equal or exceed *de minimis* levels for each applicable averaging period and pollutant, plus 50 kilometers, which is consistent with EPA guidance. These concentrations are added to the background concentration of each pollutant listed for the location of the proposed facility. Since there are no known ambient air quality monitors in Matagorda County, the Applicant used monitoring data from a nearby county, Galveston County, for PM₁₀, NO₂, and SO₂ background concentrations. Galveston County has significantly more emissions and population than Matagorda County which ensured that the background concentrations used in the modeling analyses would be at least as high as those in Matagorda County. See Response 21 below for additional information regarding the monitors used for the PM₁₀, NO₂, and SO₂ background concentrations. For the most recent emissions data available, which was in 2002, the total emissions for Matagorda County were 10,302 tons PM₁₀, 13,304 tons NO_x, and 2,583 tons SO₂.¹⁷ For the same year, total emissions for Galveston County were 16,351 tons PM₁₀, 51,453 tons NO_x, and 16,314 tons SO₂. The estimated 2008 population for Matagorda and Galveston Counties are 37,265 and 288,239, respectively.^{18, 19} The sum of the modeled concentration and the background concentration is compared against the NAAQS for the pollutant. The sums obtained and reviewed for this application were determined not to exceed the NAAQS.²⁰ Therefore, adverse effects to health and welfare are not anticipated.

The predicted concentrations of CO for the project were less than the applicable *de minimis* values. For *de minimis* impacts, a cumulative effects review is not required and the impacts would not be considered to cause or contribute to a NAAQS violation.

Cumulative air dispersion modeling is not conducted for non-criteria pollutants. However, ESLs are set to prevent adverse health effects and include a generous safety factor to protect sensitive members of the general public. Typically, when evaluating the maximum concentration predicted to occur at a sensitive receptor (GLC_{ni}), the concentration must be at or below the ESL. There is a lot of conservatism in each ESL and layers of conservative assumptions are made in the worst-case modeling analysis itself. Each facility the TCEQ Toxicology Division staff reviews is evaluated against this criterion, so multiple facilities in an area have been reviewed to the same level of protectiveness. Further, in the event that multiple facilities in an area emit the same chemicals, it is very unlikely that the maximum concentrations of emissions from other

¹⁷ See EPA AirData website at <http://www.epa.gov/air/data/repst.html?st~TX~Texas>

¹⁸ <http://quickfacts.census.gov/qfd/states/48/48321.html>

¹⁹ <http://quickfacts.census.gov/qfd/states/48/48167.html>

²⁰ A comparison of the sums and the NAAQS for PM₁₀, NO_x, and SO₂ may be found in Responses 4, 5, and 8, respectively.

facilities emitting the same chemicals would occur at the same place. Therefore, the TCEQ is confident in concluding adverse effects would not be expected in the general public, even when multiple facilities in an area emit the same chemicals.

The overall evaluation process provides a conservative prediction that is protective of the public and the environment. The modeling predictions were reviewed by the TCEQ Air Permits Division, and the modeling analysis was deemed to be acceptable.

See Response 1 for more information on reactions and/or synergistic effects from multiple pollutants being emitted at the same time.

Comment 13 (Non-attainment): Commenters are concerned that emission from the proposed plant will cause Matagorda County to go into non-attainment (*Crystal Eubanks, Barbara Holloway, Bryan Hutson, John Hutson, Susie Hutson, Nate MacDonald, Robert Malina, Eva Malina, Public Citizen, Muriel Tipps*).

Commenter asks that if this proposed plant does not cause the county to go into non-attainment, how close will Matagorda County be to becoming a non-attainment area (*Muriel Tipps*).

Commenters are also concerned that if the area is designated as a non-attainment area, new regulations will impose additional costs on local residents and local government (*Public Citizen*).

Response 13: To determine whether an area is in attainment for the NAAQS, ambient air quality monitoring data are used to determine if the primary and secondary NAAQS are met at a fixed ambient air quality monitoring site. The review of the Applicant's air quality permit application includes computer air dispersion modeling to predict the off-property concentrations of criteria pollutants, except for ozone. The predictions of criteria pollutants do not exceed the NAAQS. Please see Response 12 for more information on the NAAQS analyses.

Any comments related specifically to the State Implementation Plan (SIP) process for nonattainment areas are not relevant to this particular permit application and review. The TCEQ addresses nonattainment issues through the SIP development process rather than through individual permitting actions because ozone is a regional issue. The SIP attainment modeling demonstration based on projected future conditions will include both applicable reductions as well as projected emissions from coal-fired power plants. Individual permit applicants are not required under TCEQ rules to model impacts using these techniques.

For more information on the ozone analysis, please see Responses 9 and 19.

Comment 14 (Non-attainment: Austin, DFW, Houston, San Antonio, Waco): Commenter is concerned that NO_x emissions from the proposed plant may adversely affect the Houston-Galveston-Brazoria (HGB) Severe Ozone Non-attainment Area. (*Public Citizen, Sierra Club*). Commenter feels that a full impacts analysis via air modeling needs to be conducted to determine the impacts on the HGB non-attainment region (*Sierra Club*). Commenter states that the proposed plant is just beyond the newly-proposed HGB Severe Non-attainment Area and that the

application does not demonstrate that the proposed plant will not cause or contribute to a condition of air pollution in that area.

Commenter is also concerned that the transport of ozone producing pollutants may contribute to pollution in San Antonio, Austin, and the DFW area (*EDF*). Commenter is concerned that NOx emissions from the proposed plant will impair the ability of the DFW area to come into attainment with the one-hour and eight-hour ozone standard (*Sierra Club*).

Commenter is concerned that NOx emissions from the proposed plant will adversely affect the ability of the East Texas and Austin near non-attainment areas to remain in attainment with the eight-hour ozone standard (*Sierra Club*).

Response 14: Any comments related specifically to the SIP process for ozone non-attainment areas are not relevant to this particular permit application and review. The TCEQ addresses regional ozone formation through the SIP development process rather than through individual permitting actions because ozone is a regional issue. A SIP attainment modeling demonstration based on projected future conditions will include both applicable reductions as well as projected emissions from coal-fired power plants. Individual permit applicants are not required under TCEQ rules to model impacts using these techniques.

Comment 15 (PSD Increments): Commenters state that the analysis of PSD increment consumption underestimates the maximum increment consumed for SO₂ and other criteria pollutants (*NCC, Public Citizen, SEED Coalition*)

Response 15: The review of the Applicant's air quality permit application includes computer air dispersion modeling to predict the off-property concentration of the pollutants. The Applicant made the demonstration that the proposed project would not cause or contribute to a PSD Increment violation. The demonstration was made using current air dispersion modeling practices and procedures consistent with EPA and TCEQ modeling guidance. The table below lists the model predictions.

Modeling Results for PSD Increment			
Pollutant	Averaging Time	GLCmax ($\mu\text{g}/\text{m}^3$)	Increment ($\mu\text{g}/\text{m}^3$)
SO ₂	3-hr	505	512
	24-hr	79	91
	Annual	7	20
PM ₁₀	24-hr	28	30
	Annual	6	17
NO ₂	Annual	5	25

Comment 16 (Offsets): Commenter is concerned that the application does not require offsets for any type of pollutant, and is especially concerned about NO_x, SO₂, carbon, and regional haze (*Sierra Club*).

Response 16: The proposed project is not located in a non-attainment area for any NAAQS and the project is not expected to either cause or have a discernible impact on a non-attainment area. In such cases, the law does not require the applicant to provide emission offsets. The applicant did not volunteer any offsets; therefore the draft permit does not include any.

Comment 17 (Environmental Study): Commenter feels that the applicant should pay for an environmental study of Matagorda County's bays, to be conducted by Texas Parks and Wildlife, similar to the study in progress in Galveston Bay (*George Burlingame*). Commenter feels the applicant and the Matagorda County Economic Development Corporation should fund a baseline study of the health of the population and the environment of Matagorda County (*Robert M. Malina*).

Response 17: The Executive Director has performed a review of this application that is consistent with all applicable rules and regulations. The ED has preliminarily determined that the draft permit is protective of health of the population and the environment.

Comment 18 (Modeling): Commenter asks what type of modeling must be conducted to begin the permitting process (*Muriel Tipps*).

Commenter expresses concern about the effects of temperature inversions. Commenter is concerned that under certain conditions, the pollutants will not disperse and will stay over the Bay City area (*SEED Coalition*).

Commenter states that there is no baseline data against which to evaluate the safety of the proposed plant (*Robert M. Malina*).

Commenter is concerned that the application does not consider the additional diesel and particulate pollution from the additional trains, truck traffic and or mining operations that supply coal for this plant, as well as the nine other coal plants that would use Powder River Basin (*Sierra Club*). Commenter states that the air modeling analysis fails to include the emissions associated with the rails and barges that will supply coal and pet coke to the plant. Commenter states that because of this omission, the application fails to demonstrate that the proposed project will not cause or contribute to a condition of air pollution (*EDF*).

Response 18: Air dispersion modeling is a tool to predict concentrations from one or more sources of air pollution. As part of the air permitting process, air dispersion modeling may be required to determine air quality impacts from a proposed new facility or source modification (30 TAC §116.111(a)(2)(J)). For federal air permits, air dispersion modeling is required (30 TAC §116.160(d)). See Response 1 for more information on how the air dispersion modeling results are used in the air permitting process.

There are meteorological conditions that will affect the amount of dispersion of emissions from a source. Source parameter data, along with meteorological data, are used to determine the maximum ground level concentrations for each source. Different sources may have maximum ground level concentrations from different meteorological conditions. With more than 40,000 hourly samples contained within the 5-year meteorological dataset used in the air dispersion modeling analysis, the worst-case meteorological conditions have been sufficiently represented in the dataset to calculate maximum ground level concentrations.

See Response 1 for more information on how state and federal standards and effects screening levels are used to evaluate the emissions associated with the proposed plant.

TCEQ rules do not require an Applicant to analyze pollution resulting from additional use of a rail line, barge, or the use of trucks in an individual permit application. Trains, barges, and trucks are categorized as mobile sources and their emissions by definition are not subject to review under the NSR permitting requirements of the Clean Air Act, even if traveling on site. For the same reasons, diesel and particulate pollution resulting from mobile sources to other proposed plants are not part of this application or permit review. Finally, the TCEQ does not have jurisdiction over mining operations.

Comment 19 (Photochemical Modeling): Commenter is concerned about TCEQ guidance referenced by the applicant when assessing the ozone impacts from the proposed unit in its PSD permit application. Specifically, it was determined that the location is ozone neutral. If the TCEQ guidance that was used was based on the Scheffe Point Source Screening Tables, the EPA has commented and provided information to TCEQ on the inaccuracy of using Scheffe Point Source Screening Tables for determining ozone ambient impacts in previous permit comment letters. Use of the Scheffe Point Source Screening Tables or similar screening processes is not EPA-approved. TCEQ Air Quality Modeling Guidelines establish a process by which the permit applicant communicates with the TCEQ staff and develops a modeling protocol that will be followed. Commenter did not see where a modeling protocol was developed or submitted by the applicant. Commenter asks that the applicant forward a copy of the modeling protocol if it was prepared (*EPA*).

Commenters are concerned that TCEQ relies on outdated and inaccurate modeling requirements such as the Scheffe Point Source Screening Tables for determining ozone ambient impact (*NCC, Public Citizen, SEED Coalition*).

Commenter claims that TCEQ's statement that the proposed source, considering its proposed location, is ozone neutral is in direct conflict with control strategies developed to reduce ozone in the nearby Houston-Galveston-Brazoria (HGB) Non-Attainment Area. Commenter states that it will consider available enforcement authorities for objecting to the subsequent Title V permit for this facility if an appropriate ozone analysis is not conducted for this facility (*EPA*).

Commenter asks that TCEQ provide appropriate air quality modeling for ozone impacts that clearly demonstrate 1) what the project's impact will be at specific monitors in the HGB area and

2) that the construction of the facility will not significantly impact ozone levels in the HGB area (*EPA*).

Commenter states that the only modeling technique that would be technically appropriate for this source would be a CAMx based analysis using available modeling databases (*EPA*).

Commenter states that neither the applicant, TCEQ, application, nor the draft permit comply with federal and state laws requiring a demonstration that the proposed emissions will not cause or contribute to air pollution in violation of a NAAQS or PSD increment limits in any air quality control region (*NCC, Public Citizen, SEED Coalition*).

Response 19: The EPA requested an ozone modeling protocol. The TCEQ does not require permit applicants to conduct the type of formal photochemical modeling protocol needed for SIP analyses. The TCEQ did discuss screening approaches with the applicant that could be used for the ozone analysis. The Applicant performed an ozone analysis consistent with TCEQ modeling guidance. The analysis consists of determining the methane-normalized VOC to NO_x ratio using the proposed emissions of VOC and NO_x. If the ratio is 2:1 or less, the site is considered to be VOC-limited. The proposed WSEC site is VOC-limited. This analysis did not use the Scheffe Method, as this method is not applicable to VOC-limited sources.

The intent of the phrase "ozone neutral" was to describe only the impact of the project in the area near the site. Based on the lack of VOCs, the NO_x 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. The phrase was not meant to qualify the project's effect downwind at larger distances, where plumes from the site could contribute to ozone formation. The agency will not use this phrase in the future to avoid any further confusion.

The EPA is concerned that the ozone analysis is in direct conflict with control strategies developed to reduce ozone in the nearby HGB Nonattainment Area. The TCEQ does not agree with this concern. At this time, the TCEQ does not have a strategy to target emissions from sources of VOC or NO_x within 100 and 200 kilometers, respectively, of these precursors outside the HGB Nonattainment area. If strategies outside a nonattainment area are needed, the SIP process is best suited to develop consistent and effective strategies that can be applied for a specified nonattainment area.

The EPA is concerned that the site is located next to a nonattainment county. Based on HGB conceptual models for ozone exceedances and the location of the source, the source will not have a significant impact downwind of the site. The EPA suggests that the TCEQ should obtain CAMx modeled concentrations at specific monitors to clearly demonstrate that the project's impact will not significantly impact ozone levels in the HGB nonattainment area. The TCEQ is concerned that the scope of the modeling and associated review required for multiple episodes and monitors (and potential control scenarios for any monitors currently above the ozone standard) would be costly, take up to a year to complete, and still not provide information to definitively address EPA's concerns, since the EPA does not have an established significant

impact level for ozone. Without a significance level, there will be a contribution from the source and the EPA has not provided, and TCEQ is not aware of, any method to demonstrate that the contribution would not be significant.

For ozone, the EPA has no preferred model to determine regional impacts of a single source on ozone formation. TCEQ guidance is based on general results from EPA's Empirical Kinetic Modeling Approach (EKMA). Since the EPA has no preferred model for single-source ozone impact analysis, the TCEQ uses the EKMA as a screening tool for VOC-limited sources.

