

SOAH DOCKET NO. 582-08-0861  
TCEQ DOCKET NO. 2007-1820-AIR

2008 FEB 19 PM 4: 27

CHIEF CLERKS OFFICE

APPLICATION BY	§	BEFORE THE
	§	
NRG Texas Power LLC	§	
Limestone Electric Generating	§	STATE OFFICE OF
Station Unit 3 Boiler	§	
Jewett, Limestone County	§	
Air Permit Nos. 79188 & PSD-TX-1072	§	ADMINISTRATIVE HEARINGS

**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. This Response addresses all timely public comments received, whether or not withdrawn.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).

The Office of Chief Clerk timely received comments from numerous persons and several organizations. Attachments A-C list all of those persons. Those listed in Attachment A filed substantially the same form letter. Those listed in Attachment B filed substantially the same form letter. All comments in the form letter filed by those listed in Attachment A will be annotated with "Group A" and all comments in the form letter filed by those listed in Attachment B will be annotated with "Group B." All other commenters are listed in Attachment C and will be annotated with the commenters last name.

**BACKGROUND**

Description of Facility

NRG Texas Power LLC (NRG or Applicant) has applied to the Texas Commission on Environmental Quality (TCEQ) for issuance of State Air Quality Permit No. 79188 and Prevention of Significant Deterioration (PSD) Air Quality Permit No. PSD-TX-1072 which would authorize the construction and operation of a new coal-fired electric generating unit at the Limestone Electric Generating Station, located approximately 9 miles north of Jewett, Texas, on FM 39, in Limestone

THE STATE OF TEXAS  
COUNTY OF TRAVIS  
I hereby certify that this is a true and correct copy of a  
Texas Commission on Environmental Quality document,  
which is filed in the permanent records of the Commission.  
Given under my hand and the seal of office on  
 FEB 21 2008  
LaDonna Castanuela, Chief Clerk  
Texas Commission on Environmental Quality

County. The proposed facility will emit the following air contaminants: volatile organic compounds (VOC), nitrogen oxides (NO<sub>x</sub>), sulfur dioxide (SO<sub>2</sub>), sulfuric acid (H<sub>2</sub>SO<sub>4</sub>), hydrogen fluoride (HF), carbon monoxide (CO), particulate matter (PM) [including particulate matter less than 10 microns (PM<sub>10</sub>) and less than 2.5 microns in diameter (PM<sub>2.5</sub>)], ammonia (NH<sub>3</sub>), hydrogen chloride (HCl), lead (Pb), and mercury (Hg).

### 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 or permit amendment from the commission. This permit application is for an initial issuance. The permit application was received on June 12, 2006, and declared administratively complete on June 14, 2006. The Notice of Receipt and Intent to Obtain an Air Quality Permit (public notice) for this permit application was published on June 22, 2006, in the *Groesbeck Journal*. The Notice of Application and Preliminary Decision (2<sup>nd</sup> notice) was published on November 7, 2007 in the *Jewett Messenger* and on November 8, 2007 in the *Groesbeck Journal* and the *Teague Chronicle*. A public meeting was held on December 10, 2007 in Groesbeck, Texas. The notice of public meeting was published on November 28, 2007 in the *Jewett Messenger*, and on November 29, 2007 in the *Groesbeck Journal* and *Teague Chronicle*. The public comment period ended on December 10, 2007. On November 2, 2007 the applicant filed a request for a direct referral to State Office of Administrative Hearings (SOAH). Notice of the Hearing was published on December 19, 2007 in the *Jewett Messenger* and on December 20, 2007 in the *Groesbeck Journal* and the *Teague Chronicle*. A preliminary hearing was held on January 24, 2008. 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**

The following individuals spoke in support for the construction of the plant and for approval of the permit at the public meeting on December 10, 2007: Daniel Burkeen, County Judge Limestone County; Matt Groverton, Limestone County Emergency Management; John McCarver, Limestone County Commissioner Pct. 1; Sharon Barnes, Groesbeck Economic Development Corporation; Tommy Tucker, Mexia Economic Development Corporation; Carolyn Martin, City of Mexia; Jackie Levingston, Mayor of Groesbeck; and Elenor Holmes, Limestone County Judge.

The remaining comments received are summarized below by topic.

**COMMENT 1 (HEALTH/WELFARE EFFECTS):** Commenters express concern that the application and proposed permit will fail to protect, and will adversely affect, the public's health, welfare, property and the environment (Group A, Group B, Morgan, Milberger, SEED, Harris, C Hoffman, Waco, Rolke, ETECO, TCACC). Commenters additionally worry about the potential

health impact of specific constituents, including ozone, nitrogen oxides, sulfur dioxide, fine particulates, mercury emissions, volatile organic compounds, smog, and dust (Group A, Group B, Defense, ETECO, Sierra). Commenters indicate the emission limits for oxides of nitrogen, particulate matter, and sulfur pollution are not protective of public health (Group A, Group B, Citizen, Rolke, Morgan).

Other commenters fear the levels of pollution emitted may cause the following: respiratory illness, asthma attacks, premature deaths, heart attacks, heat strokes, cancer, autism in children, and other neurological and developmental problems in children (Hadden, Harris, Sierra). In addition, commenters fear the proposed plant may affect the health of those sensitive to respiratory irritants, including those with asthma (EDI, ETECO), those with heart conditions (ETECO), the elderly (Jones, ETECO), those who spend time outdoors (Isbell, ETECO), and children (Citizen, ETECO, SEED, C Hoffman).

Commenter states air toxics from this plant are not adequately addressed, i.e. the state effects screening levels (ESLs) for coal dust, limestone dust, ammonia and vanadium pentoxide have been exceeded. (Sierra). Commenter states the TCEQ should conduct a cumulative cancer impacts analysis from the combined emissions of the metals, VOCs, and all toxic substances carried in the PM (Sierra).

Commenter expresses concern over the amount of hazardous air pollutants (HAPs) that is proposed in this application (Morgan). Commenters worry about the effect of the following emissions: acidic sulfur compounds, acidic nitrogen compounds, lead, arsenic, beryllium, cadmium, chromium, mercury, nickel, selenium, manganese, copper, formaldehyde, volatile organic compounds, polycyclic organic matter, benzo-a-pyrene, dioxin, radionuclides, hydrochloric acid, hydrofluoric acid, carbon monoxide, and ammonia (Group A, Sierra, ETECO).

**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>1,2,3</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

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<sup>1</sup> See the document "Air Quality Modeling Guidelines" for details on air modeling at the TCEQ website at <http://www.tceq.state.tx.us/assets/public/permitting/air/Guidance/NewSourceReview/rg25.pdf>. Also visit the agency air modeling page at [http://www.tceq.state.tx.us/permitting/air/nav/modeling\\_index.html](http://www.tceq.state.tx.us/permitting/air/nav/modeling_index.html).

<sup>2</sup> Documents referenced in this response that 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.

contained in 30 Texas Administrative Code (30 TAC) Chapter 111, specifically 30 TAC §111.153 and 30 TAC § 112.3; and TCEQ Effect Screening Levels (ESLs).<sup>3</sup>

The NAAQS, as defined in the federal regulations (40 C.F.R. § 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 set for criteria pollutants: ozone, lead, carbon monoxide, sulfur dioxide, nitrogen dioxide, 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.

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. TCEQ standards stated in 30 TAC Chapters 111 and 112 address maximum ground level concentrations (GLC<sub>maxS</sub>) at the property line. Generally, GLC<sub>maxS</sub> predicted to occur at a sensitive receptor which are at or below the ESL would not be expected to cause adverse effects.

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. The

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<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.

<sup>5</sup> See Response 26 for more information on the development of ESLs.

Applicant used TCEQ background concentrations from the geographic region to model predicted values, and assumed a worst-case scenario, i.e., all processes operating simultaneously at maximum throughput and during the worst-case meteorological conditions. 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 determined to be acceptable. For this specific permit application, appropriate air dispersion modeling was performed using the ISCST3 (Version 02035) model; ISC-Prime (Version 04269) was used in supplemental modeling. 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.

For all constituents modeled in this application, only the  $GLC_{maxS}$  for coal dust, limestone dust, vanadium and ammonia exceeded their current short-term ESLs. These constituents underwent a detailed health effects review and the Toxicology Section determined these exceedances were allowable.

See Responses 2 and 18 below for more information on mercury, Response 3 for more information on particulates, Response 4 for more information on  $SO_2$ , Responses 10 and 23 for more information on the effects of the project on specific areas and counties, and Response 26 for more information on ESLs.

Furthermore, the permit application must meet standards outlined in the Texas Clean Air Act and applicable state and federal rules and regulations. Applicants must comply with 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."

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 facility.

Individuals are encouraged to report any concerns about nuisance issues or suspected noncompliance with terms of any permit or environmental regulation by contacting the TCEQ Waco Regional Office at 1(254)751-0335 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 a 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 Make an Environmental Complaint? Do You Have Information or Evidence?" This booklet is available in English and Spanish from the TCEQ Publications Office at (512) 239-0028, and may be downloaded from the agency website at [www.tceq.state.tx.us](http://www.tceq.state.tx.us) (under Publications, search for Document No. 278).

**COMMENT 2 (MERCURY):** Commenters express concern over the health effects of mercury that will be emitted from this plant (Citizen, Sierra, Rolke, ETECO, Morgan, Durrenberger, D Hoffman, SEED). Because of high mercury levels pregnant women are warned to not eat fish from the local area and Gulf of Mexico (Sierra, Rolke, SEED). A recent study by the University of Texas associates a 17 percent increase in autism rates with every 1000 pounds of mercury pollution (Citizen). Exposure to mercury can result in neurological and developmental problems (Citizen, Sierra). Mercury is unusually harmful because of its persistent, toxic, and bioaccumulative nature (Citizen, Sierra).

Commenters request a mercury sampling and testing program to test locally caught fish in local stock ponds and other area water bodies to determine the impacts of mercury on the community, and baseline mercury testing to determine background levels before the plant starts operations (Sierra, Citizen). Commenters want to see a comprehensive mercury fish monitoring program including sampling and testing in the area (Sierra, Citizen). Commenter worries about whether his friends and family will be able to enjoy the fish from his lake (Durrenberger).

