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Larry R. Soward, *Commissioner*
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Glenn Shankle, *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

January 3, 2007

TO: Persons on the attached mailing list.

RE: Calhoun County Navigation District
Permit Nos. 45586 & PSD-TX-1055.

Decision of the Executive Director.

The executive director has made a decision that the above-referenced permit application meets the requirements of applicable law. **This decision does not authorize construction or operation of any proposed facilities.** This decision will be considered by the commissioners at a regularly scheduled public meeting before any action is taken on this application unless all requests for contested case hearing or reconsideration have been withdrawn before that meeting.

Enclosed with this letter is a copy of the Executive Director's Response to Comments. A copy of the complete application, draft permit and related documents, including public comments, is available for review at the TCEQ Central office. A copy of the complete application, the draft permit, and executive director's preliminary decision are available for viewing and copying at the Calhoun County Branch Library, 1 Lamar #1, Point Comfort, Texas and, at the TCEQ Corpus Christi Regional Office, 6300 Ocean Drive, Suite 1200, Corpus Christi, Texas.

If you disagree with the executive director's decision, and you believe you are an "affected person" as defined below, you may request a contested case hearing. In addition, anyone may request reconsideration of the executive director's decision. A brief description of the procedures for these two requests follows.

How To Request a Contested Case Hearing.

It is important that your request include all the information that supports your right to a contested case hearing. You must demonstrate that you meet the applicable legal requirements to have your hearing request granted. The commission's consideration of your request will be based on the information you provide.

The request must include the following:

- (1) Your name, address, daytime telephone number, and, if possible, a fax number.
- (2) If the request is made by a group or association, the request must identify:
 - (A) one person by name, address, daytime telephone number, and, if possible, the fax number, of the person who will be responsible for receiving all communications and documents for the group; and
 - (B) one or more members of the group that would otherwise have standing to request a hearing in their own right. The interests the group seeks to protect must relate to the organization's purpose. Neither the claim asserted nor the relief requested must require the participation of the individual members in the case.
- (3) The name of the applicant, the permit number and other numbers listed above so that your request may be processed properly.
- (4) A statement clearly expressing that you are requesting a contested case hearing. For example, the following statement would be sufficient: "I request a contested case hearing."

Your request must demonstrate that you are an **"affected person."** An affected person is one who has a personal justiciable interest related to a legal right, duty, privilege, power, or economic interest affected by the application. Your request must describe how and why you would be adversely affected by the proposed facility or activity in a manner not common to the general public. For example, to the extent your request is based on these concerns, you should describe the likely impact on your health, safety, or uses of your property which may be adversely affected by the proposed facility or activities. To demonstrate that you have a personal justiciable interest, you must state, as specifically as you are able, your location and the distance between your location and the proposed facility or activities. A person who may be affected by emissions of air contaminants from the facility is entitled to request a contested case hearing.

Your request must raise disputed issues of fact that are relevant and material to the commission's decision on this application. The request must be based on issues that were raised during the comment period. The request cannot be based solely on issues raised in comments that have been withdrawn. The enclosed Response to Comments will allow you to determine the issues that were raised during the comment period and whether all comments raising an issue have been withdrawn. The public comments filed for this application are available for review and copying at the Chief Clerk's office at the address below.

To facilitate the commission's determination of the number and scope of issues to be referred to hearing, you should: 1) specify any of the executive director's responses to comments that you dispute; and 2) the factual basis of the dispute. In addition, you should list, to the extent possible, any disputed issues of law or policy.

How To Request Reconsideration of the Executive Director's Decision.

Unlike a request for a contested case hearing, anyone may request reconsideration of the executive director's decision. A request for reconsideration should contain your name, address, daytime phone number, and, if possible, your fax number. The request must state that you are requesting reconsideration of the executive director's decision, and must explain why you believe the decision should be reconsidered.

Deadline for Submitting Requests.

A request for a contested case hearing or reconsideration of the executive director's decision must be in writing and must be **received by** the Chief Clerk's office no later than **30 calendar days** after the date of this letter: You should submit your request to the following address:

LaDonna Castañuela, Chief Clerk
TCEQ, MC-105
P.O. Box 13087
Austin, Texas 78711-3087

Processing of Requests.

Timely requests for a contested case hearing or for reconsideration of the executive director's decision will be referred to the alternative dispute resolution director and set on the agenda of one of the commission's regularly scheduled meetings. Additional instructions explaining these procedures will be sent to the attached mailing list when this meeting has been scheduled.

How to Obtain Additional Information.

If you have any questions or need additional information about the procedures described in this letter, please call the Office of Public Assistance, Toll Free, at 1-800-687-4040.

Sincerely,



LaDonna Castañuela
Chief Clerk

LDC/cz

Enclosures

MAILING LIST
for
Calhoun County Navigation District
Permit Nos. 45586 & PSD-TX-1055

FOR THE APPLICANT:

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Ron Berglund, Senior Engineer
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INTERESTED PERSONS:

See attached list.

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FOR THE CHIEF CLERK:

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TCEQ PERMIT APPLICATION NO. 45586 & PSD-TX-1055

APPLICATION BY § BEFORE THE TEXAS
CALHOUN COUNTY NAVIGATION §
DISTRICT § COMMISSION ON
PERMIT NO. 45586 & PSD-TX-1055 §
POINT COMFORT, CALHOUN § ENVIRONMENTAL QUALITY
COUNTY

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
JAN 10 10 03
CHIEF CLERK'S OFFICE

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 Section 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. 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.

