

TCEQ INTERAGENCY TRANSMITTAL MEMO

DATE: 6/11/09

2009 JUN 11 PM 1:42

TO: LaDonna Castañuela  
CHIEF CLERK  
BUILDING F, MC - 105

FROM: ERIN SELVERA  
ENVIRONMENTAL LAW DIVISION  
BUILDING A, MC-173

CHIEF CLERKS OFFICE

**Attached:** Executive Director's Response to Comment

Application Information:

Program Area (Air, Water or Waste): AIR

Permit No.: 85013, HAP 48, PAL41, & PSD-TX-1138 Name: Las Brisas Energy Center, LLC

Docket or CCO Tracking #: TCEQ Docket No. 2009-0033-AIR; SOAH Docket No. 582-09-2005

**Action Required** (pick one):

Date stamp and return copy to above-referenced ELD staff attorney and do one of the following:

FOR ALL PROGRAM AREAS: (required only when changes needed to official agency mailing list)

- Update** the mailing list in your file with the attached contact names and addresses  
Include the corrected or additional names and addresses for the mailing list.

FOR WASTE & WATER:

- Send Response to Comments Letter which solicits hearing requests and requests for reconsideration to the mailing list in your files

*For Waste and Water this would occur in all circumstances when comments have been received for 801 applications*

Or

- Send Response to Comments Letter and Motion to Overturn Letter which solicits motions to overturn to the mailing list in your files

*For Waste and Water this may occur when all comments have been withdrawn for 801 applications or when comments are received for applications that will not be set for agenda.*

FOR AIR (NSR only):

- Send RTC with response to comments letter which solicits contested case hearing requests and requests for reconsideration to the mailing list in your files

*For Air NSR applications this would occur only when there are pending contested case hearing requests (except no-increase renewals)*

- Set for commission agenda and send RTC with agenda setting letter

*This would occur when there are pending contested case hearing requests on a no-increase renewal and technical review is complete.*

- Hold until a commission agenda date is requested and then send RTC with the Agenda Setting Letter

*For Air applications this would occur when there are pending hearing requests on a no-increase renewal; but technical review is NOT complete. If this box is checked, ED staff must call the OCC Agenda Team Leader to arrange a specific agenda date.*

- Place RTC in File - ~~no further action required by OCC~~ See other instructions

*For Air NSR applications this would occur when the matter is uncontested but comments were received, APD will send a copy with MTO letter*

Other Instructions:

Send copy to SOAH for Admin. Record

**SOAH DOCKET NO. 582-09-2005  
TCEQ DOCKET NO. 2009-0033-AIR**

2009 JUN 11 PM 1:42

<b>APPLICATION BY LAS BRISAS</b>	§	<b>BEFORE THE</b>	
<b>ENERGY CENTER, LLC FOR</b>	§		<b>CHIEF CLERKS OFFICE</b>
<b>PERMIT NOS. 85013, HAP 48, PAL41,</b>	§	<b>TEXAS COMMISSION ON</b>	
<b>AND PSD-TX-1138</b>	§		
<b>CORPUS CHRISTI, NUECES COUNTY</b>	§	<b>ENVIRONMENTAL QUALITY</b>	

**EXECUTIVE DIRECTOR'S RESPONSE TO PUBLIC COMMENT**

The Executive Director 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 Executive Director 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](http://www.tceq.state.tx.us).

**BACKGROUND**

Description of Facility

Las Brisas Energy Center, LLC, (Las Brisas, Applicant, or LBEC) has applied to the TCEQ for issuance of State Air Quality Permit Number 85013, Hazardous Air Pollutant (HAP) Major Source [FCAA § 112(g)] Permit Number HAP48, Plant-Wide Applicability Limit (PAL) Permit Number PAL41, and Prevention of Significant Deterioration (PSD) Air Quality Permit Number PSD-TX-1138, which would authorize construction and operation of a petroleum coke-fired power plant at 6059 Joe Fulton Corridor, Corpus Christi, Nueces County, Texas. The proposed facilities will emit the following air contaminants: sulfur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), particulate matter, including particulate matter less than 10 microns and less than 2.5 microns in diameter (PM/PM<sub>10</sub>, PM<sub>2.5</sub>), volatile organic compounds (VOC), sulfuric acid (H<sub>2</sub>SO<sub>4</sub>), fluorides (as hydrogen fluoride) (HF), lead (Pb), mercury (Hg), ammonia (NH<sub>3</sub>), hydrochloric acid (HCl), and other products of petroleum coke 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 May 20, 2008 and declared administratively complete on May 23, 2008. The Notice of Receipt and Intent to Obtain an Air Quality Permit (first public notice) for this permit application was published in English and in Spanish on June 19, 2008 in the *Corpus Christi Caller-Times*. The TCEQ held a public meeting in Corpus Christi on October 7, 2008. The Notice of Application and Preliminary Decision (second notice) was published in English on January 14, 2009 in the *Corpus Christi Caller-Times*. The Application was direct referred to the State Office of Administrative Hearings (SOAH) at the request of the Applicant on January 9, 2009. A preliminary hearing on the matter was held on February 17, 2009 in Corpus Christi. Notice of the preliminary hearing was published on January 17, 2009, in the *Corpus Christi Caller-Times*. 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 (*Jeanne Adams, John Adams, Marie Adams, Ann Berry, Barbara Blackburn, Bill Blackburn, Allison Brady, Carole Breust, Robert Brown, Alene Burch, Warren Burkholder, Rachel Cantu, Roger Carrington, Joe Cecil, Citizens for Environmental Justice (CFEJ), George Clower, Sue Cook, Ed Cowger, Blair Dancy, Willie Davila, Andrea Dobson, Christian Dohse, Kathy Driggers, Jose Duran, Margaret (Peggy) Duran, Andrew Dyer, Christina Ommani Edwardson, Anne Eiseman, Environmental Defense Fund (EDF), Phyllis Finley, Vanessa Fratila, Manuel Gomez, Phyllis Harp, Richard Harrington, Nancy Hawn, Allen Herkimer, Jr., Mary Hoch, Elma Holden, Kevin Hopkins, Jeffrey Johnson, Paul Kapusta, Fred Kasiri, Jessica Kasiri, John Kelley, James Klein, Teresa Klein, V. Kline, Belinda Ladabaum, Bascomb Landress, Julia Landress, Leela Landress, Donna Lawson, Kendra Lee, Adriana Leiva, J. Naomi Linzer, Judith Loverde, Weldon Lucas, Jessica Maloney, Sammy Manus, Peggy May, Jennifer McDonel, Marge McElroy, Neil McQueen, Patrick Meaney, Joy Miller-Cavada, Carolyn Moon, Nueces County Medical Society, Julie Nye, P. Austin Nye, Patrick Nye, Lisa O'Donnell, Emilie Olivares, Josef Ondrejka, Nancy Ondrejka, Sandy Peltier, Sunny Polito, Jeffrey Pollack, Paula Scott, Public Citizen Texas, Bill Reeves, M.C. Reeves, Carrie Robertson, Helen Schatz, SEED Coalition, Elizabeth Sefcik, Charles Shamel, Mildred Sharpe, Coxie Sheppard, Sierra Club, Gregg Silverman, Susan Slocum, Ann Smith, Mikell Smith, Lorraine Stehn, Diana Stillman, Paul Strunk, Cynthia Sullivan, Bruce Taylor, Debra Taylor, Texas Clean Air Cities Coalition, Karen Thorwaldson, Florence Tissot, C. Vallie, Sarah Wakefield, Wilson Wakefield, Claudette White, Jackie White, Dale Wilkins, Senator Judith Zaffirini, Patricia Zambrycki*

Commenters express concern regarding potential health impacts of air emissions from the proposed power plant on: **themselves** (*Jeanne Adams, John Adams, Marie Adams, Ann Berry, Barbara Blackburn, Bill Blackburn, Carole Breust, Robert Brown, Alene Burch, Warren Burkholder, Rachel Cantu, George Clower, Ed Cowger, Christian Dohse, Jose Duran, Margaret (Peggy) Duran, Andrew Dyer, Christina Ommani Edwardson, Anne Eiseman, Vanessa Fratila, Phyllis Harp, Nancy Hawn, Allen Herkimer, Jr., Mary Hoch, Kevin Hopkins, John Kelley, Belinda Ladabaum, Bascomb Landress, Julia Landress, Leela Landress, Donna Lawson, J. Naomi Linzer, Sammy Manus, Jennifer McDonel, Marge McElroy, Neil McQueen, Patrick Meaney, Joy Miller-Cavada, Josef Ondrejka, Nancy Ondrejka, Sandra Peltier, Bill Reeves, M.C. Reeves, Carrie Robertson, Helen Schatz, Paula Scott, Elizabeth Sefcik, Charles Shamel, Mildred Sharpe, Coxie Sheppard, Gregg Silverman, Susan Slocum, Ann Smith, Diana Stillman, Cynthia Sullivan, Bruce Taylor, Debra Taylor, Karen Thornwaldson, Florence Tissot, C. Vallie, Sarah Wakefield, Wilson Wakefield, Claudette White, Dale Wilkins, Patricia Zambrycki*); **children/infants/unborn children** (*Ann Berry, Allison Brady, Robert Brown, Alene Burch, Joe Cecil, CFEJ, Sue Cook, Margaret (Peggy) Duran, Andrew Dyer, Christina Ommani Edwardson, Phyllis Harp, Nancy Hawn, Elma Holden, Kevin Hopkins, James Klein, Belinda Ladabaum, Julia Landress, Leela Landress, Kendra Lee, Adriana Leiva, J. Naomi Linzer, Sammy Manus, Marge McElroy, Julie Nye, P. Austin Nye, Emilie Olivares, Nancy Ondrejka, Sandra Peltier, Sunny Polito, Public Citizen Texas, M.C. Reeves, Carrie Robertson, Sylvia Samaniego, Helen Schatz, Paula Scott, SEED Coalition, Coxie Sheppard, Susan Slocum, Ann Smith, Mikell Smith, Sandy Sosa, Cynthia Sullivan, Bruce Taylor, Debra Taylor, Kayron Taylor, C. Vallie, Carol Wood*); **the elderly** (*Andrea Dobson, James Klein, C. Vallie*); **the public and local community** (*Jeanne Adams, Marie Adams, Ann Berry, Allison Brady, Robert Brown, Alene Burch, Suzie Canales, Roger Carrington, Joe Cecil, Citizens for Environmental Justice, George Clower, Willie Davila, Kathy Driggers, Margaret (Peggy) Duran, Andrew Dyer, Christina Ommani Edwardson, Citizens for Environmental Justice, Phyllis Finley, Elma Holden, Kevin Hopkins, Jeffrey Johnson, Paul Kapusta, Fred Kasiri, Jessica Kasiri, James Klein, Belinda Ladabaum, Julia Landress, Leela Landress, Kendra Lee, Adriana Leiva, J. Naomi Linzer, Judith Loverde, Daniel Lucio, Jessica Maloney, Sammy Manus, Peggy May, Neil McQueen, Julie Nye, P. Austin Nye, Nueces County Medical Society, Sunny Polito, Public Citizen Texas, M.C. Reeves, Paula Scott, Coxie Sheppard, Sierra Club, Susan Slocum, Ann Smith, Mikell Smith, Sandy Sosa, Loraine Stehn, Cynthia Sullivan, Bruce Taylor, Debra Taylor, Kayron Taylor, Texas Clean Air Cities Coalition, Claudette White, Jackie White, Senator Judith Zaffirini*); **future/potential residents of Corpus Christi** (*Andrea Dobson, Belinda Ladabaum*); **visitors** (*Ann Berry, Andrea Dobson, Andrew Dyer, Christina Ommani Edwardson, Julia Landress, Leela Landress, J. Naomi Linzer, Sammy Manus, Coxie Sheppard, Kayron Taylor*); **students and staff at the nearby schools** (*Ann Berry, Alene Burch, Andrew Dyer, Christina Ommani Edwardson, Teresa Klein, Belinda Ladabaum, Julia Landress, Leela Landress, J. Naomi Linzer, Sammy Manus, Emilie Olivares, Public Citizen Texas, Coxie Sheppard, C. Vallie*); **those working nearby** (*Ann Berry, George Clower, Andrew Dyer, Christina Ommani Edwardson, Teresa Klein, Julia Landress, Leela Landress, J. Naomi Linzer, Sammy Manus, Coxie Sheppard, C. Vallie*); **and its members and their employees** (*EDF, Sierra Club, TCACC*).

EXECUTIVE DIRECTOR'S RESPONSE TO COMMENTS

LAS BRISAS ENERGY CENTER LLC, PERMIT NOS. 85013, HAP48, PAL41 AND PSD-TX-1138

PAGE 4 OF 50

Commenters are concerned the operation of the proposed power plant will cause or adversely affect those who already have the following conditions: allergies, allergic rhinitis, anemia, asthma, autism, birth defects, bronchitis, cancer, chronic obstructive pulmonary disease, chronic sinus conditions, congenital defects, coronary artery disease, diminished lung capacity, emphysema, heart conditions, heart disease, hyperreactivity to lung irritants, learning disabilities, leukemia, lung disease, pneumonia, pulmonary fibrosis, sinusitis, and tumors (*Jeanne Adams, Marie Adams, Ann Berry, Carole Breust, Robert Brown, Alene Burch, Citizens for Environmental Justice, Andrea Dobson, Andrew Dyer, EDF, Christina Ommani Edwardson, Anne Eiseman, Vanessa Fratila, Nancy Hawn, Phyllis Harp, Mary Hoch, Kevin Hopkins, Jeffrey Johnson, James Klein, Teresa Klein, Belinda Ladabaum, Kendra Lee, Julia Landress, Leela Landress, J. Naomi Linzer, Sammy Manus, Jennifer McDonel, Marge McElroy, Neil McQueen, Carolyn Moon, Julie Nye, Patrick Nye, Emilie Olivares, Josef Ondrejka, Sunny Polito, Helen Schatz, SEED Coalition, Elizabeth Sefcik, Charles Shamel, Mildred Sharpe, Coxie Sheppard, Sierra Club, Ann Smith, Mikell Smith, Sandy Sosa, Lorraine Stehn, Kayron Taylor, TCACC, C. Vallie, Sarah Wakefield, Wilson Wakefield, Claudette White*).

Commenter wants to know what chemicals will be emitted from the plant (*Mildred Sharpe*).

Commenters express concern about potential environmental impacts of air emissions from the proposed plant (*John Adams, Ann Berry, Alene Burch, Meredith Carpenter, Sue Cook, Christian Dohse, Jose Duran, Margaret (Peggy) Duran, Andrew Dyer, Christina Ommani Edwardson, Phyllis Finley, Jessica Kasiri, V. Kline, Julia Landress, Leela Landress, J. Naomi Linzer, Judith Loverde, Daniel Lucio, Sammy Manus, Peggy May, Julie Nye, P. Austin Nye, Patrick Nye, Jeffrey Pollack, Bill Reeves, Lindsey Reeves, M.C. Reeves, Monica Sawyer, Coxie Sheppard, Bruce Taylor, Debra Taylor, Jackie White, Carol Wood*).

Some commenters state they or others use the Corpus Christi 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 (*Ann Berry, Christian Dohse, Jose Duran, Margaret (Peggy) Duran, Bascomb Landress, Julia Landress, Judith Loverde, Neil McQueen, Emilie Olivares, Sandra Peltier, Bill Reeves, Carrie Robertson, Karen Thorwaldson, Florence Tissot, C. Vallie*).

Some commenters feel the proposed plant will harm the serenity, aesthetic beauty, or quality of life in the area: (*Ann Berry, Alene Burch, Meredith Carpenter, Christian Dohse, Andrew Dyer, Christina Ommani Edwardson, Julie Landress, Leela Landress, J. Naomi Linzer, Judith Loverde, Sammy Manus, Jeffrey Pollack, Carrie Robertson, Coxie Sheppard, and Carol Wood*

Commenter is concerned that emissions from the proposed power plant will lead to finding ill or dead birds on their property (*M.C. Reeves*).

Commenter is concerned about soil contamination (*CFEJ*).

One commenter is concerned that emissions from this plant will contribute to a dead zone in the Corpus Christi Bay (*Public Citizen Texas*).

Some commenters are concerned the operation of the power plant will have adverse health effects specifically on: **livestock** (*Debra Taylor*); **wildlife/animals** (*Jose Duran, Margaret (Peggy) Duran, Phyllis Finley, J. Naomi Linzer, Julie Nye, P. Austin Nye, Lindsey Reeves, M.C. Reeves, Susan Slocum*); **fish/aquatic life** (*John Adams, Coastal Bend Group – Sierra Club, Jose Duran, Margaret (Peggy) Duran, Adriana Leiva, Jessica Maloney, Julie Nye, P. Austin Nye, Sandra Peltier, Bill Reeves, M.C. Reeves, Susan Slocum*); **plant life or crops** (*Phyllis Finley*); **waterways, bays and estuaries** (*John Adams, Coastal Bend Group – Sierra Club, Sue Cook, Jose Duran, Margaret (Peggy) Duran, J. Naomi Linzer, Jessica Maloney, P. Austin Nye, Patrick Nye, Emilie Olivares, Jeffrey Pollack, Bill Reeves, Lindsey Reeves, Carrie Robertson, Ann Smith, C. Vallie, Claudette White, Carol Wood*); **and wetlands** (*Sue Cook, Jose Duran, Margaret (Peggy) Duran*).

**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.<sup>1, 2</sup> 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).<sup>3</sup>

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.<sup>4</sup> 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

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<sup>1</sup> Documents referenced in this response are available on the TCEQ website at [www.tceq.state.tx.us](http://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.

<sup>2</sup> Documents referenced in this response are available on the TCEQ website at [www.tceq.state.tx.us](http://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.

<sup>3</sup> 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](http://www.tceq.state.tx.us/implementation/tox/esl/list_main.html).

<sup>4</sup> EPA considered animal studies indicating allergic responses to particulate matter 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.

set for criteria pollutants: ozone, lead, carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>), and respirable particulate matter (PM), which includes PM<sub>10</sub> and PM<sub>2.5</sub>. "Criteria pollutants" are those pollutants for which a NAAQS has been established.

TCEQ standards stated in 30 TAC 112 address maximum ground level concentrations (GLC<sub>max8</sub>) 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 Section (TS) of the TCEQ and are based on a constituent's potential to cause adverse health effects, odor nuisances, and/or effects on vegetation.<sup>5</sup> 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 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<sub>max</sub> for vanadium exceeded its current one-hour ESL. This constituent underwent a detailed health effects review and the Toxicology Section 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

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<sup>5</sup> See Response 13 for more information on the development of ESLs.

presence of an air contaminant in the ambient air.<sup>6</sup> 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 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 Corpus Christi TCEQ Regional Office at 1-361-825-3100, 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

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<sup>6</sup> 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.