**RESPONSE 2:** Harmful effects from mercury exposure are not expected to occur from direct exposure to air emissions from this project, because the short-term (one-hour) and long-term (annual)  $GLC_{max}$ s for mercury are not predicted to exceed the short-term or long-term ESLs. For more information on ESLs see Responses 1 and 26. The short-term ESL for mercury has been set at  $0.25 \mu\text{g}/\text{m}^3$  and the predicted short-term  $GLC_{max}$  from this plant is  $0.112 \mu\text{g}/\text{m}^3$ . The long-term ESL for mercury is  $0.025 \mu\text{g}/\text{m}^3$  and the predicted long-term  $GLC_{max}$  for this plant is  $0.00012 \mu\text{g}/\text{m}^3$ . Therefore, the TCEQ does not expect any adverse health effects from mercury emissions.

In addition, the short-term and long-term mercury ESLs are set conservatively, as with all other ESLs. The short-term ESL is one-seventh of the level determined to be protective of central nervous system disturbances in offspring (which includes autism and other neurological and developmental problems), and the long-term ESL is also conservatively set at one-twelfth 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 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 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.

An ecological study did link autism rates to environmental mercury releases in the State of Texas. However, as the authors acknowledge, several study limitations exist. One critical limitation is that a link between toxic release inventory (TRI) data and actual mercury exposure is unclear. As the authors concede, a causal connection between environmentally-released mercury and autism cannot be established from these data.<sup>6</sup> In addition, the only case-control study published in the peer-reviewed literature to date indicated no causal relationship between mercury and autism.<sup>7</sup>

See Response 1 for more information on health effects.

**COMMENT 3 (PARTICULATES):** Commenters express concern over particulate matter, indicating that particulate pollution from power plants cuts short over 1,000 lives each year in Texas, taking 14 years on average (Sierra, Citizen, SEED). Commenters point to a 2004 study conducted by the Clean Air Task Force (CATF) which estimated the Dallas-Fort Worth-Arlington metro area experiences the following health impacts each year as a result of particulate pollution from coal-fired power plants: 290 premature deaths each year, 475 heart attacks, 38 lung cancer deaths, and over 10,000 asthma attacks, 500 of which require a visit to the emergency room (Citizen, Sierra). In addition a 1994 study by the Harvard School of Public Health found negative respiratory and cardiovascular effects from fine particulate matter (Citizen, SEED, Sierra). In addition, commenters express concern over secondary particulate matter that may be emitted, which is known to have serious health hazards (SEED, Sierra, Citizen).

Commenters request the emission limits for PM be tightened; other coal facilities around the nation using all types of coal have stricter emission limits than the proposed limit in this permit (Sierra, SEED). Commenters claim the proposed particulate emissions from this plant (in conjunction with particulate emissions from the other proposed facilities) are lethal to the local community (Sierra, Citizen).

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<sup>6</sup> Palmer RF, Blanchard S., Stein Z, Mandell D., Miller C. Environmental Mercury Release, Special Education Rates, and Autism Disorder: An Ecological Study of Texas. *Health Place* 12 (2): 203-209 (2006).

<sup>7</sup> Ip P, Wong V, Ho M, Lee J, Wong W, Mercury Exposure in Children with Autistic Spectrum Disorder: Case-Control Study. *J Child Neurol* 19 (6):431-434 (2004).

Commenter is troubled that more than 1,226 tons per year of PM<sub>10</sub> emissions from this plant that result in a predicted impact of 13 micrograms per cubic meter would increase premature deaths (Sierra). Commenter claims that the current plant causes 59 premature deaths a year and the new plant would cause another 9 per year (Citizen). Commenter worries that the plant's predicted daily PM<sub>10</sub> increase of 13 micrograms per cubic meter is more than the daily 10 micrograms per cubic meter increase in PM<sub>10</sub> recognized for health effects<sup>8</sup> (Sierra). Commenter claims PM emission rates in the draft permit are not justified and provided examples of permits issued with lower PM limits, such as CPS at 0.22 lb/MMBtu (Sierra). Commenters feel the applicant will need to make a significant reduction its PM emissions in order to fully protect health (Sierra, Citizen).

Commenter claims TCEQ underestimated modeled PM<sub>10</sub> impacts by failing to include total PM<sub>10</sub>. Commenter further claims TCEQ only modeled front-half (filterable) PM<sub>10</sub> emissions in their PSD increment, NAAQS and significance analysis (Sierra).

**RESPONSE 3:** Particulate matter consists of solid particles and liquid droplets found in the air. Particles less than 10 micrometers or microns ( $\mu\text{m}$ ) in diameter (PM<sub>10</sub>) are referred to as "coarse" particles and particles less than 2.5  $\mu\text{m}$  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.

Particulates are regulated by EPA's NAAQS. The NAAQS for PM<sub>10</sub> in place at the time the permit was reviewed was based on a 24-hour and an annual time period. The measurement for predicted concentrations of air contaminants in modeling exercises is expressed in terms of micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ). 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. For the 24-hour PM<sub>10</sub> standard of 150  $\mu\text{g}/\text{m}^3$ , the project contributes 13  $\mu\text{g}/\text{m}^3$  and with background the total is 82  $\mu\text{g}/\text{m}^3$ . For the annual PM<sub>10</sub> standard of 50  $\mu\text{g}/\text{m}^3$ , the project contributes 3  $\mu\text{g}/\text{m}^3$  and with background the total is 50  $\mu\text{g}/\text{m}^3$ . The distance of the proposed plant from population centers will further reduce the potential for adverse effects.

The EPA proposed revisions to the standard for PM<sub>2.5</sub> and is currently on track to implement the new standard. Once the new standard is implemented, this facility cannot cause an exceedance of the new standard and this permit would not authorize such a violation. In February 1997, the EPA issued a memorandum establishing a policy that enabled permitting authorities to use the implementation of the Prevention of Significant Deterioration (PSD) program for PM<sub>10</sub> as a surrogate for a PM<sub>2.5</sub> PSD Program until the necessary tools were in place to measure PM<sub>2.5</sub> and implement PSD permitting

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<sup>8</sup> Public Citizen cites to a 1994 study by Harvard School of Public Health which found an association between a 10 microgram per cubic meter increase in PM<sub>10</sub> and a 1 percent increase in total daily deaths, a 1 percent increase in emergency room visits, and a 3 percent increase in asthmatic attacks. They point to additional studies which indicate a correlation between particulate matter and adverse health effects.

programs for PM<sub>2.5</sub>.<sup>9</sup> Based on the modeling using PM<sub>10</sub> as a surrogate, PM<sub>2.5</sub> is not expected to cause harm to human health or the environment.

The draft permit requires the Applicant to extensively 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 PM emissions from this plant.

Further, Applicants are required to implement the best available control technology (BACT) to reduce emissions. The BACT is based upon control measures that are designed to minimize the level of emissions from specific sources at a facility. The technology of choice for BACT for PM is fabric filters (also called baghouses), which have been shown to reduce greater than 99 percent of PM. While both NRG Limestone and CPS have proposed to use fabric filters to control PM/PM<sub>10</sub>, CPS has lower PM emissions because their uncontrolled SO<sub>2</sub> rate is lower due to firing only PRB coal as a fuel. The higher sulfur fuels produce more SO<sub>2</sub> and, therefore, NRG's total PM rate is higher than the 0.22 lb/MMBtu total for CPS even though using the same fabric filter control. Regardless, both levels are protective of human health and the environment.

Secondary particulate matter is solid material that coalesces from gases. The main type of secondary particulate matter formed from coal fired power plant emissions is sulfate, which forms over time from SO<sub>2</sub> emissions. Sulfate is in the PM 2.5 size range. Since 1999, ambient monitoring of PM<sub>2.5</sub> has been conducted at numerous sites in Texas and no PM<sub>2.5</sub> nonattainment areas have been found.

Regulatory programs that are in place are expected to further reduce the levels of sulfate from power plants in Texas. 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, with further reductions to approximately 60 percent below 2005 levels in 2015.

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) has conducted elaborate projection modeling to predict future emissions under the CAIR requirements. The CAMD's Integrated Planning Model (IPM) predicts 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.

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<sup>9</sup> See 71 FR 27,6718, 6727 (February 9, 2006).

The CAIR program applies in Texas and states to the east and northeast of Texas that affect secondary particulate matter concentrations in Texas, so the best projections available are that the sulfate, the largest component of secondary PM<sub>2.5</sub> in central and eastern areas of Texas, will be decreasing.

The Applicant performed the air quality analysis in support of federal permit PSD-TX-1072 and state permit 79188. TCEQ staff reviewed the air quality analysis. TCEQ agrees with the commenter that only front-half (filterable) PM<sub>10</sub> emissions were modeled in the Applicant's PSD increment, NAAQS and significance analysis. Since the maximum impact receptors for the PM<sub>10</sub> PSD increment, NAAQS and significance analysis are all on, or very close to, the northern property line, they are impacted mainly by material handling emissions. The stack emissions are emitted from a tall stack and have good dispersion; therefore, would not significantly impact these receptors. Total PM<sub>10</sub> is addressed in the permit with emission allowables for both filterable and total PM<sub>10</sub> in the MAERT.

See Response 10 for more information on cumulative effects of power plants.

**COMMENT 4 (SO<sub>2</sub>/ACID GASES):** Commenter worries about sulfur dioxide emissions, which contribute to acid rain, skin, nose, and eye problems, respiratory disease and heart disease (Sierra). Commenters express concern over the damage caused to private property by acid rain and acid dust fallout (Citizen, ETECO, Morgan, Hadden). Acid rain is bad for cattle (Brinkman). Too much sulfur affects the breeding cycle and health of cattle (Honeycutt).

Commenter states that the plant will emit 369 tons per year of acid gases, sulfuric, hydrochloric and others that are very corrosive and harmful to lungs (Sierra). Commenter states that there are many other sources of acid gases in the area (Milberger). Commenters suspect the acid rain enters soil and caused fences and equipment to rust (Morgan, Murphy, Walker).

Commenter states that CPS is offsetting almost all of its sulfur emission and NRG is not (Sierra).

**RESPONSE 4:** 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. 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. Since the emissions of SO<sub>2</sub> from the proposed plant do not exceed any of the established NAAQS, no adverse health or

welfare effects are anticipated. See Response 1 for more information on how the review for criteria pollutants is conducted.