The Office of the Chief Clerk timely received comments from numerous organizations. Some of the comments came from an organization as a whole while others specifically represented individual members belonging to a specific organization. Those comments annotated with "Group" filed the same form letter. Commenters under the Group designation include Public Citizen, the Sustainable Energy & Economic Development (SEED) Coalition, Blue Skies Alliance, Texas State Sierra Club and Local Regional Groups, and Texas Black Bass Unlimited. Those comments annotated with "Individuals" filed the same form letter. These comments were submitted by Mr. David Frederick, of Lowerre & Frederick, Attorneys at Law, on behalf of the SEED Coalition. The individuals were all referenced by the SEED Coalition as being members of that organization, and include Mr. John Dugger, Ms. Mary Ann Traylor, Mr. Fred Woodland, Ms. Ruby Williams and family, Mr. Tim Strykus, and Mr. Clay Maxwell. All comments in the form letter filed by Mr. Frederick, on behalf of SEED, referencing individuals of that organization are will be annotated with (Individual). Comments were also received from the Environmental Protection Agency's (EPA) Region 6 office in Dallas. EPA comments are annotated with (EPA).

Background

The Calhoun County Navigation District (CCND) has applied to the TCEQ for the amendment of State Air Quality Permit No. 45586 and Prevention of Significant Deterioration (PSD) Air Quality Permit No. PSD-TX-1055, which would authorize the repowering and upgrading of the existing E. S. Joslin Power Station in Point Comfort. This repowering includes the construction and operation of a new circulating fluidized bed (CFB) boiler and related structures and equipment in and near Point Comfort, Calhoun County, Texas. The permit application was

received on July 11, 2005, and declared administratively complete on July 22, 2005. The Notice of Receipt and Intent to Obtain an Air Quality Permit for this permit application was published on August 13, 2005, in the *Port Lavaca Wave*. The Notice of Application and Preliminary Decision was published on March 1, 2006, in the *Port Lavaca Wave*. The public comment period ended on March 31, 2006. 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 and Responses

Comment 1 The vast majority of the commenters express concern regarding potential health impacts of air emissions from the proposed CCND power plant. Many express concern regarding health impacts from air emissions from the proposed plant on: themselves (Group and Individuals); their children or other family members (Individuals, Ms. Ruby Williams); their workers (Individuals, Mr. John Dugger, Ms. Mary Ann Traylor, Mr. Fred Woodland, and Mr. Clay Maxwell), their cattle (Individuals, Mr. John Dugger, Ms. Mary Ann Traylor, and Mr. Fred Woodland); fish from nearby waters (Individuals, Mr. Tim Strykus); and a diminished quality of aesthetic life (Individuals, Mr. John Dugger, Ms. Mary Ann Traylor, Mr. Fred Woodland, Ms. Ruby Williams, and Mr. Tim Strykus)

Commenters also express concern regarding health impacts of specific constituents in the air emissions from the proposed plant, including mercury (Group and Individuals), vanadium (Group and Individuals), nitrogen oxides (Group), particulate matter (Group), and sulfur compounds including SO₂ and H₂SO₄ (Group).

Commenters also expressed concern regarding NAAQS impacts for sulfur compounds including SO₂, nitrogen oxides, and impacts on Class I areas such as Big Bend for nitrogen oxides, particulate matter, and sulfur compounds including SO₂.

Response 1 The Texas Clean Air Act (TCAA) and TCEQ rules require an evaluation of air quality permit applications to ensure that emissions from a proposed facility are not expected to cause adverse health effects. As part of the application review process, the permit reviewer identifies all sources of air contaminants at the proposed facility, determines emissions rates for each source, and assures Best Available Control Technology (BACT) will be used for each source. The emissions and the expected emission rates will determine the level of review that is done. The review for CCND's application involved auditing CCND's modeling by the TCEQ Modeling Team, and review of the modeling results by the permit engineer and the TCEQ Toxicology Section (TS) to ensure adverse health effects would not occur.

Modeling was performed by the applicant using the Environmental Protection Agency's (EPA's) AERMOD air dispersion model, and the modeling was audited by the TCEQ Modeling Team. The Modeling Team audit determines if the proper procedures were employed so the results are consistent with good modeling practices. The audit determined the modeling was acceptable. The modeling produces the maximum off property ground level concentrations (GLC_{max}) for

each of the pollutants that are proposed to be emitted. The GLC_{max} is then compared to state and federal standards as well as state effects screening levels (ESLs) to predict if there will be any potential adverse health and/or welfare effects. To determine GLC_{max} the applicant must assume all processes are operating simultaneously at maximum throughput during worse case meteorological conditions (i.e., low winds/inversion conditions). The overall evaluation process provides a conservative prediction.

For pollutants for which a National Ambient Air Quality Standard (NAAQS) has been established, if the predicted results are below the *de minimis* concentration set out by the EPA then background concentrations are not taken into account; however, if the predicted concentration is above the *de minimis* amount then the predicted concentration are added to the background concentration for that pollutant in that area and that total concentration is used to evaluate potential impacts to human health. The *de minimis* amount is an amount determined by the EPA to have insignificant or negligible impact.