Spanish from the TCEQ Publications office at 512-239-0028, and may be downloaded from the agency website at [www.tceq.state.tx.us](http://www.tceq.state.tx.us) (under Publications, search for document no. 278).

See Responses 2 below for more information on mercury, Response 3 for more information on SO<sub>2</sub>, Response 4 for more information on particulate matter, Response 6 for more information on cumulative impacts, and Response 13 for more information on ESLs.

**Comment 2 (Mercury):** Commenters express concern about the health effects of mercury that will be emitted from this plant (*Elma Holden, Teresa Klein, P. Austin Nye, Lisa O'Donnell, Sunny Polito, Public Citizen Texas, Paula Scott, SEED Coalition, Sierra Club, Gregg Silverman, Florence Tissot, Senator Judith Zaffirini*).

Commenters are concerned that mercury released into the environment may enter the food chain and endanger people who consume fish (*Blair Dancy, Margaret (Peggy) Duran, James Klein, Jessica Maloney, Joy Miller-Cavada, Carolyn Moon, P. Austin Nye, Patrick Nye, Julie Nye, Emilie Olivares, Sandra Peltier, Lindsey Reeves, SEEDS Coalition, Sierra Club, Mikell Smith, C. Vallie, Wilson Wakefield*).

Commenter believes that mercury emissions will contaminate as many as 145,152 lakes, each twenty acres in size, totaling 2.9 million acres (*Sierra Club*).

**Response 2:** Adverse effects from mercury exposure are not expected to occur from direct exposure to air emissions from the Las Brisas plant because the short-term (one-hour) and long-term (annual) GLC<sub>max</sub>s for mercury are not predicted to exceed the short-term and long-term ESLs. For more information on ESLs see Responses 1 and 13.

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 GLC<sub>max</sub> from this plant is 0.001  $\mu\text{g}/\text{m}^3$  and, therefore, as long as the plant operates in compliance with its 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.

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 are set at such conservative levels that no adverse effects from indirect deposition would be expected.<sup>7</sup>

**Comment 3 (SO<sub>2</sub>/Acid Gases):** Commenters are concerned that emissions from the proposed plant will cause acid rain and are concerned about the effects on the local ecology (*John Adams, Blair Dancy, Margaret (Peggy) Duran, James Klein, Teresa Klein, J. Naomi Linzer, Jessica Maloney, Carolyn Moon, P. Austin Nye, M.C. Reeves, Charles Shamel, Wilson Wakefield*).

**Response 3:** 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 sulfur dioxide and nitrogen oxides (the two main precursors of acid rain) emissions by 10 million tons below 1980 levels. The Acid Rain Program is designed to protect the environment from the damaging effects of acid rain.

SO<sub>2</sub> is a criteria pollutant for which NAAQS has been established. The SO<sub>2</sub> NAAQS, established by the EPA, are based on three-hour, twenty-four-hour, and annual time periods. The SO<sub>2</sub> three hour, 24 hour and annual standards are 1300 µg/m<sup>3</sup>, 365 µg/m<sup>3</sup>, and 80 µg/m<sup>3</sup>, respectively. The three-hour, twenty-four-hour, and annual total predicted GLC<sub>max</sub> are 865 µg/m<sup>3</sup>, 208 µg/m<sup>3</sup>, and 64 µg/m<sup>3</sup>, respectively. Since the total predicted SO<sub>2</sub> GLC<sub>max</sub> for each of these time periods do not exceed any of the established NAAQS, no adverse health or welfare effects are anticipated.

**Comment 4 (Particulate Matter):** Commenters express concern about the health effects of particulate matter that will be emitted from this plant (*Blair Dancy, Margaret (Peggy) Duran, Jeffrey Johnson, James Klein, Teresa Klein, Public Citizen Texas, M.C. Reeves, Paula Scott, SEED Coalition, Charles Shamel, Sierra Club, Mikell Smith, Lorraine Stehn, C. Vallie*).

**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 (PM<sub>10</sub>) 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 particulate matter (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.

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<sup>7</sup> 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 web page at <http://www.epa.gov/owow/airdeposition/>.

EXECUTIVE DIRECTOR'S RESPONSE TO COMMENTS

LAS BRISAS ENERGY CENTER LLC, PERMIT NOS. 85013, HAP48, PAL41 AND PSD-TX-1138

PAGE 10 OF 50

Particulates are regulated by EPA's NAAQS. The permit was reviewed under the NAAQS for PM<sub>10</sub> based on a 24-hour and an annual time period. Predicted air concentrations for this facility were below the NAAQS established for PM<sub>10</sub> and, therefore, the emissions are not expected to exacerbate existing conditions or cause adverse health effects.

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

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	21	< 21	170
Aluminum, Metal and Oxide 7429-90-5	1-hr	0.01	< 0.01	50
Arsenic & Inorganic Compounds 7440-38-2	1-hr	0.002	< 0.002	0.1
Beryllium, Particulate 7440- 41-7	1-hr	0.0004	< 0.0004	0.02
Cadmium & Compounds Not Found	1-hr	0.001	< 0.001	0.1
Calcium Oxide 1305-78-8	1-hr	0.005	< 0.005	20
Hydrogen Chloride 7647-01-0	1-hr	21	< 21	75
Chromium (II) & (III) Compounds Not Found	1-hr	0.02	< 0.02	1

## EXECUTIVE DIRECTOR'S RESPONSE TO COMMENTS

LAS BRISAS ENERGY CENTER LLC, PERMIT NOS. 85013, HAP48, PAL41 AND PSD-TX-1138

PAGE 11 OF 50

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 ( $\mu\text{g}/\text{m}^3$ )
Copper Oxide (cuprous oxide; CuO) 1317-38-0	1-hr	0.001	< 0.001	10
Hydrogen Fluoride 7664-39-3	1-hr	2	< 2	5
Iron (As Iron Oxide) 7439-89-6	1-hr	0.06	< 0.06	50
Magnesium Oxide (fume), respirable 1309-48-4	1-hr	0.002	< 0.002	50
Manganese Oxide 1344-43-0	1-hr	0.2	< 0.2	2
Mercury, Metal & Inorganic Forms Not Found	1-hr	0.001	< 0.001	0.25
Nickel, Metal & Compounds 7440-02-0	1-hr	0.148	0.127	0.15
Potassium Oxide (as K) Not Found	1-hr	0.007	< 0.007	50
Selenium & Compounds 7782-49-2	1-hr	0.07	< 0.07	2
Silica-amorphous+ crystalline Not Found	1-hr	2	< 2	10
Sodium Oxide 12401-86-4	1-hr	0.02	< 0.02	20
Titanium 7440-32-6	1-hr	0.0002	< 0.0002	50

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 ( $\mu\text{g}/\text{m}^3$ )
Vanadium & Compounds (as Vanadium Pentoxide) Not Found	1-hr	0.7	0.6	0.5
	Annual	0.03	0.008	0.05

Hours of Exceedance for Health Effects			
Pollutant	Averaging Time	1X ESL GLCni	1X ESL GLCmax
Vanadium & Compounds (as Vanadium Pentoxide)	1-hr	2	3

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.

Regulatory programs that are in place are expected to further reduce the levels of sulfate from power plants in Texas. Texas has already adopted the Clean Air Interstate Rule (CAIR) requirements, effective August 3, 2006, which establishes a cap and trade program to reduce SO<sub>2</sub> 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). In December of 2008, the D.C. Circuit remanded the CAIR to EPA without vacatur.<sup>8</sup> The Court did, however, uphold Phase I of CAIR, which is currently being implemented. The Court declared that while CAIR was flawed, "allowing CAIR to remain in effect until it is replaced by a rule consistent with our opinion would at least temporarily preserve the environmental values covered by CAIR."<sup>9</sup> A Federal Implementation Plan (FIP) is in place for Phase II, but will also likely be affected by EPA's action on remand.

<sup>8</sup> North Carolina v. EPA, 550 F.3d 1176, 1178 (D.C. Cir. 2008).

<sup>9</sup> *Id.*

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<sub>2</sub> 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 SO<sub>2</sub> 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 SO<sub>2</sub> emission credits in unpredictable future markets.

See Response 6 for more information on cumulative effects of power plants.

**Comment 5 (Lead):** Commenters express concern about the health effects of lead that will be emitted from this plant (*Margaret (Peggy) Duran, James Klein, Teresa Klein, Jessica Maloney, Emilie Olivares, Sunny Polito, Sierra Club, Susan Slocum*).

Commenter is concerned that emissions from the proposed plant will increase the potential for Corpus Christi to become a non-attainment area for lead with a new lead ambient air quality standard being announced by the EPA on October 15, 2008 that is expected to be set well below the existing lead air standard of 1.5 micrograms per cubic meter per quarterly period (*Sierra Club*).

**Response 5:** Lead is a criteria pollutant for which a NAAQS has been established. The lead NAAQS was reduced 90% on October 15, 2008, to 0.15  $\mu\text{g}/\text{m}^3$ . The proposed project has lead emissions of 0.052 tons 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 0.00008  $\mu\text{g}/\text{m}^3$ . The predicted impacts are less than one-tenth-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 6 (Cumulative Health Effects):** 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 coastal area (*Jeanne Adams, Joe Cecil, Jeffrey Johnson, Teresa Klein, Kendra Lee, Adriana Leiva, J. Naomi Linzer, Neil McQueen, Julie Nye, Lisa O'Donnell, Public Citizen Texas, Mikell Smith, Bruce Taylor*).

A commenter was unsure whether the applicant considered the proposed plant in isolation or whether the application considered the plant in conjunction with other emission sources and pollution increases in the area. (*Kathy Driggers*).

**Response 6:** 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 SO<sub>2</sub>, NO<sub>2</sub>, and PM<sub>10</sub>, that is consistent with EPA guidance (1990 EPA Draft Guidance for PSD). Cumulative air dispersion modeling is not conducted for non-criteria pollutants. 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. The PM<sub>10</sub> and SO<sub>2</sub> background concentrations used in the modeling are from Nueces County and include contributions from other facilities in the area. See Response 14 below for additional information regarding the monitors used for the PM<sub>10</sub> and SO<sub>2</sub> background concentrations. Given the proximity of the two Nueces County monitors to the proposed site (within five kilometers), the monitored concentrations are representative of existing air quality. The screening background concentrations were determined on a statewide review of the highest monitored values, countywide point source emissions, and population (as a surrogate for non-point source emissions).<sup>10</sup> A screening background concentration from Nueces County was used for NO<sub>2</sub>. 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. 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.

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.

For information on cumulative impacts of non-criteria pollutants see Response 16.

**Comment 7 (Ozone non-attainment):** Commenters are concerned that emissions from the proposed power plant will cause Corpus Christi to be designated as non-attainment, including for ozone (*John Adams, Allison Brady, Robert Brown, Blair Dancy, Willie Davila, Richard Harrington, Rose Harrison, Mary Hoch, J. Naomi Linzer, Daniel Lucio, Jessica Maloney, Peggy May, Neil McQueen, Lisa O'Donnell, Emilie Olivares, Sandra Peltier, Bill Reeves, M.C. Reeves, SEED Coalition, Charles Shamel, Ann Smith, Mikell Smith, C. Vallie, Senator Judith Zaffirini*).

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<sup>10</sup> For more information on TCEQ's Screening Background Concentrations, see TNRCC Memorandum from Dom Rugerri, Team Leader, Air Dispersion Modeling Team, *Screening Background Concentrations*, September 4, 1998, <http://www.tceq.state.tx.us/assets/public/permitting/air/memos/scrbc98.pdf>.

Commenters are also concerned that if the area is designated as a non-attainment area, that the region will lose federal funding and additional regulations will impose additional costs on local residents and local government (*Blair Dancy, Kathy Driggers, Richard Harrington, Emilie Olivares, Bill Reeves, Charles Shamel, Mikell Smith, TCACC*).

**Response 7:** For ozone, the Applicant performed an ozone analysis consistent with TCEQ modeling guidance. The ozone analysis conducted by the Applicant shows that the proposed project is ozone-neutral at the site. Based on historical analyses using the Empirical Kinetic Modeling Approach (EKMA) model, the proposed project would not be expected to have a discernible impact on the maximum ozone concentration in the area.

Any comments related specifically to the State Implementation Plan (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. 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.

Please see Response 1 for more information on NAAQS and protection of public health.

**Comment 8 (Non-attainment: Austin, DFW, Houston, San Antonio, Waco):** Commenters are concerned that emissions from the proposed plant will impair the ability of the Houston and DFW areas to come into attainment with the federal 8-hour ozone standard. (*Sierra Club, TCACC*). Furthermore, commenters are concerned that emission from the proposed plant will cause the Corpus Christi, San Antonio, Austin, and Waco areas to either move closer toward or deeper into ozone non-attainment. (*Sierra Club, TCACC*). Commenter is concerned that during periods of air stagnation in north and central Texas, transported NO<sub>x</sub> emissions from the proposed plant may impair the ability of East Texas and Austin near attainment areas to remain in complete attainment with the eight-hour ozone standard (*Sierra Club*).

**Response 8:** Any comments related specifically to the State Implementation Plan (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 9 (PSD Increments):** Commenter questions whether the proposed facility will contribute to the exceedance of any applicable PSD Increment (*TCACC*).

**Response 9:** 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 <sub>2</sub>	3-hr	236	512
	24-hr	78	91
	Annual	9	20
PM <sub>10</sub>	24-hr	29.7	30
	Annual	4	17
NO <sub>2</sub>	Annual	7	25

**Comment 10 (Offsets):** Commenter states that this permit application and draft permit do not consider or require offsets of any pollutant type at existing coal and petroleum coke plants (*Sierra Club*). Commenter is concerned that not enough existing plants are being retired to help reduce pollution (*SEED Coalition*).

**Response 10:** 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 11 (Modeling):** Commenter is concerned about the statement that Point Source Database (PSDB) sources are being eliminated from the modeling analysis if they do not have a significant impact on the project source's area. The specific statement of concern is that "the PSDB retrievals did not include facilities that are located adjacent to the site of the Port of Corpus Christi property and are sources of PM<sub>10</sub>." Commenter asks that TCEQ clarify before issuing the permit and for the public record which sources were eliminated, why they were not considered in the modeling prepared by the company, and how the source has complied with EPA modeling requirements (*EPA*).

Commenter states that TCEQ failed to consider all the pollution increases associated with the construction of the proposed plant when TCEQ approved the draft permit. Commenter states that PM<sub>2.5</sub> will be out of attainment once the plant and ships carrying pet coke into the port are added to the current PM<sub>2.5</sub> levels. Commenter believes TCEQ's modeling is flawed and that it has issued an invalid draft permit. (*Roger Landress*).

**Response 11:** The Applicant performed a cumulative air dispersion modeling analysis with the worst-case operating scenario for the criteria pollutants SO<sub>2</sub>, NO<sub>2</sub>, and PM<sub>10</sub>, that is consistent with EPA guidance.<sup>11</sup> For areas where predicted concentrations of a criteria pollutant for the project were greater than an applicable *de minimis* value, the applicant evaluated all known sources of that pollutant within the AOI plus 50 kilometers, which is also consistent with EPA guidance.

The Applicant used a screening technique to remove Point Source Database (PSDB) sources that do not have a significant impact on the project source's AOI from the modeling analysis. This is consistent with section 2.2(a) of EPA's Guideline on Air Quality Models, 40 CFR Part 51, Appendix W. This section states, "The purpose of such techniques is to eliminate the need of more detailed modeling for those sources that clearly will not cause or contribute to ambient concentrations in excess of either the National Ambient Air Quality Standards (NAAQS) or the allowable prevention of significant deterioration (PSD) concentration increments." It was appropriate for this screening technique to be used since eliminated sources would not significantly contribute to predicted PSD NAAQS or increment concentrations. The technique is documented in the air quality analysis submitted by the applicant.

With regard to the statement, "the PSDB retrievals did not include facilities that are located adjacent to the site of the Port of Corpus Christi property and are sources of PM<sub>10</sub>," the Applicant was describing sources which the applicant knew about but which were not contained in the PSDB. The Applicant is not limited to using only the PSDB retrieval as a data source. If the Applicant is aware of data not contained in PSDB, such as recently issued permitted facilities, the data should be included as applicable. The statement is followed by a discussion of the Applicant's identification of the permits for those facilities and the use of the permits to develop model input data.

The emissions from the proposed sources contained in the permit application have been evaluated. Per the EPA PM<sub>2.5</sub> surrogate policy, the TCEQ uses the PM<sub>10</sub> program as a surrogate for the PM<sub>2.5</sub> program until the EPA fully implements and integrates PM<sub>2.5</sub> into the New Source Review program. On October 23, 1997, EPA issued a memorandum providing for PM<sub>10</sub> to be used as a surrogate for PM<sub>2.5</sub>.<sup>12</sup> EPA reaffirmed that conclusion in a memorandum dated April 5,

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<sup>11</sup> U.S. EPA, *New Source Review Workshop Manual: Prevention of Significant Deterioration and Nonattainment Area Permitting* at B-13 (1990).

<sup>12</sup> 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<sub>2.5</sub>*, October 23, 1997.

2005.<sup>13</sup> EPA continued to recognize the issue and outstanding difficulties implementing PM<sub>2.5</sub> in its *Proposed Rule to Implement the Fine Particle National Ambient Air Quality Standards*.<sup>14</sup> EPA also noted in the Final Rule that it did not include final PM<sub>2.5</sub> requirements and that they would be issued in a later rule.<sup>15</sup> On May 16, 2008, EPA confirmed that those sources who had submitted applications based on the PM<sub>10</sub> surrogate policy would be "grandfathered" and thus would remain subject to the surrogate policy for permitting purposes.<sup>16</sup> Furthermore, EPA has added 40 CFR 52.21(i)(1)(xi) to reflect the grandfathering provision.<sup>17</sup> PM<sub>10</sub> controls and emissions were modeled and predicted PM<sub>10</sub> concentrations were compared to the PM<sub>10</sub> NAAQS. Per the surrogate policy, compliance with the PM<sub>10</sub> NAAQS was used as the surrogate for compliance with the PM<sub>2.5</sub> NAAQS.<sup>18</sup>

**Comment 12 (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 are not EPA-approved methods. 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. (*EPA*).