On November 29, 2007 NRG committed to no net increase in annual site-wide NO<sub>x</sub>, SO<sub>2</sub>, or Hg by reducing emissions on the existing Units 1 & 2. Specifically, the Applicant has proposed including in the permit a special condition to require no net increase in site-wide actual annual emissions of NO<sub>x</sub>, SO<sub>2</sub>, and Hg from the Limestone Electric Generating Station after LMS Unit 3 demonstrates initial compliance. The cap is based on a consecutive 24-month period within the 2005 to 2007 time period.

**COMMENT 5 (RADON/RADIONUCLIDES):** Commenter asserts the permit should regulate radon and its carcinogenic byproducts resulting from stack and fugitive radionuclide emissions (Sierra). Radon and its relatives, Polonium 210 and Lead 210 are known human carcinogens and there is no safe level of exposure to humans except zero concentration (Sierra).

Commenter indicates the applicant must conduct plant site wide baseline radionuclide ambient air monitoring in for Radon, Polonium 210 and Lead 210, especially considering the cumulative impacts from the 12 proposed plants (Sierra). Commenter asserts the application and permit should include adequate annual radionuclide stack testing requirements and stack radon continuous emissions monitoring provisions for radionuclide gaseous emissions such as radon to ensure a demonstration of continuous compliance (Sierra).

**RESPONSE 5:** The particulate controls proposed by the Applicant also control radionuclides, and any remaining radionuclide emissions do not pose a health threat. Radiation emissions from coal-fired electric utility plants in Texas were evaluated almost thirty years ago and potential impacts were found to be minimal. In the report "Releases of Radioactive Isotopes from Coal and Lignite Combustion" (H. Cooper and G. Dakik, UT at Austin, presented at 71<sup>st</sup> Annual Meeting of the Air Pollution Control Association, Houston, June 1978) researchers concluded that radioactive emissions from coal and lignite-fired power plants could, in a few cases, approach those of nuclear power plants, but could meet the Nuclear Regulatory Commission's (NRC) fence line exposure standards, if they were applicable. With the advance of control technology since 1978, the particulate limit for boiler exhaust stack in the draft permit is about seven times more stringent than the particulate limits assumed in this 1978 analysis, which increases the margin of safety.

More recently, in the EPA's 1997 Report to Congress, the EPA also found radon emissions from coal combustion to be negligible compared to other sources in the environment. Table 9-7 of the report shows the annual exposure from all outdoor sources to be six percent of residential exposures. The report states that it is generally thought that average radioactivity of soil is about twice that of coal. Another source, "Evaluation of Occupational and Environmental Exposures to Radon and Radon Daughter Products" (Report No. 78, National Council on Radiation Protection and Measurements, 1984), shows that coal combustion contributes less than one-millionth as much radiation to the atmosphere as from soil. Based on the scientific evaluations conducted by EPA and

others, radon emissions from coal combustion are not an issue that needs to be addressed because they pose no threat to human health or the environment.

**COMMENT 6 (LIMITS NOT PROTECTIVE OF HEALTH):** Commenter believes the EPA's standard for PM<sub>10</sub>, which the TCEQ relies on, is not protective of public health, and does not take into account the carcinogenic potential of exposure to PM<sub>10</sub>, nor premature deaths resulting from short-term exposure in setting the national daily standard for PM<sub>10</sub> (Sierra).

**RESPONSE 6:** The Federal Clean Air Act (FCAA) sets out the standards the EPA must follow in developing NAAQS. The FCAA requires the EPA to develop primary and secondary NAAQS. The EPA is required to periodically review the NAAQS and update them as new scientific information is developed to ensure the NAAQS protect human health with an adequate margin of safety. BACT may be reevaluated if predicted ambient air concentrations exceed the NAAQS. The TCEQ's jurisdiction is established by the Texas Legislature and is limited to the issues set forth in statute. Accordingly, the TCEQ does not have jurisdiction to prohibit owners and operators from seeking authorization to emit air contaminants if they comply with all statutory and regulatory requirements.

See Response 1 and 3 for more information on health effects and particulate matter.

**COMMENT 7 (EFFECTS ON ANIMALS/VEGETATION):** Commenters express concern over the adverse health consequences this plant will have on the farm animals, pets, and wildlife (Sierra, Morgan, Franklin, Honeycutt). Commenter claims ozone can adversely affect vegetation and ecosystems (Sierra). Other commenters indicate emissions of sulfur and other pollutants will negatively affect crops, cattle and grassland (Sierra, Rolke, ETECO, Brinkman, Honeycutt). Commenter states the applicant has failed to conduct an evaluation for the habitats of threatened and endangered species that could be impacted by the toxic air pollution and environmental impacts of the new coal-fired power plant (Sierra).

**RESPONSE 7:** NAAQS are set in order to protect health and welfare for criteria pollutants, and ESLs are set to protect health and welfare for non-criteria pollutants. Because these pollutants listed in the draft permit are within the NAAQS and passed a health effects review, adverse effects to animals, vegetation, or the environment are not expected as a result of these emissions. See Response 1 for more information on NAAQS and ESLs.

**COMMENT 8 (PUBLIC COMMENT/TIMELINE):** Commenters state the application should not be fast-tracked because Governor Perry's Executive Order No. 249 does not apply (Sierra, SEED). Commenter reasons that since the coal proposed will be imported from Wyoming, this plant will therefore not "use Texas' natural resources to generate electricity" (Sierra). Further, commenter explains Executive Order No. 249 is illegal because it limits the public participation requirements set forth in Texas' federally approved state implementation plan (SIP), and other public notice requirements established by the Texas Legislature (Sierra). Commenter is concerned about the fast

pace of the application and requested a public meeting and public hearing and asked the public comment period be re-opened (Dunnam).

Commenters would like the comment period extended, until sufficient air modeling has been made available to the public and until individual and cumulative modeling has been completed to determine the impact on surrounding areas and the City of Waco (Waco) and if there are any significant changes made to the draft permit (EPA). Commenters would like comment period extended because the company made a significant change to their application on November 29<sup>th</sup> and the public should be allowed to comment on it (SEED, RC:OLOL, Citizen)

Commenter complained about his rights being violated because he received a pamphlet on November 19, 2007 with information about a Public Meeting scheduled for November 15, 2007 in Groesbeck, Texas (Hudgins).

**RESPONSE 8:** By Order No. 1, dated January 4, 2008, Hon. William G. Newchurch ruled that Governor Perry's Executive Order No. RP 49 was not applicable to this application.

Modeling was not submitted at the time of the application because this would be impractical for such a large project. This is typical of TCEQ practice for projects of this size. However, before the technical review is complete, modeling must be submitted by the applicant, audited, and a health effects review must be conducted.

Once the technical review is completed and a draft permit written, the applicant is required to publish Notice of Application and Preliminary Decision. This notice informs the public of the Executive Director's Preliminary Decision (which summarizes the modeling results) and the draft permit. The Applicant published notice of application and preliminary decision requesting comments on October 8, 2007. At this time the public had another thirty days to examine the modeling, draft permit and specific emission limits therein, and to submit additional comments. Therefore the comment period ended on December 10, 2007.<sup>10</sup> The applicant was required to make the Executive Director's preliminary decision and draft permit available at the Limestone County Courthouse, 200 West State Street, Groesbeck, Limestone County, Texas, the TCEQ Waco Regional Office, and the TCEQ headquarters office in Austin, Texas after it had been published.

For air applications such as this, public meetings under 30 TAC §55.154(a) will be held "in the county in which the facility is located or proposed to be located in order to inform the public about the application and obtain public input." The public meeting was held in Groesbeck, Texas on December 10, 2007.

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<sup>10</sup> Published comment ended on November 7, 2007. However, pursuant to 30 Tex. Admin. Code § 55.152(b), the public comment period was extended to the conclusion of the public meeting.

See Response 10 for why cumulative modeling is not part of this individual permit application. See Response 24 for more information on Class One areas. There have been no significant changes to the draft permit or air quality analysis requiring additional notice and comment. The changes requested by the applicant on November 29<sup>th</sup> were to add the cap on all three units to the level actually emitted by the original two units. Therefore the comment period will not be extended beyond December 10, 2007.

The November 15, 2007 meeting Mr. Hudgins received late notice of was a meeting sponsored by environmental groups. The TCEQ did not schedule or attend this meeting.

**COMMENT 9 (OZONE IMPACT ANALYSIS):** Commenters state a full impacts analysis for ozone in the DFW nonattainment area is required (SEED, Citizen, Sierra). Ozone is known to trigger asthma attacks and other respiratory symptoms which can be brought on by pollens or other allergens, dust chemicals, and other pollutants (Sierra).

Commenters indicate the TCEQ should require the applicant to conduct photochemical modeling to demonstrate the plant will not cause or contribute to a violation of the ozone NAAQS (Sierra, SEED, Citizen). Commenters describe the Scheffe Method as antiquated and useless (SEED, Citizen, EPA). Commenter commented on the inaccuracy of Scheffe Point Source Screening Tables and noted that a modeling protocol was not submitted by NRG (EPA).

Commenter welcomed the photochemical modeling analysis by NRG but felt that using the files developed for the Dallas SIP episode was not the most appropriate for the Austin area (CAC). Commenters feel photochemical modeling performed by Alpine Geophysics was not done in accordance with a modeling protocol and was not made available to the public or TCEQ (EDI, SEED, Citizen, EPA). Commenter states the ozone impacts analysis entitled, "Estimation of the Potential 8-hr Ozone Impacts in Central Texas Associated with the Proposed NRG Texas Limestone Unit 3 Power Plant" (Alpine Geophysics, 2 February 2007) is flawed (EDI).

**RESPONSE 9:** There was no requirement for the Applicant to conduct any regional ozone analysis. The EPA has no preferred model when determining regional impacts of a single source because the simulation of ozone formation and transport is a highly complex and resource intensive exercise. The EPA's Guidelines on Air Quality Models - Appendix W of 40 CFR Part 51 - gives guidance on models for estimating ozone impacts in Section 5.2.1 of Appendix W. Sections 5.2.1a and 5.2.1.b both refer to more guidance in the *Guidance on the Use of Models and Other Analyses in Attainment Demonstrations for the 8-hr Ozone NAAQS* (Environmental Protection Agency, 2005). The TCEQ requested clarification on the applicability of this new guidance to the NSR permitting program. The 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 (Sept. 29, 2006 email from Tyler Fox to Dom Ruggeri). Based on the rule and the EPA's clarification of the rule, there is no requirement for photochemical modeling or SIP attainment demonstration modeling techniques for NSR permitting purposes.