The following tables show the predicted GLC_{max} for each contaminant and the corresponding state standards, federal standards, or ESLs..

| Sitewide Modeling Results for State Property Line | | | |
|---|------------------|--|---|
| Pollutant | Averaging Period | Total GLC ($\mu\text{g}/\text{m}^3$) | State Standard ($\mu\text{g}/\text{m}^3$) |
| H ₂ SO ₄ | 1-hour | 8.1 | 50 |
| | 24-hour | 2.7 | 15 |
| SO ₂ | 1-hour | 200.2 | 1,021 |

| Sitewide Modeling Results for Health Effects | | | |
|--|------------------|--|----------------------------------|
| Pollutant | Averaging Period | Maximum GLC ($\mu\text{g}/\text{m}^3$) | ESL ($\mu\text{g}/\text{m}^3$) |
| Ammonia | 1-hr | 14.7 | 170 |
| | Annual | 0.2 | 17 |
| Hydrochloric Acid | 1-hr | 1.68 | 75 |
| | Annual | 0.07 | 0.1 |
| Hydrogen Fluoride | 1-hr | 0.22 | 4.9 |
| | Annual | 0.01 | 0.5 |
| Mercury | 1-hr | 0.00067 | 0.25 |
| | Annual | 0.00003 | 0.025 |
| Lead | Quarter (NAAQS) | 0.00008 | 1.5 |

| | | | |
|----------------|----------------|------------------|---------------|
| Aluminum | 1-hr Annual | 0.01 <0.001 | 50 5 |
| Arsenic | 1-hr Annual | 0.001 <0.001 | 0.1 0.01 |
| Beryllium | 1-hr Annual | <0.001 <0.001 | 0.02 0.002 |
| Cadmium | 1-hr Annual | <0.001 <0.001 | 0.1 0.01 |
| Calcium | 1-hr Annual | <0.001 <0.001 | 20 2 |
| Chromium | 1-hr Annual | 0.02 0.001 | 1 0.1 |
| Copper | 1-hr Annual | <0.001 <0.001 | 10 1 |
| Iron | 1-hr Annual | 0.04 0.002 | 50 5 |
| Magnesium | 1-hr Annual | <0.001 <0.001 | 50 5 |
| Manganese | 1-hr Annual | <0.001 <0.001 | 2 0.2 |
| Nickel | 1-hr Annual | 0.10 0.004 | 0.15 0.015 |
| Potassium | 1-hr Annual | <0.001 <0.001 | 20 2 |
| Selenium | 1-hr Annual | <0.001 <0.001 | 2 0.2 |
| Silicon | 1-hr Annual | <0.001 <0.001 | 50 5 |
| Sodium | 1-hr Annual | 0.01 <0.001 | 20 2 |
| Titanium | 1-hr Annual | <0.001 <0.001 | 50 5 |
| Vanadium | 1-hr Annual | 0.58 0.026 | 0.5 0.05 |
| Silica (fused) | 1-hr Annual | 2.0 0.05 | 0.5 0.05 |

| Modeling Results for PSD Area Of Impact | | | |
|---|------------------|--|---|
| Pollutant | Averaging Period | Project GLC ($\mu\text{g}/\text{m}^3$) | De Minimis ($\mu\text{g}/\text{m}^3$) |
| SO ₂ | 3-hour | 159.4 | 25 |
| | 24-hour | 75.4 | 5 |
| | Annual | 11.75 | 1 |
| PM ₁₀ | 24-hour | 21.9 | 5 |
| | Annual | 8.3 | 1 |
| NO _x | Annual | 0.92 | 1 |
| CO | 1-hour | 45.7 | 2000 |
| | 8-hour | 23.2 | 500 |

| Modeling Results for PSD Increment | | | |
|------------------------------------|------------------|--|--|
| Pollutant | Averaging Period | PSD Increment Modeling Result ($\mu\text{g}/\text{m}^3$) | Allowable Increment ($\mu\text{g}/\text{m}^3$) |
| SO ₂ | 3-hr | 325 | 512 |
| | 24-hr | 78 | 91 |
| | Annual | 4.81 | 20 |
| PM ₁₀ | 24-hr | 26 | 30 |
| | Annual | 11 | 17 |

| Modeling Results for PSD NAAQS Analysis | | | | | |
|---|------------------|--|---|---|---|
| Pollutant | Averaging Period | NAAQS Modeling Result ($\mu\text{g}/\text{m}^3$) | Background Concentration ($\mu\text{g}/\text{m}^3$) | Total Impact ($\mu\text{g}/\text{m}^3$) | NAAQS Standard ($\mu\text{g}/\text{m}^3$) |
| SO ₂ | 3-hr | 325.0 | 260 | 585 | 1,300 |
| | 24-hr | 78.0 | 75 | 153 | 365 |
| | Annual | 4.81 | 12 | 16.8 | 80 |
| PM ₁₀ | 24-hr | 26.0 | 75 | 101 | 150 |
| | Annual | 11.0 | 25 | 36 | 50 |

The specific health-based standards or guidance levels employed in evaluating the potential emissions include the NAAQS, TCEQ standards contained in 30 TAC Chapters 111 and Chapter 112 (Property Line Standards), and TCEQ Effect Screening Levels (ESLs). EPA has developed both primary NAAQS, which are standards set to protect human health, including sensitive members of the population such as children, the elderly, and individuals with existing respiratory conditions, and secondary NAAQS, which are standards set to protect public welfare.

NAAQS have been created for ozone (O₃), lead (Pb), carbon monoxide (CO), sulfur dioxide (SO₂), volatile organic compounds (VOCs), nitrogen dioxide (NO₂), and respirable particulate matter (PM₁₀ and smaller). These pollutants are called criteria pollutants.

ESLs are constituent-specific guideline concentrations used in TCEQ's evaluation of non-criteria pollutant concentrations in air. These guidelines are determined by TS and are based on a constituent's potential to cause adverse health and welfare effects. 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. Adverse health effects are not expected to occur if the predicted air concentration of a constituent is below its ESL. If an air concentration of a constituent exceeds an ESL, it is not necessarily indicative that an adverse effect will occur, but rather that further evaluation is warranted. There is much conservatism in the ESL and layers of conservative assumptions are made in the worst-case modeling analysis itself. 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.