One commenter states that TCEQ personnel told him they found a legal way to take ozone into account but did not conduct any photochemical modeling (*Mikell Smith*).

Commenter asks that modeling done by TCEQ look at a full 200 kilometer range and that a full analysis of its impact on downwind cities be conducted (*Public Citizen*).

**Response 12:** 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

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<sup>13</sup> U.S. EPA Memorandum from Stephen D. Page, Director, *Implementation of New Source Review Requirements in PM-2.5 Nonattainment Areas*, April 5, 2005.

<sup>14</sup> 70 Fed. Reg. 65984, 66043 (November 1, 2005).

<sup>15</sup> 72 Fed. Reg. 20586 (April 25, 2007).

<sup>16</sup> 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 Implementation of New Source Review Requirements for PM<sub>2.5</sub>."

<sup>17</sup> *See id.*

<sup>18</sup> 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..

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<sub>x</sub> ratio using the proposed emissions of VOC and NO<sub>x</sub>. If the ratio is 2:1 or less, the site is considered to be VOC-limited. The proposed Las Brisas site is VOC-limited. This analysis did not use the Scheffe Method, as this method is not applicable to VOC-limited sources.

Reference to the location being "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<sub>x</sub> 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.<sup>19</sup> 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.

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 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.<sup>20</sup> 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<sub>x</sub> 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.

Although there is no requirement for photochemical modeling or SIP attainment demonstration modeling techniques for NSR permitting purposes, the City of Corpus Christi funded a photochemical modeling study conducted by Texas A&M University - Kingsville: *Analysis of*

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<sup>19</sup> This chemical process is known as NO<sub>x</sub> titration. At night and in the immediate vicinity of large emissions of NO (e.g. power plants), ozone concentrations are reduced through the process of NO<sub>x</sub> titration. When NO reacts with O<sub>3</sub>, the result is the net conversion of O<sub>3</sub> to NO<sub>2</sub>. (NO + O<sub>3</sub> → NO<sub>2</sub> + O<sub>2</sub>.)

<sup>20</sup> 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).

*the Impact of a New Emission Source on Air Quality in the Corpus Christi Urban Airshed.* The study indicated Las Brisas' impact on regional ozone attainment would not be significant. Near the vicinity of the proposed project, a titration effect was observed extending south and west from the site, and over the metropolitan area of Corpus Christi. The titration of ozone is due to the NO<sub>x</sub> emissions which react with ozone resulting in a drop of its concentration. The maximum predicted increase in eight-hour ozone concentration, 1.1 parts per billion, occurs farther downwind of the proposed source to the northwest in San Patricio County, then dissipates quickly as it moves downwind.

**Comment 13 (Class I Visibility Analysis):** Commenter states that the application fails to demonstrate that the facility will not affect the visibility in a Class I areas, such as Big Bend National Park. (*EDF, Sierra Club*).

**Response 13:** Emissions from the proposed site are not expected to adversely affect Big Bend National Park. 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.<sup>21</sup> Since the nearest Class I area, Big Bend National Park, is located over 550 kilometers from the proposed site, the project is not expected to adversely affect the visibility, soils, or vegetation in any Class I area.

In addition, the TCEQ evaluated modeling concentrations submitted with the application. The maximum predicted concentrations of PM<sub>10</sub>, NO<sub>2</sub>, and SO<sub>2</sub> for all averaging times are less than *de minimis* levels at distances of 3.5 kilometers, 2.5 kilometers, and 40 kilometers, respectively, from the proposed sources in the direction of Big Bend National Park. Big Bend National Park is an additional 510 kilometers from the location where the maximum predicted concentration of SO<sub>2</sub> for all averaging times is less than *de minimis* levels, and even farther for PM<sub>10</sub> and NO<sub>2</sub>. Therefore, emissions from the proposed site are not expected to adversely affect Big Bend National Park.

**Comment 14 (Ambient Air Quality Analysis/Preconstruction Monitoring):** 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 states that the applicant must conduct Baseline Ambient Air Monitoring for ozone, nitrogen oxides, sulfur dioxide, particulate matter, and meteorological conditions at the plant, as required by PSD regulations on pre-construction ambient air and meteorological monitoring, for

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<sup>21</sup> U.S. EPA Memorandum from John S. Seitz, Director of Office of Air Quality Planning and Standards, *Clarification of PSD Guidance for Modeling Class I Area Impacts* (Oct. 19, 1992).

one-year prior to submission of permit applications. Commenter also believes that TCEQ must implement baseline ambient air monitoring for lead to determine existing ambient lead levels at the plant site. Commenter also believes that TCEQ must implement baseline ambient air monitoring for ozone, nitrogen oxides, sulfur dioxide, and particulate matter in downwind counties because of the large concentration of coal and lignite-fired power plants in these areas (*Sierra Club*).

**Response 14:** 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 latest census data for Corpus Christi shows a population estimate of 414,376.<sup>22</sup> The proposed project has lead emissions of 0.052 tons per year, and did not trigger a federal review for lead (0.6 tons per year). See Response 5 for information on predicted lead concentrations.

Under 40 CFR 52.21(i)(5)(i), the analysis of ambient air quality data for ozone applies if the source would emit 100 tons per year or more of NO<sub>x</sub> or VOC.<sup>23</sup> 40 CFR 52.21(i)(5) also allows for an 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 PM<sub>10</sub> and SO<sub>2</sub> were below the monitoring exemption levels at 40 CFR 52.21(i)(5)(i). For PM<sub>10</sub> and SO<sub>2</sub>, the Applicant reviewed data collected from continuous ambient air monitoring stations (CAMS), sited within five kilometers of the site, to provide estimates of background air quality levels. Based on this review of the CAMS, the applicant then chose the AIRS monitor that it had determined was a representative estimate of background levels for these pollutants. Thus, the background concentration for 24-hr PM<sub>10</sub> was obtained from the EPA AIRS monitor 48-355-0034 located at 5707 Up River Rd., Corpus Christi, Nueces County. A background concentration for 24-hr SO<sub>2</sub> was obtained from the EPA AIRS monitor 48-355-0032 located at 3810 Huisache Street, Corpus Christi, Nueces County. For ozone, the applicant reviewed data collected from CAMS, located in Nueces and San Patricio Counties to provide estimates of background air quality levels. The background concentration for O<sub>3</sub> was obtained from the EPA AIRS monitor 48-409-0659 located 527 Ransom Road, Aransas Pass, San Patricio County. The TCEQ Air Permits Division verifies that the background numbers submitted by the applicant are correct and that the monitor chosen by the applicant is representative of or a conservative estimate of the background levels of these pollutants. Given the close proximity of the monitors

<sup>22</sup> <http://www.census.gov/popest/metro/CBSA-est2007-annual.html>.

<sup>23</sup> 40 CFR 52.21(i)(5)(i), fn. 1.

to the proposed site, the monitored concentrations provide a representative 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 Corpus Christi, station #12924, surface meteorological dataset in the air dispersion modeling analysis is reasonable given the close proximity of the airport to the project site (approximately six kilometers).

The EPA Guideline on Air Quality Models - Appendix W of 40 Code of Federal Regulations 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.

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 Corpus Christi 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 15 (Short-Term SO<sub>2</sub> Spikes):** Commenter states that the toxicology review does not address short-term SO<sub>2</sub> spikes. (*Sierra Club*).

**Response 15:** The EPA, under authority in the FCAA, established NAAQS as levels of air quality to protect public health and welfare. A NAAQS for SO<sub>2</sub> has been established for a three-hour, twenty-four-hour and annual time period (See Responses 1 and 7 for more information). The TCEQ has no requirement to determine possible health impacts of SO<sub>2</sub> over a five-minute averaging period. However, SO<sub>2</sub> emissions from the proposed plant do not exceed the NAAQS; therefore, no adverse health or welfare effects are anticipated.

**Comment 16 (Effects Screening Levels):** Commenter states that Texas ESLs have not been appropriately defined by the TCEQ because they are not specific regulatory standards (*Sierra Club*). Commenter suggests that EPA and TCEQ pollution guidelines should be reassessed (*Jeffrey Johnson*). Commenter feels that the application does not adequately address air toxics that would be emitted by the proposed plant. (*Sierra Club*).

**Response 16:** 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).

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 effects are 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 TS has reviewed the chemicals that will be emitted from the Las Brisas' Plant 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 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 other states in that it considers non-health impacts (odor and vegetative) for substances, as warranted by the available information.

For more information on ESLs or view the ESL list, visit the TCEQ's website at [http://www.tceq.state.tx.us/implementation/tox/esl/list\\_main.html](http://www.tceq.state.tx.us/implementation/tox/esl/list_main.html).

**Comment 17 (Permit Opposition):** Many commenters ask the TCEQ to deny or oppose the permit application, or state they oppose the permit (*Jeanne Adams, Marie Adams, Allison Brady, Joe Cecil, Citizens for Environmental Justice, George Clower, Sue Cook, Blair Dancy, Andrea Dobson, Christian Dohse, Margaret (Peggy) Duran, Phyllis Finley, Manuel Gomez, Elma Holden, Jeffrey Johnson, Fred Kasiri, John Kelley, James Klein, Teresa Klein, Belinda Ladabaum, J. Naomi Linzer, Kendra Lee, Jessica Maloney, Peggy May, Julie Nye, Sunny Polito, Jeffrey Pollack, Public Citizen Texas, M.C. Reeves, Carrie Robertson, Monica Sawyer, Paula Scott, SEED Coalition, Ann Smith, Mikell Smith, Lorraine Stehn, Cynthia Sullivan, Kayron Taylor, C. Vallie, Jackie White, Carol Wood, Patricia Zambrycki*).

**Response 17:** The TCEQ appreciates the comments and interest from the public in environmental matters before the agency. TCEQ staff evaluates air quality permit applications based on whether the application meets the standards outlined in the TCAA and the applicable state and federal rules and regulations. Although the ED recognizes the opposition of the commenters, public opposition alone is not legally sufficient to justify denial of a permit application.

**Comment 18 (Application Procedures):** One commenter states that it is easy to discern that the applicant has been deceptive in its application procedures (*Daniel Lucio*).

**Response 18:** TCEQ is not aware of any evidence that the applicant has been deceptive in its application procedures.

**Comment 19 (TCEQ Mission):** One commenter states that she is disappointed that TCEQ, an agency that is supposed to be dedicated to the protection of the environment, supports a project which will be detrimental to the very causes it is sworn to protect (*J. Naomi Linzer*). One commenter asks that the community's health and environment be prioritized over energy, jobs, and material incentives. (*P. Austin Nye*). Commenters feel the proposed plant will increase health risks for those living in the region for the sake of profit (*John Kelley, Sunny Polito, M.C. Reeves*).

**Response 19:** Based on potential concentrations reviewed by the ED'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.

Please see Response 1 for more information on the expected health and environmental impacts of the proposed plant.

Furthermore, the TCEQ's jurisdiction is established by the Legislature and is limited to the issues set forth in statute. Accordingly, the TCEQ does not have jurisdiction to consider profit margin or job creation in determining whether to approve a permit application. During the permit review process, TCEQ considers whether the application complies with the applicable state and federal laws and regulations. The TCEQ cannot deny authorization of a facility if a permit application demonstrates that all applicable statutes, rules, and regulations will be met.

**Comment 20 (TCEQ Fees):** One commenter states that TCEQ must be getting paid to issue this permit and asks how much money TCEQ is receiving to ignore the fact that TCEQ is poisoning our grandchildren (*Keith Rowley*).

**Response 20:** 30 TAC § 116.140 requires any person who applies for a permit to construct a new facility to pay a fee based on the estimated capital cost of the project. 30 TAC § 116.141 sets out the formula for determining the permit fee. Following TCEQ rules, the applicant paid a permit fee of \$75,000. The TCEQ is required by statute to collect the fee and the purpose of the fee is to cover a portion of the cost of administering the permitting program.<sup>24</sup> Payment of this fee does not influence the Commission's decision to issue or deny the permit.

Please see Response 1 for more information on the expected health effects of the proposed plant.

**Comment 21 (CO<sub>2</sub> and Climate Change):** Commenters note that the permit application does not address global warming gases and states that TCEQ has the authority and responsibility to

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<sup>24</sup> See TEX. HEALTH & SAFETY CODE §§ 382.062 (a) and (e).

regulate them (*Public Citizen Texas, Sierra Club*). Commenter disputes the draft permit achieves BACT for CO<sub>2</sub> emissions (*EDF*).

Commenters state that the CO<sub>2</sub> emissions from the proposed plant will contribute to global climate change (*Warren Burkholder, Blair Dancy, Jose Duran, Margaret (Peggy) Duran, Manuel Gomez, James Klein, Adriana Leiva, Weldon Lucas, Neil McQueen, Joy Miller-Cavada, Julie Nye, Patrick Nye, Jeffrey Pollack, Public Citizen Texas, SEED Coalition, Ann Smith, Lorraine Stehn, C. Vallie, Jackie White, Dale Wilkins, Carol Wood*). Commenters assert that global warming poses the threat of rising sea levels and increased storm surges (*Public Citizen Texas*) and threatens the survival of life on this planet (*SEED Coalition*). Other commenters state they oppose the permit as it currently stands, but would accept it if the applicant was willing to reduce pollution and global warming (*Coastal Bend Group – Sierra Club, Sylvia Samaniego, Susan Slocum*).

Commenter asks TCEQ to require that the applicant make plans for the capture of carbon dioxide (*Coastal Bend Group – Sierra Club*). One commenter asks the TCEQ to table the decision on the approval of the permit until it is determined what new federal carbon legislation and regulations will require (*Neil McQueen*).

Commenter feels that carbon dioxide emissions must be addressed in the interest of public health, national security, environmental conservation, and economic stability (*Public Citizen Texas*). Commenter feels that instead of generating more electricity, Texas should be focusing on energy efficiency (*SEED Coalition*).

Commenter is concerned that emission of CO<sub>2</sub> will have an adverse effect on the earth's ozone (*Paul Strunk*).

**Response 21:** 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 (GHGs), promote the efficient use of energy, offer training in methods to reduce carbon dioxide 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 CO<sub>2</sub> as a greenhouse gas. To this extent, the TCEQ has not collected any data related to CO<sub>2</sub> 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 Gases under Section 202(a) of the Clean Air Act.<sup>25</sup> In the proposal, EPA stated that this endangerment finding, which was related to emissions from motor vehicles, would not make greenhouse gases a regulated pollutant for point sources under the PSD program, nor is the proposal the appropriate forum for commenting on such an action.<sup>26</sup> Additionally, the U. S. Supreme Court's opinion in *Massachusetts, et al v. EPA* does not require states to regulate CO<sub>2</sub> emissions. While the Court determined, inter alia, that CO<sub>2</sub> 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.<sup>27</sup> Moreover, 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 CO<sub>2</sub>.<sup>28</sup> Finally, the ED is aware that the US Congress is currently considering legislation regarding the regulation of greenhouse gases which include CO<sub>2</sub>.<sup>29</sup>

In Texas, the Legislature has already provided the TCEQ with authority to, by rule, "control air contaminants as necessary to protect against adverse effects related to ... climatic changes, including global warming."<sup>30</sup> However, that authority is constrained by the very specific statutory language "consistent with applicable federal law."<sup>31</sup> Given the constant changing landscape regarding GHGs and global climatic change, the possibilities for their regulation and control, and section 382.0205 of the Texas Clean Air Act, the *Massachusetts* and *Deseret* opinions should not be considered applicable federal law clearly and unequivocally requiring regulation of CO<sub>2</sub>.<sup>32</sup>

**Comment 22 (BACT/IGCC):** Some commenters feel the applicant should consider Integrated Combined Cycle (IGCC or gasification) (*Robert Brown, Roger Carrington, Margaret (Peggy) Duran, Richard Harrington, Fred Kasiri, Jessica Kasiri, John Kelley, James Klein, Judith Loverde, Weldon Lucas, Patrick Nye, Lisa O'Donnell, Public Citizen Texas, Monica Sawyer, Charles Shamel, Jo Ann Smith, Mikell Smith, Lorraine Stehn, Dale Wilkins*).

Other commenters feel that failure to implement gasification now will lead to economic and regulatory difficulties in the future if the federal government institutes new carbon legislation

<sup>25</sup> Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the Clean Air Act, 74 *Fed. Reg.* 18886 (April 24, 2009).

<sup>26</sup> *Id.* at 18905, fn 29.

<sup>27</sup> *Massachusetts, et al v. EPA*, 549 U.S. 497, 534 (2007).

<sup>28</sup> 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).

<sup>29</sup> Clean Energy and Security Act of 2009, H. R. 2454, 111th Cong. (2009).

<sup>30</sup> Tex. Health & Safety Code § 382.0205.

<sup>31</sup> *Id.*

<sup>32</sup> The changing nature of the issue is aptly illustrated by the EPA announcing its endangerment finding on greenhouse gases on April 17, 2009. EPA's proposal will be published in the Federal Register some time in the near future, which then will commence a public comment period.

(*Roger Carrington, Weldon Lucas, Jeffrey Pollack*). Other commenters feel that the failure to consider IGCC makes this application deficient with respect to Best Available Control Technology (BACT) analysis and technology (*Robert Brown, Christian Dohse, EDF, Fred Kasiri, Weldon Lucas, Neil McQueen, Jeffrey Pollack, Sierra Club, Dale Wilkins*).

A commenter states that the applicant's parent company has a gasification division, and therefore, the applicant's claims that gasification is economically impractical are baseless (*James Klein*).

**Response 22:** 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.<sup>33</sup> 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."<sup>34</sup> 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.<sup>35</sup>

Applicant is proposing to generate electricity with Circulating Fluidized Bed (CFB) boilers. As part of its application, LBEC 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. Before the gas is burned it must be cleaned extensively through various technologies. If the

<sup>33</sup> TEX. HEALTH & SAFETY CODE § 382.0518(b)(1).

<sup>34</sup> TEX. HEALTH & SAFETY CODE § 382.003(6) & 30 TAC §116.10(6).

<sup>35</sup> *Supra*, note 10.

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.