Modeling protocol consistent with SIP attainment demonstration is not a requirement of a PSD permit; therefore this was not part of this review. The TCEQ welcomes any guidance from the EPA on developing such a protocol.

**COMMENT 10 (CUMULATIVE IMPACTS):** Commenters are concerned over the effects cumulative emissions may have from this plant, existing plants, and other proposed plants on health and welfare on Central and East Texas (ETECO, Waco, Brinkman), and on the Austin/Round Rock area (CAC). Commenter requests that if the modeling shows an area's attainment status may be affected by the (cumulative) emissions, the TCEQ should require the applicant to use state of the art emission reduction technologies (beyond BACT if necessary) to prevent affecting the attainment status of an area (Sierra). Commenter indicates the application should include modeling to establish the impact of this plant's emissions with consideration for all other plant emissions existing at the time of its operation (i.e. including other proposed plant's emissions) (Citizen, EPA).

Commenters indicated the application and permit process should model the cumulative impacts of all proposed new coal-fired electric generating units on surrounding areas, including the Dallas area (Sierra, EPA, Waco), on all affected attainment, non-attainment, and unclassified areas (Sierra).

**RESPONSE 10:** The applicant did perform a cumulative air dispersion modeling analysis for the criteria pollutants SO<sub>2</sub>, NO<sub>x</sub>, PM, and CO that is consistent with EPA guidance (1990 EPA Draft Guidance for PSD). When predicted concentrations of a criteria pollutant for the project were greater than an applicable de minimis level, the applicant included all known sources of that pollutant within the Radius of Impact (ROI) plus 50 kilometers, which is consistent with EPA guidance. The largest ROI for the Limestone site, 24-hr SO<sub>2</sub>, is approximately 12 miles (19 kilometers). The nearest proposed TXU sites, Big Brown, Lake Creek and Oak Grove as well as Sandy Creek and Twin Oaks were included in the modeling analysis and all state and federal standards were met.

The TCEQ addresses regional ozone formation through the SIP development process rather than through individual permitting actions because ozone is a regional issue. Emissions growth is addressed in the SIP development process. SIP attainment demonstration modeling of the Dallas/Fort Worth nonattainment area 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. The PSD permit program is not designed to make progress toward attainment of the NAAQS. EPA has recently noted that while nonattainment new source review is a measure to address growth under the Federal Clean Air Act, it is not specifically designed to produce emission reductions; instead its purpose is to allow new source growth to occur without interfering with an area's ability to attain. "NSR is not a [control] measure in and of itself to assure attainment of the NAAQS," but should be

considered in SIP planning to assure that emissions from new sources will not interfere with attainment of the NAAQS.<sup>11</sup>

The TCEQ cannot consider possible future economic impacts in an air permit application, even impacts that may result from TCEQ decisions. Accordingly, the TCEQ does not have jurisdiction to prohibit owners and operators from seeking authorization to emit air contaminants if they comply with all statutory and regulatory requirements.

**COMMENT 11 (DIESEL):** Commenter wants the application and permit to include the diesel and particulate pollution that will result from the new rail line that will bring coal to this plant, and from the additional trains, truck traffic and/or mining operations that supply coal for this plant and the nine other coal plants that would use powder river basin coal served by trains plying the Trans Texas corridor (Sierra). Commenter states that TCEQ did not evaluate the additional impacts of daily PM<sub>2.5</sub> emissions from diesel locomotives (Sierra). Commenter says diesel trains pollute the air (D. Hoffman).

**RESPONSE 11:** TCEQ rules do not require an Applicant to analyze pollution resulting from additional use of a rail line in an individual permit application. Trains are categorized as mobile sources and their emissions by definition are not subject to review under the NSR permitting requirements of the Clean Air Act, even if traveling on site. Nor does the TCEQ have jurisdiction over mining operations. For the same reasons, diesel and particulate pollution resulting from mobile sources to other proposed plants are not part of this application or permit review.

**COMMENT 12 (SHORT TERM SO<sub>2</sub> SPIKES):** Commenter requests that the toxicology review address short term SO<sub>2</sub> spikes, and that the applicant perform plume modeling to determine whether expected five minute peak SO<sub>2</sub> concentrations will remain below 0.60 ppm (Sierra).

**RESPONSE 12:** 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 Response 1 and 4 for more information). The TCEQ has no requirement to determine possible health impacts of SO<sub>2</sub> over a five-minute averaging period. The application did not include a review of the predicted SO<sub>2</sub> ambient air concentrations over a five-minute period. Therefore the applicant will not be required to perform atmospheric dispersion modeling to assess five-minute SO<sub>2</sub> spikes. However because SO<sub>2</sub> emissions from the proposed plant do not exceed the NAAQS, no adverse health or welfare effects are anticipated.

**COMMENT 13 (STACK CONTINUOUS EMISSIONS MONITORING):** Commenter wants TCEQ to require NRG to install and operate a mercury continuous monitoring system (CEMS) (Sierra). Commenter states that TCEQ typically only requires a single stack test to demonstrate

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<sup>11</sup> Final Rule to Implement the 8-Hour Ozone National Ambient Air Quality Standard – Phase 1, 69 Fed. Reg. 23951, 23986 (April 30m 2004).

continuous compliance with the PM standard (EDI). Commenters recommend TCEQ consider requiring PM CEMS (EDIP, EPA, Sierra), and if not, the TCEQ require a bag leak detection system which will be more sensitive to changes in PM concentrations than Continuous Opacity Monitoring System (COMS) (EPA). If COMS are used to demonstrate compliance with the PM emission limits then the permit must establish a correlation between opacity and PM emissions (EPA, Sierra). Commenter claims COMS is a poor indication of actual PM emissions and can not be used for compliance with PM allowables (Sierra). Commenter requests that annual PM stack testing should be required if the TCEQ does not require CEMS for particulate matter (Sierra). Commenter wants at least semi-annual compliance test for PM (Sierra). Commenter claims the technology exists to continuously monitor a long list of pollutants including toxic metals, acid gases, dioxins, furans, polycyclic aromatic hydrocarbons, particulate matter and more and NRG should have all CEM data available real-time on a publicly-available website (Sierra).

Commenter states permit lacks meaningful short-term limits because standards are based on 30-day and/or annual averages and that lb/hr limits are grossly inflated (Sierra).

**RESPONSE 13:** The draft permit requires that continuous emissions monitors (CEMS) be installed, calibrated, operated and maintained to continuously measure NO<sub>x</sub>, CO, SO<sub>2</sub> (Special Condition No. 27), opacity COMS (Special Condition No. 28), mercury CEMS (Special Condition No. 29), and ammonia CEMS or alternative (Special Condition No. 30). Mercury may be monitored continuously via an instrument or a method prescribed by federal rules. The conditions clearly state that these systems shall be used to determine continuous compliance with the emission limits of the permit. This suite of CEMS is typical of recently issued air permits for coal-fired power plants. The EPA proposed, but recently elected not to require, PM CEMS for coal-fired power plants as part of NSPS Subpart Da. In addition, annual stack testing for H<sub>2</sub>SO<sub>4</sub>, HCl, HF, VOC and total PM/PM<sub>10</sub>, is a requirement of Special Condition No. 33.

Continuous stack monitoring for acid gases such as H<sub>2</sub>SO<sub>4</sub> and HF is not required for coal-fired power plants because the emissions are small, and, because acid gases are primarily controlled by the SO<sub>2</sub> controls, the SO<sub>2</sub> CEMS provides a good surrogate. Emissions of H<sub>2</sub>S are not an issue with coal-fired power plants, which operate with in-furnace levels of oxygen at 3 percent or more, providing excess air which limits its formation. Opacity monitoring, while not equivalent to a PM CEMS, is used as a surrogate for PM mass emission monitoring and the monitoring of light extinction is usually a common principle for both opacity and PM monitors. For non-volatile metals, such as lead, collection efficiency is considered equal to the filterable PM collection efficiency and quarterly testing of the as-fired coal and petroleum coke ensures the levels represented in the permit are being met.

The emission standards were established with 30-day averages to align with NSPS standards. Different short term and annual limits are set to acknowledge the fluctuations inherent in the boiler operation during load swings, but the annual limits are established to enforce the emission limit that is reasonably expected to be met. The pounds per hour limit is based upon a worst case condition for

normal operations, or possibly during start up or shut down, and the TCEQ does not feel they are grossly inflated. To ensure compliance with the annual limits, the operator must carefully monitor the short term emission rates and could be forced to limit operations to maintain compliance with the annual limits.

**COMMENT 14 (PSD AMBIENT MONITORING):** Commenters commented that NRG did not accomplish the one year of on-site air ambient monitoring required for major source applications (Rolke, Sierra, EDI). Commenter says TCEQ should have required NRG to collect pre-construction meteorological data for use with their modeling (Sierra). Commenter formally requests the TCEQ require ambient air pollution monitoring beyond the fence line (Sierra). Commenter demands portable or permanent air monitors be installed within the radius of influence of this project to gather baseline data rather than distant monitor (Rolke). Commenter states that the PSD monitoring significance was exceeded for both PM<sub>10</sub> and SO<sub>2</sub> and TCEQ incorrectly determined that background concentrations from Travis would be appropriate for the conditions in Limestone County (Sierra).

Commenter states the applicant must conduct community baseline ambient air monitoring for ozone, nitrogen oxides, sulfur dioxide, and particulate matter at the Limestone plant site in Limestone County as required by PSD regulations.