The health effects evaluation is conservative and health-protective. The health effects evaluation procedure is outlined in the TCEQ guidance document "Modeling and Effects Review Applicability: How to Determine the Scope of Modeling and Effects Review for Air Permits" (TCEQ, RG-324), hereafter referred to as the Modeling and Health Effects Procedure. Health effects evaluations are conducted when the TS receives a request for comments from the new source review permit engineer which lists the constituents expected to be emitted from the proposed facility. The predicted short-term (one-hour average) and long-term (annual average) GLC_{max} as developed by computerized air dispersion modeling are evaluated for each constituent. 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 GLC_{max} for all criteria pollutants are predicted to be less than the corresponding NAAQS, therefore, no adverse health effects are expected from the criteria pollutants. Additionally, all TCEQ property line standards are not expected to be exceeded; therefore, no adverse health effects are expected.

The TS performed a detailed review of the health impacts for vanadium since the GLC_{max} for this constituent exceeded the ESL. All locations where vanadium did exceed the ESL are on industrial property. TS determined that the off property impacts for vanadium, with a value exceeding the short term ESL by 1.15 times, is not expected to cause adverse health effects among the general public. In addition, the GLC_{max} for silica (fused) exceeded its respective ESL. Modeling indicated that the predicted short term GLC_{max} for silica is 4 times the ESL. The predicted frequency of 2 times the ESL exceedance is 15 hours per year. The predicted short term concentration is below the ESL at the nearest non-industrial receptor. TS determined that

considering the small magnitude and frequency of the short term ESL exceedance, that worst case ESL for silica being used, the ESL is set to primarily protect against chronic effects (pulmonary fibrosis), and the long term ESL is not exceeded, the predicted off property impacts for silica are acceptable.

Because of concerns from the public regarding the health impacts from mercury, TS provided information on the health impacts for this constituent, even though the GLC_{max} did not exceed the ESL. There are numerous scientific studies regarding the neurotoxic effects of mercury on pregnant women and unborn children. The developing fetus, due to exposure of pregnant women, and young children are much more sensitive to mercury than other groups. Exposure to high levels of mercury can permanently damage the brain, kidneys, and developing fetuses. Effects on brain functioning may result in irritability, shyness, tremors, changes in vision or hearing, and memory problems. While a number of adverse health effects could result from exposure to high enough concentrations, they would not be expected to occur from direct exposure to air emissions from CCND. The short-term and long-term GLC_{max} s for mercury are not predicted to exceed the short-term and long-term ESLs. In addition, the short-term and long-term ESLs are both conservative. Specifically, the short-term ESL is 1/7th of the level determined to be protective of central nervous system disturbances in offspring, and the long-term ESL is set at 1/12th the protective level for human health effects as determined by EPA's Integrated Risk Information System. As long as the plant operates in compliance with their permit, adverse health effects are not expected to occur in the general public as a result of short-term or long-term inhalation exposure to mercury emissions from this plant.

Because the TCAA does not give the TCEQ authority to regulate air emissions beyond the direct impacts the air emissions have to human health or welfare, the TCEQ does not set emission limits to restrict, or perform analysis to determine, impacts emissions may have, by themselves or in combination with other contaminants or pathways, after being deposited on land or water, or incorporated into the food chain.

TCEQ Rules concerning nuisances, state "no person shall discharge from any source" air contaminants which are or may "tend to be injurious to or 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 air quality permit, nuisance conditions are not expected. CCND must comply with this rule as a condition of receiving the draft permit.

Given the level of emissions that would be allowed by the proposed permit, off property visibility should not be decreased. The proposed permit conditions restrict opacity from the fabric filter exhausts to 5% as determined by EPA Test Method 9 and establishes no visible emissions off property from other sources such as conveyors, hoppers, and stockpiles as determined by EPA Test Method 22. The U. S Environmental Protection Agency has also announced the Regional Haze Rule which calls for state and federal agencies to work together to improve visibility in 156 national parks and wildlife areas. The rule requires that states, in coordination with the EPA, NPS, U. S. Fish and Wildlife Service, the U. S. Forest Service, and

other interested parties, develop and implement air quality protection plans to reduce the pollution that causes visibility impairment. The first State plans for regional haze are due in the 2005 to 2008 timeframe. The TCEQ is currently working on its plan. Once this plan is in effect, CCND will be subject to these rules.

PSD requirements provide for a system of area classifications which afford States an opportunity to identify local land use goals. There are three areas of classifications. Class I areas were established by Congress as wilderness areas and national parks. These areas cannot be redesignated to any other area classification. Class I areas have special national or regional value ranging from natural, scenic, recreational, or historic perspectives. EPA guidance states that if a proposed major source or major modification may affect a Class I area, the Federal PSD regulations require the reviewing authority to provide written notification of any such proposed source to the Federal Land Manager. The meaning of the term "may affect" is interpreted by EPA policy to include all major sources or major modifications which propose to locate within 100 kilometers (km) of a Class I area. Big Bend National Park is over 100 km from the proposed CCND source; therefore, no PSD Class I analysis is required.

The modeling analysis submitted by CCND in support of their application modeled all on-site facilities (plant wide modeling). Short term (pound/hour) emissions included "spikes" from startup and/or shutdown operations.

In summary, based on the predicted concentrations reviewed, it is not expected existing health conditions will worsen or adverse health effects will occur in the general public or sensitive subgroups as a result of the emissions from the proposed facility.

Comment 2 A commenter stated that the Texas Effects Screening Levels (ESL's) have not been appropriately defined by the TCEQ (Group).

Response 2 Simply described, ESLs which are designed to prevent adverse health effects, are determined in a two-step process. First, we identify the level of a constituent at which no adverse effects are observed (No Observed Adverse Effect Level -- NOAEL) or we derive it from the 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 assure 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 toxicologic properties and which have an ESL. In these situations, ESLs are calculated based on an estimation of relative toxicities. The less certain we are concerning a specific constituent's toxicity, the lower or more conservative the ESL.