Finally, 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 23 (Alternative Energy Sources)** Commenters suggest the use of wind or solar power instead of petroleum coke. (*Rose Harrison, Allison Kabassos, Patrick Nye, SEED Coalition*). One commenter states that Texas should focus on using natural gas as an energy source because it is the cleanest hydrocarbon form for power generation and is in a surplus in Texas (*Christian Dohse*). One commenter proposes that the applicant consider partially firing on natural gas for at least two of the boilers, as a means of reducing emissions. (*Ed Kasprzyk*)

**Response 23:** 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 does not include or require redefinition of a source.<sup>36</sup> The TCAA requires the commission to grant a permit if the commission finds that the proposed facility will use at least the best available control technology (BACT).<sup>37</sup> 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."<sup>38</sup> Since the starting point is the proposed facility, the applicant proposes the facility to accomplish its objective based upon its business decisions. These decisions include the Applicant's choice of fuels. 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 the response 22 for more information on this subject.

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<sup>36</sup> Also, under the EPA's BACT review, an applicant is not required to redefine a source.

<sup>37</sup> TCAA § 382.0518(b)(1).

<sup>38</sup> TCAA § 382.003(6) & 30 TAC §116.10(6).

**Comment 24 (Control Technology/General):** Some commenters stated that neither the applicant nor the TCEQ have ensured that the newest and safest technologies are being employed to control emissions from the plant (*V. Kline, Jessica Maloney, Sunny Polito, Lindsey Reeves*). A commenter questions whether the proposed facility complies with BACT (*TCACC*). Commenters question whether BACT standards are protective of the public and the environment (*Weldon Lucas, Jeffrey Pollack, Dale Wilkins*).

**Response 24:** The TCEQ reviewed, starting with the most recent entry, and going back ten years, the EPA's RACT/BACT/LAER Clearinghouse (RBLC) database of emission limit determinations, to identify the lowest emission limits applied to similar CFB facilities. In addition, the TCEQ considered permits and CFB projects that may not be entered into the RBLC yet or may be located outside the United States and found no examples that changed the BACT determinations. Because the commenters do not offer any specific technologies or limits for analysis, the Executive Director is unable to further analyze the comments.

**Comment 25 (Control Equipment):** Commenter states that the permit should state the specific makes and models that will be used for the boiler and control equipment as well as manufacturer guaranteed emissions levels from this equipment (*Sierra Club*).

**Response 25:** A CFB boiler and its associated control devices require substantial engineering before and after construction has begun. Bidding for final equipment procurement usually occurs after the permit is issued. The applicant will not know all the makes and models of individual pieces of equipment during the permitting process. Special Condition No. 46 requires the applicant to submit as-built information including, updating of the permit application, together with forms which call for makes and models of equipment, no later than 30 days before start-up of the CFB boilers.

Furthermore, Special Condition No. 28 requires the applicant to perform initial stack sampling and other testing to establish the actual quantities of air contaminants being emitted into the atmosphere. The applicant is responsible for providing sampling and testing facilities, i.e. sampling ports, stairs or elevators and other necessary testing equipment, and also for conducting the sampling and testing operations at his expense. For the specific demonstration requirements for the CFB boilers, see Special Condition No. 28 subsection A, and for the auxiliary boilers, see Special Condition No. 28 subsection B.

In addition, guarantees 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 guarantees from a number of potential suppliers of components 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 26 (Scrubbing Alternatives):** One commenter proposes that the applicant consider scrubbing at least 50% of the flue gas from two of the boilers with an aqueous slurry of sodium hydroxide, calcium hydroxide, and sodium bicarbonate, in order to remove PM, mercury, metals, and CO<sub>2</sub>, and to allow for continued experimentations on efficient pollutant removal.

Commenter also gives a proposed operation plan for the plant when the area is experiencing high ozone conditions:

- 1) use of up to 50% natural gas firing rates for the #3 and #4 boilers;
- 2) use of the flue gas scrubber for 50% of the #3 and #4 boilers' off-gas treatment;
- 3) use of a higher concentration of NaOH, CaOH, and NaHCO<sub>2</sub> in the scrubber liquid;
- 4) use of the flue gas main stack, with low pressure steam for reheating plume, only;
- 5) continued use of the 50% natural gas firing and the 50% intensity of off-gases scrubbing of the #3 and #4 boilers' flue gases until the local air stagnation or ozone advisory is lifted, or until local meteorological conditions favor good plume mixing conditions.

*(Ed Kasprzyk)*

**Response 26:** The commenter does not provide information regarding the effectiveness or cost of a wet scrubber using the suggested aqueous scrubbing reagents for LBEC, or a facility similar to LBEC. For LBEC, the proposed combination of in-bed limestone scrubbing, lime spray dryer scrubbing, and baghouse have been demonstrated to be economically reasonable and effective in the control of PM, mercury, and other metals. The TCEQ does not evaluate an application for control of CO<sub>2</sub>, because, as discussed in Response 21, the Commission does not regulate CO<sub>2</sub> as a greenhouse gas. 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. The role of the permit process toward mitigation of local air stagnation or ozone advisory conditions is limited to application of BACT to minimize air pollutants, and an air quality analysis to consider the potential impact of the proposed facility on local air quality. Plans to achieve and maintain an area's compliance with the ambient air quality standards are developed by state and local air quality planners outside the permitting process.

**Comment 27 (BACT/Coal Washing):** Commenter states that the application does not adequately examine the opportunities for obtaining sulfur and mercury emission reductions through coal washing (*Sierra Club*).

**Response 27:** In order to be considered an additional component of SO<sub>2</sub> 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 28 (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 28:** 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.<sup>39</sup> 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 BACT Guidance).<sup>40</sup> 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.<sup>41</sup> The final end result of a BACT review is the development of a number – an emissions limitation.<sup>42</sup>

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.<sup>43</sup> The EPA interpreted the FCAA BACT definition as possessing two fundamental concepts.<sup>44</sup> First, the most stringent available control technology (and associated emission limitation) must be evaluated.<sup>45</sup> 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.<sup>46</sup> 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 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 leveled were selected.

In response to public comments, when approving Texas' PSD program, the EPA acknowledged that States have latitude in developing their programs.<sup>47</sup> Commenters expressed concern with the

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<sup>39</sup> 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).

<sup>40</sup> Draft RG-383, April 2001.

<sup>41</sup> Texas has a fully SIP approved PSD program. See 57 Fed. Reg. 28098 (June 24, 1992); 40 CFR §§ 52.2273 and 52.2303.

<sup>42</sup> 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.

<sup>43</sup> 54 Fed. Reg. 52823 (December 22, 1989).

<sup>44</sup> *Id.*

<sup>45</sup> *Id.*

<sup>46</sup> *Id.*

<sup>47</sup> 57 Fed. Reg. 28093 (June 24, 1992).

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.<sup>48</sup> Commenters contended such a condition would be unlawful and would improperly limit the State's flexibility.<sup>49</sup> 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."<sup>50</sup> 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.<sup>51</sup> Commenters also stated that the EPA improperly included provisions mandating Texas follow EPA's top-down approach.<sup>52</sup> In response, the EPA stated it "does not mandate the State follow a top-down approach to BACT."<sup>53</sup>

**Comment 29 (BACT/PM):** Commenters state that the applicant should use scrubbers to control particulate matter emissions (*John Adams, Susan Slocum*). Commenters dispute the draft permit achieves BACT for PM emissions (*John Adams, EDF, Sierra Club*). Commenter states that the application does not adequately manage fugitive dust emissions either from coal and bottom ash and fly ash or during start-up and shutdown (*Sierra Club*). Commenter states that fugitive emissions are not properly considered in the application (*Bruce Taylor*).

**Response 29:** 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 the EPA's RBLC database of emission limit determinations starting with the most recent entry, and going back ten years, 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/rblc/cfm/rbfind.cfm>.

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<sup>48</sup> *Id.*

<sup>49</sup> *Id.*

<sup>50</sup> *Id.*

<sup>51</sup> *Id.*

<sup>52</sup> *Id.*

<sup>53</sup> *Id.* Protestants also claim Texas by letter committed to implementing EPA interpretive guidance including the top-down approach. 54 Fed. Reg. 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 Fed. Reg. 28093 (June 24, 1992).

Filterable PM: Lowest Permit Limits for CFB Boilers						
Company	Project	Primary Fuel	RBLC Number	Permit Issued	lb PM <sub>filter</sub> per 10 <sup>6</sup> 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 based on petroleum coke fuel. 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 coke-fired CFBs boilers.

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. 47 of the proposed LBEC 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 LBEC 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 <sub>filter</sub> per 10 <sup>6</sup> Btu	Average Time
JEA	Northside 2	100% Pitt. bit. coal	FL-0178	Jan. 2004	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	0.005	3-hour

Because the LBEC CFBs are to use petroleum coke and the permit includes a provision to lower the emission limit based on testing, the slightly higher limit of the petroleum coke projects is the appropriate choice for filterable PM BACT. 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 H<sub>2</sub>SO<sub>4</sub> and HCl are components of condensable emissions. Sulfuric acid is formed by the oxidation of SO<sub>2</sub> to SO<sub>3</sub> and subsequent absorption with water. Although designed to primarily reduce SO<sub>2</sub>, 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 H<sub>2</sub>SO<sub>4</sub> than coal because of its higher sulfur and vanadium content. Vanadium, present in coke ash, promotes the conversion of SO<sub>2</sub> to SO<sub>3</sub>. Because of these properties, comparison of BACT limits for H<sub>2</sub>SO<sub>4</sub> should be limited to CFBs with petroleum coke as the fuel. The following table lists the lowest H<sub>2</sub>SO<sub>4</sub> emission limits found in the RBLC for petroleum coke fired CFBs.

H <sub>2</sub> SO <sub>4</sub> : Lowest Permit Limits for Petroleum Coke Fired CFB Boilers						
Company	Project	Primary Fuel	RBLC Number	Date Issued	lb H <sub>2</sub> SO <sub>4</sub> per 10 <sup>6</sup> 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
"	"	" "	--	--	0.019	12-mo.

The Northside CFBs 1 & 2 include LSD polishing scrubbers, as do the three proposed CFB projects in Louisiana. Although the Northside permit includes an H<sub>2</sub>SO<sub>4</sub> limit, the available test summaries do not include H<sub>2</sub>SO<sub>4</sub> 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 H<sub>2</sub>SO<sub>4</sub> is complicated because the quantification of H<sub>2</sub>SO<sub>4</sub> and other condensing species is difficult and test results using the EPA test method for H<sub>2</sub>SO<sub>4</sub> have frequently produced questionable results. Furthermore, test results are scarce because many permitting authorities do not require stack testing for H<sub>2</sub>SO<sub>4</sub>. Special Condition No. 47 of the proposed LBEC permit requires a downward adjustment of the H<sub>2</sub>SO<sub>4</sub> emission limit if the initial and first annual test results are less than half the permitted limit. Based on the H<sub>2</sub>SO<sub>4</sub> permit limits for petroleum coke fired CFBs found in the RBLC, it appears likely that a downward adjustment of the LBEC limit will need to be made. The proposed control technology and emission limits of 0.022 lb H<sub>2</sub>SO<sub>4</sub>/MMBtu 3-hour average and 0.019 lb H<sub>2</sub>SO<sub>4</sub>/MMBtu, 12-month rolling average, represent BACT.

In addition to acid gases, the condensable portion of PM includes some condensable organic material. The combination 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<sub>x</sub>, SO<sub>2</sub>, CO, or VOC.

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. 47 of the proposed LBEC 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 the new procedure will be adopted before the initial performance test for LBEC, 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 LBEC permit for total PM will be adjusted as required by Special Condition No. 47.

Filterable + Condensable (Total) PM: Lowest Permit Limits for CFB Boilers						
Company	Project	Primary Fuel	RBLC Number	Date Issued	lb PM <sub>Total</sub> per 10 <sup>6</sup> 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
LBEC	LBEC	pet. coke	--	--	0.033	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

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 limit of the LBEC is justified as the appropriate choice for total PM BACT. Based on this review, the total PM emission limits in the draft permit represent BACT.

The commenters do not specify a reason why the proposed fugitive dust emissions are not properly considered or adequately managed. The proposed fugitive dust control techniques appear to be typical and meet current BACT for solid fuel power plants. The LBEC proposes to use 38 baghouses to control dust emissions from transferring various materials into and out of storage silos and bins. The design of the conveyor bringing the coke into the property will be partially enclosed, which should prevent visible fugitive emissions. The LBEC does not propose to have open-pile storage of petroleum coke or boiler ash on-site and, therefore, the permit contains no special conditions to control the fugitive emissions from these kinds of sources.

Emissions of PM while the CFBs are operating in start-up or shutdown modes are addressed by Special Condition No. 14C, which prohibits bypassing of a CFB baghouse during these times. This assures that any solid fuel ash emissions are captured by the baghouse.

**Comment 30 (BACT/SO<sub>2</sub>):** Commenters dispute the draft permit achieves BACT for SO<sub>2</sub> emissions (*EDF, Sierra Club*). Commenter states that the application does not utilize BACT for sulfur pollution and 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*).

**Response 30:** 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 SO<sub>2</sub> emission limits applied to similar CFB facilities. The appropriate BACT comparison is made to other CFBs firing petroleum coke because the boiler process and fuel type have a direct impact on the resulting SO<sub>2</sub> emissions, and because the process type and fuel used are choices appropriately made by the applicant. Because of absorption of SO<sub>2</sub> in the limestone bed, the CFB boiler process produces lower SO<sub>2</sub> emissions than the PC boiler process. Because petroleum coke fuel has a higher sulfur content than other solid fuels such as coal or biomass, the potential SO<sub>2</sub>

emissions are higher from petroleum coke than other solid fuels. The following table identifies the petroleum coke fired CFB projects identified in the permit review.

SO <sub>2</sub> : Permit Limits for CFB Boilers Firing Petroleum Coke						
Company	Project	Primary Fuel	RBLC Number	Permit Issued	lb SO <sub>2</sub> per 10 <sup>6</sup> 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

Like LBEC, the proposed performance standards for SO<sub>2</sub> for the pending White Stallion Energy Center (WSEC) permit application are based on limestone bed CFB boilers firing petroleum coke fuel with 6% average and 8% maximum by weight sulfur, with the exhaust stream treated by dry SO<sub>2</sub> scrubbing. The WSEC application was submitted in September, 2008 by the permit consultant who prepared the LBEC permit application. The consultant reported that in discussions with company and project engineers working with the respective applicants, no clear explanation was provided that would account for the difference in the proposed emission limits. Although the reasons for the differing proposals are not clear, it could be a result of differences in assumptions about the average fuel sulfur content, the SO<sub>2</sub> removal efficiencies achievable by the CFB or the scrubber, or in the method of operation of the CFBs. There is technical literature that indicates that there may be trade-offs between NO<sub>x</sub> and SO<sub>2</sub> control in operating CFBs. The ED notes that only the JEA, MPU, and First Energy CFBs have commenced operation. Therefore, the proposed lower WSEC permit has not been demonstrated to be achievable in practice. The ED also notes that only the Renu Energy/Calhoun County Navigation District and LBEC projects are based on petroleum coke as the sole authorized solid fuel. Therefore, each of the other CFB projects, including WSEC, has the option to maintain compliance with the permit SO<sub>2</sub> emission limit by blending a lower-sulfur solid fuel.

Based on the four permits found in the RBLC that were issued at 0.15 lb SO<sub>2</sub>/MMBtu, LBEC agreed to reduce their proposed emissions to 0.15 lb SO<sub>2</sub>/MMBtu. Based on the consideration that WSEC's proposed SO<sub>2</sub> limits are not yet demonstrated and that LBEC does not have flexibility to fire other lower-sulfur containing solid fuels, the SO<sub>2</sub> emission limits in the LBEC draft permit represent BACT.

The TCEQ evaluates BACT specific to the process and fuels proposed by the applicant and does not require the same emission limits. Instead of CFBs and high sulfur petroleum coke, 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 LBEC and Spruce 2, the BACT analysis should not be based on a comparison of their respective emission limits. It may be noted that although the design average fuel sulfur content of LBEC is about 8 times higher than Spruce 2 on a Btu basis and 13 times higher on a weight basis (4.9 vs. 0.625 lb S/MMBtu and 6.7% vs. 0.5% S by weight), the proposed average emission limit for LBEC is only 2.5 times higher (0.15 vs. 0.06 lb SO<sub>2</sub>/MMBtu). This is because the sulfur removal efficiency of LBEC is higher than that of Spruce 2 (98.45% vs. 95%).

**Comment 31 (BACT/NO<sub>x</sub>):** Commenter disputes the draft permit achieves BACT for NO<sub>x</sub> emissions (*Sierra Club*). Commenter asks why the draft permit does not contain annual average emission rates for NO<sub>x</sub> (*EPA*).

**Response 31:** 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 NO<sub>x</sub> emission limits applied to similar CFB facilities. The following table includes the five lowest NO<sub>x</sub> emission limits found in the RBLC.

NO <sub>x</sub> : Lowest Permit Limits for CFB Boilers						
Company	Project	Primary Fuel	RBLC Number	Permit Issued	lb NO <sub>x</sub> per 10 <sup>6</sup> Btu	Average Time
LBEC	LBEC	pet. coke	(TX)	--	0.07	30-day
WSEC	White Stallion	pet coke	(TX)	--	0.07	30-day
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.

In addition, the TCEQ considered CFB projects located outside the United States, and found no examples that changed the BACT determination.

Selected CFB Boilers Outside the U.S. Reviewed for LBEC BACT Analysis

Company	Project	1 <sup>st</sup> Fuel	Permit No.	Issued
Norrkoping En.	Norrkoping, Sweden	wood	unknown	unknown

The reason that the permit does not contain a separate performance limit based on a 12-month rolling average is that no more stringent limit than the proposed 30-day rolling average limit of

0.07 lb NO<sub>x</sub>/MMBtu was identified in the BACT review. Restating this limit on a 12-month rolling average would not add stringency to the permit. The permit MAERT contains a 12-month rolling NO<sub>x</sub> limit in tons per year. Based on the review of other CFB projects, the NO<sub>x</sub> emission limits in the draft permit represent BACT.

**Comment 32 (BACT/Mercury):** Commenters dispute the draft permit achieves BACT for mercury emissions (*Sierra Club*). Furthermore, commenter states that stack mercury emissions of 320 pounds per year for the #1-4 units must meet the BACT standards (*Sierra Club*).

**Response 32:** 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. The complication in establishing BACT has been in setting the appropriate emission limit for petroleum coke fuel, because of the uncertainty in how much mercury is in petroleum coke. The following table lists the proposed, issued, and modified mercury limits in Texas permits for petroleum coke fired CFBs.