**RESPONSE 14:** For criteria air pollutants such as SO<sub>2</sub>, PM, and NO<sub>2</sub> that are proposed to be emitted in significant amounts, the prevention of significant deterioration (PSD) rules at 40 CFR 52.21(m) generally require collection of ambient air quality data representative of the air quality in the area that the major source would affect. For ozone, the requirement for ambient air quality data is interpreted to apply via footnote 1 in 40 CFR 52.21(i)(5)(i), if the source would emit 100 tons per year or more of NO<sub>x</sub> or VOC. The PSD rules at (i)(5) also allow exemption from the preconstruction monitoring 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 NO<sub>2</sub>, 2 μg/m<sup>3</sup>, annual average, is less than the 14 μg/m<sup>3</sup> monitoring exemption level at 40 CFR 52.21(i)(5)(i). For those criteria pollutants which do not meet the EPA monitoring exemptions based on modeling, TCEQ customarily relies on data collected from continuous ambient air monitoring stations (CAMS), sited at various locations around the state, to provide conservative estimates of background air quality levels, as discussed in the TCEQ guidance document RG-25, pages 24-26. The Applicant used monitoring data from Travis County for SO<sub>2</sub> and PM, and from Harrison County for ozone. TCEQ believes these monitored concentrations provide a conservative estimate of background levels in Limestone County for these pollutants.

**COMMENT 15 (BACT, IGCC):** Commenters feel the application is particularly deficient with respect to Best Available Control Technology (BACT) analysis and the applicant should consider IGCC technology (Sierra, EDI, SEED, RC:OLOL, Citizen, ETECO, McNatt, Pilant, AGs). Commenters claim the BACT analysis should have included a consideration of IGCC for the following reasons: a proper BACT "top-down" approach must include consideration of all available combustion techniques or production processes such as IGCC; in approving the Texas SIP, the EPA

required the state to follow EPA's statutory interpretations and applicable policies, including using the "top down" approach; the legislative history of the Clean Air Act indicates IGCC was meant to be included in BACT determinations; a proper BACT analysis requires an assessment of the full range of available technological choices; an EPA guidance document states all BACT analysis, regardless of the specific approach, must consider all available alternatives; the EPA's New Source Review (NSR) Workshop Manual establishes the "top down" analysis will include innovative fuel combustion techniques; IGCC is an inherently lower emitting process for the production of electricity from coal; the TCEQ must require the applicant to consider use of IGCC based on its international (as compared to national) use; the public has a right to suggest an alternative that would "redefine the source" under 42 USC §7475(a)(2); when an applicant applies for both an state air quality permit and a federal PSD permit, the more rigorous BACT definition must govern (i.e. the federal standard); IGCC must be considered under TCEQ BACT Guidance as part of the evaluation of new technical developments; Kentucky, Illinois, New Mexico, Montana, Georgia have required consideration of IGCC as part of their BACT analysis and Texas therefore needs to follow suit. (Sierra, EDI) In addition, commenters incorporate by reference a brief submitted in a Wisconsin permit appeal by Northeast States for Coordinated Air Use Management (NESCAUM) in support of their argument that IGCC should be included in the BACT analysis (SEED, RC:LOL, Citizen).

Commenter also claim IGCC greatly reduces the emissions of criteria pollutants and non-criteria pollutants such as mercury and CO<sub>2</sub>, and this should be reflected in the BACT analysis (EDI, Citizen). The BACT analysis should also take into account the health costs that would be saved by using IGCC<sup>12</sup> (SEED, RC:LOL, Citizen)

**RESPONSE 15:** The starting point of the air quality application process is for the applicant to propose to the TCEQ to do something (e. g., generate electricity) with a specific process (e. g., pulverized coal (PC) boiler). Applicants propose what they want to do with a specific process based upon the business decisions and risks that the applicant is willing to assume.<sup>13</sup> The TCEQ does not substitute its judgment for the applicant's in this decision with the exception of inherently lower emitting processes discussed below. However, the TCEQ does have the authority to ensure emissions from the applicant's proposal do not harm human health or the environment.<sup>14</sup> BACT is one of the fundamental tools used to protect human health and the environment.

The TCEQ's BACT review is the appropriate review to be applied to PSD applications. The TCEQ has historically interpreted the BACT requirement not as a means to "redefine" a source, but as a basis to control proposed sources. If TCEQ did consider different processes, in effect the TCEQ

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<sup>12</sup> Commenter points to the testimony at the We Energies' Elm Road Facility Hearing in Wisconsin that shows \$42 million per year could be avoided in health costs by using IGCC, or \$7.8 per MWh.

<sup>13</sup> Each process has various risks, costs, and other factors, including reliability, cost, potential investor concerns, suitability (to the climate, terrain), raw materials, fuels, product, water supply, transportation options, taxes, profit, flexibility, maintenance, labor skills, operation costs, among others.

<sup>14</sup> TCAA § 382.0518(b).

would require the applicant to change the fundamental scope of what it is proposing, thus, redefining it.

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>15</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>16</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.

Once an application has been received, the TCEQ begins the application review. The TCEQ reviews the BACT submittal against its three-tiered approach (discussed below). The final end result of a BACT review is the development of a number – an emissions limitation.<sup>17</sup> Applicants may use a variety of control strategies to meet BACT. Control strategies have included: pollution prevention, equipment specification/equipment monitoring, add-on abatement equipment, and/or good engineering practices (GEP)/best management practices (BMP). Only certain control strategies work with certain processes. Many times, even small changes in the process can have large-impacts on control strategy selection, as well as effectiveness, efficiency, and reliability of the control strategy and the process itself.

When TCEQ staff evaluates the applicant's BACT proposal, a three-tiered approach is used. The evaluation begins with the first tier (Tier I) and progresses through the subsequent tiers (Tier II & III) only when necessary.<sup>18</sup> In each tier, BACT is evaluated on a case-by-case basis for technical practicability and economic reasonableness.<sup>19</sup>

As part of a BACT evaluation, the TCEQ has required evaluation of small design changes because these small changes would make the proposed process an inherently lower emitting process. However, these changes do not require a total redesign or substitution of a proposed process. Generally, these include a change to the proposed process that reduces emissions substantially. In fact, most applicants propose installation of these design changes without TCEQ prompting and

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<sup>15</sup> TCAA § 382.0518(b)(1).

<sup>16</sup> TCAA § 382.003(6) & 30 TAC § 116.10(6).

<sup>17</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>18</sup> *Id.* at 3.

<sup>19</sup> *Id.*

review is usually done under Tier I. Inherently lower emitting processes are processes that emit less without the addition of a control device. Inherently lower emitting processes simply emit less and, in many instances, are considered control devices. The most common example is the installation of low NO<sub>x</sub> burners when the applicant proposes a boiler. Installation of low NO<sub>x</sub> burners does not require the applicant to propose something other than a boiler or even a fuel change; however, installation of low NO<sub>x</sub> burners inherently decreases the amount of NO<sub>x</sub> emitted without substantially changing the applicant's proposal or the business decisions the applicant faces. Other examples include coating materials manufactured with less VOCs, installation of internal floating roofs, use of robotic spray equipment, and inspection/maintenance programs to stop fugitive emissions early.<sup>20</sup>

The applicant is proposing to generate electricity with a PC Boiler. As part of its application, NRG has proposed a suite of controls. A PC Boiler is a very specific type of process within the electric generating industry. The applicant and TCEQ staff performed an extensive review of recent permit actions across the country involving PC Boilers and for technical developments that may impact BACT, the EPA RACT/BACT/LAER Clearinghouse (RBLC), EPA's National Coal Fired Utility Projects Spreadsheet, and conducted a focused study of similar projects. 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 PC Boilers.

The applicant was not required to nor did the TCEQ evaluate any other electric generation methods such as IGCC or coal-fired circulating fluidized bed (CFB) boilers as part of the BACT evaluation. 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 CFB Boilers, are different processes than the proposed PC Boiler. Further, emission limits from IGCC or CFB 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, 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 syngas was not cleaned prior to combustion then exhaust from the IGCC would be substantially dirtier and would require addition of control technologies to the exhaust gas.

The TCEQ does not require an applicant to redefine the source with the possibility of inherently lower emitting processes. IGCC is not an inherently lower emitting process.

The TCEQ has a State Implementation Plan (SIP) approved program for issuing PSD permits; this authorizes the TCEQ to implement the Federal PSD permitting program on behalf of the EPA.<sup>21</sup> 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.<sup>22</sup>

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<sup>20</sup> *Id.* at 7.

<sup>21</sup> 57 FR 28093 (June 24, 1992).

<sup>22</sup> 42 USC §§7407, 7470-7492.

States have wide discretion in formulating SIPs.<sup>23</sup> Nothing in the FCAA or its implementing regulations mandates using the BACT top-down approach.<sup>24</sup> In response to public comments, when approving Texas' PSD program, the EPA acknowledged that States have latitude in developing their programs.<sup>25</sup> Commenters expressed concern with the proposal preamble language when the EPA suggested that final approval would require Texas to follow EPA's current and future interpretations of the FCAA's PSD provisions and EPA regulations as well as EPA's operating policies and guidance.<sup>26</sup> Commenters contended such a condition would be unlawful and would improperly limit the State's flexibility.<sup>27</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>28</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>29</sup> Commenters also stated that the EPA improperly included provisions mandating Texas follow EPA's top-down approach.<sup>30</sup> In response, the EPA stated it "does not mandate the State follow a top-down approach to BACT."<sup>31</sup>

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."

The TCEQ has also adopted a definition of BACT into its rules.<sup>32</sup> However, Texas did not incorporate EPA's rules regarding the implementation of BACT.<sup>33</sup> The TCEQ does not follow the top-down approach found in EPA's guidance. 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>34</sup> Texas' use of the three-tiered approach predates EPA's

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<sup>23</sup> *Alaska*, 540 U.S. at 470.

<sup>24</sup> 42 USC §7479(3); 40 CFR § 52.21(j); and *Alaska*, 540 US at 476, fn. 7.

<sup>25</sup> 57 FR 28093 (June 24, 1992).

<sup>26</sup> *Id.*

<sup>27</sup> *Id.*

<sup>28</sup> *Id.*

<sup>29</sup> *Id.*

<sup>30</sup> *Id.*

<sup>31</sup> *Id.* Protestants also claim Texas by letter committed to implementing EPA interpretive guidance including the top-down approach. 54 FR 52823 (December 22, 1989). However, in the adoption preamble, EPA stated "EPA agrees...that [Texas] letter need not be interpreted as a specific commitment by the State to follow a "top-down" approach to BACT determinations." 57 FR 28093 (June 24, 1992).

<sup>32</sup> 30 TAC §116.10(3).

<sup>33</sup> 30 TAC § 116.160(b)(1) specifically excludes 40 CFR §52.21(j), concerning control technology review.