Additionally, EPA's current Guideline on Air Quality Models, 40 CFR 51 Appendix W, sets forth acceptable models for estimating ozone impacts in Section 5.2.1. Sections 5.2.1.a and 5.2.1.b both refer to the Guidance on the Use of Models and Other Analyses in Attainment Demonstrations for the 8-hr Ozone NAAQS (EPA, 2005). The TCEQ requested clarification on the applicability of this new guidance to the NSR permitting program. EPA's response validated that sections 5.2.1.a and 5.2.1.b do not address nor apply to the NSR permitting program.²¹ Based on the guidance and EPA's clarification of the guidance, there is no requirement for photochemical modeling or SIP attainment demonstration modeling techniques for NSR permitting purposes for sources of VOC or NO_x within 100 and 200 kilometers, respectively, of these precursors outside a non-attainment area. If an evaluation of ozone impacts on a non-attainment area is needed, the SIP process is best suited to develop consistent and effective strategies that can be applied for a specified non-attainment area because the simulation of ozone formation and transport is a highly complex and resource intensive exercise.

Please see Responses 12 for information on the NAAQS analyses. Please see Response 15 for information on the Increment analyses.

Comment 20 (Class I Visibility Analysis): Commenter is concerned that the application does not adequately examine the impact of SO₂ and NO_x secondary particulate emissions on Class I areas, such as Big Bend National Park (*EDF, Sierra Club*). Commenters are concerned that Big Bend and the Wichita Mountains in Oklahoma will be impacted by reduced visibility diminishing the scenic beauty of these areas (*NCC, Public Citizen, SEED Coalition*).

Response 20: Emissions from the proposed site are not expected to adversely affect Big Bend National Park or Wichita Mountains National Wildlife Refuge. 40 CFR § 52.21(p) requires the TCEQ to provide written notice of any permit application for a proposed major stationary source which *may affect* a Class I area to the Federal land manager and the Federal official charged with direct responsibility for management of any lands within any such area (emphasis added). The EPA, through applicable guidance, has interpreted the meaning of the term "may affect" to include all major sources or major modifications which propose to locate within 100 kilometers of a Class I area.²² Since Big Bend National Park and Wichita Mountains National Wildlife Refuge Class I areas are located approximately 665 and 695 kilometers, respectively, from the

²¹ E-mail from Tyler Fox, Group Leader, EPA Air Quality Modeling Group, to Dom Ruggeri, Manager, Technical Program Support, TCEQ Air Permits Division (Sept. 29, 2006).

²² Memorandum from John S. Seitz on Clarification of PSD Guidance for Modeling Class I Area Impacts (Oct. 19, 1992).

proposed site, the project is not expected to adversely affect the visibility, soils, or vegetation in the Class I areas.

In addition, the TCEQ evaluated modeling concentrations submitted with the application. The maximum predicted concentrations of PM₁₀, NO₂, and SO₂ for all averaging times are less than *de minimis* at distances of 3.9 kilometers, 2.2 kilometers, and 11 kilometers, for these pollutants respectively, from the proposed sources in the direction of Big Bend National Park. Big Bend National Park is an additional 654 kilometers from the location where the maximum predicted concentration of SO₂ for all averaging times is less than *de minimis*, and even farther for PM₁₀ and NO₂. The maximum predicted concentrations of PM₁₀, NO₂, and SO₂ for all averaging times are less than *de minimis* at distances of 3.9 kilometers, 3.9 kilometers, and 13 kilometers, respectively, from the proposed sources in the direction of Wichita Mountains National Wildlife Refuge. Wichita Mountains National Wildlife Refuge is an additional 677 kilometers from the location where the maximum predicted concentration of SO₂ for all averaging times is less than *de minimis*, and even farther for PM₁₀ and NO₂. Therefore, emissions from the proposed site are not expected to adversely affect Big Bend National Park or Wichita Mountains National Wildlife Refuge.

Comment 21 (Ambient Air Quality Monitoring/Preconstruction Monitoring): Commenter states that the applicant must conduct Baseline Ambient Air Monitoring for ozone, NO_x, SO₂, PM, and meteorological conditions at the plant, as required by PSD regulations on pre-construction ambient air and meteorological monitoring, for one-year prior to submission of permit applications (*Sierra Club*). Commenter states that the application fails to demonstrate that the applicant has complied with the preconstruction continuous air quality monitoring requirements of 40 CFR § 52.21(m) (*EDF*). Commenter asks whether the TCEQ can require the applicant to conduct ambient air monitoring as part of the permit. Commenter notes that the costs may be too high for state and local government or watchdog groups, but would be less than 1/10 of 1 percent of the cost of the plant (*Mike Griffith*).

Commenters are concerned about the lack of government regulated monitors in the region (*Crystal Eubanks, Joe Gonzales, Barbara Holloway, Bryan Hutson, John Hutson, Susie Hutson, Eva Malina, Robert Malina*). Commenter asks where air monitor stations are located in Matagorda County. Commenter is also concerned about who will pay for and maintain the ambient air monitors (*Muriel Tipps*).

Commenter asserts that TCEQ must implement baseline ambient air monitoring for lead to determine existing ambient lead levels at the plant site and to determine if the proposed lead emission will exceed the EPA's new ambient air lead standard. Commenter also believes that TCEQ must also implement baseline ambient air monitoring for ozone, NO_x, SO₂, and PM in downwind counties because of the large concentration of coal and lignite-fired power plants in these areas (*Sierra Club*).

Response 21: For criteria air pollutants that are proposed to be emitted in significant amounts, the prevention of significant deterioration (PSD) rules at 40 CFR 52.21(m) generally require a

preapplication analysis of ambient air quality in the area that the major source would affect. The analysis must rely on continuous air quality monitoring data.

With the revision to the lead NAAQS, the EPA promulgated new ambient air monitoring requirements for lead. Ambient air monitoring for lead is now required in urban areas with more than 500,000 people and for sources that emit one ton or more per year of lead. The 2008 estimated census data for Matagorda County shows a population estimate of 37,265.²³ The proposed project has lead emissions of 0.15 tons per year, and did not trigger a federal review for lead (0.6 tons per year). See Response 6 for information on predicted lead concentrations

For ozone, the analysis of ambient air quality data is interpreted to apply via footnote 1 in 40 CFR 52.21(i)(5)(i), if the source would emit 100 tons per year or more of NO_x or VOC. The PSD rules at (i)(5) also allow exemption from the preapplication analysis requirements if modeled impacts are below defined amounts. The Applicant provided modeling for the project-related sources which demonstrates that the predicted maximum level of all pollutants except PM₁₀ and SO₂ were below the monitoring exemption levels at 40 CFR 52.21(i)(5)(i). For PM₁₀ and SO₂, the Applicant relied on data collected from continuous ambient air monitoring stations (CAMS), sited in Galveston County, to provide estimates of background air quality levels. See Response 12 for additional information regarding the selection of monitors used for PM₁₀ and SO₂ background concentrations. A background concentration for twenty-four-hour PM₁₀ was obtained from the EPA AIRS monitor 48-167-0004 located at 2516 Texas Ave., Texas City, Galveston County. A background concentration for twenty-four-hour SO₂ was obtained from the EPA AIRS monitor 48-167-0005 located at 2516 1/2 Texas Ave., Texas City, Galveston County. For ozone, the Applicant relied on data collected from CAMS, located in Nueces and San Patricio Counties to provide estimates of background air quality levels. A background concentration for O₃ was obtained from the EPA AIRS monitor 48-409-0659 located 527 Ransom Road, Aransas Pass, San Patricio County. Given the significantly more emissions and higher population of Galveston, Nueces, and San Patricio Counties than Matagorda County, the monitored concentrations provide a conservative estimate of background levels for these pollutants.

While the meteorological data used in the air dispersion modeling analysis were not collected at the project site, use of the Victoria airport station #12912 meteorological dataset in the air dispersion modeling analysis is reasonable given the proximity of the airport to the project site.

The EPA Guideline on Air Quality Models - Appendix W of 40 CFR Part 51 recommends that five years of representative meteorological data be used when estimating concentrations with an air quality model. Consecutive years from the most recent, readily available 5-year period are preferred. TCEQ interprets "representative" to mean data obtained on-site or in a similar geographic area. TCEQ interprets "consecutive" to mean following in order, but not "successive" which would be following in order without interruption. TCEQ interprets "readily available" to mean data that meet regulatory requirements and are available on demand.

²³ <http://quickfacts.census.gov/qfd/states/48/48321.html>

When obtaining a representative National Weather Service (NWS) station meteorological dataset to be used as input to an air dispersion model, the meteorological dataset should be selected on the basis of spatial and temporal (climatological) representativeness. The spatial representativeness of the meteorological data collected off-site should be judged, in part, by comparing the surface characteristics in the vicinity of the meteorological monitoring site with the surface characteristics that generally describe the modeling analysis domain. Surface characteristics and land-use types within the modeling analysis domain are similar to those surrounding the meteorological monitoring site at the Victoria airport. The climatological representativeness is related to the length of record of the meteorological dataset, and the model user should acquire enough meteorological data to ensure that worst-case meteorological conditions are adequately represented in the model results. While daily weather conditions can vary within a given year, the worst-case meteorological conditions that occur during a given year are typically the same as other years. With more than 40,000 hourly samples contained within the 5-year meteorological dataset used in the air dispersion modeling analysis, the worst-case meteorological conditions have been sufficiently represented in the dataset.

Comment 22 (Short-Term SO₂ Spikes): Commenter states that the toxicology review does not address short-term SO₂ spikes (*Sierra Club*).

Response 22: The EPA, under authority in the FCAA, established NAAQS as levels of air quality to protect public health and welfare. A NAAQS for SO₂ has been established for a three-hour, twenty-four-hour and annual time period (See Response 1 and 7 for more information). The TCEQ has no requirement to determine possible health impacts of SO₂ over a five-minute averaging period. However, SO₂ emissions from the proposed plant do not exceed the NAAQS; therefore, no adverse health or welfare effects are anticipated.

Comment 23 (Effects Screening Levels): Commenter states that Texas ESL's have not been appropriately defined by the TCEQ because they are not specific regulatory standards (*Sierra Club*).

Response 23: The ESL system was developed to review ground level concentrations of constituents for which there are no established state or federal standards. ESLs serve as guideline comparison concentrations for use in TCEQ's effects evaluation to protect against adverse health effects to both humans and animals, vegetation effects, and nuisance conditions (e. g., odor). The TCEQ Toxicology Division has developed ESLs development guidelines "Guidelines to Develop Effects Screening Levels, Reference Values, and Unit Risk Factors" (RG-442) in 2006 and has started to develop ESLs accordingly since then.

ESLs are designed to prevent adverse health effects through a two-step process. First, a level of a constituent is identified at which no adverse effect is observed (No Observed Adverse Effect Level (NOAEL) or it is derived from available toxicological information. Occupational exposure, epidemiological and experimental data are considered in this process.

Second, the NOAEL is divided by multiple safety factors of 10 to account for various considerations which may be relevant. Some of the considerations which may need to be

accounted for are differences between animals and humans (if the NOAEL is from an animal study), differences between people (to ensure ESLs are protective of the sensitive individuals within the general population), or differences in exposure time. Thus, if all three of the example considerations were relevant in the derivation of a particular ESL, the ESL would be obtained by dividing the NOAEL by 1,000 (3 factors of 10).

When information is lacking on the NOAEL for a specific constituent, the constituent of interest may be compared to constituents which have similar chemical structures and toxicological properties and which do have an ESL. In these situations, ESLs are calculated based on an estimation of relative toxicities. The less certain a specific constituent's toxicity, the lower or more conservative the resultant ESL is.

The health-based ESLs are set well below the concentrations reported to cause adverse health effects to any of the organisms studied, whether human or animal. By incorporation of conservative uncertainty factors, ESLs are set to protect members of the public, including children, the elderly, and people with pre-existing health conditions and to account for long-term exposures.

If predicted airborne levels of a constituent do not exceed the ESL, adverse health or welfare effects are not expected. If levels of constituents are expected to exceed the ESL, it does not necessarily indicate a problem but instead triggers a more in-depth review. This may include an examination of factors such as surrounding land use, magnitude of the concentration exceeding the ESL, existing levels of the same constituent, type of toxic effect caused by the constituent, margin of safety between the ESL and known-effects levels, and the degree of confidence in the toxicity database. After the health effects evaluation is complete, the toxicologist sends a memorandum, which is part of the public record, to the permit engineer providing information on the health effects evaluation.

The toxicologist has reviewed the chemicals that will be emitted from WSEC and determined there would be no adverse health effects from the emissions from the plant.

ESLs are guideline concentrations, they are not enforceable standards. The setting of standards through rulemaking is not as flexible as guidelines are, and is more time-consuming. As guidelines, the ESLs allow TCEQ to review a great number of chemicals on a case-by-case basis and allow for changing the ESLs whenever new toxicological information becomes available.

The ESL process is very comprehensive. The TCEQ evaluates the emissions of all substances, not just a "short list" of Hazardous Air Pollutants, for example, or those for which the EPA has established reference concentrations or unit risk factors (about 100 substances). Additionally, the TS of the TCEQ evaluates both short- and long-term concentrations of constituents, whereas other states and the EPA tend to evaluate only one or the other. This review is also more comprehensive than many others states in that it considers non-health impacts (odor and vegetative) for substances, as warranted by the available information.

For more information on how TCEQ develops ESLs or view the ESL list, visit the TCEQ's website at http://www.tceq.state.tx.us/comm_exec/forms_pubs/pubs/rg/rg-442.html or http://www.tceq.state.tx.us/implementation/tox/esl/list_main.html.

Comment 24 (Air Toxics): Commenter states that the application does not adequately address air toxics that would be emitted by the proposed plant (*Sierra Club*). Commenter states that TCEQ and the applicant improperly considered and analyzed the impacts from the various toxic pollutants emitted (*NCC, Public Citizen, SEED Coalition*).

Response 24: The applicant analyzed air toxics in accordance with the TCEQ's guidance and the TCEQ Air Permits and Toxicology Division staff reviewed the application analysis and found it adequate and proper. See Response 12 for more information on cumulative effects and Response 23 for more information on ESLs.

Comment 25 (Climate Change/CO₂): Commenters are concerned that emissions from the proposed plant will contribute to global warming (*Susan Dancer, NCC, Public Citizen, SEED Coalition*). Commenters note that the permit application does not address global warming gases and states that TCEQ has the authority and responsibility to regulate them (*Public Citizen Texas, Sierra Club*). Furthermore, commenters state that state law requires that the commission "shall" consider facts and circumstances bearing on the reasonableness of emissions, including the effect on public's health and physical property; the source's social and economic value; the questions of priority of location of the area involved; and the technical practicability and economic reasonableness of reducing or eliminating the emissions resulting from the source. As such, the effects of the proposed plant's global warming gases must be evaluated and analyzed (*NCC, Public Citizen, SEED Coalition*).