Mercury: Permit Limits for Petroleum Coke Fired CFB Boilers						
Company	Project	Primary Fuel	Permit Action	Action Date	Limit lb Hg/TBtu	Average Time
FPC TX	Formosa Plastics	pet. coke	Issued	12/19/2006	3.0	12-mo.
Nucoastal	Calhoun Co. ND	pet. coke	Issued	08/20/2007	3.0	12-mo.
LBEC	LBEC	pet. coke	draft	01/07/2009	2.0	12-mo.
WSEC	White Stallion	pet coke	draft	03/14/2009	0.86	12-mo.
Renu En.	Calhoun Co. ND	pet. coke	Revised	04/29/2009	0.60	12-mo.

The TCEQ issued air permits for two coke-fired CFB projects, Formosa Plastics and Calhoun County Navigation District (CCND), both in Calhoun County, Texas, with an emission limit of 3.0 lb Hg/10<sup>12</sup> Btu (3.0 lb Hg/TBtu) limit (the EPA's proposed MACT standard for coal-fired industrial boilers). One source of information used in these permits was supporting data from a 1999 permit amendment application by Reliant Energy to use petroleum coke as a supplemental fuel in Limestone Units 1 and 2. The average mercury content of the petroleum coke from six separate petroleum coke sources was shown at 0.4 ppm by weight, a level similar to average values for Texas lignite, and lower than Wyoming subbituminous coal.

After the CCND permit was issued, the company and environmental protestants agreed on annual mass emission limit of 14 lb Hg, and the permit limit was subsequently modified to reflect this agreement. An emission rate of 14 lb/year calculates to 0.60 lb Hg/TBtu. In November 2008, LBEC revised their permit application, reducing the mercury emission rate from 3.0 to 2.0 lb Hg/TBtu, equal to the EPA's January 30, 2004 proposed NSPS/MACT standard for new subbituminous coal-fired EGUs of 20 lb Hg/TWatt-hours (using a factor of

10,000 Btu/kWh to convert from output-based to input-based units). However, this rate is still two to three times higher than the WSEC proposed rate and the revised CCND rate.

In response to the comments, the TCEQ re-evaluated the basis for the proposed mercury performance standard of 2.0 lb Hg/TBtu. 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.

Mercury: RBLC Listed Permit Limits for CFB Boilers						
Company	Project	Primary Fuel	RBLC Number	Permit Issued	Limit lb Hg/TBtu	Average Time
GRE	Spiritwood	lignite	ND-0024	09/14/2007	17.5	12-mo.
Sunnyside	S. Ethanol	bit. coal	PA-0257	05/07/2007	0.96	12-mo.
Biomass En.	S. Pt. Biomass	wood	OH-0307	04/04/2006	9	--
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.
KMP LLC	Ky. Mtn. Power	bit. coal	KY-0079	05/04/2005	81	--
PSNH	Schiller 5	wood/coal	NH-0013	10/25/2004	3	--
Nevco/Sevier	Sevier Power	bit. coal	UT-0064	10/12/2004	0.4	--
E Ky Power	Spurlock	bit. coal	KY-0086	08/04/2002	2.65	quarterly

None of the RBLC-listed CFB projects with mercury limits used petroleum coke fuel and the reported emission limits range from 0.4 to 81, which equates to two orders of magnitude. This wide range of emission limits demonstrates a lack of consensus among CFB boilers and therefore, little additional information was gained from this part of the review.

A further search for information yielded an article, "Estimate of Mercury Emissions to the Atmosphere from Petroleum" by S. Mark Wilhelm.<sup>54</sup> In this article, Wilhelm states, "A statistical ensemble for mercury in refinery products does exist in one case. Total mercury in petroleum coke has been reported as part of the U.S. EPA reporting requirements on fuel feeds to utility boilers, and the mean is approximately 50 ppb (1000 data points, 2 million t)."<sup>55</sup>

Also reviewed was the stack testing for mercury at the JEA Northside CFB Unit 2. The JEA CFBs use a limestone bed, SNCR, LSD scrubbing and a baghouse, but do not use activated

<sup>54</sup> S. Mark Wilhelm, *Estimate of Mercury Emission to the Atmosphere from Petroleum*, 35 ENVIRONMENTAL SCIENCE & TECHNOLOGY 4706 (2001).

<sup>55</sup> Wilhelm references the EPA's Electric Utility Steam Generating Units HAP Study, [www.epa.gov/ttn/uatw/combust/utiltox/utoxpg.html](http://www.epa.gov/ttn/uatw/combust/utiltox/utoxpg.html). The average value of 50 ppb, or 0.05 ppm, is eight times lower than the average value of 0.4 ppm from the 1999 permit amendment for Limestone 1 and 2.

carbon injection for mercury control. The test results with petroleum coke firing 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%

Based on a petroleum coke heating value of 14,000 Btu/lb, the average value of 0.05 ppm Hg in petroleum coke reported by Wilhelm equates to 3.6 lb Hg/TBtu, a number which is fairly close to the LSD inlet value of 3.4 lb Hg/TBtu tested at JEA Unit 2 with an 80% petroleum coke/20% bituminous coal blend. This correspondence gives additional confidence that the mercury content of petroleum coke is in this range. Also of note is that without using activated carbon for mercury control, CFB technology is effective at removing mercury from the exhaust stream. This finding is reinforced by 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).<sup>56</sup> In this memo, removal efficiencies of 99.9% were reported for two CFBs with baghouse controls, firing waste coals.

Special Condition No. 47 of the draft LBEC permit requires the permit limits for mercury to be adjusted downward to reflect the initial and first annual emission testing.

**Comment 33 (MSS):** Commenter states that the application does not appear to adequately discuss control strategies for the emissions occurring during maintenance, start-up, and shutdown (MSS). Commenter also states that the permit must contain enforceable limits during normal operations, which include MSS. (*Sierra Club*).

Commenter asks that the applicant forward a final copy of the Startup/Shutdown written plan when it has been prepared (*EPA*).

**Response 33:** 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 lime spray dryer systems or the air pollution control systems will be fouled. The permit MAERT contains enforceable limits for the normal start-up

<sup>56</sup> <http://www.epa.gov/ttn/atw/utility/NSPS-053106.pdf>.

emissions that are higher because of minimum operating temperature requirements. Where this causes higher maximum emissions, such as for SO<sub>2</sub>, 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 24-hour average NAAQS. 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-9 of Appendix A.

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.

In response to EPA's request to be sent a copy of the Startup/Shutdown written plan, a new Special Condition 46 has been added (with subsequent Special Conditions renumbered), to require the permit holder to submit a copy of the plan to the TCEQ Air Permits Division and the EPA.

**Comment 34 (Emission Monitoring/Continuous Compliance):** 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 Continuous Emissions Monitoring Systems (CEMS) for some pollutants, the method of stack sampling included in Special Condition 29 is insufficient to demonstrate the compliance required by law for all pollutants. (*EDF*). Another commenter recommends that TCEQ consider requiring CEMS to monitor filterable particulate matter because it has been adequately demonstrated in other industries and has been proposed for other electrical generating units (*EPA*). Furthermore, commenter asks how can Permit Condition 24.C. state that compliance with the Plantwide Applicability Limit (PAL) will be demonstrated by using CEMS, but the permit does not require CEMS for PM monitoring (*EPA*). Commenter states the applicant needs to install a mercury stack continuous emissions monitoring system if the proposed plant is constructed in 2010 or later (*Sierra Club*). Commenter states the application does not include adequate annual stack testing and stack PM<sub>10</sub> continuous emissions monitoring provisions for particulate matter (*Sierra Club*).

**Response 34:** The permit requires CEMS for SO<sub>2</sub>, NO<sub>x</sub>, CO, ammonia, and mercury emissions from the CFB boilers. Annual stack sampling for H<sub>2</sub>SO<sub>4</sub>, HCl, HF, VOC, and total PM/PM<sub>10</sub> 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 SO<sub>2</sub> and NO<sub>x</sub>, 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 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, 30 TAC § 116.111(a)(2)(B) 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.

Because the commenter (EDF) has not identified any specific monitoring deficiencies or suggested conditions to address those concerns, the Executive Director is unable to further evaluate this comment.

Regarding PM CEMS, the PDS notes that another proposed facility, the Virginia City Hybrid Electric Center, proposed to use PM CEMS and that may have been a reason for agreeing to a slightly lower filterable PM limit. In this instance, the applicant 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 Continuous Opacity Monitoring System (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 monitoring for utility units.<sup>57</sup> 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."<sup>58</sup>

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<sup>57</sup> 71 Fed. Reg. 9866-68 (February 27, 2006).

<sup>58</sup> 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 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. These new, more rigorous alternatives to PM CEMS 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.

The applicant chose the alternative in NSPS Da to monitor the performance of the baghouse, which requires using a bag leak detection system. However, it has come to the attention of the Executive Director that in a revision to NSPS Da that occurred after the preparation of the January 7, 2009 draft permit, the definition of "petroleum" was revised to exclude petroleum coke, and therefore, the proposed facility is not subject to NSPS Da.<sup>59</sup> In order to assure that the CAM remains as proposed, the Executive Director has added new Special Condition No. 36 to the draft permit to continue to require bag leak detection monitoring.

**Comment 35 (MACT):** Commenter states that the application fails to demonstrate that the proposed limitations on emission from the facility of Hazardous Air Pollutants will meet the requirements of Maximum Control Technology (MACT), as required by law. Commenter also states that the file of the docket fails to show proper notice was given for the HAP 48 application (*EDF*).

**Response 35:** The commenter does not provide any reasons for the comment; and it is not clear whether it is in regard to the applicant's claim that the petroleum coke fuel renders the CFB boilers exempt from MACT requirements, or whether the MACT analysis for the natural gas-fired and propane-fired auxiliary equipment 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 this is why the MACT 48 was only noticed in the second public notice.

**Comment 36 (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*).

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<sup>59</sup> 74 Fed. Reg. 5072 (Jan. 28, 2009).

**Response 36:** 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 LBEC is eligible for issuance of a PAL. The PAL will be effective upon permit issuance.

Special Condition No. 42.C on page 24 of the draft permit, addressing the PAL, states that 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 Section 7 of the permit application... ." Section 7 of the permit application proposes to base the PM<sub>10</sub> 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. 28, and annual testing for the next two years, followed by testing every three years if PM<sub>10</sub> emission rates are less than 70 percent of the performance standards. 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. New coal-fired electric utility boilers that use a fabric filter (baghouse) for PM control and that do not use CEMS for PM monitoring, under NSPS Subpart Da, 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, or use a continuously operated bag leak detection system. Maintaining the opacity or bag leak detection system within specified operating parameters will demonstrate the appropriateness of the performance test based emission factor for PM.

**Comment 37 (Property Values/Property Rights):** Commenters state the proposed power plant will adversely affect property values (*Roger Carrington, J. Naomi Linzer*). Commenter is concerned the proposed plant will pollute his family's property (*Patrick Meaney*). Commenter is concerned that property owned or managed by its members could be adversely affected by new emission sources (*TCACC*).

**Response 37:** The TCEQ's jurisdiction is established by the Legislature and is limited to the issues set forth in statute. Accordingly, the TCEQ does not have jurisdiction to consider zoning or effects on property values when determining whether to approve or deny an air quality permit application. The issuance of a permit cannot be denied on the basis of the facility's location except under limited circumstances, which are not applicable to this permit application. For example, under 30 TAC § 116.112, NSR permits for lead smelters and concrete crushing facilities must meet certain distance limitations. Also, standard permits for certain facilities require a distance setback from property lines and/or residences. Standard permits are authorized under TCAA § 382.01595 and regulated under 30 TAC Ch. 116, subchapter F.<sup>60</sup>

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<sup>60</sup> For example, permanent rock and concrete crushers is required to be no less than 200 feet from the property line and no less than 440 yards from any residence.

For this application, as noted in Response 1, 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.<sup>61</sup> 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.

In addition to the NAAQS, applicants must also 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 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."

**Comment 38 (Odor):** Commenters are concerned about odors from the proposed plant (*M.C. Reeves, Sarah Wakefield*).

**Response 38:** As stated above, the permit application must meet standards outlined in the Texas Clean Air Act, and applicable state and federal rules and regulations. This includes compliance with TCEQ rule 30 TAC § 101.4, which prohibits nuisance conditions. Specifically 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 tend to be injurious to or to adversely affect human health or welfare, animal life, vegetation, or property, or as to interfere with the normal use and enjoyment of animal life, vegetation, or property." As long as the facility is operated in compliance with the terms of the permit, nuisance conditions or conditions of air pollution are not expected. Additionally, emissions from the facility are not expected to produce nuisance odors. The TCEQ cannot deny authorization of a facility if a permit application demonstrates that all applicable statutes, rules, and regulations will be met.

The CFBs will burn the petroleum coke at high temperatures with excess air. Due to the high temperatures and excess air during the burning process, odors are not likely to occur. The high degree of sulfur scrubbing and bag filtration of particles also reduce the likelihood of CFB odors. The other proposed sources at the site are not odor-producing types. However, individuals are encouraged to report any concerns about nuisance issues by contacting the Corpus Christi Regional Office at 361-825-3101, or by calling the twenty-four hour toll-free Environmental Complaints Hotline at 1-888-777-3186. The TCEQ investigates all complaints received. If the facility is found to be out of compliance with the terms and conditions of the permit, it will be

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<sup>61</sup> 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.

subject to possible enforcement action. The status of complaints to the TCEQ may be tracked at the following website <http://www.tceq.state.tx.us/compliance/complaints/waci.html>

**Comment 39 (Economic Impact):** Commenters are concerned that: approval of this permit may negatively affect the local economy (*Margaret (Peggy) Duran, Mikell Smith, TCACC*); pollution from the proposed power plant will increase healthcare costs (*Kendra Lee, Neil McQueen, Emilie Olivares, Bruce Taylor, Mikell Smith*); the health effects will lead to lost work time and increased sick days (*C. Vallie*); the increased health problems will lead to added costs to taxpayers and insurance consumers (*C. Vallie*); the pollution will negatively affect Corpus Christi as a tourist and bird watching destination (*Roger Carrington, Andrea Dobson, Adriana Leiva, Emilie Olivares, Jeffrey Pollack, Lindsey Reeves, C. Vallie*); hurt hotel occupancy and convention business (*Roger Carrington*); and emissions from the proposed plant will be detrimental to the local fishing and shrimping industries (*Jessica Maloney, Patrick Nye*).

Commenter asserts that the number of jobs the proposed plant would provide could be met through other means, such as investment in energy efficiency and renewable energy (*Public Citizen Texas*).

One commenter states that he is against providing tax incentives to the applicant because they are not using the cleanest technology available (*Weldon Lucas*).

Commenters feel that any economic benefit derived from the proposed power plant would be outweighed by the negative consequences (*James Klein, Coastal Bend Group - Sierra Club*).

Commenter states that power generated by the proposed plant will be sold to the regional electrical grid and will not provide a savings on local electricity bills (*Bill Reeves*).

Commenters state that we should pursue clean economic growth that can benefit all and should look to California as a responsible state model (*Kevin Hopkins*).

**Response 39:** The TCEQ's jurisdiction is established by the Legislature and is limited to the issues set forth in statute. The TCAA does not provide for consideration of the economic ramifications of issuing an authorization. The TCAA only requires health effects and control technology reviews. As noted previously, adverse health effects are not expected to occur in the general public, sensitive subgroups, or animal life as a result of exposure to the expected levels of emissions from this site.

**Comment 40 (Permitting Process):** Some commenters are concerned about the speed of the permitting process for this plant (*Margaret (Peggy) Duran, Emilie Olivares*.) and some feel the TCEQ is speeding up the permitting process in favor of the applicant instead of slowing down the permitting process in the best interest of the citizens (*Ann Berry, Andrew Dyer, Christina Ommani Edwardson, Julia Landress, Leela Landress, J. Naomi Linzer, Sammy Manus, Coxie Sheppard*).

**Response 40:** 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 LBEC permit application and the Executive Director's preliminary decision to issue the permit, a little less than seven months, is within the six-to-fourteen-month range of other applications for TCEQ air authorizations 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 LBEC, these turnaround times were short.

**Comment 41 (Support for Permit):** Some commenters support the application for the plant, or express support for the Applicant (*Shirley Bass, Robert Cagle, City of Kingsville, Corpus Christi Chamber of Commerce, Corpus Christi Hispanic Chamber of Commerce, Corpus Christi Regional Economic Development Corporation, Will Douglas, Chris Hamilton, State Representative Abel Herrero, International Brotherhood of Electrical Workers (Local Union No. 278), Kevin Kieschnick, Nathan Kolenovsky, Ronnie Lee, Naismith Engineering, Inc., Robert Parker, Port of Corpus Christi Authority, Regional Economic Development Corporation, William Vaden*).

**Response 41:** 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. The revised Special Conditions are included as Attachment A to this document.

Respectfully submitted,

Texas Commission on  
Environmental Quality

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REPRESENTING THE  
EXECUTIVE DIRECTOR OF THE  
TEXAS COMMISSION ON  
ENVIRONMENTAL QUALITY

**ATTACHMENT A**  
**REVISED DRAFT PERMIT SPECIAL CONDITIONS**



## SPECIAL CONDITIONS

Permit Numbers 85013, HAP48, PAL41, and PSD-TX-1138

### EMISSION RATES AND PERMIT REPRESENTATIONS

1. This permit covers only those sources of emissions listed in the attached table entitled "Emission Sources - Maximum Allowable Emission Rates," and those sources are limited to the emission limits and other conditions specified in that attached table. This permit authorizes planned start-up and shutdown (SS) activities that comply with the emission limits in the maximum allowable emission rates table (MAERT) and the opacity limit of Special Condition No. 10. Compliance with the annual emission limits shall be based on throughput for a rolling 12-month year rather than the calendar year.
2. Emission limits are based upon representations in the permit application dated May 19, 2008, and subsequent updates dated October 3, November 12, December 11, December 29, and December 31, 2008; and January 5, 2009.