<sup>34</sup> Draft RG-383, April 2001.

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.

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>35</sup> The EPA interpreted the FCAA BACT definition as possessing two fundamental concepts.<sup>36</sup> First, the most stringent available control technology (and associated emission limitation) must be evaluated.<sup>37</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>38</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 RACT/BACT/LAER Clearinghouse (RBLC), EPA's National Coal Fired Utility Projects Spreadsheet, and recently issued permits, draft permits and applications for coal and lignite power projects. Additionally, the application laid out a case-specific rationale why the proposed BACT leveled were selected.

Finally, to 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 pulverized coal 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 facilities.

**COMMENT 16 (BACT; GENERALLY):** Commenter claims BACT Limits and BACT analysis are flawed (Sierra). Commenter claims BACT analysis appears to have stopped at Tier I and did not follow EPA's Top Down analysis (Sierra). Commenter claims NRG's BACT analysis did not consider readily available data from the EPA Acid Rain database (Sierra). Commenter indicates the

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<sup>35</sup> 54 FR 52823 (December 22, 1989).

<sup>36</sup> *Id.*

<sup>37</sup> *Id.*

<sup>38</sup> *Id.*

BACT analysis should contain a detailed administrative record documenting appropriate BACT determinations for emissions of NO<sub>x</sub>, SO<sub>2</sub>, VOC, PM<sub>10</sub>, and CO (Sierra). Commenter would like to see the rationale for these determinations, which should include an analysis of the technical and economic feasibility of available control technologies (Sierra). Further, the BACT analysis should include regional air quality compliance costs (EDI).

Commenters claim Applicant's BACT analysis is incomplete and fails to comply with requisite federal and state laws, regulations and guidance (SEED, RC:OLOL, Citizen, AGs, TCACC). Commenter states that TCEQ fails to require technology that is 60 percent to 90 percent cleaner (SEED). Commenter feels that energy efficiency and renewable energy measures should be included as control strategies in a BACT analysis (Citizen, Sierra, Hoffman).

**RESPONSE 16:** The administrative record containing the rationale for the BACT determinations is contained in the permit application, preliminary determination summaries, and permit files for NRG Limestone. For the BACT performance standards which were not equal or lower to the lowest limits in any other pulverized coal boiler permits, the Applicant documented the technical or economic rationale for their selection in their technical supplement to update the Best Available Control Technology (BACT) evaluation section submitted June 6, 2007. This detailed analysis was evaluated by the TCEQ to ensure that they had evaluated EPA's RBLC, EPA's National Coal-Fired Utility Projects Spreadsheet, and reviewed all permits and draft permits for similar coal fired PC boilers. Different fuels and different combinations of controls to address the higher sulfur in the fuels proposed were most often the reason for not being able to achieve the lower rates. The preliminary determination summary summarizes these decisions but does not contain all of the detail of the NRG BACT analysis.

Specific controls are not required by law to be included in the BACT analysis. The purpose of the BACT analysis is to review control devices to determine an emission rate. Applicants can meet the emissions rate however they choose. See Response 15 for an explanation of the BACT analysis and why production processes, which include energy efficiency and renewable energy measures, are not part of the BACT review. The TCEQ cannot consider possible future economic impacts in an air permit application, even impacts that may result from TCEQ decisions.

The TCEQ does evaluate emission levels and respective health effects using the fuel and emission control choices of the Applicant with regard to each applicable statutory and regulatory requirement. As indicated in previous responses, TCEQ's evaluation concluded that no adverse health effects are expected from emissions, as long as the plant is operated within permitted limits.

**COMMENT 17 (BACT, SULFUR):** Commenter states that the NRG Limestone Unit 3 application and draft permit do not utilize best available control technologies for sulfur pollution and does not even come close to the application filed prior for the City Public Service plant in San Antonio because NRG proposes dry flue gas desulfurization (Sierra).

Commenter indicates that while the proposed wet flue gas desulfurization (WFGD) is the best technology choice for SO<sub>2</sub> controls, the emission limits proposed do not represent the maximum reductions and NRG should be able to obtain 99 percent removal of SO<sub>2</sub>. Several examples of vendors achieving 99 percent removal were provided. Separate limits should be set for each fuel mix. BACT should be no greater than 0.034 lb/MMBtu SO<sub>2</sub> on a 30 day average (Sierra).

Commenter indicates that the 0.0075 lb/MMBtu emission limit for H<sub>2</sub>SO<sub>4</sub> is based upon an unsupported assumption regarding the conversion of SO<sub>2</sub> to SO<sub>3</sub> and that lower conversion catalyst can achieve less than 0.5 percent conversion. Commenter further indicates that a wet electrostatic precipitator would remove at least 90 percent of the sulfuric acid mist and that the BACT level should be less than 0.001 lb/MMBtu H<sub>2</sub>SO<sub>4</sub> (Sierra).

**RESPONSE 17:** The TCEQ agrees that wet FGD (WFGD) is the appropriate BACT for sulfur control. NRG Limestone Unit 3 application proposes and the draft permit has always represented wet FGD as BACT for SO<sub>2</sub> control.

In the application NRG provided a detailed review of recent Texas solid fuel power generation projects and EPA's RBLC). In June 2007, the Applicant provided a detailed update to determine if any new information had been presented that would change the selection of control technology for any pollutant. The updated list confirmed that WFDG was the proper technology for co-firing the higher sulfur coals and petroleum coke and, while a few had short-term or draft permits lower than 0.1 lb/MMBTU, the long term limit of 0.06 lb/MMBTU is as low as any other.

NRG provided justification of the H<sub>2</sub>SO<sub>4</sub> BACT based upon an uncontrolled SO<sub>2</sub> emission rate of 3.73 lb/MMBtu from co-firing bituminous coal or petroleum coke with higher sulfur than 100 percent subbituminous coal. Higher sulfur increases the SO<sub>2</sub> and SO<sub>3</sub> rates into the SCR catalyst and higher production across the SCR catalyst. The selection of the catalyst must balance the primary purpose of NO<sub>x</sub> reduction with the SO<sub>2</sub> to SO<sub>3</sub> conversion. NRG has proposed an emission rate of 0.0075lb/MMBtu based on fabric filter and wet FGD, and will use sorbent injection to meet this limit when co-firing higher sulfur fuels.

**COMMENT 18 (BACT, MERCURY CSI):** Commenter states the draft permit should clearly require carbon sorbent injection (CSI) not to exceed  $2 \times 10^{-6}$  lb/MWh of Hg as represented in their application (Sierra). Commenter asserts the mercury emissions for this plant must meet the BACT standards (Sierra). Commenter would like to see the applicant use controls aimed at mercury and not rely on co-benefits of controls for other pollutants (Sierra). Commenters state that a BACT determination must also consider use of low-mercury coal, coal cleaning and alternative combustion (Sierra, SEED)

Commenter states the application does not establish compliance with applicable rules governing mercury emissions, including EPA's Clean Air Mercury Rule (CAMR), 40 CFR 60, Subpart Da and Subpart HHHH (See 70 Fed. Reg. 28606, as modified, 71 Fed. Reg. 33388), nor with the Texas

Clean Air Act and corresponding TCEQ rules (see 30 TAC §§101.601-602) (Sierra). Commenter claims that because litigation will likely delay implementation of CAMR for years, the EPA memo from John Seitz in April of 2000 mandates the applicant conduct a thorough, case by case analysis for mercury emissions (Sierra). Commenter stated that this plant will add mercury emissions at a time when we are trying to reduce nation wide (Hadden). Commenters claim permit fails to require MACT for mercury (SEED, RC:OLOL, Citizen).

Commenter would like the permit to clearly state that NRG may not purchase mercury credits to meet their emission limit (Sierra).

**RESPONSE 18:** CSI is technology designed to minimize mercury emissions. Although CSI is the most widely demonstrated and deployed mercury control technology, the deployment on electric utility boilers is limited because several other technologies promise improved removal and/or cost effectiveness. Specific mercury controls are not required by law. The purpose of BACT analysis is to review control devices to determine an emission rate. Applicants can meet the emissions rate however they choose. The Applicant has represented they will use a combination of SCR, fabric filters, and wet FGD to control mercury. NRG has represented a performance standard of 0.02 lb/GWh of mercury and Special Condition No. 8.A requires compliance with that standard. NRG has represented in its application it will evaluate control technologies such as sorbent, alkali, or other additives, and will deploy proven technologies to achieve the proposed emission limit as necessary.

The applicability of a regulation, such as CAMR, is determined within the regulation itself and is not determined by whether it is referenced in an NSR permit. Nonetheless, Special Condition No. 3 of the draft permit specifies that the facilities shall comply with the applicable federal rules governing electric utility mercury emissions in Title 40 CFR Part 60, Subparts Da and HHHH, known as CAMR. The permit does not reference to 30 TAC 101.601-602, whose purpose is to provide TCEQ the legal authority to implement CAMR activities. The NSR permit regulates mercury emissions through the BACT mechanism, which is not affected by the CAMR requirements. Furthermore, under state and federal permit rules, a permit holder is not allowed to use allowances to comply with a permit emission limit. The proposed mercury BACT emission limit of 0.02 lb/GWh ( $20 \times 10^{-6}$  lb/MWh) was based on a thorough review of available control technologies and is significantly lower than the recently promulgated NSPS limit of  $66 \times 10^{-6}$  lb/MWh applicable to subbituminous fired coal. NRG has committed to meet the lower limit for bituminous coal of  $20 \times 10^{-6}$  lb/MWh even when firing subbituminous coal that would allow for the higher emission rate. NRG has further committed to a site-wide cap on NO<sub>x</sub>, SO<sub>2</sub> and Hg so there will be no increase in actual Hg emissions from the site. The TCEQ does not normally prohibit purchasing credits for a Cap and Trade program, but credits cannot be used for compliance with the permit limits.

On February 8, 2008, the United States Court of Appeals for the District of Columbia Circuit issued an opinion vacating EPA's final rule removing coal and oil-fired EGUs from regulation under section 112 of the Federal Clean Air Act (70 Fed. Reg. 15,994, March 29, 2005), and also vacating EPA's Clean Air Mercury Rule (70 Fed. Reg. 28,606, May 18, 2005,) which regulated new and existing

EGUs under section 111 of the Federal Clean Air Act. Pending review of this opinion by the court, the ED will supplement his response to comments as appropriate.