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.

The health effects evaluation is also conservative and health-protective. The health effects evaluation procedure is outlined in the TCEQ guidance document "Modeling and Effects Review Applicability: How to Determine the Scope of Modeling and Effects Review for Air Permits" (TCEQ, RG-324), hereafter referred to as the Modeling and Health Effects Procedure. Health effects evaluations are conducted when the TS receives a request for comments from the new source review permit engineer which lists the constituents expected to be emitted from the proposed facility. The predicted short-term (one-hour average) and long-term (annual average) GLC_{max} as developed by computerized air dispersion modeling are evaluated for each constituent. 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.

A detailed Tier III health effects evaluation was conducted for this air permit application. As described in Response No. 1, for each constituent reviewed, its predicted GLC_{max} is compared to its ESL. Because ESLs are set well below levels that cause health effects, if an air concentration of a constituent exceeds the ESL, it is not necessarily indicative that an adverse effect will occur, but rather that further evaluation is warranted. While Tier I is a cursory review solely based on predicted concentrations, Tiers II & III incorporate additional case-specific factors that have a bearing on the exposure scenario. The factors TS considers in a Tier III case-by-case review include surrounding land use, magnitude of the concentration exceeding the ESL, frequency of exceedances, existing levels of the same constituent, type of toxic effect caused by the constituent, margin of safety between the ESL and known-effects levels, degree of confidence in the toxicity database, and acceptable reduction from existing ESLs.

If the predicted GLC_{max} for a constituent exceeds its ESL by 2 or 3 times, additional factors must be evaluated. Those include the following: the potential for public exposure will be almost nonexistent, the dispersion model predicts a low frequency of high concentrations, the predicted concentrations are overestimated and not likely to occur and the overestimation can be quantified, and the predicted concentrations represent a vast improvement in exposure levels.

The detailed Tier III evaluation for CCND's application indicates the magnitude and frequency of exceedances for the short-term GLC_{max} of vanadium and silica (fused), the only constituents with GLC_{max} above their ESLs, are not anticipated to cause adverse health effects among the general public, including sensitive subgroups.

Comment 3 Several commenters expressed concerns regarding the Best Available Control Technology represented for the proposed CCND power plant. Commenters indicated that the BACT analysis performed does not adequately consider or propose Integrated Gasification Combined Cycle (IGCC) technology, and that technologies which were not favored by the applicant were not evaluated for their abilities to limit emissions in a technically and economically reasonable fashion (Group and Individuals). Commenters also expressed concerns that CCND's application does not utilize BACT for sulfur pollution as established by a previous application for the City Public Service plant in San Antonio (Group). One commenter expressed concerns that mercury emissions do not meet BACT standards established for power plants by draft permits issued for the Spruce 2 and Sandy Creek applications (Group). One commenter also indicated that the application should state the specific equipment makes and models used for the boiler and control equipment as well as manufacturer guaranteed emission levels from the equipment.

Response 3 The TCEQ does not redefine the design of a proposed source in evaluating BACT. Additionally, as part of the BACT review, the TCEQ does not require an applicant to explore other ways to obtain the desired business result. IGCC was not evaluated because it is a different production process. The Air Permits Division continues to follow the evolution of IGCC technology and maintain familiarity with appropriate BACT levels for this type of production unit, in the event that an applicant proposes to construct a production unit of this nature. CCND was not required to research alternative sources of electricity or energy conservation as part of the BACT analysis.

CCND proposed emission limits accepted as BACT in recent permit reviews for the same process and/or industry. There are some differences in the area of SO_2 and H_2SO_4 control values when compared to other power plants. However, this difference is due primarily to the fact that CCND will burn petroleum coke as its only fuel source (not considering startup operations which will be initiated by burning natural gas). Petroleum coke is refinery by-product, and can contain a sulfur concentration of up to eight percent, where low sulfur sub-bituminous coals can have less than one percent sulfur. Considering the above information CCND is proposing a sulfur removal (control) efficiency of 98.5 percent, which is in the range (if not slightly better) than other coal burning power plants.

As part of this review, the RACT/BACT/LAER Clearinghouse (RBLC) maintained by EPA, the EPA National Coal-Fired Utility Projects (NCUP) database, and technical literature, and vendor data for each pollutant were all consulted. CCND proposed emission rates for NO_x which is in line with other CFB design units. CCND proposed emission rates for CO and VOCs that were typical of the units identified in the RBLC and the NCUP databases. Good combustion practices are BACT for CO and VOCs. CCND proposed emission rates for sulfuric acid (H_2SO_4) that were in the range of other CFB coal units identified in the RBLC or the NCUP database prior to adjustment for combusting petroleum coke. CCND has proposed controls, a dry scrubber and a baghouse, for HCl and H_2SO_4 that are consistent with controls on other coal units.

For PM emissions Texas requires that applicants consider both non-condensable (also known as front half catch) and condensable particulate emissions. Non-condensable PM emissions are things such as dust, dirt, and soot. Condensable PM emissions are vapors that condense from the vapor phase to the liquid phase. This is similar to water condensing out of the atmosphere on to a cold glass of water. CCND's proposed PM emission rate includes both condensable and non-condensable PM. On first glance, it appears that the PM emission rate for CCND is higher than several of the other units identified in the RBLC, NCUP, or by commenters; however, this direct comparison is not appropriate. Because the EPA only requires applicants to consider the non-condensable PM emissions, the PM emissions rates only reflect non-condensable PM. If these PM emissions limits identified by commenters included condensable PM, the rates would necessarily be higher. CCND's draft permit also contains a limit on the emission rate of non-condensable PM.