Commenter states that CO₂ emissions from this plant would be the equivalent of: adding 1,661,510 passenger vehicles; the amount of CO₂ that could be sequestered annually by 63,276 acres of forest; 378 million propane cylinders used for home barbeques; or over 1 billion gallons of gasoline (*Public Citizen*).

Commenter is concerned about the emissions limits for CO₂ (*Muriel Tipps*). Commenter asks why each emission does not have its own best available control technology (BACT), and says that too much CO₂ will be emitted annually. (*Muriel Tipps*). Another commenter disputes that the draft permit achieves BACT for CO₂ emissions (*EDF*).

Commenter is concerned that CO₂ emissions may acidify water bodies. Commenter also asks whether the proposed power plant will be required to implement carbon capture technology if this technology is proven to be successful (*Muriel Tipps*).

Commenter states that carbon legislation will drastically drive up the operating costs of coal plants by billions and estimates that this new legislation will cost the applicant \$350 million a year (*Public Citizen*).

Response 25: On July 5, 2000, the agency received a petition for rulemaking from the law firm of Henry, Lowerre and Frederick on behalf of Clean Water Action, Public Citizen Texas, Sierra Club, SEED Coalition, and Texas Campaign for the Environment. The petition requested the TCEQ create new air rules to encourage reductions in greenhouse gases, promote the efficient use of energy, offer training in methods to reduce carbon dioxide (CO₂) and methane, and develop a climate change action plan. On August 23, 2000, the Commission responded to the petitions by issuing a commission decision (Docket No. 2000-0845-RUL). The Commission declined to regulate CO₂ as a greenhouse gas. To this extent, the TCEQ has not collected any data related to CO₂ emissions. The ED generally offers no opinion on matters that are not regulated by the TCEQ such as increased heat waves, floods, droughts, disease and pests, species extinction, rising sea levels, and higher insurance rates.

On April 24, 2009, the U.S. EPA issued Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gasses under Section 202(a) of the Clean Air Act.²⁴ In the proposal, EPA stated that this endangerment finding, which was related to emissions from motor vehicles, would not make greenhouse gasses a regulated pollutant for point sources under the PSD program, nor is the proposal the appropriate forum for commenting on such an action.²⁵ Additionally, the U. S. Supreme Court's opinion in *Massachusetts, et al v. EPA* does not require states to regulate CO₂ emissions. While the Court determined, inter alia, that CO₂ fell within the Federal Clean Air Act definition of "air pollutant," the effect of the opinion was to remand the case back to EPA for proceedings consistent with the Court's opinion.²⁶ Furthermore, in the permitting proceeding for Deseret Power Electric Cooperative, the EPA's Environmental Appeals Board did not find that the term "subject to regulation under the Act" required a BACT determination for CO₂.²⁷ The ED is aware that the U.S. Congress is currently considering legislation regarding the regulation of greenhouse gases which include CO₂,²⁸ and that EPA has announced a proposal to regulate green house gases under the FCAA.

Comment 26 (BACT IGCC): Commenter states that the applicant should use Integrated Gasification Combined Cycle (IGCC or gasification) (*Public Citizen*). Commenter suggests that TCEQ should consider any technology that can improve emissions and improve the lives of people nearby as mandatory. Commenter states that the syngas produced by an IGCC plant will have emissions virtually identical to traditional natural gas, which is a fraction of the emissions of pet coke (*Public Citizen*).

Other commenters feel that the failure to consider IGCC for NO_x, PM, Mercury, and SO₂ as a part of TCEQ's BACT analysis makes this application deficient (*Public Citizen, Sierra Club*).

²⁴ Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gasses under Section 202(a) of the Clean Air Act, 74 *Fed. Reg.* 18886 (April 24, 2009).

²⁵ *Id.* at 18905, fn 29.

²⁶ *Massachusetts, et al v. EPA*, 549 U.S. 497, 534 (2007).

²⁷ *In re Deseret Power Electric Cooperative*, PSD Permit No. PSD-OU-0002-4.00, PSD Appeal No. 07-03, slip op. at 9 (November 13, 2008).

²⁸ Clean Energy and Security Act of 2009, H. R. 2454, 111th Cong. (2009).

Commenter asks why the proposed plant is not designed with IGCC technology with BACT analysis. Commenter states that power plants, which use IGCC, use 40 percent less water than plants which use pulverized coal plants and generate 30-50 percent less waste water. Commenter also asks why the applicant will not be required to sequester the CO₂ and sell it as fuel (*Muriel Tipps*).

Commenter states that the application fails to demonstrate that the boilers will use BACT. Lower limits could be achieved through alternative technologies such as IGCC (*EDF*).

Commenters state that the applicant and TCEQ failed to consider alternative technologies to reduce emissions such as IGCC technology (*NCC, Public Citizen, SEED Coalition*).

Response 26: The TCAA states that the starting point of a permit review, and therefore a BACT evaluation, is the applicant's proposed facility. Under the TCAA, BACT is applied to the proposed facility.²⁹ A facility is a "discrete or identifiable device, item, equipment, or enclosure that constitutes or contains a stationary source, including appurtenances other than emissions control equipment."³⁰ Since the starting point is the proposed facility, the applicant proposes the facility to accomplish its objective based upon its business decisions. The applicant does not propose simply that it wishes to do something (i.e., generate electricity) and have the TCEQ tell it how (i.e., PC, IGCC, fluidized bed boiler, gas turbine, solar power, etc.). Nor does the applicant expect the TCEQ will dictate to the applicant a different process must be used, redefining the source and usurping the applicant's business decisions. Also, under the EPA's BACT review, an applicant is not required to redefine a source.³¹

The applicant is proposing to generate electricity with Circulating Fluidized Bed (CFB) boilers. As part of its application, WSEC has proposed a suite of controls. A CFB boiler is a very specific type of process within the electric generating industry. The applicant and TCEQ staff performed an extensive review of BACT for CFB boilers. The TCEQ Air Permits Division is not aware of any new technical developments that have been made indicating additional reductions are economically reasonable or technically practicable for CFBs.

The applicant was not required to nor did the TCEQ evaluate any other electric generation methods such as IGCC or pulverized coal (PC) boilers. Inclusion of IGCC in the BACT evaluation would require a substantial redesign of the applicant's proposed facility. Other electric generation methods, such as IGCC or PC Boilers, are different processes than the proposed CFB boilers. Further, emission limits from IGCC or PC Boilers cannot be compared because of the differences in the processes.

IGCC is not necessarily an inherently lower emitting process. IGCC has emission controls; however, because of the process, most of the controls are located up front, prior to combustion. IGCC requires a synthetic gas (syngas) to be generated from the coal that is burned in a turbine.

²⁹ TEX. HEALTH & SAFETY CODE § 382.0518(b)(1).

³⁰ TEX. HEALTH & SAFETY CODE § 382.003(6) & 30 TAC §116.10(6).

³¹ *Supra*, note 10.

Before the gas is burned it must be cleaned extensively through various technologies. If the syngas was not cleaned prior to combustion then exhaust from the IGCC would be substantially dirtier and would require addition of control technologies to the exhaust gas.

The specific question of whether or not IGCC must be analyzed as part of the BACT analysis in a proposed coal fired power plant in Texas has been addressed by the Commission. A Certified Question from the Administrative Law Judges in the matter concerning the application of Sandy Creek Energy Associates, LP, for Air Quality Flexible Permit No. 70861 and PSD Permit No. PSD-TX-1039 asked the following:

In an air permit application that includes a PSD review, must an applicant that proposes to construct a pulverized coal boiler power plant include other electric generation technologies, in its BACT?

The Commission answered the question in the negative, ("No"). This order confirms that in an air permit application that includes a PSD review, an applicant that proposed to construct a boiler power plant is not required to include other electric generation technologies, such as IGCC technology, in its BACT analysis. Therefore, the TCEQ does not require a review of IGCC as part of the BACT review for electric generating units (EGUs).

Comment 27 (Alternative Energy Sources): Commenters feel that clean alternatives such as wind and solar power should be used instead of coal-fired power plants (*SEED Coalition*).

Commenter suggests that instead of focusing on creating new sources of energy, we should be focusing on energy efficiency (*Susan Dancer, Public Citizen*).

Commenters state that the application does not provide a proper BACT analysis regarding the choice of fuel (*NCC, Public Citizen, SEED Coalition*). Commenters state that the applicant and TCEQ failed to consider alternative fuels to reduce emissions such as only PRB coals (*NCC, Public Citizen, SEED Coalition*).

Response 27: TCEQ reviews applications for air authorizations for compliance with the TCAA and TCEQ rules. Issues related to alternative energy sources are matters of policy not relevant to this application's compliance with the TCAA. The applicant was not required to, nor did the TCEQ evaluate, any other electric generation methods other than the one proposed by the applicant, because the TCEQ review processes do not include or require redefinition of a source.³² The TCAA requires the commission to grant a permit if the commission finds that the proposed facility will use at least the BACT.³³ A facility is a "discrete or identifiable device, item, equipment, or enclosure that constitutes or contains a stationary source, including appurtenances other than emissions control equipment."³⁴ Since the starting point is the proposed facility, the applicant proposes the facility to accomplish its objective based upon its

³² Also, under the EPA's BACT review, an applicant is not required to redefine a source.

³³ TCAA § 382.0518(b)(1).

³⁴ TCAA § 382.003(6) & 30 TAC §116.10(6).

business decisions. These decisions include the Applicant's choice of fuels. The applicant designed the plant using its choice of fuels and TCEQ reviews the application as it is submitted. The TCEQ does not specify the type of fuel to use in a fossil fuel electric generating plant because the cost of fuel is a primary business consideration that is up to the applicant to determine. See Response 26 for more information on this subject.

Comment 28 (Contaminants Subject to BACT): Commenter asks whether TCEQ requires BACT emission limits for each pollutant that is subject to regulation under the Clean Air Act and whether this includes fluoride (*Muriel Tipps*).

Response 28: Under the federal PSD rules, the requirement to apply BACT is limited to "regulated new source review pollutants," which includes fluorides. Pursuant to TCEQ rules, air contaminants in general, including fluorides, are subject to BACT, but as a matter of practice, the commission does not require BACT evaluation for compounds which make up the natural components of the atmosphere, including nitrogen, oxygen, water, CO₂, and noble gases.

Comment 29 (Emission Limits/General): Commenter is concerned that the estimated emissions presented at the public meeting will differ from actual emissions (*Crystal Eubanks, Barbara Holloway, Bryan Hutson, John Hutson, Susie Hutson, Robert Malina, Eva Malina*).

Commenter is concerned that the applicant does not discuss the amount of emissions that escape the control measures (*George Burlingame*).

Response 29: Most of the emissions from the proposed CFBs will be continuously monitored. The actual emissions will be less than the proposed emissions because the facilities will not operate at the permitted maximum capacity every hour of the year and because the owner must maintain a margin between the actual and allowable emissions to assure continuous compliance. The allowable emissions that are not subject to the control measures are stated in Table 1(a) of the permit application. However, these emissions are the subject of the air quality analysis in the permit application.

Comment 30 (Fuel Sources and their Effect on Performance Standards): Commenter asks what type of coal will be used in the proposed plant (*Muriel Tipps*). Commenter asks whether the applicant has established fuel purchase contracts with any mines or refineries and whether the applicant has determined which mines and refineries will be the source of fuel and additives. Commenter asks whether the applicant has provided or been provided with the chemical analyses of these fuels (*Clyde Williams*).

Commenter states that the application fails to provide a reasonable basis by which performance standards may be calculated. The application does not specify the sourcing of coal and pet coke, the constituent variability for each fuel from each potential source or the anticipated blending ratios of coal and pet coke. Commenter concludes that there is no basis to support the limitations in Attachments A and B or the requirements for demonstrating compliance in Special Condition Nos. 7 and 24.A.5. Commenter states that compliance should be demonstrated by the use of CEMS, although it is not clear how frequently compliance must be demonstrated (*EDF*).

Response 30: The permit application documents in Table A-12 the calculations for the trace metal and other speciated filterable inorganic PM performance standards resulting from combustion of coal. Note 2 of Table A-12 states that the coal data is from "Seams 9 and 11 of RiverView Coal sample." The River View mine is an Illinois bituminous coal mine located in western Kentucky, near the Ohio River. Additional properties of the proposed coal are included in Tables A-7 and A-8 of the application.

The permit application documents the calculations for the trace metal and other speciated filterable inorganic PM performance standards, in Table A-11 for petroleum coke. Additional properties of the proposed petroleum coke are included in Tables A-4 and A-5 of the application. The source of the petroleum coke is not identified in the air permit application because it may come from different petroleum refineries at different times, depending upon the applicant's business decisions. Numerous petroleum refineries have relatively low-cost barge access to the WSEC, making them potential fuel sources. Variations in sulfur and ash composition in petroleum coke will occur with changes in crude feedstock and the refining steps at a refinery. Therefore, identifying specific refineries as fuel sources for WSEC, or calculating emissions from a limited set of coke samples would be inappropriate.

The TCEQ requires the applicant to identify representative fuel properties, rather than specify which mines and refineries will be the sources of fuel and additives. Tables A-11 and A-12 present the constituent variability of the coal and petroleum coke in the form of average and maximum concentrations of inorganic constituents. The applicant has presented these concentrations as representative of the fuels that will be used.

Performance standards (lb/MMBtu) for NO_x, CO, VOC, PM, and NH₃, discussed in the BACT analysis section of the application, are based more on vendor specifications and comparison to similar projects, rather than calculated values. The performance standards proposed for SO₂, H₂SO₄, HCl, HF, and Hg are a combination of expected average and maximum concentrations of S, Cl, F, and Hg in the fuel and removal efficiency estimates from vendors or from similar projects.

The blending ratios of coal/coke are not important to the trace element PM analysis because BACT for these compounds is based on the filterable PM performance standard, rather than the individual constituent pound-per-hour emission rate. The purpose of including the constituent concentrations in Attachments A and B of the draft permit is to provide an enforceable basis for the emissions that were modeled for the health impacts analysis. Blending ratios of coal/coke are not relevant to the modeling because modeling used the higher of the coke and coal values, shown in Table A-13 of the permit application, rather than a hypothetical fuel blend.

Finally, CEMS do not exist and are not used on EGUs to continuously monitor emissions of the constituents listed in permit Attachments A and B because the constituents are emitted in relatively low amounts and they are a subset of filterable PM, which is subject to continuous parameter monitoring of the PM control devices to assure compliance with the PM emission limits.

Comment 31 (Tire-Derived Fuel): Commenter asks whether the applicant plans to burn tire derived fuel (TDF) (*Muriel Tipps*).

Response 31: The applicant has not proposed to burn TDF in the CFBs.

Comment 32 (Fuel Ratio): Commenter asks whether the applicant has stated the firing ratio of fuels and additives and the ratio of limestone for sulfur capture (*Clyde Williams*).