See Response 2 for more information on mercury, and Response 15 for more information on the BACT analysis.

**COMMENT 19 (BACT, NO<sub>x</sub>):** Commenter states that two different BACT emission rates for NO<sub>x</sub> are allowed – 0.05 lb/MMBtu (annual average) and 0.07 lb/MMBtu (30-day rolling average) (Sierra). Commenter believes choice of control technologies by NRG, low NO<sub>x</sub> burners, over fired air and SCR, is appropriate but that lower emissions are possible. Commenters further claim that lower levels have been achieved and maintained by numerous existing sources and is documented in the acid rain database (Sierra, EDI). Commenter states that data demonstrates that boiler outlet NO<sub>x</sub> levels below the 0.2 lb/MMBtu without SCR have been achieved (Sierra). Commenter states that very little detailed information is provided on the design of the SCR and there is no justification for accepting the 75 percent removal value (Sierra). Commenter states that 90 percent removal efficiency has been achieved and BACT should therefore be 0.02 lb/MMBtu (Sierra). Commenters state the proposed NO<sub>x</sub> emission limit of 0.07 lb/MMBtu (30-day) is not established short term BACT (EPA, SEED, RC:OLOL, Citizen). Commenter states the proposed NO<sub>x</sub> limits are not BACT and applicant ignored IGCC as required under federal law (EDI). Commenter states NRG must consider ultra-supercritical coal combustion which is proposed to have lower emissions (EDI).

**RESPONSE 19:** NRG provided a detailed analysis of the BACT proposal of combustion controls using low NO<sub>x</sub> burners and over fired air followed by post combustion control of SCR. The BACT proposal of 0.05 lb/MMBtu (annual average) and 0.07 lb/MMBtu (30-day rolling average) is as stringent as any recently permitted pulverized coal utility boiler burning only subbituminous coal. NRG Limestone proposes a mix of petroleum coke, bituminous coal and subbituminous coal. The BACT proposed by Sierra Club, based on a 90 percent reduction in the SCR, reflects data that has been achieved but not demonstrated over the life of the catalyst and does not account for known problems with ash deposition and catalyst plugging, and has not been required in any existing permits. Detailed specific information on each piece of equipment is not normally available at this phase of a project, and as demonstrated throughout this RTC, BACT will vary from plant to plant based on design, fuel sources, and choices of control devices. See Response 15 for more detailed explanation of why IGCC and ultra-supercritical coal combustion was not evaluated.

**COMMENT 20 (BACT, PM/PM<sub>10</sub> and Pb):** Commenter states that application notes there are eight final permits with lower filterable PM<sub>10</sub> limits of 0.0012 lb/MMBtu but reject them as being comparable because they use a different combination of control systems (such as dry scrubbers and fabric filters) and no discussion of why this limit cannot be met with controls proposed (Sierra). Commenters claim lower PM/PM<sub>10</sub> emission rates have been permitted as BACT and NRG's limits must be as low as other plants (Sierra, EDI). Commenters state that permits have been issued with total PM<sub>10</sub> limits 0.018 lb/MMBtu and that recent permit limits have a range of 0.02 to 0.027 lb/MMBtu for total PM (Sierra, EDI).

Commenter states that lowering the PM/PM<sub>10</sub> limits will also result in lower emission of Pb since the PM/PM<sub>10</sub> controls will also control Pb (Sierra). Commenter states that the TCEQ should use only the coal lead content data provided by TXU for mines that will supply this project (Sierra). Commenter states TCEQ should discuss why the emission rate for lead from the City Public Service permit was not used as BACT for the NRG Limestone permit (EPA).

**RESPONSE 20:** NRG identified the that eight permits have been issued with filterable PM<sub>10</sub> limits of 0.012 lb/MMBtu in their updated BACT analysis submitted in June 2007 and they showed that six of them use dry FGD with the fabric filter downstream of the spray dryer absorber. The one with a wet FGD also has a wet ESP for H<sub>2</sub>SO<sub>4</sub> control due to high sulfur coal. NRG also points out in their BACT analysis that projects with a total PM<sub>10</sub> emission limits lower than the proposed 0.035 lb/MMBtu are using lower sulfur coal. With higher sulfur fuels such as bituminuous and petroleum coke, the condensable particulate matter content is higher and this is not controlled by the fabric filter. Considering the condensable contribution and concerns about the total PM<sub>10</sub> test methods, NRG proposed the 0.035 lb/MMBtu total limit as BACT which is consistent with other recently permitted units using wet FGD and fabric filters with similar fuel mixtures.

NRG based the proposed Pb emission rate on the Pb content of the fuels proposed and on the capture efficiency of the fabric filters proposed. The concentration of Pb in the Wyoming PRB subbituminous coal and Illinois bituminous coal varies from less than 1 ppmw to over 86 ppmw, and while NRG does not know the concentration in the fuels that were used to determine emission limits for the other permits, of the seven projects proposing lower limits than 11.4 lb/TBtu, three will use solely PRB coal. The differences do not appear to be due to control technology, but based on the Pb content of the fuels.

**COMMENT 21 (BACT, CO and VOC):** Commenter states that the argument for the need to balance between NO<sub>x</sub> and CO is baseless and spurious and even if there was an increase in NO<sub>x</sub>, the SCR could reduce it (Sierra). Commenter claims modern low NO<sub>x</sub> burners do not create additional NO<sub>x</sub> while minimizing CO (Sierra). Commenter states that BACT analysis does not address any of the pollution control methods for CO control such as oxidation catalysis, thermal oxidizers and catalytic oxidizers (Sierra). Commenter gave examples of permit with CO limits below the 0.015 lb/MMBtu and VOC limits below 0.0036 lb/MMBtu proposed for Limestone 3 (Sierra).

**RESPONSE 21:** Minimizing CO and VOC in combustion is accomplished by having adequate residence time in the combustion chamber and sufficient temperature to complete the reaction and thorough mixing of fuel and air. It is true that modern low NO<sub>x</sub> burners are much better at reducing NO<sub>x</sub> without large increases in CO, but there is a practical limit as to how much NO<sub>x</sub> can be reduced without an increase in CO, and if you reduce CO you will have to accept an increase in NO<sub>x</sub>. None of the recently permitted PC boilers have additional CO controls proposed or required. Thermal oxidizers would have products of combustion and increase NO<sub>x</sub> and catalytic oxidizers and oxidation catalysts would increase backpressure and reduce efficiency. As represented in the

application, only three of the permits with lower CO limits fire subbituminous coal and they are all permitted at a higher NO<sub>x</sub> level. Reviewing the permits identified with lower VOC limits shows that all but one has higher permitted NO<sub>x</sub> limits. The project with lower VOC and the same NO<sub>x</sub> limit is the JK Spruce Unit 2 which is only permitted to burn PRB coal and not bituminous and petroleum coke blends.

**COMMENT 22 (MSS):** Commenter states start-up, shut-down, maintenance, and malfunction emissions must be included in the modeling (Sierra). Further, commenter states the permit must contain clear and enforceable limits for all pollutants during these operating conditions (Sierra). Commenter states that start up, shut down and maintenance are normal operating conditions and should be include in the enforceable limits during normal operations (Sierra). Commenter requests that the applicant and TCEQ review the potential for cumulative air quality impacts due to the presence of nearby coal plants in McLennan County that could be in start-up and/or shut down all at the same time so as to cause a condition of air pollution. (Sierra).

Commenters state that BACT emission limits may not be waived during MSS, without an on-the-record determination that compliance during MSS is infeasible (SEED, RC:OLOL, Citizen, EPA). Commenters state that permit must set a time limit on startup and shutdown (SEED, RC:OLOL, Citizen, EPA). Commenters request confirmation that the hourly emission rates containing MSS is in compliance with BACT, and the excess emissions from unauthorized malfunctions which exceed applicable emission limitations are included in the determination of compliance with BACT emission limitations (SEED, RC:OLOL, Citizen, EPA).

**RESPONSE 22:** The Applicant did evaluate start-up emissions in its air quality analysis. In addition to the start-up operating scenario, the Applicant included operating scenarios for various loading conditions and fuel types for the coal-fired boiler to determine the worst-case operating scenario. If the predicted concentrations from the worst-case operating scenario for any given pollutant were greater than the applicable de minimis values, then a full impacts analysis was conducted. The receptors included in the full impacts analysis were those receptors with predicted concentrations greater than the applicable de minimis values. The receptors with predicted concentrations less than the de minimis values were not required to be included in the full impacts analysis since the project, as represented in the permit application, would not cause or contribute to a violation of the NAAQS or PSD Increments by definition at those receptors.

The Applicant did perform a cumulative air dispersion modeling analysis with the worst-case operating scenario for the criteria pollutants SO<sub>2</sub>, NO<sub>2</sub>, PM, CO and Pb that is consistent with EPA guidance (1990 EPA Draft Guidance for PSD). When predicted concentrations of a criteria pollutant for the project were greater than an applicable de minimis value, the applicant included all known sources of that pollutant within the Area of Impact (AOI) plus 50 kilometers, which is consistent with EPA guidance. The largest AOI for the Limestone site, 24-hour average SO<sub>2</sub>, was approximately 12 miles (19 kilometers). The nearest proposed TXU sites, Big Brown, Lake Creek, and Oak Grove as well as Sandy Creek and Twin Oaks were included in the modeling analysis.

SCR systems require minimum flue gas operating temperatures before the chemical reagents used by these systems can be injected. Because of this constraint, it is not technically feasible during periods when the flue gas is below the requisite minimum temperatures, to control the NO<sub>x</sub> emissions to the same performance level as during normal operation BACT. Therefore, Special Condition No. 8 of the draft permit specifies that the performance standards in the condition are not applicable during planned startup and shutdown. While the emission standards in lb/MMBtu cannot always be met when control devices are not fully operational, the emission rate in lb/hr may not necessarily be greater than the maximum hourly rate at full load. NRG provided calculations of start up emissions addressing each hour of the 16 hour cold startup to identify the maximum lb/hr emission rates based upon operating the control devices as early in the startup sequence as possible to represent BACT during startup and shutdown. NRG is also using natural gas for initial startup of the boiler to minimize emissions until the boiler is at the proper temperature and firing rate for solid fuel to be fired which represents BACT for startup and shutdown.