For mercury emissions, CCND is proposing to meet the requirements outlined in 40 CFR 63 (MACT), Subpart DDDDD. Even though CCND is not specifically subject to this federal regulation (it is intended for industrial sources and CCND is an electric utility), they will comply with the mercury emission level of 3.0×10^{-6} lb/MMBtu. This value is consistent with, or provides a greater level of control of mercury, than other comparable coal fired power plants. The flue gas of a CFB is generally in the range of 150 to 160 degrees Fahrenheit (F), compared to a typical pulverized coal type boiler with a flue gas temperature around 300 degrees F. This reduced flue gas temperature results in mercury being emitted in a greater quantity as a particulate as compared to a gas, therefore enhancing the control/capture capability of a baghouse to control this material.

The CFB being proposed by CCND will be a Foster Wheeler designed unit. While specific models and/or equipment numbers may not be available at this specific time, the company will be required to meet the control technologies, representations for such technologies, and operational requirements as outlined in the permit application. The large capital requirement for this project makes it impractical to select equipment or make detailed plans and drawings before permit issuance. Obtaining necessary permits is usually a prerequisite to raising capital, and obtaining guarantees typically requires a firm construction contract, which in turn requires capital. Regarding identification of specific makes and models of major equipment (boiler, baghouses), the manufacturers' emissions guarantees for large solid fuel-fired power plants are based on owners' specifications, which in turn are dictated by the permit emission limits. Guarantee numbers typically provide some margin between what can be achieved during a short-term performance test used to prove the guarantee, and a higher number that represents what must be achieved continuously over the life of the equipment. The company will be required to comply with the conditions and representations of their air permit. The permit contains monitoring and testing requirements to ensure that the company is operating their CFB and associated facilities as represented in their application.

Comment 4 Commenters expressed concern that the application does not adequately manage emissions during startup and shutdown operations. The commenters also indicated that the proposed project does not adequately manage fugitive emissions from coal and ash handling during startup and shutdown operations (Group).

Response 4 CCND is authorizing startup emissions from their proposed CFB. The startup process consists of a 12-hour startup sequence. The initial portions of the startup sequence will be conducted by firing natural gas. Petroleum coke and limestone will then be added and the natural gas will be phased out as the temperatures in the firebox builds toward operational temperature and the breakdown of limestone commences, after which SO₂ control starts to become effective. As the temperatures start to climb, ammonia injection will also commence into the SNCR unit, starting the process of controlling NO_x emissions generated by the combustion process. The permit will contain a separate set of short term (lb/hr) allowable emission rates that the CFB must meet until the unit reaches "normal" operations. The CFB will be equipped with continuous emissions monitors (CEMs), and a continuous opacity monitor. These monitors will be used to help ensure compliance with the startup emissions represented in the application, and these emissions will be limited to the startup allowable contained in the proposed unit's permit.

CCND's proposed CFB power plant will utilize petroleum coke as its fuel source, and is not authorized to combust coal at this time. The permit contains special conditions addressing particulate emission from aggregate (petroleum coke, limestone, sand, and ash) handling facilities. Fly ash and bottom ash handling operations will be controlled with baghouses. The permit will limit opacity to 5 percent or less averaged over a six-minute period, and also has a requirement that no visible emissions leave the property. These conditions apply during startup operations as well as normal operations. In addition, the permit also states that fugitive emissions from transfer points on conveyors, and any material handling, shall not create an off-property nuisance condition.

Comment 5 Commenters stated that the proposed application does not examine the opportunities to reduce emissions by using lower emission fuels (Group). The commenters further describe their concern by indicating that the applicant did not address clean coal options which should be able to reduce sulfur and related emissions, and did not appear to represent whether they (CCND) would be utilizing high sulfur dirty coals or low sulfur less dirty coals. The commenters also stated that the TCEQ should require clear representations on the type of coal to be burned and require low sulfur coals as options under the BACT determination.

Response 5 CCND is proposing to utilize petroleum coke as the CFB's fuel source. Coal is not currently proposed as a fuel type in this application. The permit conditions clearly state that petroleum coke is the only fuel that can be combusted in the CFB (outside of burning natural gas during portions of the startup sequence). The permit also places limits on the amount of sulfur that can be contained in the fuel that is to be combusted. The TCEQ does not require an applicant to explore other ways to obtain a desired business result; however, the TCEQ does evaluate the basis by which an applicant proposes to control emissions from their proposed operation. CCND is proposing petroleum coke, containing up to 8 percent sulfur, as their fuel source. CCND will implement a dry scrubbing technique (through the addition of limestone to the firebox) which will achieve an estimated 98.5 percent sulfur removal efficiency. This proposed sulfur removal efficiency is considered to be BACT for this type of operation.

Comment 6 Commenters stated that the application does not examine the opportunities for obtaining sulfur and mercury emission reductions through the use of coal washing (Group).

Response 6 After coal is mined, it may contain impurities based on the types of soils where the coal was obtained. These impurities can consist of clay, calcite, pyritic sulfur, sulfate sulfur, and organic sulfur. Coal washing is a precombustion cleaning technology in which some of the impurities contained in the coal are removed before the coal is burned. In coal-washing plants, a variety of different methods (agitating liquids, or high velocity liquids, for example) are used to separate impurities from crushed coal. Text discussions indicate that precombustion cleaning process can remove pyritic sulfur by 30 to 50 percent; however, the removal efficiency is heavily dependent on the amounts of pyritic sulfur contained in the soils where the coal was mined. CCND is combusting petroleum coke, and is not using coal as a fuel source. In order to be considered as an additional component of SO₂ and mercury BACT, the washing operation (more applicable to coal than petroleum coke) 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 washing in addition to more conventional controls used to control SO₂ and/or mercury.