### FEDERAL APPLICABILITY

3. The Circulating Fluidized Bed (CFB) Boilers, identified as Emission Point Nos. (EPNs) CFB1, CFB2, CFB3, and CFB4, shall comply with applicable requirements of the U.S. Environmental Protection Agency (EPA) regulations in Title 40 Code of Federal Regulations (40 CFR) Part 60, Standards of Performance for New Stationary Sources, Subpart A, General Conditions, and Subpart Da, Standards of Performance for Electric Utility Steam Generating Units.
4. The Auxiliary Boilers, identified as EPNs AUX-BOIL1 and AUX-BOIL2, shall comply with the applicable requirements of 40 CFR Part 60, Subpart A and Subpart Db, Standards of Performance for Industrial, Commercial, and Institutional Steam Generating Units.
5. The Stationary Diesel Engines, identified as EPNs ENG-EG1, ENG-EG2, ENG-FWMAIN, ENG-FWB1, ENG-FWB2, ENG-FWB3, ENG-FWB4, ENG-BFWP1, ENG-BFWP2, ENG-BFWP3, and ENG-BFWP4, shall comply with the applicable requirements of 40 CFR Part 60, Subpart A and Subpart III, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines.
6. The Stationary Diesel Engines, identified as EPNs ENG-EG1, ENG-EG2, ENG-BFWP1, ENG-BFWP2, ENG-BFWP3, and ENG-BFWP4, shall comply with the initial notification requirements of 40 CFR § 63.6645(h), as specified in 40 CFR Part 63, Subpart ZZZZ, National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines, § 63.6590(b)(1)(i).

SPECIAL CONDITIONS

Permit Numbers 85013, HAP48, PAL41, and PSD-TX-1138

Page 2

7. If any condition of this permit is more stringent than the regulations identified in Special Condition Nos. 3 through 6, then for the purposes of complying with this permit, the permit shall govern and be the standard by which compliance shall be demonstrated.

FUEL SPECIFICATIONS, OPERATING LIMITATIONS, PERFORMANCE STANDARDS, AND CONSTRUCTION SPECIFICATIONS

8. Fuel fired in the CFB Boilers (EPNs CFB1, CFB2, CFB3, and CFB4) shall be limited to:
  - A. Petroleum coke with:
    - (1) elemental sulfur content not to exceed a 12-month rolling average of 4.9 pounds sulfur per million British thermal units (lb/MMBtu) of heat input, with the heat input based on fuel higher heating value (HHV); and
    - (2) trace metal concentrations not to exceed the concentration limitations identified in Attachment A of this permit.
  - B. Pipeline-quality natural gas.
  - C. Propane.
  - D. Use of any other fuel will require prior approval from the permitting authority.
  - E. Upon request by the Executive Director of the Texas Commission on Environmental Quality (TCEQ) or any air pollution control program having jurisdiction, the holder of this permit shall provide a sample and/or an analysis of the fuel fired in the CFB Boilers or shall allow air pollution control agency representatives to obtain a sample for analysis.
9. The CFB Boilers (EPNs CFB1, CFB2, CFB3, and CFB4) shall each be limited to a maximum heat input of 3,080 MMBtu/hr, averaged over a calendar month, based on the HHV of the fuel fired.
10. Opacity of emissions from EPNs CFB1, CFB2, CFB3, and CFB4 must not exceed 10 percent, averaged over a six-minute period, except for those periods described in Title 30 Texas Administrative Code § 111.111(a)(1)(E) [30 TAC § 111.111(a)(1)(E)], 40 CFR Part 60, § 60.11(c), or as otherwise allowed by rule or statute.

SPECIAL CONDITIONS

Permit Numbers 85013, HAP48, PAL41, and PSD-TX-1138

Page 3

11. Emissions from the CFB Boilers (EPNs CFB1, CFB2, CFB3, and CFB4) shall not exceed the performance standards in the following tables. The performance standards in these tables shall apply at all times except during periods of start-up and shutdown as identified in the permit application.

A. Standards demonstrated by Continuous Emissions Monitoring Systems (CEMS):

Pollutant <sup>1</sup>	Performance Standard (lb/MMBtu) <sup>2</sup>	Compliance Averaging Period
NO <sub>x</sub>	0.10	Hourly
NO <sub>x</sub>	0.070	30-day rolling
SO <sub>2</sub>	0.178	30-day rolling
SO <sub>2</sub>	0.15	12-month rolling
CO	0.11	12-month rolling
Hg	0.0000020	12-month rolling
	Performance Standard (ppmv)	
NH <sub>3</sub>	10 ppmv	Hourly
NH <sub>3</sub>	5 ppmv	12-month rolling

B. Standards demonstrated by Reference Method<sup>3</sup> (RM) testing:

Pollutant <sup>1</sup>	Performance Standard (lb/MMBtu) <sup>2</sup>	Compliance Demonstration Period
PM/PM <sub>10</sub> (front-half catch)	0.011	3-hour average
PM/PM <sub>10</sub> total	0.033 <sup>4</sup>	3-hour average
VOC	0.0050	3-hour average
H <sub>2</sub> SO <sub>4</sub>	0.022	3-hour average
HCl	0.00089	3-hour average
HF	0.000082	3-hour average

## SPECIAL CONDITIONS

Permit Numbers 85013, HAP48, PAL41, and PSD-TX-1138

Page 4

### Notes:

<sup>1</sup> NO <sub>x</sub> - nitrogen oxides	PM <sub>10</sub> - PM ≤10 <sub>μm</sub> in diameter	HF - hydrogen fluoride
SO <sub>2</sub> - sulfur dioxide	VOC - volatile organic compounds	Hg - mercury
CO - carbon monoxide	H <sub>2</sub> SO <sub>4</sub> - sulfuric acid mist	NH <sub>3</sub> - ammonia
PM - particulate matter	HCl - hydrogen chloride	

<sup>2</sup> lb/MMBtu - pounds of emissions per million Btu of heat input. Heat input is based on fuel HHV.  
ppmv - parts per million by volume, dry, adjusted to 3 percent oxygen (O<sub>2</sub>).

<sup>3</sup> RM - EPA Reference Methods, based on the average of three stack sampling runs to be conducted as prescribed by Special Condition Nos. 28 and 36.

<sup>4</sup> Total PM/PM<sub>10</sub> including back-half (condensibles) catch of sampling train.

12. In the event that a CEMS for NO<sub>x</sub> is not operating for a period longer than one hour while a CFB boiler is operating, the permit holder shall operate at no less than the ammonia feed rate to the selective non-catalytic reduction (SNCR) system that was established during a successful initial performance test (adjusted for load) or at the NO<sub>x</sub>-compliant feed rate that was measured prior to the loss of the CEMS (adjusted to load), whichever feed rate is higher.
13. In the event that a CEMS for SO<sub>2</sub> is not operating for a period longer than one hour while a CFB boiler is operating, the permit holder shall operate at no less than the limestone feed rate to the boiler and lime feed rate to the polishing scrubber that were established during a successful initial performance test (adjusted for load) or at the SO<sub>2</sub>-compliant feed rates that were measured prior to the loss of the CEMS (adjusted to load), whichever feed rates are higher.
14.
  - A. The holder of this permit shall operate the CFB Boiler and associated air pollution control equipment in accordance with good air pollution control practice to minimize emissions during start-up and shutdown (SS) activities, by operating in accordance with a written SS plan. The plan shall include detailed procedures for review of relevant operating parameters of the CFB Boilers and associated air pollution control equipment during SS to make adjustments to minimize excess emissions. The plan shall also address readily foreseeable start-up scenarios, including hot start-ups, and provide for appropriate review of the operational condition of the boiler before initiating start-up.
  - B. In order to limit maximum hourly emissions of SO<sub>2</sub>, the start-up of the CFBs must be sequenced so that only one CFB at a time is firing petroleum coke while operating in start-up mode.
  - C. No bypassing of a CFB baghouse is allowed while the CFB is firing petroleum coke, regardless of whether the CFB is operating in start-up or shutdown mode.

SPECIAL CONDITIONS

Permit Numbers 85013, HAP48, PAL41, and PSD-TX-1138

Page 5

- D. Only planned and routine start-up/shutdown operations are authorized by this permit. Emissions resulting from any unscheduled and/or unplanned start-up/shutdown activity associated with an upset (emissions event) are not authorized by this permit.
15. The CFB Boiler Stacks (EPNs CFB1, CFB2, CFB3, and CFB4) shall be approximately 500 feet tall with an exit diameter of approximately 16 feet. Stack sampling ports and platform(s) shall be constructed on each CFB boiler stack as specified in the attachment entitled "Chapter 2, Stack Sampling Facilities," or an alternate design may be approved by the TCEQ Corpus Christi Regional Director.
16. The Auxiliary Boilers (identified as EPNs AUX-BOIL1 and AUX-BOIL2) shall meet the following specifications:
- A. Emissions, averaged over 3 hours of operation, while operating at greater than 25 percent load, shall not exceed:
    - (1) NO<sub>x</sub> - 0.035 lb/MMBtu;
    - (2) CO - 50 ppmvd, at 3 percent O<sub>2</sub>; and
    - (3) Filterable PM - 0.0019 lb/MMBtu.
  - B. Emissions, averaged over three hours of operation, during start-up, shutdown, or while operating at less than 25 percent load, shall not exceed:
    - (1) NO<sub>x</sub> - 0.10 lb/MMBtu; and
    - (2) CO - 500 ppmvd, 3 percent oxygen
  - C. Opacity of emissions shall not exceed 5 percent, averaged over a six-minute period.
  - D. Fuel shall be limited to pipeline-quality natural gas.
  - E. Operation of each Auxiliary Boiler shall be limited to a maximum of a 28.5 percent annual capacity factor. Capacity factor is the ratio between the actual heat input during a period of 12 consecutive calendar months and the potential heat input had the boiler operated for 8,760 hours during that 12-month period at the maximum design heat input capacity.
17. The Propane Vaporizers (identified as EPNs PROP-VAP1 and PROP-VAP2) shall meet the following specifications:

SPECIAL CONDITIONS

Permit Numbers 85013, HAP48, PAL41, and PSD-TX-1138

Page 6

- A. Emissions, averaged over 3 hours of operation, shall not exceed:
    - (1) NO<sub>x</sub> - 0.10 lb/MMBtu;
    - (2) CO - 100 ppmvd, at 3 percent O<sub>2</sub>; and
    - (3) Filterable PM - 0.0019 lb/MMBtu.
  - B. Opacity of emissions shall not exceed 5 percent, averaged over a six-minute period.
  - C. Fuel shall be limited to propane.
  - D. Operation of each propane vaporizer shall be limited to a maximum of a 28.5 percent annual capacity factor. Capacity factor is the ratio between the actual heat input during a period of 12 consecutive calendar months and the potential heat input had the boiler operated for 8,760 hours during that 12-month period at the maximum design heat input capacity.
18. The 1,600-kW Diesel-Fired Emergency Generators (identified as EPNs ENG-EG1 and ENG-EG2) and the 2,000-hp Diesel-Fired Boiler Feed Water Pumps (identified as EPNs ENG-BFWP1, ENG-BFWP2, ENG-BFWP3, and ENG-BFWP4) shall meet the following specifications:
- A. Fuel shall be limited to diesel engine fuel containing no more than 500 parts per million (ppm) by weight sulfur. Purchased diesel engine fuel shall comply with the EPA standards for nonroad diesel fuel in 40 CFR Part 80, Regulation of Fuels and Fuel Additives, in effect at the time of purchase.
  - B. Operation of each generator and pump shall be limited to a maximum of 500 hours per year.
19. The 360-hp Diesel-Fired Fire Water Pump (identified as EPN ENG-FWMAIN) and the 100-hp Diesel-Fired Fire Water Pumps (identified as EPNs ENG-FWB1, ENG-FWB2, ENG-FWB3, and ENG-FWB4) shall meet the following specifications:
- A. Fuel shall be limited to diesel engine fuel containing no more than 500 ppm by weight sulfur. Purchased diesel engine fuel shall comply with the EPA standards for nonroad diesel fuel in 40 CFR Part 80, Regulation of Fuels and Fuel Additives, in effect at the time of purchase.

## SPECIAL CONDITIONS

Permit Numbers 85013, HAP48, PAL41, and PSD-TX-1138

Page 7

- B. Operation of each pump shall be limited to a maximum of 500 hours per year unless a greater number of hours of operation is required to fight a fire.

## CHEMICAL AND FUEL STORAGE

- 20. Anhydrous ammonia storage is subject to the following requirements.
  - A. Maximum on-site storage is limited to the two pressure tanks identified in the permit application, each with a nominal capacity of 10,000 gallons.
  - B. The tanks shall be located within
    - (1) a physical barrier to vehicular traffic; and
    - (2) a containment system which is capable of holding the entire volume of material stored.
  - C. Piping and unloading points shall be protected from impact by falling objects.
  - D. Each tank vent valve shall be equipped with an alarm which will notify personnel that the relief valve has opened.
  - E. Tanks shall be vapor balanced to the transport vessel during all tank filling operations. The vapor return line shall be purged back to either the transport vessel or the storage tank after every tank loading operation and prior to disconnection of the line. Interlocks shall be installed so that the unloading pump will not run unless the vapor return line to the transport vessel is connected.
  - F. All plant personnel assigned to anhydrous ammonia injection operations shall participate in continuing training in safety guidelines for the handling of anhydrous ammonia, to be conducted no less frequently than once every two years; new and transferred personnel shall complete all initial training required for their specific assignments prior to assumption of their new duties.
  - G. Overhead activity involving the lifting of heavy equipment above the anhydrous ammonia storage area shall not be permitted.
  - H. The holder of this permit shall maintain a complete emergency response plan at the plant site that describes the course of action to be taken by personnel in the event of an

SPECIAL CONDITIONS

Permit Numbers 85013, HAP48, PAL41, and PSD-TX-1138

Page 8

anhydrous ammonia tank or line rupture, or a severe anhydrous ammonia leak. This plan shall include water-mitigation methods, notification of the proper civil authorities, and any potentially affected residences and any other appropriate organizations. This plan shall be made available upon request to representatives of the TCEQ or any local program having jurisdiction.

- 21. Audio, olfactory, and visual checks for ammonia leaks shall be made once per shift within the operating area.
  - A. No later than one hour following detection of a leak, plant personnel shall take one or more of the following actions:
    - (1) Locate and isolate the leak; and/or
    - (2) Stop the leak by bypassing the leaking equipment or taking equipment out of service.
  - B. If the leaking equipment cannot be repaired or replaced within 6 hours, use clamping procedures to prevent the leak until replacement or repair can be performed.
- 22. In any consecutive 12-month period, the holder of this permit shall not receive more than the following quantities of diesel fuel:

Tank Number	12-Month Throughput (Gallons)
TNK-EG1	2,734
TNK-EG2	2,734
TNK-FWMAIN	9,841
TNK-FWB1	54,674
TNK-FWB2	54,674
TNK-FWB3	54,674
TNK-FWB4	54,674
TNK-BFWP1	63,100

SPECIAL CONDITIONS

Permit Numbers 85013, HAP48, PAL41, and PSD-TX-1138

Page 9

<b>Tank Number</b>	<b>12-Month Throughput (Gallons)</b>
TNK-BFWP2	63,100
TNK-BFWP3	63,100
TNK-BFWP4	63,100

MATERIAL HANDLING OPERATING LIMITATIONS AND STANDARDS

23. Permanent plant roads shall be paved with a cohesive hard surface which can be cleaned by sweeping or washing. Other roads shall be sprinkled with water and/or surface crusting agents as necessary to maintain compliance with all TCEQ rules and regulations.
24. No visible emissions may leave the plant property. If visible emissions do leave the plant property, further controls or measures shall be installed and/or implemented to limit visible emissions. A trained observer with delegation from the Executive Director of the TCEQ may determine compliance with this special condition by 40 CFR Part 60, Appendix A, RM 22, or equivalent. As represented in the permit application, petroleum coke and limestone will be brought into the facility property via enclosed conveyors only. Lime, soda ash, sand, and activated carbon will be unloaded pneumatically from trucks and conveyed to bins or silos equipped with baghouses. Fly ash from the boiler exhaust baghouses and bottom ash from the boilers will be pneumatically transferred to storage silos. No materials may be stored in open stockpiles on the facility property. Any spillage of material shall be cleaned up as soon as possible and handled in such a way as to minimize emissions.
25. As determined by a certified opacity observer with delegation from the Executive Director of the TCEQ and according to 40 CFR Part 60, Appendix A, Reference Method 9, or equivalent, opacity of emissions from any single fabric filter baghouse stack listed in Special Condition Nos. 26 and 27, and from load out of fly ash and bottom ash from the storage silos to trucks, shall not exceed 5 percent averaged over a six-minute period. Continuous demonstration of compliance with this special condition is not required.
26. Material handling baghouses, designed to meet an emission limit of 0.01 grain PM per dry standard cubic foot of exhaust, properly installed and in good working order, shall control PM emissions from the following sources:

SPECIAL CONDITIONS

Permit Numbers 85013, HAP48, PAL41, and PSD-TX-1138

Page 10

Source	EPN
Limestone Bunker No. 1	SILO-LMST1
Limestone Bunker No. 2	SILO-LMST2
Limestone Bunker No. 3	SILO-LMST3
Limestone Bunker No. 4	SILO-LMST4
Carbon For ACI Silo No. 1	SILO-ACI1
Carbon For ACI Silo No. 2	SILO-ACI2
Carbon For ACI Silo No. 3	SILO-ACI3
Carbon For ACI Silo No. 4	SILO-ACI4
Lime Silo No. 1	SILO-LIME1
Lime Silo No. 2	SILO-LIME2
Lime Silo No. 3	SILO-LIME3
Lime Silo No. 4	SILO-LIME4
Lime Silo No. 5	SILO-LIME5
Lime Silo No. 6	SILO-LIME6
Lime Silo No. 7	SILO-LIME7
Lime Silo No. 8	SILO-LIME8
Unit 1 Sand Day Bin	BIN-SAND1
Unit 2 Sand Day Bin	BIN-SAND2
Unit 3 Sand Day Bin	BIN-SAND3
Unit 4 Sand Day Bin	BIN-SAND4
Water Treatment Lime Silo	WT-LIME
Water Treatment Soda Ash Silo	WT-SODA

SPECIAL CONDITIONS

Permit Numbers 85013, HAP48, PAL41, and PSD-TX-1138

Page 11

27. Material handling baghouses, designed to meet an emission limit of 0.005 grain PM per dry standard cubic foot of exhaust, properly installed and in good working order, shall control PM emissions from the following sources:

Source	EPN
Fly Ash Silo No. 1	SILO-FA1
Fly Ash Silo No. 2	SILO-FA2
Fly Ash Silo No. 3	SILO-FA3
Fly Ash Silo No. 4	SILO-FA4
Bottom Ash Silo No. 1	SILO-BA1
Bottom Ash Silo No. 2	SILO-BA2
Bottom Ash Silo No. 3	SILO-BA3
Bottom Ash Silo No. 4	SILO-BA4
Coke Silo No. 1	SILO-COKE1
Coke Silo No. 2	SILO-COKE2
Coke Silo No. 3	SILO-COKE3
Coke Silo No. 4	SILO-COKE4
Coke Silo No. 5	SILO-COKE5
Coke Silo No. 6	SILO-COKE6
Coke Silo No. 7	SILO-COKE7
Coke Silo No. 8	SILO-COKE8

INITIAL DEMONSTRATION OF COMPLIANCE

28. The holder of this permit shall perform initial stack sampling and other testing to establish the actual quantities of air contaminants being emitted into the atmosphere. Unless

## SPECIAL CONDITIONS

Permit Numbers 85013, HAP48, PAL41, and PSD-TX-1138

Page 12

otherwise specified in this Special Condition No. 28, the sampling and testing shall be conducted in accordance with the methods and procedures specified in Special Condition No. 29. The holder of this permit is responsible for providing sampling and testing facilities and conducting the sampling and testing operations at his expense. The TCEQ Executive Director or his designated representative shall be afforded the opportunity to observe all such sampling.