Response 32: The application does not specify ratios of fuels and additives. The application is based on the flexibility to fire up to 100 percent coal or petroleum coke, and any ratio in between. The design ratios of limestone, lime, ammonia, and activated carbon to fuel are not typically included in an air permit application because such detail may not yet be established or may be proprietary. Table 2 of the application lists the maximum usage rates of limestone, coal, and petroleum coke, from which one can calculate ratios; these may not be the design average ratios.

Comment 33 (Type, Utilization, and Size of Proposed Facilities): Commenter asks whether the applicant has dedicated the project as a CFB boiler design and as a base-load plant only. Commenter asks whether the applicant has decided on the overall and phased size of the facility. Commenter asks whether the applicant has provided exclusive limits to the proposed site, without options or other provisions for future expansion (*Clyde Williams*).

Response 33: The proposed facility is a 1,320 MW gross, 1,200 net MW electric generation facility consisting of four CFB boilers for steam generation. The projected level of utilization of the proposed facilities is a business objective of the applicant and the Executive Director does not have knowledge of any projection. The application is based on the assumed 100 percent utilization of the facilities, which describes a base-load plant. If the applicant were to propose a different process other than the proposed CFB design, the TCEQ rules require permit authorization, including a new BACT review. The applicant has not identified any phased construction or options for future expansion, and this is not information required by the Executive Director. Permit authorization is required if the applicant later proposes to construct new facilities or modify any existing facilities in a manner that would change the character or increase the amount of emissions.

Comment 34 (Equipment Specifications/Guarantees): Commenter asks whether the applicant has established pretreatment, fueling, firing, flue gas, and residual handling systems (*Clyde Williams*). Commenter states the permit should establish the specific makes and models that will be used for the boiler and control equipment, as well as the manufacturer guaranteed emissions levels from this equipment (*Sierra Club*).

Response 34: The application does not identify any fuel pretreatment system. The raw material handling, fuel firing, flue gas control, and waste material handling systems are described in the application from the perspective of control of proposed air emissions. The APD does not require specifying a make and model of each proposed piece of equipment for the air permit review.

Such information will be available before the facilities commence operation, and Special Condition No. 44 of the revised draft permit requires that APD's equipment tables be updated no later than 30 days before start-up of the CFB boilers. The tables require identification of specific makes and models of equipment.

The Executive Director did not request additional documentation and designs to substantiate the claims of BACT because the proposed emission control technologies are conventional and in widespread use, or in the case of mercury sorbent injection, widely demonstrated on exhaust slipstreams of coal-fired electric utility boilers. The applicant will not know all the makes and models of individual pieces of equipment during the permitting process. The normal sequencing of coal-fired power plant construction requires obtaining permits as a prerequisite for obtaining project funding; usually final contracts for purchase of equipment are set after obtaining funding. Although some control equipment details are not known until well after the air permit is issued, this does not hamper the permit review when the capabilities of the technology are well documented.

Emission guarantees are usually closely guarded by the project developer and control equipment vendor because of the concern that the permitting authority will use that information to tighten an emission limit. The normal expectation is that the permitting authority specifies the required emission performance and the project developer secures guarantees for some more stringent performance to allow some safety margin between the limit and the system's capabilities.

Guarantees also may be finalized after the permitting process. During permitting, the owner's engineer, a design engineer, or the engineer/procure/construct firm may combine information on emission capabilities from a number of potential suppliers of the boiler and control equipment in order to ensure that the permit limits will be achievable. Emission performance guarantees for specific pieces of control equipment may not be finalized until after the permit is issued because the purchase contracts have not been issued.

Comment 35 (BACT/Methodology): Commenter claims the applicant did not conduct a BACT analysis beyond Tier 1 and the Tier 1 analysis that was conducted did not produce an emission limitation that is equivalent to the Top-Down analysis utilized by EPA (*EDF*).

Response 35: The TCAA §382.0518(b)(1) states the BACT requirement as: "The proposed facility for which a permit...is sought will use at least the best available control technology, considering the technological practicability and the economic reasonableness of reducing or eliminating emissions from the facility."

Nothing in the FCAA or its implementing regulations mandates using the BACT top-down approach.³⁵ The TCEQ does not follow the top-down approach found in EPA's guidance. Instead, Texas uses a three-tiered approach as outlined in the TCEQ guidance document, Evaluating Best Available Control Technology (BACT) in Air Permit Applications (TCEQ

³⁵ 42 USC §7479(3); 40 CFR § 52.21(j); Alaska Dep't. of Env'tl. Conservation v. EPA , 540 US 461, 476, fn. 7 (2004).

BACT Guidance).³⁶ Texas' use of the three-tiered approach predates EPA's top-down approach and approval of Texas' PSD program. Since approval of the PSD program, TCEQ and its predecessor agencies have used the three-tiered approach for all PSD permits issued by the State of Texas. The final end result of a BACT review is the development of a number – an emissions limitation.³⁷

In the preamble where EPA proposed approval of Texas PSD program, the EPA found Texas' BACT review as stringent as EPA's with the exception of a few areas not applicable here.³⁸ The EPA interpreted the FCAA BACT definition as possessing two fundamental concepts.³⁹ First, the most stringent available control technology (and associated emission limitation) must be evaluated.⁴⁰ Second, if BACT is proposed that is less than the most stringent available, there must be a case-specific demonstration why the most stringent control is not selected.⁴¹ The TCEQ three-tiered approach captures these fundamental concepts. In this application, which involves a PSD permit, the TCEQ required the applicant to evaluate all control technologies, by evaluating the EPA RACT/BACT/LAER Clearinghouse (RBLC), EPA's National Coal Fired Utility Projects Spreadsheet, and recently issued permits, draft permits and applications for coal and lignite power projects. Additionally, the application laid out a case-specific rationale why the proposed BACT levels were selected.

In response to public comments, when approving Texas' PSD program, the EPA acknowledged that States have latitude in developing their programs.⁴² Commenters expressed concern with the proposal preamble language when the EPA suggested that final approval would require Texas to follow EPA's current and future interpretations of the FCAA's PSD provisions and EPA regulations as well as EPA's operating policies and guidance.⁴³ Commenters contended such a condition would be unlawful and would improperly limit the State's flexibility.⁴⁴ In response, the EPA acknowledged "[S]tates have the primary role in administering and enforcing the...PSD program" and "EPA's involvement in interpretive and enforcement issues is limited to only a small number of cases."⁴⁵ Consequently, EPA's continuing oversight role under the [FCAA] leaves Texas and other states with considerable discretion to implement the PSD program as they see fit.⁴⁶ Commenters also stated that the EPA improperly included provisions mandating Texas

³⁶ Draft RG-383, April 2001.

³⁷ TCAA §382.0518(b)(1). Emissions limitations for power plants are generally expressed as mass of pollutant per million Btu's (or fuel fired) or per unit of time.

³⁸ 54 FR 52823 (December 22, 1989).

³⁹ *Id.*

⁴⁰ *Id.*

⁴¹ *Id.*

⁴² 57 Fed. Reg. 28093 (June 24, 1992).

⁴³ *Id.*

⁴⁴ *Id.*

⁴⁵ *Id.*

⁴⁶ *Id.*

follow EPA's top-down approach.⁴⁷ In response, the EPA stated it "does not mandate the State follow a top-down approach to BACT."⁴⁸

Comment 36 (Ability to Achieve BACT Emission Limits): Commenters state that the BACT analysis requires more than a "reasonable expectation" that the proposed technology will work (*NCC, Public Citizen, SEED Coalition*).

Response 36: If a control technology has not been applied or an emission limit has not been demonstrated to be achieved in practice, a necessary condition of its selection as BACT requires technically qualified individuals to provide reasoned assurances that the technology or emission limit is achievable. It is rare for an applicant to propose unproven technology or performance that exceeds the capabilities of a control technology; such occasion demands extra scrutiny and the willingness of the reviewing authority to reject the technology or performance level when justified. The control technologies and emission limits proposed by WSEC are for the most part consistent with the most recent and lowest BACT determinations made for similar facilities around the country. In the case of SO₂, where the proposed performance standards reflect a removal efficiency that is higher than other permits, these superior performance standards are still within a level that is achievable by the combination of in-bed limestone capture and dry scrubbing that WSEC proposes.

Comment 37 (BACT Stringency): Commenters state that the BACT on-the-record analysis fails to provide the rationale for the BACT determinations. This includes, but is not limited to, an analysis of the technical and economic feasibility of available control technologies. Commenters state that the emission standards to be demonstrated by CEMS and by Reference Method Testing are much too high for BACT. Commenters state that the proposed BACT emission rates do not comply with established BACT levels required by similar applications and/or permits for coal-fired power plants. Also, the record lacks the requisite detailed on-the-record analysis explaining why lower BACT limits are not feasible (*NCC, Public Citizen, SEED Coalition*).

Response 37: The notice of preliminary decision and draft permit included a Preliminary Determination Summary (PDS) that provides an on-the-record rationale for the Executive Director's preliminary BACT determinations. Because the commenters do not identify specific emission limits or control technologies that it believes should be applied, it is not clear what the purported BACT deficiencies may be. In response to comments received on the preliminary decision and draft permit, subsequent responses in this document provide more discussion of the rationale for BACT for specific pollutants.

Comment 38 (BACT/NO_x): Commenter is concerned about the emission limits for nitrogen (*Sierra Club*).

⁴⁷ *Id.*

⁴⁸ *Id.* Protestants also claim Texas by letter committed to implementing EPA interpretive guidance including the top-down approach. 54 FR 52823 (December 22, 1989). However, in the adoption preamble, EPA stated "EPA agrees...that [Texas] letter need not be interpreted as a specific commitment by the State to follow a "top-down" approach to BACT determinations." 57 FR 28093 (June 24, 1992).

Response 38: The commenter does not identify specific emission limits or control technologies that it believes should be applied. The PDS provides an on-the-record rationale for the Executive Director's preliminary BACT determination for NO_x. The following table lists the five lowest NO_x emission limits applied to similar CFB facilities from the EPA's RBLC database of emission limit determinations and permits issued in Texas.

NO_x: Lowest Permit Limits for CFB Boilers

Company	Project	Primary Fuel	RBLC Number	Permit Issued	lb NO _x per 10 ⁶ Btu	Average Time
VEPCO	Va. City Hybrid	bit. coal	VA-0311	06/30/2008	0.07	30-day
NRG	Big Cajun I	pet. coke	LA-0223	01/09/2008	0.07	30-day
Renu En.	Calhoun Co. ND	pet. coke	(TX)	08/20/2007	0.07	30-day
FPC TX	Formosa Plastics	pet. coke	(TX)	12/19/2006	0.07	30-day
CLECO	Rodemacher 3	pet. coke	LA-0202	02/23/2006	0.07	12-mo.

Based on the review of other CFB projects, no other CFB project has been permitted at a lower emission rate for NO_x and the 0.070 lb NO_x/MMBtu, 30-day rolling average emission limit in the draft permit represents BACT.

Comment 39 (BACT/PM): Commenter states that the application and draft permit fail to demonstrate that the proposed emission limitation for PM represents BACT (*EDF*). Commenter is concerned about the emission limits for PM (*Sierra Club*).

Response 39: The PM emissions from the proposed CFBs primarily consist of solids, or filterable PM. The application proposes baghouses to capture solid PM with a permit limit of 0.011 lb filterable PM/MMBtu. In December 2008, the TCEQ reviewed, starting with the most recent entry, and going back ten years, the EPA's RBLC database of emission limit determinations, to identify the technologies and lowest filterable PM limits applied to similar CFB facilities. The following table includes at least the five lowest filterable PM permit limits found. More information on the projects listed in the RBLC may be found at: <http://cfpub.epa.gov/rbhc/cfm/rbfind.cfm>.

Filterable PM: Lowest Permit Limits for CFB Boilers

Company	Project	Primary Fuel	RBLC Number	Permit Issued	lb PM _{filter} per 10 ⁶ Btu	Average Time
VEPCO	Va. City Hybrid	bit. coal	VA-0311	06/30/2008	0.009	30-day
"	" " "	" "	" "	" " "	0.010	3-hour
SE LLC	Sunnyside Ethanol	bit. coal	PA-0257	05/07/2007	0.010	3-hour
RHP LLC	River Hill Power	waste coal	PA-0249	07/21/2005	0.010	3-hour
Reliant	Seward Power	waste coal	PA-0182	08/26/2003	0.01	3-hour
LBEC	LBEC	pet. coke	--	--	0.011	3-hour
NRG	Big Cajun I	pet. coke	LA-0223	01/09/2008	0.011	30-day
Entergy	Little Gypsy 3	pet. coke	LA-0221	06/30/2007	0.011	30-day
CLECO	Rodemacher 3	pet. coke	LA-0202	02/23/2006	0.011	30-day
JEA	Northside 1 & 2	pet. coke	FL-0178	07/14/1999	0.011	3-hour
AES	Warrior Run	bit. coal	MD-0022	06/03/1994	0.015	3-hour

The most recent permit identified in the RBLC data base, Virginia Electric's Virginia City Hybrid Energy Center (VCHEC), has a limit of 0.010 lb filterable PM/MMBtu, 3-hr average. In addition, the VCHEC permit requires a PM CEMS, and specifies a limit of 0.009 lb PM/MMBtu, 30-day rolling average with compliance based on the CEMS. Over the 30-day compliance period, the PM CEMS will generate thousands of emission measurements, resulting in an average value significantly lower than the maximum three-hour value. Because the emission format is based on long-term averaging, the 0.009 lb PM/MMBtu limit is unlikely to represent a more stringent level of control than the 3-hour limit.

In addition to VCHEC, three permits issued for CFBs in Pennsylvania have a permit limit of 0.010 lb filterable PM/MMBtu limit, 3-hr average: Reliant Seward Power, Sunnyside Ethanol, and River Hill Power. Because the Pennsylvania permits may not have originally included a trailing zero after the limit (0.01, not 0.010), it has been pointed out that compliance with the PM filterable performance standard would be established by any test value below 0.015 lb/MMBtu, based on appropriate rounding. However, at least two of the permits have been revised to clarify that the limit is for filterable PM and to include the trailing zero.

In addition, none of the preceding projects are designed to fire 100 percent petroleum coke fuel like WSEC. The petroleum coke-fired CFB air permits, JEA Northside, NRG Big Cajun I, Entergy Little Gypsy, and CLECO Rodemacher all have limits of 0.011 lb PM filterable/MMBtu. Although the Louisiana permits identify the filterable PM compliance averaging period as 30 days, PM CEMS are not used and emissions are measured annually with a three-hour stack test. No lower filterable PM emission limit was found for CFB boilers permitted to fire up to 100 percent petroleum coke.

The difference between the 0.010 and 0.011 lb/MMBtu limits is small. As shown in the following table, test results indicate that the filterable PM emission rate for baghouse-controlled CFBs is likely to be less than half the permitted limit. Special Condition No. 45 of the revised draft WSEC permit requires a downward adjustment of the PM emission limit if the initial and first annual test results are less than half the permitted limit. Based on testing of other CFBs, it is expected that the WSEC emission limit will require adjustment and that the adjusted limit will be at least as stringent as the permit limits identified in the RBLC with lower filterable PM.