Comment 7 A commenter expressed concern that the application does not consider the diesel and particulate pollution that would result from trains that would bring coal to this plant site.

Response 7 CCND is not required to analyze pollution (emissions) resulting from the use of rail lines. Trains are categorized as mobile sources and their engine emissions, by definition, are not subject to regulation under the Clean Air Act, even if traveling on site.

Comment 8 Commenters expressed concern that air toxics were not adequately addressed. There is concern that silica impacts are not adequately addressed. Likewise there is concern that the TCEQ does not normally review time periods for off property impacts of less than 30-minute exposures in reviewing maximum SO₂ ground level concentrations, specifically, evaluating health effects related to 5 minute exposures (SO₂ spikes).

Response 8 Full dispersion modeling was conducted to estimate off property impacts for silica. All facilities on the plant site were modeled. Modeling indicated that the predicted short term GLC_{max} for fused silica is 4 times the ESL (0.5 micrograms per cubic meter). The predicted frequency of 2 times the ESL exceedance is 15 hours per year. The predicted short term concentration is below the ESL at the nearest non-industrial receptor. TS determined that considering: (1) the small magnitude and frequency of the short term ESL exceedance, (2) the worst case ESL for silica being used, (3) the ESLs are set to primarily protect against chronic effects (pulmonary fibrosis), and (4) the long term ESL is not exceeded, the predicted off property impacts for silica are acceptable. TS also indicated that they do not expect adverse health effects to occur among the general public as a result of exposure to the proposed facility. Air toxics modeling and impact results are addressed in Response 1.

The TCEQ has no requirement to determine possible health impacts of SO₂ over a five-minute period. Therefore, CCND's application did not include a review of predicted SO₂ ambient air concentrations over a 5-minute period.

Comment 9 A commenter stated that the TCEQ should be regulating radon and its carcinogenic byproducts that the public will be exposed to as a result of the plant (Group).

Response 9 The TCEQ does not regulate radon or its byproducts for solid fuel (petroleum coke and/or coal) fired power plants. Radiation emissions from coal-fired electric utility plants in Texas were evaluated almost thirty years ago and potential impacts were found to be minimal. In the report, "Releases of Radioactive Isotopes from Coal and Lignite Combustion" (H. Cooper and G. Dakik, U.T. at Austin, presented at 71st Annual Meeting of the Air Pollution Control Association, Houston, June, 1978), the researchers concluded that radioactive emissions from coal and lignite-fired power plants could in a few cases, approach those of nuclear power plants, but could meet the Nuclear Regulatory Commission's (NRC) fence line exposure standards, were they applicable.

EPA's Report to Congress (Study of Hazardous Air Pollutant Emissions from Electric utility Steam Generating Units - Final Report to Congress, February 1998) also found radon emissions from coal combustion to be negligible compared to other sources in the environment. Table 9-7 of the report shows the annual exposure from all outdoor sources to be 6% of residential exposures. The report states that it is generally thought that average radioactivity of soil is about twice that of coal. Another source, "Evaluation of Occupational and Environmental Exposures to Radon and Radon Daughter Products" (Report No. 78, National Council on Radiation Protection and Measurements, 1984) shows that coal combustion contributes less than one millionth as much radiation as emanation from soil. Based on the scientific evaluations conducted by EPA and others, radon emissions from coal combustion do not constitute a problem.

The report also stated that there was a need to collect additional data concerning radionuclide contents in oils. A comprehensive literature search revealed that data specific to the radionuclide content of residual fuel oil are not only sparse, but difficult to interpret. The EPA enlisted the Utility Air Regulatory Group and the EPRI. Forty-two fuel oil samples were evaluated in the EPA study. Values obtained from the study supported the conclusion that the radionuclide content of residual fuel oil is low relative to coal.

Comment 10 A commenter stated that the application and projected draft permit do not require offsets of any pollutant type. Nitrogen oxides, sulfur dioxide, and carbon pollution are of particular concern (Group).

Response 10 During a permit review, reductions are not required from facilities that are not subject to permit review, unless an applicant is reducing emissions from those facilities to "net out" of PSD review. To net out of a PSD review, the applicant looks at all of the increases and decreases of emissions for the immediately preceding five years. If after summing all of those changes the net increase is below the significance level for that pollutant then PSD review is not necessary. For PSD review, the significance level is 40 tons per year for both SO₂ and NO₂, and 100 tons/year for CO. Additionally, the term "offsets" specifically applies to actual emission reductions associated with either new significant major sources or major modifications to existing major sources triggering nonattainment review.

Comment 11 Commenters expressed concern that the transport of ozone precursors to more remote locations, such as Houston-Galveston and Victoria, was not evaluated (Individuals). Commenters indicated that the projected 1, 839 tons/year of total NO_x emissions from this plant would affect the ability of the DFW area to come into attainment with the 1-hour and 8-hour ozone standards. Commenters further expressed concern that the application and the projected draft permit did not address global warming gases (Group). Commenters also stated that it is very important that the State conduct a comprehensive modeling analysis to assess the cumulative impact of new emissions coming from the proposed Texas power plants in the vicinity and their impact on Texas non-attainment areas (including Houston-Galveston), Early Action Compact areas (Austin and San Antonio), as well as areas approaching non-attainment status (Victoria)(EPA).

Response 11 Ozone is formed by a photochemical reaction involving NO_x and volatile organic compounds (VOCs). No negative effects are expected to the ambient air in either the area surrounding the facility or in more remote locations because the modeled pollutant concentrations are below both the NAAQS and ESLs which are designed to protect the environment as well as human health.