A. For the CFB Boilers (EPNs, CFB1, CFB2, CFB3, and CFB4):

- (1) Demonstrate compliance with the performance standards of Special Condition No. 11B and the hourly emission rates of the MAERT, applicable to normal operations, using the average of three one-hour stack sampling test runs for each contaminant.
- (2) Air contaminants to be sampled and analyzed under (1) above include: NO<sub>x</sub>, SO<sub>2</sub>, CO, VOC, H<sub>2</sub>SO<sub>4</sub>, HCl, HF, PM, PM<sub>10</sub>, NH<sub>3</sub>, and Hg. Diluents to be measured include O<sub>2</sub> or carbon dioxide (CO<sub>2</sub>).
- (3) Demonstrate compliance with the performance standards of Special Condition No. 10 applicable to normal operations, using the average of 30 six-minute readings as provided in 40 CFR § 60.11(b).
- (4) Demonstrate compliance with 40 CFR Part 60, Subparts A and Da, for NO<sub>x</sub>, SO<sub>2</sub>, PM, and opacity. For NO<sub>x</sub> and SO<sub>2</sub>, the 30-day test results shall also be used to demonstrate compliance with the 30-day performance specifications for NO<sub>x</sub> and SO<sub>2</sub> in Special Condition No. 11A.
- (5) Demonstrate compliance with the lb/MMBtu performance standards listed on Attachment A and the lb/hr emission rate for lead listed on the MAERT using the average of three one-hour stack sampling test runs.
- (6) Boiler load during testing shall be maintained as follows.
  - (a) Operate at maximum firing rates for the atmospheric conditions occurring during the test as measured by millions of pounds of steam generated per hour or MW of electric generator output. If during subsequent operations the steam generated as measured by millions of pounds of steam generated per hour or MW of electric generator output is greater than that recorded during the test, stack sampling shall be performed at the new operating condition within 150 days. This sampling may be waived by the TCEQ Air

SPECIAL CONDITIONS

Permit Numbers 85013, HAP48, PAL41, and PSD-TX-1138

Page 13

Section Manager of the appropriate TCEQ regional office. At no time may the emission rate exceed the rates specified in the MAERT.

- (b) During 30-day average emission testing, the boiler load does not have to be maximum, but the load must be representative of future operating conditions and must include at least one 24-hour period at full load.

B. For the Auxiliary Boilers (EPNs AUX-BOIL1 and AUX-BOIL2):

- (1) Demonstrate compliance with the NO<sub>x</sub>, CO, and filterable PM performance standards of Special Condition No. 16A and the hourly NO<sub>x</sub> and CO emission rates of the MAERT, using the average of three, one-hour stack sampling test runs for each contaminant.
- (2) Demonstrate compliance with the opacity limitation of 40 CFR Part 60 Subpart Db and Special Condition No. 16C.
- (3) Demonstrate compliance with the SO<sub>2</sub> emission rate of the MAERT through fuel sampling to demonstrate use of pipeline quality natural gas.
- (4) Demonstrate compliance with the VOC emission rate of the MAERT through operation of the auxiliary boilers within their design limitations.

C. For the Propane Vaporizers (EPNs PROP-VAP1 and PROP-VAP2):

- (1) Demonstrate compliance with the NO<sub>x</sub>, CO, and filterable PM performance standards of Special Condition No. 17A and the hourly NO<sub>x</sub> and CO emission rates of the MAERT, using the average of three, one-hour stack sampling test runs for each contaminant.
- (2) Demonstrate compliance with the opacity limitation of Special Condition No. 17B.
- (3) Demonstrate compliance with the SO<sub>2</sub> emission rate of the MAERT through fuel sampling of the propane.
- (4) Demonstrate compliance with the VOC emission rate of the MAERT through operation of the propane vaporizers within their design limitations.

D. For at least two material handling/storage baghouses, one from Special Condition No. 26 and one from Special Condition No. 27, to be selected by the Corpus Christi Regional

## SPECIAL CONDITIONS

Permit Numbers 85013, HAP48, PAL41, and PSD-TX-1138

Page 14

Director of the TCEQ, or his designated representative, sample PM emissions using Reference Method 5 testing to show compliance with the emission limits of Special Condition Nos. 26 and 27.

- E. For the Diesel-Fired Emergency Generators (identified as EPNs ENG-EG1 and ENG-EG2) and the Diesel-Fired Boiler Feed Water Pumps (identified as EPNs ENG-BFWP1, ENG-BFWP2, ENG-BFWP3, and ENG-BFWP4) demonstrate compliance with the emission rates of the MAERT by showing compliance with the requirements of Special Condition No. 18. For the Diesel-Fired Fire Water Pump (identified as EPN ENG-FWMAIN) and the Diesel-Fired Fire Water Pumps (identified as EPNs ENG-FWB1, ENG-FWB2, ENG-FWB3, and ENG-FWB4) demonstrate compliance with the emission rates of the MAERT by showing compliance with the requirements of Special Condition No. 19.
- F. For the Cooling Towers (identified as EPNs CTWR1 and CTWR2) demonstrate compliance with the emission rates of the MAERT by maintaining records that demonstrate that the drift eliminators are designed to limit drift as specified in the permit application, and by inspection of the modules, selected by the TCEQ Corpus Christi Regional Director or his designated representative, for consistency with the specified design, flow bypassing the drift eliminators, and damage to the drift eliminators. The manufacturer's specifications and drawings of the internals shall be provided to facilitate inspection.
- G. Requests to waive testing for any pollutant specified in this condition shall be submitted to the TCEQ Office of Permitting and Registration, Air Permits Division. Test waivers and alternate or equivalent procedure proposals for New Source Performance Standards testing which must have EPA approval shall be submitted to the TCEQ Corpus Christi Regional Office.
- H. For each CFB Boiler, sampling as required by this condition shall occur within 60 days after the particular boiler achieves a fuel firing rate of 3,080 MMBtu/hr, but no later than 180 days after initial start-up. The first boiler operating day of 30-day average initial performance testing required by 40 CFR § 60.46a(f) must commence within this time.
- I. The deadlines established by this condition may be extended by the TCEQ Corpus Christi Regional Office for good cause shown.

SPECIAL CONDITIONS

Permit Numbers 85013, HAP48, PAL41, and PSD-TX-1138

Page 15

TEST METHODS AND PROCEDURES

29. A. Sampling shall be conducted in accordance with the appropriate procedures of the TCEQ Sampling Procedures Manual, EPA Methods in 40 CFR Part 60, Appendix A and 40 CFR Part 51, Appendix M, EPA Conditional Test Methods, and American Society for Testing and Materials (ASTM) as follows:

- (1) Appendix A, Methods 1 through 4, as appropriate, for exhaust flow, diluent, and moisture concentration;
- (2) Appendix A, Method 5, 5a through 5i, or 17, modified to include back-half condensibles, for the concentration of PM;
- (3) Appendix A, Method 5, 5a through 5i, or 17, for the filterable concentration of PM (front-half catch);
- (4) Appendix A, Method 6, 6a, 6c, or 8, for the concentration of SO<sub>2</sub>;
- (5) Appendix A, Method 7E for the concentrations of NO<sub>x</sub> and O<sub>2</sub>, or equivalent methods;
- (6) Appendix A, Method 8 or a modified Method 8 for H<sub>2</sub>SO<sub>4</sub>;
- (7) Appendix A, Method 9 for opacity, as provided in 40 CFR § 60.11(b);
- (8) Appendix A, Method 10 for the concentration of CO;
- (9) Appendix A, Method 19, for applicable calculation methods;
- (10) Appendix A, Method 25A, modified to exclude methane and ethane, for the concentration of VOC (to measure total carbon as propane);
- (11) Appendix A, Method 26 or 26A for HCl and HF;
- (12) EPA Conditional Test Method 27 (CTM-027), for NH<sub>3</sub>;
- (13) Appendix A, Method 29 for the metals listed in Attachment A;
- (14) Appendix M, Methods 201A and 202, or Appendix A, Reference Method 5, modified to include back-half organic condensibles, for the concentration of PM

SPECIAL CONDITIONS

Permit Numbers 85013, HAP48, PAL41, and PSD-TX-1138

Page 16

less than 10 microns in diameter, PM<sub>10</sub>. For inorganic condensables, a parallel controlled condensation method (NCASI Method 8A) shall be used. (Any method, procedures, or apparatus not identified in the CFR must be approved by the TCEQ and EPA prior to use);

- (15) Appendix M, Methods 201A or Appendix A, Reference Method 5, for the filterable concentration of PM less than 10 microns in diameter, PM<sub>10</sub> (front-half catch); and
- (16) ASTM D6784-02, Standard Test Method for Elemental, Oxidized, Particle-Bound, and Total Mercury in Flue Gas Generated from Coal-Fired Stationary Sources (also known as the Ontario Hydro Method), Appendix A, Method 30A or 30B, or other approved EPA methods.

B. Any deviations from the procedures in A. must be approved by the Executive Director of the TCEQ or his designated representative prior to sampling.

C. The TCEQ Corpus Christi Regional Office shall be given notice as soon as testing is scheduled but not less than 45 days prior to sampling to schedule a pretest meeting.

(1) The notice shall include:

- (a) Date for pretest meeting.
- (b) Date sampling will occur.
- (c) Name of firm conducting sampling.
- (d) Type of sampling equipment to be used.
- (e) Method or procedure to be used in sampling.
- (f) Projected date of commencement of the 30-day rolling average initial performance tests for SO<sub>2</sub> and NO<sub>x</sub>, in accordance with 40 CFR § 60.46a(f) and Special Condition No. 11A.

(2) The purpose of the pretest meeting is to review the necessary sampling and testing procedures, to provide the proper data forms for recording pertinent data, and to review the format procedures for submitting the test reports. The permit holder shall present at the pretest meeting the manner in which stack sampling will be executed in order to demonstrate compliance with emission standards found in this permit and 40 CFR Part 60, Subparts Da and Db.

(3) Prior to the pretest meeting, a written proposed description of any deviation from sampling procedures specified in permit conditions or TCEQ, EPA or ASTM

SPECIAL CONDITIONS

Permit Numbers 85013, HAP48, PAL41, and PSD-TX-1138

Page 17

sampling procedures shall be made available to the TCEQ. The TCEQ Corpus Christi Regional Director shall approve or disapprove of any deviation from specified sampling procedures.

- D. Information in the test report shall include the following data for each test run:
- (1) hourly petroleum coke firing rate (in tons);
  - (2) average petroleum coke Btu (HHV)/lb as-received and dry weight;
  - (3) average steam production rate (in millions of pounds per hour) or average generator output (in MW);
  - (4) daily sulfur content and heat content of the fuel measured in accordance with EPA Reference Method 19 to show compliance with 40 CFR Part 60, Subpart Da;
  - (5) control device operating rates, including SNCR reagent injection and solids injection rates (limestone, lime, and activated carbon);
  - (6) emissions in the units of the limits of this permit, lb/hr and lb/MMBtu, and three-hour or 30-day average, as appropriate; and
  - (7) any additional records deemed necessary during the stack sampling pre-test meeting.
- E. Two copies of all final sampling reports shall be forwarded to the TCEQ within 60 days after sampling is completed. Sampling reports shall comply with the attached conditions of Chapter 14 of the TCEQ Sampling Procedures Manual. The reports shall be distributed as follows:
- One copy to the TCEQ Corpus Christi Regional Office.
  - One copy to the TCEQ Austin Office of Permitting and Registration, Air Permits Division.
- F. The deadlines established by this condition may be extended by the TCEQ Corpus Christi Regional Office for good cause shown.

SPECIAL CONDITIONS

Permit Numbers 85013, HAP48, PAL41, and PSD-TX-1138

Page 18

CONTINUOUS DEMONSTRATION OF COMPLIANCE

30. The holder of this permit shall install, calibrate, maintain, and operate continuous emission monitoring systems (CEMS) to measure and record the concentrations of NO<sub>x</sub>, CO, and SO<sub>2</sub> from EPNs CFB1, CFB2, CFB3, and CFB4. Diluents to be measured include O<sub>2</sub> or CO<sub>2</sub>. The CEMS data shall be used to determine continuous compliance with the NO<sub>x</sub>, CO, and SO<sub>2</sub> emission limitations in Special Condition No. 3 (NO<sub>x</sub> and SO<sub>2</sub>), Special Condition No. 11A, and the attached MAERT. Continuous compliance with the performance standards of Special Condition No. 11A shall commence on the first boiler operating day of the 30-day initial performance testing required by NSPS Subpart Da.
- A. The CEMS shall meet the design and performance specifications, pass the field tests, and meet the installation requirements and the data analysis and reporting requirements specified in the applicable Performance Specification Nos. 1 through 9, 40 CFR Part 60, Appendix B or an acceptable EPA alternative. If there are no applicable performance specifications in 40 CFR Part 60, Appendix B, contact the TCEQ Office of Permitting and Registration, Air Permits Division in Austin for requirements to be met.
  - B. The holder of this permit shall assure that the CEMS meets the applicable quality assurance requirements specified in 40 CFR Part 60, Appendix F, Procedure 1, or an acceptable EPA alternative. Relative accuracy exceedances, as specified in 40 CFR Part 60, Appendix F, § 5.2.3, any CEMS downtime, and all cylinder gas audit exceedances of ±15 percent accuracy shall be reported semiannually to the TCEQ Corpus Christi Regional Director; necessary corrective action shall be taken on a timely basis. Supplemental stack concentration measurements may be required at the discretion of the TCEQ Corpus Christi Regional Director.
  - C. The monitoring data shall be reduced to hourly average concentrations at least once every day, using normally a minimum of four equally-spaced data points from each one-hour period. The individual average concentrations shall be reduced to units of the permit allowable emissions rate in pounds per hour at least once every day. Pound per hour data shall be summed on a monthly basis to tons per rolling 12 months and used to determine compliance with the annual emissions limits of this permit. If the CEMS malfunctions, then the recorded concentrations may be reduced to units of the permit allowable as soon as practicable after the CEMS resumes normal operation.
  - D. The TCEQ Corpus Christi Regional Office shall be notified at least 30 days prior to any required relative accuracy test audits in order to provide it the opportunity to observe the

## SPECIAL CONDITIONS

Permit Numbers 85013, HAP48, PAL41, and PSD-TX-1138

Page 19

testing.

- E. If applicable, each CEMS will be required to meet the design and performance specifications, pass the field tests, and meet the installation requirements and data analysis and reporting requirements specified in the applicable performance specifications in 40 CFR Part 75, Appendix A and B, as an acceptable alternative to paragraph A. of this condition.
  - F. Each CEMS shall be operational during 95 percent of the operating hours of the CFB Boiler, exclusive of the time required for zero and span checks. If this operational criterion is not met for a calendar quarter, the holder of this permit shall develop and implement a monitor quality improvement plan within the following calendar quarter. The plan should address the downtime issues to improve availability and reliability. The plan should provide additional assurance of compliance including record keeping of appropriate SNCR reagent and solids flow rates for monitor downtime periods.
31. The holder of this permit shall install, calibrate, operate, and maintain a continuous opacity monitoring system (COMS) to measure and record the opacity of emissions from EPNs CFB1, CFB2, CFB3, and CFB4. The COMS data shall be used to determine continuous compliance with the opacity emission limitations in Special Condition Nos. 3 and 10 and the baghouse performance monitoring requirements of 40 CFR § 60.48Da(o)(2).
- A. The COMS shall satisfy all of the Federal NSPS requirements for COMS as specified in 40 CFR Part 60, Appendix B, Performance Specification 1 (PS-1). In order to demonstrate compliance with PS-1, the COMS shall meet the manufacturer's design and performance specifications, and undergo performance evaluation testing as outlined in 40 CFR Subpart A, § 60.13. The TCEQ Corpus Christi Regional Director shall be notified 30 days prior to the certification.
  - B. The COMS shall be zeroed and spanned daily as specified in 40 CFR § 60.13. Corrective action shall be taken when the 24-hour span drift exceeds two times the amounts specified in PS-1, or as specified by the TCEQ if not specified in PS-1.
  - C. If the EPA promulgates a quality assurance, quality control standard for the COMS, a Quality Assurance Plan (QAP) shall be prepared in accordance with the EPA standard for the COMS and adhered to, within six months after promulgation. The QAP shall be maintained to reflect changes to component technology. At the request of the TCEQ Corpus Christi Regional Director, the holder of this permit shall submit documentation demonstrating compliance with these standards.