Filterable PM: Emission Test Results for CFB Boilers

Company	Project	Fuel/blend	RBLC Number	Date Tested	lb PM _{filter} per 10 ⁶ Btu	Average Time
JEA	Northside 2	100% Pitt. bit. coal	FL-0178	Jan. 2004 ⁴⁹	0.0040	3-hour
"	" " "	50% bit./50% coke	" "	Jan. 2004	0.0040	3-hour
"	" " "	100% Ill. bit. coal	" "	Jun. 2004	0.0019	3-hour
"	" " "	80% coke/20% bit.	" "	Aug. 2004	0.0024	3-hour
AES	Warrior Run	bit. coal	MD-0022	Jan. 2000 ⁵⁰	0.005	3-hour

⁴⁹ JEA Northside Generating Station Stack Test Report, Project No. 9475, for Black & Veatch Corporation, Clean Air Engineering, 2004.

Because the WSEC CFBs are designed to be capable of firing up to 100 percent petroleum coke and the permit includes a provision to lower the emission limit based on testing, the slightly higher limit of the other petroleum coke projects is the appropriate choice for filterable PM BACT for WSEC. Based on this review, the filterable PM emission limits in the draft permit represent BACT.

In addition to solids, PM emissions include materials that exist in a gaseous state exiting the baghouse, but subsequently condense to form a liquid. The acid gases H₂SO₄ and HCl are components of condensable emissions. Sulfuric acid is formed by the oxidation of SO₂ to SO₃ and subsequent absorption with water. Although designed to primarily reduce SO₂, the proposed lime spray dryer (LSD) scrubbers will additionally control acid gases, and hence condensable PM. The alkali lime reacts with the acid to form a solid that is captured in the baghouses. Combustion of petroleum coke has a higher potential to produce H₂SO₄ than coal because of its higher sulfur and vanadium content. Vanadium, present in coke ash, promotes the conversion of SO₂ to SO₃. Because of these properties, comparison of BACT limits for H₂SO₄ should be limited to CFBs with petroleum coke as the fuel. The following table lists the lowest H₂SO₄ emission limits found in the RBLC for petroleum coke fired CFBs.

H₂SO₄: Lowest Permit Limits for Petroleum Coke Fired CFB Boilers

Company	Project	Primary Fuel	RBLC Number	Date Issued	lb H ₂ SO ₄ per 10 ⁶ Btu	Average Time
JEA	Northside 1 & 2	pet coke	FL-0178	07/14/1999	0.0004	3-hour
NRG	Big Cajun I	pet coke	LA-0223	01/09/2008	0.0012	30-day
Entergy	Little Gypsy 3	pet coke	LA-0221	06/30/2007	0.0012	30-day
CLECO	Rodemacher 3	pet coke	LA-0202	02/23/2006	0.0012	12-mo.
Manitowoc	Manitowoc	pet coke	WI-0225	12/03/2003	0.0045	3-hour
LBEC	LBEC	pet coke	--	--	0.022	3-hour
WSEC	WSEC	pet. coke	--	--	0.022	3-hour

The Northside CFBs 1 & 2 include LSD polishing scrubbers, as do the three proposed CFB projects in Louisiana. Although the Northside permit includes an H₂SO₄ limit, the available test summaries do not include H₂SO₄ sampling. The Manitowoc CFB, a 63 MW unit, does not use a polishing scrubber, but passed a performance test in 2006 using a modified EPA Reference Method 8 procedure at a level close to the Northside permit limits.

Establishing the appropriate limit for H₂SO₄ is complicated because the quantification of H₂SO₄ and other condensing species is difficult and test results using the EPA test method for H₂SO₄ have frequently produced questionable results. Furthermore, test results are scarce because many permitting authorities do not require stack testing for H₂SO₄. Special Condition No. 45 of the revised draft WSEC permit requires a downward adjustment of the H₂SO₄ emission limit if the initial and first annual test results are less than half the permitted limit. Based on the H₂SO₄

⁵⁰ "Control of PM from Steam Generating Units", Memo to File, Christian Fellner, U.S. EPA Office of Air Quality Planning and Standards, February 2006.

permit limits for petroleum coke fired CFBs found in the RBLC, it appears likely that a downward adjustment of the WSEC limit will need to be made. The proposed control technology and emission limits of petroleum coke of 0.022 lb H₂SO₄/MMBtu 3-hour average and emission limit for coal fuel of 0.012 lb H₂SO₄/MMBtu 3-hour average represent BACT.

In addition to the acid gases H₂SO₄ and HCl, the condensable portion of PM includes some organic material. The sum of filterable and condensable PM is also called total PM. Texas is one of a minority of states that regulate total PM. Because few states regulate total PM, the EPA RBLC contains few entries for total PM and there are fewer permit examples on which to base a BACT decision compared to filterable PM, NO_x, SO₂, CO, or VOC. The following table lists the lowest total PM emission limits found in the RBLC for CFB boilers.

Filterable + Condensible (Total) PM: Lowest Permit Limits for CFB Boilers

Company	Project	Primary Fuel	RBLC Number	Date Issued	lb PM _{Total} per 10 ⁶ Btu	Average Time
VEPCO	Va. City Hybrid	bit. coal	VA-0311	06/30/2008	0.012	3-hour
WG Co-G	W. Greenbrier	waste coal	WV-0024	04/26/2006	0.030	3-hour
WSEC	WSEC	pet. coke	--	--	0.033	3-hour
WSEC	WSEC	bit. coal	--	--	0.025	3-hour
Ag. Proc.	AGP Soy Proc.	subbit. coal	NE-0033	09/11/2006	0.041	3-hour
SE LLC	Sunnyside Ethanol	bit. coal	PA-0257	05/07/2007	0.050	3-hour
RHP LLC	River Hill Power	waste coal	PA-0249	07/21/2005	0.050	3-hour

The current EPA Reference Method 202 for condensable PM has been documented to have an erratic, positive bias. The problems with the test method also complicate the determination of the appropriate BACT emission limit for total PM. Special Condition No. 45 of the revised draft WSEC permit requires a downward adjustment of the total PM emission limit if the initial and first annual test results are less than half the permitted limit. The EPA proposed a new test method for measurement of condensable PM on March 25, 2009. Based on the likelihood that before the initial performance test for WSEC, the new procedure will be adopted, and that this new method will be more accurate, replicable, and unlikely to produce oddly high values as the current method, it appears likely that the WSEC permit for total PM will be adjusted as required by Special Condition No. 45.

Because the test method for total PM is not reliable and few states require testing for total PM, and because the permit includes a provision to lower the emission limit based on testing, which probably will occur using an improved test method, the higher limits of the WSEC are justified as the appropriate choices for total PM BACT. Based on this review, the total PM emission limits in the draft permit represent BACT.

Comment 40 (PM_{2.5} BACT): Commenter states that while the draft permit does contain a limitation for PM_{2.5} stated separately from the emission limit for PM₁₀, there is no showing that the limitation represents BACT for PM_{2.5} (EDF).

Response 40: There is very little guidance or experience available with regard to special considerations for evaluating BACT for PM_{2.5} as distinct from BACT for PM. Neither the permit application nor the Executive Director's evaluation of BACT included a separate analysis of BACT for PM_{2.5}. The use of fabric filters meeting an emission limit of 0.011 lb of filterable PM/MMBtu of heat input has been proposed as BACT for all sizes of filterable PM. The Executive Director believes that this technology and emission limit also achieve BACT for filterable PM₁₀ and PM_{2.5} because the limit has been shown to require approximately 99.9 percent removal of potential PM emissions⁵¹ and such high removal efficiency requires efficient collection of PM_{2.5}.

About 97 percent of the condensable PM has been estimated by WSEC to be PM_{2.5}. The Executive Director believes that the previously discussed combination of CFB boiler with limestone bed, spray dryer, and baghouse technology and emission limits for total PM also achieve BACT for condensable PM_{2.5} because there is little difference between condensable PM and condensable PM_{2.5}.

Gaseous emissions of SO₂ and NO_x undergo reactions in the atmosphere to form sulfate and nitrate particles which are classified as secondary, or indirect PM_{2.5} emissions. There is very little guidance or experience available with regard to special considerations for evaluating BACT for secondary PM_{2.5} emissions. Neither the permit application nor the Executive Director's evaluation of BACT included a separate analysis of BACT for secondary PM_{2.5}. The Executive Director believes that the previously discussed use of CFB boilers with SNCR for NO_x control with an emission limit of 0.070 lb NO_x/MMBtu, 30-day rolling average, and CFB boilers with limestone beds and spray dryer absorber scrubbing for SO₂ control with emission limits for coal firing of 0.063 lb SO₂/MMBtu of heat input, 12-month rolling average, and for petroleum coke firing of 0.086 lb SO₂/MMBtu of heat input, 12-month rolling average, discussed in the response to the next comment, also achieve BACT for secondary PM_{2.5}, because minimizing emissions of SO₂ and NO_x are the only logical way of minimizing secondary PM_{2.5} from the proposed facilities.

Comment 41 (BACT/SO₂): Commenter is concerned about the emission limits for sulfur. Commenter states that the application does not utilize BACT for sulfur pollution (*Sierra Club*). Commenter states that the application fails to demonstrate that the proposed limit on emission of SO₂ represents BACT. Furthermore, commenter states that the draft permit does not contain a limit on the emissions for this pollutant that represents BACT (*EDF*).

Commenter states that the application does not appear to come close to the application filed prior to this one for the City Public Service Plant in San Antonio (*Sierra Club*).

Commenter states that the applicant's BACT analysis is incomplete and fails to comply with federal and state law because of the use of high sulfur fuels and the allowance of high sulfur emissions. The 12 month rolling averages for elemental sulfur content are improperly analyzed

⁵¹ *Id.*

and fail to protect public health, welfare, and the environment (*NCC, Public Citizen, SEED Coalition*).

Response 41: As discussed in the Preliminary Determination Summary, the applicant proposed the combination of limestone bed CFB and spray dryer absorber scrubber, each capable of achieving 90 percent SO₂ reduction, to achieve a design level of 99 percent reduction of potential SO₂ emissions. The resulting proposed emission rates are comparable to recent coal-fired electric utility steam generating unit with lower sulfur fuels.

For the BACT analysis, the TCEQ reviewed the EPA's RBLC database of emission limit determinations and other permit limits not yet entered into the RBLC, to identify the lowest SO₂ emission limits applied to similar CFB facilities. The appropriate comparisons are to other CFBs firing high-sulfur bituminous coal and petroleum coke because the boiler process and fuel sulfur content have a direct impact on the resulting SO₂ emissions, and because the process type and fuel used are choices appropriately made by the applicant.

Because petroleum coke fuel has a higher sulfur content than other solid fuels such as coal or biomass, the potential SO₂ emissions are higher. The following table identifies the petroleum coke fired CFB projects identified in the permit review.

SO₂: Permit Limits for CFB Boilers Firing Petroleum Coke

Company	Project	Primary Fuel	RBLC Number	Permit Issued	lb SO ₂ per 10 ⁶ Btu	Average Time
WSEC	White Stallion	pet coke	(TX)	--	0.086	12-mo.
LBEC	LBEC	pet. coke	(TX)	--	0.15	12-mo.
NRG	Big Cajun I	pet. coke	LA-0223	01/09/2008	0.15	30-day
Entergy	Little Gypsy 3	pet. coke	LA-0221	06/30/2007	0.15	30-day
CLECO	Rodemacher 3	pet. coke	LA-0202	02/23/2006	0.15	30-day
JEA	Northside 1 & 2	pet. coke	FL-0178	07/14/1999	0.15	30-day
Renu En.	Calhoun Co. ND	pet. coke	(TX)	08/20/2007	0.18	30-day
FPC TX	Formosa Plastics	pet. coke	(TX)	12/19/2006	0.24	30-day
MPU	Manitowoc 9	pet. coke	WI-0225	12/03/2003	0.30	30-day
First Energy	Bayshore 6	pet. coke	OH-0231	07/31/2003	0.73	30-day

The proposed performance standards for SO₂ while firing petroleum coke for the WSEC CFBs are the lowest among any permits identified.

The following table identifies the coal-fired CFB permits with the lowest SO₂ emission limits identified in the permit review, listed in order of increasing limits in lb SO₂/MMBtu.

SO₂: Lowest Permit Limits for CFB Boilers Firing Coal

Company	Project	Primary Fuel	RBLC Number	Permit Issued	lb SO ₂ /10 ⁶ Btu	Rdn %	Average Time
Dominion	VA City Hybrid	waste/bit.	VA-0311	06/30/2008	0.022	99.4	30-day
Nevco	Sevier	bit. coal	UT-0064	10/12/2004	0.022	95.5	30-day
AES	Puerto Rico	bit. coal	PR-0007	10/29/2001	0.022	98.6	3-hour
MT-Dak Pwr	Gascoyne	lignite	ND-0021	06/03/2005	0.038	98.9	30-day
Deseret Pwr	Bonanza	waste/bit.	UT-0070	08/30/2007	0.055	97.7	30-day
Great River	Spiritwood Sta.	lignite	ND-0024	09/14/2007	0.060	98.7	30-day
WSEC	White Stallion	bit. coal	(TX)	--	0.063	99.0	12-mo.

At 3.9 percent by weight, the WSEC has the highest percent sulfur in the coal among the above projects. The AES Guayama project uses a Colombian bituminous coal with a reported average of 0.76 percent by weight sulfur; the two North Dakota lignite-fired projects and the two Utah subbituminous coal-fired projects average around 1 percent sulfur. After WSEC, the highest sulfur content coal is the Virginia bituminous coal proposed at Dominion's Virginia City Hybrid Energy Center (VCHEC), with a maximum sulfur content reported at 2.3 percent. The staff's recommendation of 0.09 lb SO₂/MMBtu, 30-day rolling average was overruled by the Virginia Air Board in issuing the VCHEC permit. The Board's basis for the limit was the AES Puerto Rico limit, despite the VCHEC design coal having substantially higher sulfur content than AES Puerto Rico.⁵² The VCHEC project is not expected to commence operation until 2012 and its emission limits have not been demonstrated in practice. The proposed removal efficiency of WSEC is higher than all of these projects, except for Dominion's VCHEC. Because the VCHEC removal efficiency is substantially higher than such demonstrated projects as AES Puerto Rico, and because the VCHEC performance has not yet been demonstrated in practice, the proposed performance for WSEC at 99 percent removal efficiency is appropriately BACT, as is the resulting 0.063 lb SO₂/MMBtu, 30-day rolling average emission limit.