Early Action Compact Areas have their nonattainment designation and/or designation requirements deferred as long as all compact terms and milestones continue to be met in those areas. These areas are still treated as attainment areas under the permitting rules until and if a nonattainment designation is assigned to them. Pending such an assignment, the NAAQS analysis is still considered to be a valid approach to determine protectiveness concerning criteria pollutants. Victoria is also currently considered to be an attainment area. As stated above, modeled pollutant concentrations are below both the NAAQS and ELSs which are designed to protect the environment as well as human health.

Any contribution the proposed facility may have to an existing ozone nonattainment area is addressed through the state implementation plan process and associated rules, which deal with entire categories of emission sources, such as electric generating facilities. It is also important to note that the proposed NO_x emission rate from the facilities contained in this permit is 821.8 tons/year.

With respect to addressing global warming gases, on July 5, 2000, the agency received a petition for rulemaking from the law firm of Henry, Lowerre, and Frederick on behalf of Public Citizen's Texas Office, Clean Water Action, Lone Star Sierra Club, Sustainable Energy and Economic Development Coalition, and Texas Campaign for the Environment. The petition requested the TCEQ create new air rules to encourage reductions in greenhouse gases, promote the efficient use of energy, offer training in methods to reduce carbon dioxide 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 did not initiate the regulation of greenhouse gases at this time.

Comment 12 Commenters stated that the TCEQ must implement more comprehensive baseline ambient air monitoring in Point Comfort, Texas (Group).

Response 12 Monitoring of the ambient air is not a requirement for the issuance of an air permit. Ambient air monitoring was not included or required as a part of this permit review.

Comment 13 Commenters expressed concern that the dispersion modeling used to demonstrate compliance with the NAAQS and to generate off-site receptor impacts improperly estimated SO₂ emissions during startup and shutdown, and was not based on the appropriate PSDB sources, and did not properly model the impacts of H₂SO₄ emissions or NO_x emissions (Individuals).

Response 13 Emissions of SO₂ during startup and shutdown were appropriately modeled, using the most current EPA and TCEQ modeling guidance and methodology, and shown to be in compliance with the applicable NAAQS and the Texas state standards. In addition, H₂SO₄ was appropriately modeled and shown to be in compliance with the state standard for H₂SO₄. NO_x emissions were also appropriately modeled and shown to be in compliance with the applicable NAAQS.

The NAAQS and PSD increment levels were addressed using a Point Source Data Base (PSDB) retrieval. An NAAQS PSDB retrieval was used for both the NAAQS analysis and the PSD increment analysis. This is acceptable since increment consuming sources will be included in the NAAQS retrieval at their permitted allowable rates. This will result in a conservative estimate of the PSD increment consumption. The background concentrations for SO₂ and PM₁₀ were estimated using conservative screening background concentrations for the area. These background screening concentrations are based on the total emissions within a county and region. These screening concentrations provide representative estimates of the worst-case background concentrations.

Comment 14 Commenters expressed concern that the compliance history of the applicant was not properly determined or considered in the permitting process (Individuals).

Response 14 During the technical review of an air quality permit application, the TCEQ reviews the compliance history of the site and company based on the criteria in 30 TAC §60.1-3. The compliance history of individual sites and the company that owns or operates the site is available on the TCEQ website, at the following address:
http://www.tceq.state.tx.us/compliance/enforcement/history/get_list.html.

The applicant and its site have been rated and classified pursuant to 30 TAC §60.2. A company and site may have one of the following classifications and ratings:

- High: Rating <0.10; An Above-Average compliance record
- Average by Default: Rating = 3.01; These are for sites which have no compliance history
- Average: 0.10 < Rating < 45; Generally complies with environmental regulations
- Poor: Rating is > 45; Performs below average

This site (E. S. Joslin Power Station) has a rating of 0.17. This site has been rated in the AVERAGE category. The company (CCND) has a rating of 0.13, which is also considered to be in the AVERAGE category.

Comment 15 Commenters were concerned that the requirements of the PSD program approved by the EPA for implementation in Texas were not met (Individuals).

Response 15 The TCEQ has a State Implementation Plan (SIP) approved program. As a part of its SIP approved program, the TCEQ implements the Federal PSD permitting program on behalf of the EPA. Under the PSD program, parties must obtain preconstruction approval in the form of a PSD permit to build new major stationary sources, or to make major modifications to existing sources.

The EPA has adopted a definition of BACT which is:

Best available control technology means an emissions limitation (including visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under the Clean Air Act (the CAAA) which would be emitted from any proposed major stationary source or major modification which the Administrator, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production process or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant.

The EPA has put forth its interpretation of BACT through agency guidance (EPA's New Source Review Workshop Manual, DRAFT, Oct. 1990). The EPA has acknowledged that states have the primary role in administering and enforcing the PSD program. The TCEQ has also adopted a definition of BACT into its rules: Best Available Control Technology (BACT), with consideration given to the technical practicability and economic reasonableness of reducing to eliminating emissions from the facility".

In the preamble where the EPA proposed approval of the Texas PSD program, the EPA found Texas's BACT review as stringent as EPA's. CCND completed a BACT review for their proposed location and source type (a petroleum coke fired power plant using CFB combustion technology, and associated facilities to support the operation of the CFB). CCND also followed the criteria outlined in the EPA's New Source Review Workshop Manual when it comes to conducting an impact analysis for the proposed source. This impact analysis includes, in part, conducting a significance analysis to determine if a full NAAQS impact analysis would be required, conducting a full NAAQS analysis for SO₂ and PM₁₀, and conducting an increment analysis for SO₂ and PM₁₀. The modeling results were reviewed, audited, and accepted by the TCEQ'S Emissions Banking and Modeling Team (EBMT).

No changes were made to the draft permit in response to these comments.

Respectfully submitted,

Texas Commission on
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