## SPECIAL CONDITIONS

Permit Numbers 85013, HAP48, PAL41, and PSD-TX-1138

Page 20

- D. The data shall be reduced to six-minute opacity averages, using a minimum of 36 equally-spaced data points from each six-minute period, as specified in 40 CFR § 60.13.
- E. The COMS shall be operational during 95 percent of the operating hours of the CFB Boiler, exclusive of the time required for zero and span checks. If this operational criteria is not met for a calendar quarter, the holder of this permit shall develop and implement a monitor quality improvement plan within the following calendar quarter. The plan should address the downtime issues to improve availability and reliability. The plan should provide additional assurance of compliance including EPA Reference Method 9 support during daytime monitor downtime periods and parametric support for nighttime monitor downtime periods.
- F. Recertification, if required, shall be based on the requirements of 40 CFR Part 60, Appendix B, PS-1 in effect at the time of initial certification.
32. The holder of this permit shall install, calibrate, operate, and maintain CEMS to measure and record the concentration of  $\text{NH}_3$  from EPNs CFB1, CFB2, CFB3, and CFB4. The  $\text{NH}_3$  concentrations shall be corrected and reported in accordance with Special Condition No. 11A. The CEMS data shall be used to determine continuous compliance with the  $\text{NH}_3$  performance specifications in Special Condition No. 11A and the MAERT. Any other method used for measuring  $\text{NH}_3$  slip shall require prior approval from the TCEQ Corpus Christi Regional Office, with consultation between the Regional Office and the TCEQ Air Permits Division.
33. The holder of this permit shall install, calibrate, operate, and maintain CEMS or sorbent trap monitoring system to measure and record the concentration of mercury from EPNs CFB1, CFB2, CFB3, and CFB4, as described in 40 CFR Parts 60 and 75 (the rule versions in effect immediately prior to February 8, 2008 vacatur of Clean Air Mercury Rule). The CEMS data shall be used to demonstrate continuous compliance with the emission limitations of Special Condition No. 11A and the MAERT.
34. Each CEMS shall be operational on a rolling 12-month average for at least 95 percent of the corresponding operating hours of the CFB boiler it is designed to monitor (excluding time required for zero and span). If any CEMS fails to meet the performance standards specified in this permit, it shall be repaired or replaced as soon as reasonably possible.
35. The as-fired petroleum coke shall be sampled at least once per calendar quarter and analyzed for sulfur, metals, and HHV, to demonstrate on-going compliance after the initial demonstration of compliance with the sulfur content limit of Special Condition No. 8, the non-mercury metal performance standards identified in Attachment A of this permit, and the

## SPECIAL CONDITIONS

Permit Numbers 85013, HAP48, PAL41, and PSD-TX-1138

Page 21

emission rates for lead in the MAERT. The analyses shall be obtained from a NELAC (National Environmental Laboratory Accreditation Conference) accredited laboratory under the Texas Laboratory Accreditation Program.

36. The holder of this permit shall install, operate, and maintain bag leak detection systems (BLDS) to monitor the performance of the baghouses on CFB1, CFB2, CFB3, and CFB4. The BLDS must meet the specifications and be operated according to the procedures of 40 CFR § 60.48Da(o)(4).
37. After the initial demonstration of compliance, on-going stack sampling of EPNs CFB1, CFB2, CFB3, and CFB4 for H<sub>2</sub>SO<sub>4</sub>, HCl, HF, VOC, and total PM/PM<sub>10</sub> shall be used to demonstrate ongoing compliance and shall meet the following specifications:
  - A. Stack sampling shall be performed once annually during periods of normal operation, except as follows:
    - (1) If the annual test does not establish compliance with a performance standard of Special Condition No. 11B, the holder of this permit must conduct additional tests (under similar operating rates and fuel charge rates as used in the initial test, or under scenarios reviewed and approved by the TCEQ Corpus Christi Regional Office) during the year to be averaged with the previous test(s) to demonstrate compliance with Special Condition No. 11B; or
    - (2) if, after three years of stack sampling, the average of the three annual stack sampling results for a pollutant is less than 70 percent of the applicable performance standard identified in Special Condition No. 11B, then compliance stack sampling for such pollutant may be conducted once every three years.
  - B. Sampling required in A. of this special condition shall demonstrate compliance with the performance standards of Special Condition No. 11B and the lb/hr emission limits of the MAERT applicable to normal operations.
  - C. Sampling required in A. of this special condition shall be conducted in accordance with the methods, procedures, and notification protocol specified in Special Condition No. 29.
  - D. Ongoing compliance with the H<sub>2</sub>SO<sub>4</sub>, HF, HCl, VOC, and PM/PM<sub>10</sub> tons per year emission rates in the MAERT shall be demonstrated by calculating rolling 12-month annual emissions from emission factors (lb/MMBtu, HHV) obtained from the sampling required in (A.) of this condition and the monthly total heat input (MMBtu, HHV) from petroleum coke.

## SPECIAL CONDITIONS

Permit Numbers 85013, HAP48, PAL41, and PSD-TX-1138

Page 22

38. Compliance with the following emission rates in the MAERT, applicable to periods of planned start-up and shutdown, shall be demonstrated as follows:
- A. Compliance with the lead, PM and PM<sub>10</sub> (front half and total) emission rates in the MAERT applicable during start-up and shutdown shall be demonstrated if the recorded pressure drop across the baghouse meets manufacturer guidelines for proper operation during start-up and shutdown.
  - B. Compliance with the VOC emission rate in the MAERT applicable during start-up and shutdown shall be demonstrated if the CO emissions during start-up and shutdown are in compliance with the CO emission rate in the MAERT for start-up and shutdown.
  - C. Compliance with the H<sub>2</sub>SO<sub>4</sub>, HF, and HCl emission rates in the MAERT for start-up and shutdown shall be demonstrated if the SO<sub>2</sub> emissions during start-up and shutdown are in compliance with the SO<sub>2</sub> emission rate in the MAERT for start-up and shutdown.
39. Following the initial demonstration of compliance, ongoing compliance with the emission limits for the sources and emission limitations listed in this condition shall be through source operation in accordance with manufacturer's specifications, or in accordance with written procedures that are shown to maintain operating conditions necessary for emission compliance. The Executive Director of the TCEQ or his designated representative may also require direct measurement of emissions using the sampling methods and procedures specified in Special Condition No. 29 to establish compliance with the limitations, in which case the sampled emission rate will be used to determine compliance.
- A. The Auxiliary Boilers (EPNs AUX-BOIL1 and AUX-BOIL2) emission limitations of Special Condition No. 16A and 16B and the MAERT.
  - B. The Propane Vaporizers (EPNs PROP-VAP1 and PROP-VAP2) emission limitations of Special Condition No. 17A and the MAERT.
  - C. The Diesel Engines (EPNs ENG-EG1, ENG-EG2, ENG-FWMAIN, ENG-FWB1, ENG-FWB2, ENG-FWB3, ENG-FWB4, ENG-BFWP1, ENG-BFWP2, ENG-BFWP3, and ENG-BFWP4) emission limitations in the MAERT.
40. Following the initial demonstration of compliance, ongoing compliance with the emission rates in the MAERT for the Cooling Towers (EPNs CTWR1 and CTWR2) will be based on annual inspections of modules, and repair as necessary to maintain drift eliminator structural integrity and minimize bypassing of flow around drift eliminators.

## SPECIAL CONDITIONS

Permit Numbers 85013, HAP48, PAL41, and PSD-TX-1138

Page 23

41. Following the initial demonstration of compliance, ongoing compliance with the emission rates in the MAERT for the petroleum coke, ash, limestone, lime, sand, and carbon material handling baghouses will be demonstrated by annual opacity testing using Reference Method 9 for those EPNs listed in Special Condition Nos. 26 and 27. The Executive Director of the TCEQ or his designated representative may also require sampling conducted in accordance with the methods and procedures specified in Special Condition No. 29 to directly measure the lb/hr emission rate, in which case the sampled lb/hr emission rate will be used to determine compliance with the applicable emission rate in the MAERT.
42. Compliance with the emission rates in the MAERT for the Fuel Storage Tanks (EPNs TNK-FWMAIN, TNK-EG1, TNK-EG2, TNK-FWB1, TNK-FWB2, TNK-FWB3, TNK-FWB4, TNK-BFWP1, TNK-BFWP2, TNK-BFWP3, and TNK-BFWP4) will be demonstrated by compliance with Special Condition No. 22.

## CASE-BY-CASE MACT

43. This case-by-case MACT permit, Permit No. HAP48, establishes federally enforceable MACT emission limits for CO (CO is a surrogate of organic HAPs) and filterable PM (filterable PM is a surrogate for non-mercury HAP metals) for the natural gas-fired Auxiliary Boilers (identified as EPNs AUX-BOIL1 and AUX-BOIL2) and the Propane Vaporizers (identified as EPNs PROP-VAP1 and PROP-VAP2). These facilities shall comply with all applicable requirements of 30 TAC Chapter 113, 30 TAC Chapter 116, and the EPA regulations on National Emission Standards for Hazardous Air Pollutants for Source Categories in 40 CFR Part 63, promulgated for:
  - A. Applicable General Provisions, Subpart A; and
  - B. Federal Clean Air Act Section 112(g), case-by-case MACT determination.

## PLANTWIDE APPLICABILITY LIMIT (PAL)

44.
  - A. The PAL for each pollutant listed in B. of this special condition was calculated as the individual sum of the allowable 12-month rolling average emission rates of these pollutants in the MAERT of this permit.
  - B. Any project to be authorized by permit by rule, permit amendment, or other TCEQ permitting mechanism, including the modification of existing facilities or the addition of new facilities, shall not be subject to federal new source review (FNSR) for the air

SPECIAL CONDITIONS

Permit Numbers 85013, HAP48, PAL41, and PSD-TX-1138

Page 24

pollutants listed below provided the total plant wide emissions from the Las Brisas Energy Center do not exceed the PAL of:

<u>Pollutant</u>	<u>PAL, Tons per rolling 12-month period</u>
NO <sub>x</sub>	3,824
CO	5,977
SO <sub>2</sub>	8,096
VOC	283
PM <sub>10</sub>	1,664
H <sub>2</sub> SO <sub>4</sub>	1,025

- C. Compliance with the PALs specified in B. of this special condition shall be demonstrated on a 12-month rolling basis by totaling the calendar month actual emissions from each of the facilities listed in the MAERT using the CEMS, calendar month fuel use records, calendar month tank throughput records, calendar month hours of operation, and emission factors identified in Section 7 of the permit application as updated November 12, 2008.
- D. The PAL of this special condition is subject to the requirements of 30 TAC Chapter 116, Subchapter C, Plant-Wide Applicability Limits.
- E. If the authorization to construct any of the individual facilities listed in the MAERT authorized by this permit expires for lack of timely construction in accordance with 30 TAC § 116.120, within 30 days after expiration, the permit holder shall submit a request to the TCEQ to alter this permit by removing the facilities not constructed from the MAERT and subtracting their allowable emission rates from the PAL specified in B. of this special condition.
- F. If future actual emission rates calculated for an air pollutant exceed the PAL thresholds listed above, the permittee shall be subject to FNSR for that air pollutant. Only the changes that cause the new emission rate to exceed the PAL threshold are subject to FNSR. The permit holder shall submit to the TCEQ a FNSR permit application for the changes that cause actual emissions to exceed the PAL.
- G. The PALs specified in B. of this Special Condition must be reduced, to become effective on the future compliance date(s), of any applicable new federal or state regulatory requirement(s). Within 12 months of the effective date of the regulation, the permittee shall submit a request to alter or amend the permit to reflect the more stringent emission rates.

## SPECIAL CONDITIONS

Permit Numbers 85013, HAP48, PAL41, and PSD-TX-1138

Page 25

- H. This PAL is effective for a period of ten years. The permit holder shall submit a request to alter or amend this permit special condition to re-evaluate the PAL at least six months, but not earlier than 18 months prior to the date of permit expiration.

## RECORDKEEPING REQUIREMENTS

- 45. The following records shall be kept at the plant for the life of the permit. All records required in this permit shall be made available at the request of personnel from the TCEQ, the EPA, or any air pollution control agency with jurisdiction.
  - A. A copy of this permit.
  - B. Permit application dated May 19, 2008 and subsequent representations submitted to the TCEQ prior to permit issuance.
  - C. A complete copy of the testing reports and records of the initial air emissions performance testing completed pursuant to the Initial Demonstration of Compliance.
  - D. Required stack sampling results or other air emissions testing (other than CEMS or COMS data) that may be conducted on units authorized under this permit after the date of issuance of this permit.
  - E. The written SSM plan required by Special Condition No. 14.A.
- 46. The following records shall be kept for a minimum of five years after collection and shall be made immediately available upon request to representatives of the TCEQ, the EPA, or any local air pollution control program having jurisdiction. Records shall be legible and maintained in an orderly manner. The following records shall be maintained:
  - A. Continuous emission monitoring data for opacity, SO<sub>2</sub>, NO<sub>x</sub>, CO, Hg, NH<sub>3</sub>, and diluent gases, O<sub>2</sub> or CO<sub>2</sub>, from CEMS to demonstrate compliance with the emission rates listed in the MAERT and performance standards listed in this permit for pollutants that are monitored by CEMS or COMS. Data retention at intervals less than one hour is not required. Records must identify the times when emissions data have been excluded from the calculation of performance standards because of start-up, shutdown, maintenance, and malfunction along with the justification for excluding data. Records should also identify factors used in calculations that are used to demonstrate compliance with emissions limits and performance standards.

SPECIAL CONDITIONS

Permit Numbers 85013, HAP48, PAL41, and PSD-TX-1138

Page 26

- B. Files of all CEMS or COMS quality assurance measures including calibration checks, adjustments and maintenance performed on these systems.
- C. Written, certified petroleum coke analysis, to include HHV, for all petroleum coke received from each petroleum coke supplier, to show compliance of the as-fired fuel with the sulfur and trace metal concentration limits of this permit, and written certified analysis provided by natural gas and diesel fuel suppliers to show compliance with the sulfur content limitations of this permit.
- D. Average petroleum coke feed rate to the CFB Boilers in pounds per hour and the corresponding average heat input (HHV) in MMBtu/hr, based upon an average over each calendar month.
- E. Ammonia, limestone, and lime feed rates established during a successful initial performance test to fulfill the requirements of Special Condition Nos. 12 and 13.
- F. Hours of operation of the emergency generators, fire water pumps, boiler feed water pumps, propane vaporizers, and auxiliary boilers to show compliance with the hourly operating limitations of this permit.
- G. The amount of fuel received for storage in EPNs TNK-FWMAIN, TNK-EG1, TNK-EG2, TNK-FWB1, TNK-FWB2, TNK-FWB3, TNK-FWB4, TNK-BFWP1, TNK-BFWP2, TNK-BFWP3, and TNK-BFWP4 and the consecutive 12-month total of fuel received for each storage tank to show compliance with the throughput requirements of this permit.
- H. Records of cleaning and maintenance performed on abatement equipment, including records of replacement maintenance performed on baghouses. A log should be kept with descriptions of the activity performed, any parts or subassemblies replaced, and the time period over which the cleaning or maintenance was performed.
- I. Records required to show compliance with 40 CFR Part 60, Subparts Da, Db, and III, including daily average SO<sub>2</sub> removal efficiency, baghouse performance monitoring, and records of required reporting.

## SPECIAL CONDITIONS

Permit Numbers 85013, HAP48, PAL41, and PSD-TX-1138

Page 27

- J. Records of all venting of the anhydrous ammonia storage tanks to show compliance with Special Condition No. 20D.
- K. Records of personnel training related to anhydrous ammonia injection operations and emergency response planning, including names of trainers and trainees, dates of training, and material covered, to show compliance with Special Condition No. 20F.
- L. Records of audio, olfactory, and visual checks for ammonia leaks and repairs to show compliance with Special Condition No. 21.
- M. Records, including dates performed, of road maintenance for dust control to show compliance with Special Condition No. 23.

## REPORTING

- 47. The holder of this permit shall submit to the TCEQ Corpus Christi Regional Office quarterly or semiannual reports of excess emissions and monitoring systems performance, as described in 40 CFR § 60.7(c), for each emission unit which is required to be continuously monitored pursuant to 40 CFR Part 60. In addition, these reports shall identify:
  - A. Any emissions of continuously monitored CO, ammonia, and mercury in excess of any of the limits of this permit and monitoring systems performance, following the format of 40 CFR § 60.7(c);
  - B. The pollutant, emission rates, and test dates of any stack emission tests conducted during the reporting period which is in excess of any of the limits of this permit.
- 48. Within one year after initial start-up of the first CFB, the holder of this permit shall submit a copy of the SSM plan identified in Special Condition No. 14.A. to the TCEQ Air Permits Division in Austin and the U.S. EPA Region 6 Air Permits Section, 1445 Ross Avenue, Dallas, Texas 75202-2733.

## AS-BUILT INFORMATION

- 49. The holder of this permit shall submit to the TCEQ Corpus Christi Regional Office and the TCEQ Air Permits Division change pages to the permit application reflective of the final plans and engineering specifications on the CFB Boilers, auxiliary boilers, emergency engines, and other sources, including their respective control equipment, no later than 30 days before initial

## SPECIAL CONDITIONS

Permit Numbers 85013, HAP48, PAL41, and PSD-TX-1138

Page 28

start-up of the CFB Boilers. This information shall include:

- A. All TCEQ Tables in the permit application, updated with manufacturer and other specified data.
- B. Revised plot plans and equipment drawings as required to reflect the constructed facility.
- C. Identification of any maximum inputs of raw materials for the as-built facility, and any diesel fuel sulfur or engine manufacturer's emission specification that is lower than the values represented in the permit application and used for calculating or establishing emissions. Accompanying this information shall be a request for permit alteration. The TCEQ may alter the permit special conditions and MAERT to reflect any such reduction in emissions. Increases in allowable emission rates shall require authorization before construction begins.

## OPTIMIZATION STUDIES

50. Within 60 days after completing the first annual compliance sampling required by Special Condition No. 36, the holder of this permit shall submit a request to adjust the performance standards for the control of  $H_2SO_4$ , HCl, HF, Hg, VOC, and front half and total PM/PM<sub>10</sub> identified in Special Condition No. 11B to reflect the results of the sampling of these compounds conducted to that date, with appropriate consideration given for data variability. The adjustment on a pollutant-by-pollutant basis to the performance standard for the control of  $H_2SO_4$ , HCl, HF, Hg, VOC, or front half and total PM/PM<sub>10</sub> shall only be required if the average of the sampling for any such pollutant is 50 percent or less of the currently permitted value. At a minimum, this submittal shall include the Initial Demonstration of Compliance sampling required by this permit and the first annual compliance sampling required by Special Condition No. 36.

**Attachment A**  
**Permit Numbers 85013 and PSD-TX-1138**  
**Non-Mercury Metal Concentrations in Petroleum Coke**  
**and Emission Performance Standards**

<b>Constituent</b>	<b>Maximum Concentration (ppmw)</b>	<b>Performance Standard (lb/MMBtu)</b>
Arsenic	14.25	4.82E-05
Cadmium	3	1.01E-05
Beryllium	2.25	7.61E-06
Lead	18	6.09E-05
Chromium	98.13	3.32E-04
Copper	5.25	1.78E-05
Manganese	945	3.20E-03
Selenium	397.5	1.34E-03
Silicon	25.5	8.62E-05
Aluminum	69	2.33E-04
Iron	375	1.27E-03
Calcium	28.5	9.64E-05
Sodium	97.5	3.30E-04
Potassium	42	1.42E-04
Titanium	1.5	5.07E-06
Magnesium	9	3.04E-05
Nickel	880.5	2.98E-03
Vanadium	42,000	1.42E-02