The TCEQ evaluates BACT specific to the process and fuels proposed by the applicant and does not require the same emission limits. Instead of using CFB boilers and high-sulfur bituminous coal and petroleum coke fuels, City Public Service proposed to use pulverized coal boilers and low-sulfur subbituminous coal for the Spruce 2 utility boiler currently under construction in San Antonio. Because the processes and fuels are different for WSEC and Spruce 2, the BACT analysis should not be based on a comparison of their respective emission limits. Nonetheless, it may be noted that although the design average fuel sulfur content of WSEC petroleum coke is about 7 times higher than Spruce 2 on a Btu basis and 12 times higher on a weight basis (4.3 vs. 0.625 lb S/MMBtu and 6.0 percent vs. 0.5 percent S by weight), the proposed average emission limits for WSEC for petroleum coke are only 43 percent higher (0.086 vs. 0.06 lb SO₂/MMBtu). Similarly, the design average sulfur content of the bituminous coal of WSEC is about 5 times higher than Spruce 2's low-sulfur subbituminous coal on a Btu basis and 8 times higher on a weight basis (3.1 vs. 0.625 lb S/MMBtu and 3.9 percent vs. 0.5 percent by weight), while the

⁵² See Virginia City Hybrid Center, Public Hearing Before the State Air Pollution Control Board, June 25, 2008, p. 195, *et seq.*; June 30, 2008 Letter from Dallas Sizemore, Regional Director, Southwest Regional Office, Virginia Dept. of Environmental Quality, to James K. Martin, Vice President, Virginia Electric and Power Company.

proposed average emission limit for WSEC is only 5 percent higher than CPS (0.063 vs. 0.060 lb SO₂/MMBtu). This is because the sulfur removal efficiency of WSEC is significantly higher than that of Spruce 2 (99 percent vs. 95 percent). See also the response to Comment 28 regarding fuel being a choice left to the applicant.

Comment 42 (BACT/Mercury): Commenter is concerned about the emissions limits for mercury (*Muriel Tipps*). Commenter states that stack mercury emissions of 96 pounds per year for the #1-4 units must meet the BACT standards (*Sierra Club*).

Response 42: The proposed mercury emissions are subject to both BACT and MACT review. The standards are similar for BACT and MACT, particularly in that they specify a process for review rather than a specific emission rate or removal requirement. In the case of WSEC, the MACT review process was considered to produce results that satisfy the BACT requirement.

The proposed SNCR, LSD scrubbing, activated carbon injection, and baghouse represent the best combination of controls for mercury emissions from CFBs. Although it was not a subject of the BACT analysis because the choice of production process is left to the applicant, the CFB process is more effective than the PC process at controlling mercury emissions. For example, a May 2006 internal EPA memo documenting mercury removal efficiencies from various coals in support of the NSPS Da standards for mercury (William H. Maxwell to Robert Wayland, Energy Strategies Group, OAQPS, May 31, 2006) reported removal efficiencies of 99.9 percent for two CFBs with baghouse controls, firing waste coals. However, it must be noted that the reported removals were based on short-term testing and that performance standards for mercury are currently based on 12-month rolling averages because of the variability found in mercury measurements.

Because WSEC proposes to use up to 100 percent of either Illinois bituminous coal or petroleum coke, the analysis for mercury BACT is more focused on the Illinois bituminous coal because the mercury content is higher in the coal than in the petroleum coke.

In response to the comments, the TCEQ re-evaluated the basis for the proposed mercury performance standard of 0.86 lb Hg/TBtu, 12-month rolling average. The TCEQ reviewed the EPA's RBLC database of emission limit determinations for mercury emissions starting with the most recent entry, and going back ten years, to identify the lowest mercury emission limits applied to similar CFB facilities. The following table shows the nine entries in the RBLC listing mercury emission limits for CFBs, ranked from lowest to highest limit.

Mercury: RBLC Listed Permit Limits for CFB Boilers

Company	Project	Primary Fuel	RBLC Number	Permit Issued	Limit lb Hg/TBtu	Average Time
Nevco/Sevier	Sevier Power	bit. coal	UT-0064	10/12/2004	0.4	--
RHP	River Hill Power	waste coal	PA-0249	07/21/2005	0.68	12-mo.
Wellington	Greene Energy	waste coal	PA-0248	07/08/2005	0.83	12-mo.
Sunnyside	S. Ethanol	bit. coal	PA-0257	05/07/2007	0.96	12-mo.
E Ky Power	Spurlock	bit. coal	KY-0086	08/04/2002	2.65	quarterly

PSNH	Schiller 5	wood/coal	NH-0013	10/25/2004	3	--
Biomass En.	S. Pt. Biomass	wood	OH-0307	04/04/2006	9	--
GRE	Spiritwood	lignite	ND-0024	09/14/2007	17.5	12-mo.
KMP LLC	Ky. Mtn. Power	bit. coal	KY-0079	05/04/2005	81	--

The reported emission limits range from 0.4 to 81, a range of 200. The lowest limit, Nevco/Sevier, does not require a mercury CEMS and the emission limit is enforced on the basis of coal sampling. One comparison of mercury levels in the coal for Nevco/Sevier and WSEC can be found in the EPA guidance document for EPCRA Section 313 (toxic release inventory reporting) for electric generating facilities (EPA 745-B-00-004, February 2000). Table 3-5 of this document lists average mercury oxide content of Utah bituminous coal at 0.04 ppmw and that of Illinois bituminous coal at 0.08 ppmw, which is at least suggestive that a difference may be appropriate in the emission limits. The proposed WSEC emission limit is very close to the three Pennsylvania permits listed, which also burn an Eastern bituminous coal or waste from such coal.

Also reviewed was the stack testing for mercury at the JEA Northside CFB Unit 2. The JEA CFB boilers use a limestone bed, SNCR, LSD scrubbing and a baghouse, but do not use activated carbon injection for mercury control. The test results were reported as follows.

Fuel	At LSD Inlet lb Hg/TBtu	At Stack lb Hg/TBtu	Hg Percent Reduction
100% Pitts. #8 bit. coal	14.20	2.3	83.0%
100% Il. Bit. coal	7.1	<0.34	94.8%
50% Pitts./50% pet. coke	14.26	0.54	97.0%
80% pet. coke/20% coal	3.4	<0.074	98.0%

Of note is that without using activated carbon for mercury control, CFB technology is effective at removing mercury from the exhaust stream, but that for one of the bituminous coal tests, the measured value was higher than the proposed WSEC 12-month limit. With the use of activated carbon, WSEC can achieve lower mercury emissions than JEA, but there is not enough data to justify a different limit than those found in the Pennsylvania permits. Therefore, the proposed permit limits for mercury satisfy the BACT requirements.

Special Condition No. 45 of the October 2, 2009 revised draft WSEC permit requires the permit limits for mercury to be adjusted downward to reflect the initial and first annual emission testing. Because 12-month average mercury data is not yet available from CEMS on WSEC or on similar operating units, it is unclear how likely it may be that the permit limit will need to be reduced to reflect the first 12 months of testing.

Comment 43 (BACT for HCl and HF): Commenter asks whether the use of electrostatic precipitators would reduce hydrochloride acid (HCl) and hydro fluoride (HF) emissions, and if so, what percentage of reductions could be achieved. Commenter would also like to know the industry standard cost would be to install electrostatic precipitators and what the cost would be to install electrostatic precipitators at this plant (*Nate MacDonald*).

Response 43: Electrostatic precipitators (ESPs) are effective at removing PM, not gases. If acid gases are cooled below their condensation temperature, they form liquid particles which may be collected by electrostatic precipitators (in practice, wet ESPs) or baghouses. The limestone bed and lime injection followed by a baghouse proposed by WSEC will be very effective at removing gaseous and particulate forms of chloride and fluoride from the flue gas stream, as reflected in proposed emission rates based on 98 percent removal of chlorine and 95 percent removal of fluoride. The predicted amount of HCl and HF exiting the baghouse in condensed form is not known, but given the effectiveness of the baghouse at removing particulates, most is likely to be gaseous, and therefore would not be captured by a wet ESP.

The EPA has published cost estimates for wet ESPs that give an approximate cost, based on 2002 dollars.⁵³ Capital costs range from \$20 to \$40/scfm, and annual operating costs from \$9 to \$47/scfm-yr. Based on the WSEC permit application flow rate of 729,000 scfm per CFB boiler, the capital cost would range between \$15 and \$30 million per CFB boiler, and the operating cost between \$6.6 and \$34 million per year per boiler. Assuming that the wet ESP could collect 100 percent of the proposed combined 50 tons per year of emissions of chloride and fluoride emissions (although the actual amount would likely be closer to zero), the resulting cost would not be economically reasonable to require the company to bear; the cost effectiveness would range between \$120,000 and \$680,000 per annual ton of pollutant removed.

The baghouse has largely supplanted the ESP as the control technology of choice for filterable PM control from coal-fired electric utility steam generating units. Both control devices are effective at removing filterable PM, but both have large capital and operating costs. It would not be cost-effective to require two major control devices to be installed in series to control the same pollutant. The EPA has published cost estimates for dry wire-plate type ESPs such as those used on coal-fired utility boilers that give an approximate cost, based on 2002 dollars.⁵⁴ Capital costs range from \$10 to \$33/scfm and annual operating costs, from \$4 to \$38/scfm-yr. Based on the WSEC permit application flow rate of 729,000 scfm per CFB boiler, the capital cost would range between \$7.3 and \$24 million per CFB boiler, and the operating cost between \$2.9 and \$28 million per year per boiler. Assuming that the dry ESP could collect 100 percent of the proposed 159 tons per year of filterable PM emissions (although the actual amount would probably be significantly less, given that 44 percent of the incoming filterable PM is likely to be PM_{2.5}), the resulting cost would not be economically reasonable to require the company to bear; the cost effectiveness would range between \$18,000 and \$176,000 per annual ton of filterable PM removed. In contrast, the EPA fact sheet shows the cost effectiveness of the dry ESP when used as the primary control device, as typically ranging from \$35 to \$236 per short ton of PM removed. Because it would not be economically reasonable to require a dry ESP after the proposed baghouse, it is not BACT for the WSEC.

⁵³ Air Pollution Control Technology Fact Sheet, Wet Electrostatic Precipitator (ESP) Wire-Plate Type, EPA-452/F-03-030, July 15, 2003.

⁵⁴ Air Pollution Control Technology Fact Sheet, Dry Electrostatic Precipitator (ESP) Wire-Plate Type, EPA-452/F-03-028, July 15, 2003.

Comment 44 (BACT/Coal Washing): Commenter feels that the application does not adequately examine the opportunities for obtaining sulfur and mercury emission reductions through coal washing (*Sierra Club*).

Commenter asks whether the applicant will wash the coal (*Muriel Tipps*).

Response 44: In order to be considered an additional component of SO₂ and mercury BACT, coal washing would need to be demonstrated to be both economically reasonable and technically practicable over the life of the facility. The TCEQ is not aware of studies or examples demonstrating the appropriateness of coal washing or BACT determinations based on coal washing in addition to more conventional controls. Coal washing was not proposed in this application and was not considered in this review.

Comment 45 (MSS): Commenter states that the application does not propose adequate management of fugitive dust emissions from coal, bottom ash, and fly ash handling during start-up and shutdown. Commenter is concerned that the application does not appear to adequately discuss control strategies for the emissions occurring during start-up, shutdown, and maintenance. Commenter also states that the permit must contain enforceable limits during normal operations, which include start-up, shutdown, and maintenance (*Sierra Club*).

Commenter is concerned that emission rates will increase when there is a power outage or a shutdown (*Joe Gonzales*).

Commenter asks what provisions in the permit address startup, shutdown, and malfunction or accidents (*Muriel Tipps*).

Commenter asks that a copy of the final Startup/Shutdown written plans be forwarded to the EPA when prepared (*EPA*).

Commenters state that the applicant's MSS emissions fail to comply with requisite federal and state laws, regulations, and guidance. Specifically, the proposed draft permit special conditions contradict the EPA's long held policy that BACT emission limitations apply at all times and that BACT limits may not be waived during periods of MSS. The record lacks a detailed on-the-record analysis explaining why compliance with the normal BACT are infeasible during startup-shutdown conditions and include secondary BACT limits for such periods. It also fails to specify what design, control, methodology, and work practice (such as limitation on total startup and shutdown event time) will be included in the permit to minimize excess emissions during those periods. See 40 CFR 52.21(b)(12). The permit should set a limit and calculate the related emissions in the total emissions authorized. Similarly, the associated maintenance emissions should be calculated and addressed in the limit. Such secondary limits or work practices must be justified as BACT and TCEQ must ensure that all PSD requirements are met, including compliance with NAAQS and PSD increment provisions (*NCC, SEED Coalition*).

Commenters state that the MSS plan should be made available during the public comment period (*NCC, SEED Coalition*).

Commenters states that the application fails to demonstrate that the proposed limits for MSS represent BACT. The application does not contain modeling to demonstrate the worst-case scenario emissions for combinations of the four boilers in various phases of operation. The application does not demonstrate that the proposed procedures for MSS are best work practices or that they can meet the numerical limits specified in the permit (*EDF*).

Response 45: The application does not identify, and the Executive Director is not aware of, any reasons that fugitive dust emissions from coal, bottom ash, and fly ash handling during start-up and shutdown should be any higher than while the boilers operate at normal operating levels. Within the category of MSS, only emissions during start-up were identified as being higher than the normal emissions that occur outside these types of operation. Permit Special Condition No. 1 authorizes startups and shutdowns that comply with the MAERT and opacity limits; the permit does not specifically authorize maintenance emissions.

Warm-up periods are necessary to achieve minimum flue gas and duct temperatures before reagents can be injected in the SNCR and LSD systems or the air pollution control systems will be fouled. The basis for estimating start-up emissions is discussed in Section 5.1 of the permit application, the BACT for start-up emissions is in Section 6.1.11, and the predicted hourly sequence of emissions during a cold start-up are presented in Table A-15 of Appendix A.

The permit MAERT contains enforceable limits for the normal start-up emissions that are higher because of minimum operating temperature requirements. The BACT requirement was not waived for MSS; these hourly emissions constitute alternative BACT limits for start-ups, and were evaluated on the representations made in Table A-15 of Appendix A.

Where startups result in higher emissions than normal operating maximum emissions, such as for SO₂, the impacts from the higher emissions were modeled and shown not to threaten the 30-minute state property line standard, or the three-hour or twenty-four-hour average NAAQS. Special Condition No. 13.B. of the draft permit restricts CFB boiler startups to no more than one at a time; the modeling was conducted using a worst-case approach of three boilers operating at full load and one under maximum startup emissions.

During the shutdown of a CFB, load is decreased quickly enough that the operating temperatures are sufficient for the emission control systems to maintain compliance with the "normal" (i.e. non-start-up) emission limits.

With regard to maintenance, like any EGU, most scheduled maintenance will be conducted while the CFBs are not operating. During such periods there will be no emissions from petroleum coke combustion. Some maintenance activities will be performed while the CFBs operate, but the activity will not cause excess emissions. An example is a baghouse bag replacement. Baghouses are designed to allow individual compartments to be isolated and taken off-line when a bag needs to be replaced, while maintaining compliance with stack emission and opacity limits.

The proposed plant includes two 2,800-kW Diesel-Fired Emergency Generators, EMGEN1 and EMGEN2, to provide power to the plant in the case of a power outage. The operation of each generator engine is limited to a maximum of 500 hours per year.

The TCEQ does not authorize malfunction emissions and any excess emissions from malfunctions or during normal operations are not authorized and are subject to enforcement.

In response to EPA's request to be sent a copy of the Startup/Shutdown written plan, a new Special Condition No. 43 has been added (with subsequent Special Conditions renumbered), to the revised draft permit to require the permit holder to submit a copy of the plan to the TCEQ Air Permits Division and the EPA.

Comment 46 (Emission Monitoring/Continuous Compliance): Commenter recommends that TCEQ consider requiring CEMS to monitor filterable PM because it has been adequately demonstrated in other industries and has been proposed for other electrical generating units. Commenter states that the capital and operation costs of PM CEMS are comparable to those of Continuous Operating Monitoring Systems (COMS) and the New Source Performance Standards allows PM CEMS to be used in lieu of opacity limits and COMS (*EPA*). Commenter is concerned that the application does not include adequate annual stack testing and stack PM₁₀ continuous emissions monitoring provisions for PM (*Sierra Club*). Commenters state that the proposed permit term does not ensure practical enforceability or continuous compliance with the PM BACT level. PM CEMS should be required to monitor filterable PM. EPA has previously informed TCEQ that PM CEMS measure the pollutant of interest and provide a greater degree of confidence that the PM control device is operating as intended than periodic performance testing. PM CEMS for filterable PM have been adequately demonstrated, including a number of successful applications in electric generating units. The capital and operating costs of PM CEMS are comparable to COMS. Only PM CEMS allows for direct, continuous measurement of the pollutant of concern and ensures proper monitoring of the PM control equipment by the applicant, environmental agencies, and the public. Regardless, the BACT determination should provide an on-the-record analysis of the technical and economic feasibility of available control technologies such as PM CEMS. (*NCC, Public Citizen, SEED Coalition*).

Commenter states that the applicant needs to install a mercury stack continuous emissions monitoring system if the proposed plant is constructed in 2014 or later (*Sierra Club*). Commenters claim that the applicant should be required to install, calibrate, maintain, and operate CEMS for measuring the opacity of emissions and CO₂ (*NCC, Public Citizen, SEED Coalition*).

Commenter states that the application fails to demonstrate that the applicant will comply with the obligation to achieve continuous compliance under 40 CFR § 60.64a for all pollutants. Furthermore, while the draft permit requires a demonstration of continuous compliance by the use of CEMS for some pollutants, the method of stack sampling included in Special Condition 26 is insufficient to demonstrate the compliance required by law for all pollutants (*EDF*). Commenter states that the applicant has improperly relied on surrogate compliance emissions

rate standards for lead (surrogate recorded pressure drop across baghouse), VOCs (surrogate CO), and H₂SO₄, HF, and HCl (surrogate SO₂) (*NCC, Public Citizen, SEED Coalition*).

Draft Permit Special Conditions 11, 12, and 30 allow the applicant to violate Special Condition 10.A by failing to demonstrate continuous compliance with the emission limitations of Special Condition 10.A and MAERT. By allowing the applicant to circumvent monitoring of upsets, the draft permit is not practically enforceable. Also, special condition 26F should require record keeping of appropriate SNCR reagent and solids flow rates for all CEMS monitor downtimes, not just if a CEM operational criterion is not met for a calendar quarter. Likewise, special condition 27E should require parametric support for all nighttime COMS monitor downtime (*NCC, Public Citizen, SEED Coalition*).

Commenters state that the as-fired coal and petroleum coke should be sampled at least once per calendar quarter or once every shipment of fuel that is received at the plant, whichever is more frequent. Furthermore, if a shipment of fuel contains fuel sources from different coal mining seams or petroleum coke supplies, each different seam should be analyzed to determine continuous compliance with the draft permit and application terms, provisions and modeling assumptions (*NCC, Public Citizen, SEED Coalition*).

The draft permit fails to require adequate recordkeeping and retention to allow for the practicable enforceability of the draft permit and application provisions and assumptions. Commenter states that the actual excluded data should also be retained for compliance review and evaluation. Likewise, the data underlying the average coal and petroleum coke feed rate should also be retained (*NCC, Public Citizen, SEED Coalition*).

Commenter states that the amount of fuel received for each storage tank does not allow for practical enforcement nor show compliance with the throughput requirements of the draft permit (See Special Condition 41.G) (*NCC, Public Citizen, SEED Coalition*).

Response 46: Regarding PM CEMS, WSEC did not propose PM CEMS, and the TCEQ has not required them because of a general lack of industry experience with the technology. The TCEQ agrees that PM CEMS should be preferable to COMs because PM CEMS measure the pollutant PM rather than opacity, which has long been a surrogate for PM emissions. Furthermore, the TCEQ anticipates successful application of this technology on the stacks of the new Sandow 5 and Oak Grove 1 and 2 units anticipated to be on-line in 2010. However, the TCEQ notes that the EPA relatively recently updated the NSPS Subpart Da requirements for electric utility steam generating units, and chose to make PM CEMS one of several options for PM compliance monitoring for utility units.⁵⁵ In response to an industry petition, EPA stated, "We recognize that experience using PM CEMS at electric utility power plants in the United States is limited and not all affected owners and operators will choose to use PM CEMS."⁵⁶

⁵⁵ 71 Fed. Reg. 9866-68 (February 27, 2006).

⁵⁶ 72 Fed. Reg. 32711 (June 13, 2007).

EPA promulgated two other alternatives (other than PM CEMS) to assure compliance with the PM emission limits of NSPS Da. One may either maintain compliance with the opacity levels that are not higher than use those measured by the COMS measurements obtained during a successful PM stack test as a surrogate for compliance with the PM emission rate, or continuously monitor specified operating parameters of the PM control device. Specifically, for new coal-fired electric utility boilers that use a fabric filter (baghouse) for PM control and that do not use CEMS for PM monitoring, one must either use the required COMS as an indicator of PM mass emission compliance based on the highest opacity measurement recorded during the PM performance test(s), or use a continuously operated bag leak detection system (BLDS).⁵⁷ These new alternatives are more rigorous than previous requirements and have provided an incentive for some owners to select PM CEMS. Because all these techniques are new, some time may be required to demonstrate whether one has particular advantages compared to another.

In reference to annual PM testing, Special Condition No. 32 of the draft permit requires annual PM testing, with a condition that allows for reduced testing if average emissions are less than 70 percent of the performance standard after three years. The Executive Director disagrees that the proposed permit does not ensure practical enforceability or continuous compliance with the PM BACT level; the new, stringent requirements for maintaining opacity below the levels obtained during a successful PM test or operating a BLDS will assure an enforceable method of demonstrating continuous compliance. The Executive Director does not agree that PM CEMS constitute an emission control technology; therefore the installation of PM CEMS is not relevant to the BACT determination.

Special Condition No. 29 of the draft permit requires mercury CEMS or sorbent trap mercury monitoring and Special Condition No. 27 requires continuous opacity monitoring. The WSEC CFB boilers are subject to the CO₂ continuous emission monitoring requirements of 40 CFR Part 75, a subject that is addressed in the required federal Title IV "acid rain" permit and the required federal Title V operating permit.

The commenters do not provide reasons for their claim that the permit contains insufficient continuous demonstration of compliance or why the use of surrogates is improper for monitoring trace species such as lead, VOC, and the acid gases. The permit requires CEMS for SO₂, NO_x, CO, ammonia, and mercury emissions from the CFB boilers. Annual stack sampling for H₂SO₄, HCl, HF, VOC, and total PM/PM₁₀ is also required, with the potential for reducing the frequency to every three years if justified by consistently low emissions.

Under the FCAA, the source is subject to Title IV Acid-Rain Monitoring for SO₂ and NO_x, as administered through EPA regulations at 40 CFR Part 75; and Title V Compliance Assurance Monitoring (CAM) and Periodic Monitoring (PM), as administered through EPA regulations at 40 CFR Parts 64, and 70, respectively. The EPA has transferred to TCEQ the responsibility for assuring the Title V monitoring requirements are included in the Federal Operating Permits. The TCEQ conducts a separate federal operating permit (FOP) review from the NSR permit review and includes CAM and PM in the FOP. Although the purpose of CAM and PM are to assure

⁵⁷ *Id.*

continuous compliance, neither CAM nor PM require CEMS for each federally regulated New Source Review air pollutant.

The Texas Health and Safety Code § 382.016 authorizes the TCEQ to prescribe reasonable requirements for measuring and monitoring the emissions of air contaminants from a source. Similarly, the TCEQ rule 30 TAC § 116.111(a)(2)(B), listing considerations to be granted a permit, states that "the proposed facility will have provisions for measuring the emission of significant air contaminants as determined by the executive director. This may include the installation of sampling ports on exhaust stacks . . ." It is clear that the state rules do not require CEMS for every type of air pollutant compound emitted.

The Executive Director disagrees that Draft Permit Special Conditions 11, 12, and 30 allow the applicant to violate Special Condition 10.A by failing to demonstrate continuous compliance with the emission limitations of Special Condition 10.A and MAERT. These conditions do not excuse any CEMS downtime. It is recognized that CEMS inevitably will have downtime beyond the time needed to perform routine calibrations. The purpose of proposed Special Condition Nos. 11 and 12 is to add assurance that the NO_x and SO₂ emission limits will continue to be met during CEMS downtime. Special Condition No. 30 is intended to add an enforcement tool for the inspector if the owner fails to reliably operate their CEMS. The federal requirements for CEMS in the acid rain rules have been considered the "gold standard" for CEMS. Monitor data availability is defined in 40 CFR § 75.32, as the number of hours that a CEMS provides quality-assured data during the previous 8,760 unit operating hours divided by 8,760. Table 1 of 40 CFR § 75.32 is arranged in Tiers of descending availability and 95 percent and greater availability is the highest degree of availability.

The Executive Director agrees with the comment that record keeping of SNCR reagent and solids flow should be required for all CEMS downtimes, not just if a CEM operational criterion is not met for a calendar quarter. Special Condition No. 41.E has been revised to include the requirement to maintain records of ammonia, limestone, and lime feed rates during periods of monitor downtime. However, the Executive Director disagrees with the comment that parametric support should be required for all nighttime COMS downtime. Special Condition 27.E, which requires a Quality Improvement Plan for a COMs if 95 percent availability is not met during a calendar quarter, requires parametric support for nighttime COMS monitor downtime after that occurs. Maintaining the Special Condition as proposed will maintain an incentive to achieve high availability; if the owner is unable to maintain that availability for a quarter, the parametric support would be required from that point on.

The Executive Director disagrees that the metals content of the as-fired coal and petroleum coke should be required to be sampled at least once with every shipment of fuel that is received at the plant, and that additional samples should be required for each seam or source of supply of petroleum coke if a shipment of fuel contains fuel sources from different coal mining seams or petroleum coke supplies. The purpose of Special Condition No. 31 is to provide reasonable assurance that the sulfur and metals content of the fuels remain consistent with the representations in the permit application and the limits of Special Conditions No. 7 and Attachments A and B of the Permit Special Conditions. It is expected that the emission

performance testing will demonstrate a wide margin between the metal inputs and emissions and that the metal inputs will remain well below the design levels used in the permit application.

In response to the comments regarding the adequacy of the proposed recordkeeping, additional recordkeeping requirements have been added to the draft permit, including information to make the enforcement of the fuel storage tank throughput limits more practical. Regarding the requirement to identify CEMS data which is excluded from computation of compliance with performance standards in Special Condition No. 41.A, this does not mean that such data does not need to be retained for compliance review and evaluation. Rather the purpose is to maintain documentation of the duration and basis for any claimed exclusion. The requirement to maintain hourly monitoring records regardless of SSM is also contained in the NSPS monitoring requirements in 40 CFR § 60.7 and in 40 CFR § 75.57. Finally, Special Condition No. 41.D requires maintaining records of the calendar month average of coal and petroleum coke feed rates for each boiler, but not the underlying hourly data. In response to the comment, the Executive Director has not added to this recordkeeping requirement because he considers it unlikely that such data will not be retained for some length of time, or that it could not be made available upon request.

Comment 47 (MACT [Maximum Available Control Technology]): Commenter asks that the applicant provide documentation and designs to substantiate the claims that MACT is being employed (*Clyde Williams*).

Commenter states that TCEQ and the applicant improperly considered and analyzed the case by case MACT determination (*NCC, Public Citizen, SEED Coalition*). Commenter states that the application fails to demonstrate that the proposed limitations on emission from the facility of HAPs will meet the requirements of MACT, as required by law. Commenter also states that the file of the docket fails to show proper notice was given for the HAP 28 application (*EDF*).

Response 47: The commenter does not provide the reasoning for the comment or explain in what regard the MACT analysis is deficient. Without any details, the Executive Director is unable to further respond to the comment. Similarly, the comment regarding public notice does not specify the nature of the deficiency. The Executive Director notes that a single public notice for federal air permits is considered to be consistent with the federal notice requirements and the HAP 28 permit application was noticed twice.

Comment 48 (Plant-wide Applicability Limit [PAL]): Commenter notes that the permit states that the PAL is subject to 30 TAC Chapter 116, Subchapter C. However, EPA is currently reviewing these rules and has not yet taken action to approve or disapprove these rules for the Texas SIP. Accordingly, commenter states that Texas must demonstrate that all emissions units at this source meet all requirements of the currently approved SIP, including the requirements of any existing permits issued under the approved SIP. Commenter also asks that TCEQ ensure that all facets of the EPA's PAL provisions are adequately addressed by this permit (*EPA*). Commenters state that the TCEQ and the applicant improperly considered, reviewed, and analyzed the various pollutants emitted and resulting PAL provisions in violation of federal NSR and the Texas SIP (*NCC, Public Citizen, SEED Coalition*).

Commenter notes that Permit Condition 39.C states that compliance with PAL will be demonstrated by using CEMS, but CEMS are not required for PM (*EPA*).

Response 48: If the PAL is issued, it will be under the rules adopted by the TCEQ in 30 TAC Ch. 116, Subchapter C. These rules provide for issuance of a PAL if the applicant meets all applicable requirements. The Executive Director has determined that the permit application demonstrates that these requirements will be met and WSEC is eligible for issuance of a PAL. The PAL will be effective upon permit issuance.

Special Condition No. 39.C of the draft permit states that compliance with the PAL will be demonstrated by "using the CEMS, calendar month fuel use records, calendar month tank throughput records, calendar month hours of operation and emission factors identified in Appendix A of the permit application...". Appendix A of the permit application proposes to base the PM₁₀ emissions on emission factors obtained through performance testing. The performance testing required by the permit includes the initial demonstration of compliance following initial start-up in Special Condition No. 24, and annual testing for the next two years, followed by testing every three years if PM₁₀ emission rates are less than 70 percent of the performance standards, in Special Condition No. 32. The use of emission factors is allowed in EPA's PAL monitoring rules, provided the emissions unit operates within the designated range of use for the emission factor. The EPA's rules in NSPS Subpart Da have been updated recently to assure that continuous compliance with PM limits is demonstrated, with or without use of PM CEMS. These new compliance assurance monitoring requirements provide assurance that the PM emission factors used in tracking rolling 12-month PM emissions for the PAL are representative of actual emissions. See the response to Comment No. 46 for more information on demonstrating continuous compliance with PM emission limits.

Comment 49 (Light Pollution): Commenters state that the proposed plant will be lighted 24 hours a day, seven days a week, and are concerned about light pollution. Commenters state that the darkness of night will be eliminated for them and their neighbors (*Crystal Eubanks, Barbara Holloway, Bryan Hutson, John Hutson, Susie Hutson, Eva Malina, Robert Malina*).

Response 49: The TCEQ's jurisdiction is established by the Legislature and is limited to the issues set forth in statute. Accordingly, TCEQ does not have the jurisdiction to consider light pollution when determining whether to approve or deny an air quality permit application.

Comment 50 (Construction/Transportation): Commenter feels that construction crews and trucks will wear out the local roads and cause infrastructure problems. Commenter also asks who is responsible for paying for these repairs (*Muriel Tipps*).

Commenters express concern about how the applicant will meet its transportation needs. Commenters ask whether transportation will be done on barges, train, or truck and whether the containers will be covered (*Mike O'Day, Clyde Williams*). Commenter asks whether the applicant has already established railroad, trucking, and/or barge shipping routes. Commenter asks whether the applicant has established long-term fuel-transport contracts (*Clyde Williams*).

Commenter is also concerned that the proposed plant will cause traffic congestion in town (*Mike O'Day*).

Commenter asks how many barges of coal are expected to travel up the Colorado River on a daily basis and how many tug boats will be required to push each barge. Commenter is concerned that increased barge traffic on the river will cause an acceleration of erosion and asks how the TCEQ will regulate this traffic (*Muriel Tipps*).

Commenter is concerned about the noise and traffic that may be caused by trains transporting coal. Commenter asks whether the applicant plans to re-route any of this train traffic (*Muriel Tipps*).

Response 50: The TCEQ's jurisdiction is established by the Legislature and is limited to the issues set forth in statute. Accordingly, TCEQ does not have the jurisdiction to consider transportation issues, noise, or traffic when determining whether to approve or deny an air quality permit application.

Comment 51 (Unloading Facilities): Commenter asks whether the applicant has established the number, type, and capacities of the unloading facilities and whether these facilities will be open or covered. Commenter asks whether the applicant has established multiple loading conveyors, loaders, augers, and unloading systems. Commenter also asks whether the applicant has decided if the systems will be under-contained, drained, or collected (*Clyde Williams*).

Response 51: The permit application identifies one line each for barge, railcar, and truck unloading of coal, petroleum coke, and limestone, the solid raw materials used in the largest quantities. The unloading of the transport vessels is open, with chemical or water sprays to control emissions. Table A-23 of the application lists the input parameters for the material handling emission calculations, which are based on maximum potential throughputs, such as the unloading of 5 million tons/yr of coal or petroleum coke, and 2 million tons/yr of limestone. Coke, coal, and limestone will be stored in open stockpiles; lime, sand, and activated carbon will be unloaded pneumatically from trucks and stored in closed silos. The Executive Director is not familiar with the terminology used by the commenter (under-contained, drained, or collected) to describe the unloading systems and is unable to respond to this part of the comment.

Comment 52 (Fuel Storage): Commenter asks if the applicant has decided on the duration of storage for fuel and additives and whether storage will be open or covered (*Clyde Williams*).

Response 52: Fuel and limestone will be stored in permanent, open stockpiles and lime, sand, and activated carbon in enclosed silos, as identified in the permit application. The amount of time that material is dropped onto these stockpiles or moved through silos is estimated on the basis of maximum potential throughput. The actual turnover rate of stored raw material is a business decision variable that is not a subject of the permit review because the permit allowable emissions are based on maximum potential throughputs.

Comment 53 (Emergency Response Plan for Ammonia): Commenters state that the complete emergency response plan should be available for public review and comment (*NCC, Public Citizen, SEED Coalition*).

Response 53: The emergency response plan is one element of the Risk Management Plan (RMP), which WSEC must submit to the EPA, in accordance with 40 CFR § 68.150, before the anhydrous ammonia tanks are filled. Although draft permit Special Condition No. 17 requires the permit holder to make the emergency response plan available upon request to representatives of the TCEQ or any local program having jurisdiction, the U.S. EPA is the lead agency responsible for implementing the accident prevention requirements of the 1990 FCAA § 112(r)(7). Further information regarding the public's involvement in safety planning may be found at the EPA's Office of Emergency Management website at <http://www.epa.gov/oem/index.htm>. A copy of the RMP will be available to the public at the Matagorda County Emergency Management Office, 2200 7th Street, 1st Floor, Bay City, Texas, 77414.

Comment 54 (Risk Assessment): Commenter is concerned that the proposed plant is too close to the coast line and would be damaged if a hurricane made landfall nearby. Commenter asks what precautions will the state and federal government make to prepare for a natural disaster such as this. Furthermore, commenter is concerned that an accident at the proposed power plant could adversely impact resort communities, commercial and recreational fishing, water quality, and estuaries. Commenter asks how these industries will be compensated in the event of an accident at the proposed power plant (*Muriel Tipps*). Commenter asks whether the applicant has decided on a system for fire protection and suppression (*Clyde Williams*). Commenter asks that in the case of an accident on the river, who would be the governing body and who will be covering these costs (*Mike O'Day*).

Commenter also asks whether the safeguards for the fly ash ponds will be different from those on the fly ash pond that caused a mudslide on the east coast. Commenter also asks how far back from the river the fly ash ponds would be (*Muriel Tipps*).

Response 54: The TCEQ's jurisdiction is established by the Legislature and is limited to the issues set forth in statute. Disaster review, damage compensation, fire protection and suppression, and marine transportation safety are not identified in the air permit statutes and therefore are not considered required elements of the permit review.

The ED notes that there are other governmental agencies, such as the Office of Homeland Security, the Federal Emergency Management Agency (FEMA), and the Texas Office of the Governor that have primary responsibility for hurricane disaster response planning and may be able to provide information regarding the interaction between state and federal government and Texas' Gulf Coast industry in response to a natural disaster. The Coast Guard, the Texas Department of Licensing and Regulation for boiler safety, the Port of Bay City Authority of Matagorda County for barge traffic, and other governmental agencies are involved with various aspects of safety in commerce. Also, it may be noted, in the interest of capital preservation, the private sector tends to take risk assessment and mitigation seriously.

The baghouse fly ash is a dry waste material that is wetted before transport to prevent airborne dust. The proposed storage is in solid form in a landfill rather than a slurry pond of the sort that broke at the TVA Kingston Plant in December 2008. The material properties are such it that becomes more like cement over time. Unlike TVA Kingston, whose ash pond was located at the edge of a river, the WSEC ash landfill, as shown on the revised plot plan dated February 20, 2009, would be located more than two kilometers from the river, between the plant and FM2668.

Comment 55 (Economic Impact): One commenter asserts that power needs are decreasing, not increasing, and therefore, the proposed power plant is unnecessary. Commenter also states that the proposed plant will not reduce the cost of electricity, but is only going to make money for the applicant (*SEED Coalition*).

Commenter is concerned that the proposed plant may adversely affect commercial and recreational fishing industries (*Crystal Eubanks, A.C. Herreth, Georgia Herreth, Barbara Holloway, Bryan Hutson, John Hutson, Susie Hutson, Eva Malina, Robert Malina, Muriel Tipps,*) and tourism (*Judith Allen, Crystal Eubanks, Barbara Holloway, Bryan Hutson, John Hutson, Susie Hutson, Eva Malina, Robert Malina*).

Commenter is concerned that the proposed project would discourage clean industrial projects from coming to this region. Commenter asserts that the location of the proposed plant could adversely affect pristine properties along the lower Colorado River that would be ideal for future parks, resorts, and residential areas (*Muriel Tipps*).

Commenter states that local economy has not been benefited by allowing the energy industry into the region (*Susan Dancer*).

Response 55: The TCEQ's jurisdiction is established by the Legislature and is limited to the issues set forth in statute. The TCEQ cannot consider possible future economic impacts in an air permit application. As noted previously, adverse environmental impacts are not expected to occur as a result of exposure to the expected levels of emissions from this site.

Comment 56 (Permitting Process): Commenter states that Governor Perry's Executive Order RP49 is not legal or applicable to this matter (*NCC, Public Citizen, SEED Coalition*).

Commenter feels that power plants are being rushed through the permitting process right now in an attempt to "grandfather" another generation of coal burning power plants (*SEED Coalition*).

Commenter asks whether the proposed plant would obtain a permit if it was located in Travis County, and if not, why then in Matagorda County (*Mike Griffith*).

Commenter would like to know how many plants the project engineer has worked on in this manner (*E. Marguerite Bundrick*).

Response 56: Neither the applicant nor the TCEQ has relied on RP49 in processing this permit application. Pursuant to issues ordered in other recent power plant applications, SOAH has determined Governor Perry's Executive Order RP49 is not applicable to power plant applications. *See* SOAH Docket No. 582-08-0861, *Application of NRG Texas Power LLC*; Order No. 1, Granting Motion for Clarification, January 4, 2008). Even though RP49 does not apply to power plant applications, permit processing at the TCEQ is a routine activity that is subject to various obligations for maintaining timely review. The time between the receipt of the WSEC permit application and the ED's preliminary decision to issue the permit, about six months, is within the six-to-fourteen-month range of other applications for TCEQ air quality permits for coal or coke-fired EGUs received this decade that were not withdrawn by the applicant. The review times appear to be most influenced by how quickly the applicant responds to TCEQ permit reviewer requests for additional information; for WSEC, these turnaround times were short.

The ED's staff reviews permit applications to make sure the permit will be protective of health and the environment by looking at the specific characteristics of the proposed location. Since this permit application has not been reviewed for being located in Travis County, the ED is unable to respond to that comment. The ED is unclear as to the comment about how many plants the project engineer has worked on if the commenter is referring to the ED's staff or the Applicant. If the comment is referring to the ED, Randy Hamilton, who is the permit engineer, has worked on numerous permit applications for power plants.

Comment 57 (Public Notice): Commenter states that the public notices regarding this permit application have been inadequate and/or incorrect and therefore, TCEQ must republish the notice to allow the public its opportunity to review the complete application and provide meaningful and informed comments. Examples include, but are not limited to, issues identified in the previous comments discussing missing application information and technical analysis which forces the public to review and comment on an incomplete application and draft permit in violation of federal and state laws and regulations (*NCC, Public Citizen, SEED Coalition*).

Response 57: The commenter does not provide any reasons for the comment; and it is not clear how the application or draft permit are incomplete. Without any details, the ED is unable to further respond to the comment. Similarly, the comment regarding public notice does not specify the nature of the deficiency.

Comment 58 (Application Regulations): Commenter asks whether the TCEQ has authority to require the applicant to comply with new air emission rules and regulations as they become law as opposed to "grandfathering" the proposed plant under old rules (*Mike Griffith*).

Response 58: There is no single answer to this question because the TCEQ's authority to set requirements in permits or to write rules to reduce air pollution is based on laws passed by the State or Federal legislature (statutory law) and the statutes in some cases are written to apply categorically and in other cases only to new sources as of a certain date. Under TCEQ's authority to write rules to reduce air pollution over an area, TCEQ usually adopts rules that apply to a category of sources regardless of the date of any permit authorization.

In air permit review, a new facility is only required to meet the BACT that exists at the time of the permit review. However, if the facility later needs to increase emissions, add a new air contaminant, or change the method of control of air emissions, a permit amendment is required and the facility must meet BACT as it exists at that later time. There are also federal rules for EGFs, such as NSPS and MACT, which have more stringent requirements for new sources than for existing sources as of a certain date.

Comment 59 (Federal Regulations): Commenter asks whether federal legislation supersedes state regulations on emissions (*Muriel Tipps*).

Commenters state that Congress is expected to focus on environmental pollution, specifically carbon emissions, and that the proposed permit should be out on hold until new directions for environmental quality are developed by Congress (*Crystal Eubanks, Barbara Holloway, Bryan Hutson, John Hutson, Susie Hutson, Eva Malina, Robert Malina*).

Response 59: The ED would need more information about the federal legislation in order to determine if it would supersede state law (how the rule was written, the statutory authority, etc.). The TCEQ is unable to hold up the permitting process for this permit application for future developments by Congress, because the permitting process at the TCEQ is a routine activity that is subject to various obligations for maintaining timely review.

Comment 60 (Permit Opposition/TCEQ Mission): Commenters ask the TCEQ to deny or oppose the permit application, or state they oppose the permit (*Susan Dancer, Crystal Eubanks, Barbara Holloway, Bryan Hutson, John Hutson, Susie Hutson, Judy Jurek, Eva Malina, Robert Malina, Connie Milliff, SEED Coalition, Sierra Club*)

Commenter requested that another public meeting be held to answer all questions from the public (*Public Citizen*).

Commenter asks that the views of local citizens be considered when considering this application (*Judith Allen*).

Commenters are concerned that it will be easier for the applicant to pay fines rather than operate according to the laws and regulations (*Crystal Eubanks, Barbara Holloway, Bryan Hutson, John Hutson, Susie Hutson, Robert Malina, Eva Malina, Lillian Orsak*).

Commenter feels that the applicant was deceptive in the way it presented facts about the amount of pollutants that will be emitted from the proposed plant and does not feel the jobs the proposed power plant will provide are worth the health risk (*Lillian Orsak*).

Commenter states that the information provided by TCEQ and the applicant are totally inadequate and insufficient to provide the basis for meaningful review, comments, and decisions (*Clyde Williams*).

Response 60: The ED has reviewed the permit application in accordance with the applicable law, policy and procedures, and the Agency's mission to protect the State's human and natural resources consistent with sustainable economic development. Although the ED recognizes the opposition of the commenters, public opposition alone is not legally sufficient to justify denial of a permit application. The TCAA mandates the TCEQ must issue the permit if all criteria are met.

Comment 61 (Support for Permit): Some commenters support the application for the plant, or express support for the applicant (*Doc Campbell, City of Palacios Economic Development Corporation, James Gann, Matagorda County Economic Development Corporation, Don Thompson*).

Response 61: The ED acknowledges the comment and appreciates the interest in environmental matters before the agency.

CHANGES MADE IN RESPONSE TO COMMENT

In response to public comment, the Executive Director has changed certain provisions of the draft permit. These changes and the reasons for these changes are more fully described above. A revised copy of the draft permit has been filed with the Office of the Chief Clerk.

Respectfully submitted,

Texas Commission on
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