Although planned startup and shutdown emissions may result in higher emissions such as when flue gas temperatures are below the minimum required for the SCR systems, the maximum emission limits in the MAERT are based upon the worst case hourly rate during any mode of operation. The draft permit and permit application identify the hourly emission limits which represent BACT during normal operations (lb/MMBtu) and during planned startup and shutdown (lb/hr). Special Condition No. 8 states, "During periods of MSS, the holder of this permit shall not exceed the hourly mass emission limits in the MAERT and the holder of the permit shall operate the Limestone Unit 3 Utility Boiler and associated air pollution control equipment in accordance with good air pollution control practices to minimize emissions." The first part of this sentence identifies the hourly mass emission rates of the MAERT as constituting the BACT emission rates for planned startup and shutdown. The second part of the sentence requires minimization of MSS emissions and is further developed in Special Condition No. 10 which requires operating the boiler and associated control equipment properly and developing detailed procedures to minimize excess emissions during startup or shutdown. Because of the complex nature of a large coal-fired electric generating facility, the startup characteristics may vary from instance to instance and it is not possible to identify every variation which may affect the emissions profile. While the time for startup and shutdown are not limited in the permit, owners of such facilities have strong economic incentives to minimize startup and shutdown periods, because these periods represent lost production while still incurring fixed and variable operating cost.

Maintenance activities were not addressed by the applicant and are not part of this permit. They will be addressed in a future permit action. The hourly emission rates containing planned startup and shutdown were evaluated to ensure they are in compliance with BACT. The TCEQ does not authorize malfunction emissions and any excess emissions from malfunctions or during normal operations are not authorized and are subject to enforcement.

**COMMENT 23 (NONATTAINMENT: DFW, AUSTIN/RR, WACO):** Commenter claims nitrogen oxide emissions (1,752 tons per year) from this plant would impair the ability of the DFW area to come into attainment with the one-hour and the eight-hour ozone standards (Sierra). Commenter states the city of Waco and the Waco area may become a new ozone nonattainment area under the EPA's 8-hour ozone standard based on the high levels of power plant nitrogen oxides from twelve new proposed coal-fired power plants emitting 25,268 tpy NO<sub>x</sub> upwind of Waco, and that the TCEQ has failed to evaluate the impact of high background NO<sub>x</sub> and ozone upwind of Waco that will be transported throughout the regional airshed (Sierra). Commenter states that 8-hour ozone violations may already be occurring in Waco (Sierra). During aircraft monitoring paid for by the TCEQ, the Baylor aircraft noted at start up ozone levels that exceeded 100 ppb (Sierra). Commenter claims that being near nonattainment has costs such as additional restrictions and possible loss of federal transportation funds (TCACC). Commenter claims it would be inappropriate for the state to ignore the impact of a new source of pollution of the magnitude only 55-85 miles away from nonattainment areas (Sierra).

Commenters express concern that this plant may adversely affect the Austin five-county regional area ability to remain in attainment, as a result of the increased emissions (Sierra). Commenter states that the Alpine Geophysics report shows non-zero impacts are predicted in the DFW area (EDI). Commenters claim the UT photochemical modeling of the Limestone 3 plant will increase background ozone levels entering the DFW, Austin/Round Rock MSA, Waco and other parts of Texas and this causes or contributes to a violation of the NAAQS and other sources in these areas will shoulder the burden of reducing emissions (EDI, SEED, RC:OLOL, Citizen).

Commenter states that NRG should be commended for committing to reduce emissions from the existing Limestone 1 & 2 units sufficient to offset increased emission due to the new Limestone 3, but TCEQ should consider adding a 30-day average NO<sub>x</sub> allowable during the peak ozone season of 0.05 lb/MMBtu and guarantee no net increases in emissions over actual emissions from existing units 1 & 2 both on an annual and 30-day ozone season average (CAC).

**RESPONSE 23:** NRG has proposed including in the permit a special condition to require no net increase in NO<sub>x</sub>, SO<sub>2</sub> or Hg from this site by reducing emissions on the existing Units 1 & 2. Specifically, the condition requires no net increase in annual site-wide emissions of NO<sub>x</sub>, SO<sub>2</sub> and Hg from the Limestone Electric Generating Station after LMS Unit 3 demonstrates initial compliance. The cap is based on any consecutive 24-month period within the 2005 to 2007 time period. This requirement will minimize the impact on any of the nonattainment areas. The ED has modified the draft permit to include this special condition (No. 42).

The NRG Limestone site is approximately 58 miles (93 km) from the nearest border of the Dallas-Fort Worth ozone nonattainment area. For determining if an area is in attainment for the 8-hour average ozone ambient air quality standards, the primary and secondary 8-hour average ozone ambient air quality standards are met at a fixed ambient air quality monitoring site when the 3-year

average of the annual fourth-highest daily maximum 8-hour average ozone ground-level concentration is less than or equal to 0.084 parts per million (ppm).

Any comments related specifically to the State Implementation Plan (SIP) process for ozone nonattainment 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.

A continuous ambient air monitoring site has been operating in Waco since April 16, 2007 (CAMS 1037). The fourth-highest daily maximum 8-hour average ozone ground-level concentration measured at this site in 2007 was 0.072 ppm.

The draft permit includes annual emissions caps for NO<sub>x</sub>, SO<sub>2</sub> and Hg and since this will be one of their base load units and will be operating most of the year, there is no reason for a specific limitation during the ozone season.

**COMMENT 24 (BIG BEND/CLASS ONE):** Commenters state SO<sub>2</sub> and PM PSD increments at Big Bend may already have been consumed (SEED, RC:OLOL, Citizen). A Report of the Delegation of the US/Mexico Big Bend Air Quality Work Group concludes from a MEDOPUFF II regional air quality model, that selected Texas SO<sub>2</sub> sources within 500 km of Big Bend National Park showed substantial consumption of PSD Class I 24-hr increment (SEED, RC:OLOL, Citizen). Commenters indicate the TCEQ must consider the plant's consumption of the SO<sub>2</sub> and PM PSD increments in comparison with remaining increments (SEED, RC:OLOL, Citizen). Commenter states the permit application does not adequately examine the impact of the SO<sub>2</sub> secondary particulate and NO<sub>x</sub> secondary particulate emissions on Class I areas such as Big Bend National Park (Sierra).

Commenter states NRG failed to perform the most rudimentary analysis of potential Class I area impacts including impacts to Big Bend National Park, Caney Creek Wilderness Upper Buffalo Wilderness, Wichita Mountain Wilderness, and Breton Islands Wilderness (EDI). Commenter states that due to concerns for nonattainment and health issues as well as visibility in Class I areas such as Big Bend National Park, 100 percent of SO<sub>2</sub> and NO<sub>x</sub> pollution from the new plant should be offset with reductions at other facilities (Sierra, EDI).

**RESPONSE 24:** Emissions from the proposed plant are not expected to adversely affect Big Bend National Park, or Class I or II areas in Oklahoma, Louisiana, New Mexico, or Arkansas. 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 source or major modifications which propose to locate within 100 kilometers (km) (62 miles) of a Class I area. Since the nearest Class I area, Caney Creek Wilderness, is more than 380 km (236 miles) away from the proposed facility, the project is not expected to affect the visibility, soils, or vegetation in the area or in any other Class I areas.

NRG has proposed including in the permit a condition requiring no net increase in NO<sub>x</sub>, SO<sub>2</sub> or Hg from this site by reducing emissions on the existing Units 1 & 2. Specifically they have committed to no net increase in annual site-wide emissions of NO<sub>x</sub>, SO<sub>2</sub> and Hg from the Limestone Electric Generating Station after LMS Unit 3 demonstrates initial compliance. The cap is based on any consecutive 24-month period within the 2005 to 2007 time period.

**COMMENT 25 (GLOBAL WARMING/CO<sub>2</sub>):** Commenters indicate the permit application and potentially the draft permit do not address CO<sub>2</sub> (EDI, Group A, Sierra, Citizen, Morgan, SEED, RC:OLOL, Citizen). Commenters assert global warming poses an imminent threat to the health and safety of everyone (Sierra, Wilson Clay). Commenters state global warming will lead to increased heat waves, ozone pollution, floods, droughts, disease and pests, species extinction, rising sea levels, and higher insurance rates (Sierra, SEED, RC:OLOL, Citizen). The TCEQ has the authority and the responsibility to regulate global warming gases and should do so (EDI, Sierra, SEED, RC:OLOL, Citizen). Commenters would like to know why the state of Texas and NRG can't be more progressive using either wind power and/or solar power to deliver energy to Texans (Pilant, AGs). Commenters claim other states (Oregon, Maine, New Hampshire, New Jersey, and Massachusetts) require power plants to mitigate or reduce greenhouse gas emissions (Sierra, SEED, RC:OLOL, Citizen). Commenters state that global warming is caused by CO<sub>2</sub> emissions from coal fired plants and the Supreme Court has determined that States must control greenhouse emissions (EDI, Sierra, Group B). Commenters state Texas should look at energy efficiency, renewables and wind to provide for growth and not coal fired power plants (Sierra, Citizen, D Hoffman, AGs). Commenters state the TCEQ is required to consider emissions of CO<sub>2</sub> in its BACT analysis, as part of the required environmental impacts assessment (EDI, Sierra, AGs).

**RESPONSE 25:** On July 5, 2000, the agency received a petition for rulemaking from the law firm of Henry, Lowerre and Frederick on behalf of 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 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.

**COMMENT 26 (ESL):** Commenter states that ESLs for silica and lime are exceeded and that neither TCEQ or CPS have addressed the potential for adverse public health effects related to 5-minute SO<sub>2</sub> exposures (Sierra).

Commenter states the effects screening levels used in the permit review are not set at levels known to protect the public health. The ESLs have never been subject to an external peer-review process, the process has no scientific basis, and is not designed or used to protect public health (Sierra). Commenter identifies ten major flaws with the ESL process, each which represents a concern with the permit: 1) the ESLs are often set at artificial levels too high to be truly protective of the health of the public, including children; 2) ESLs are not state ambient air quality standards set to protect public health, but are merely internally developed guidelines; 3) there are no Texas regulations governing the ESL process; the TCEQ uses an internally developed purely informal discretionary process; 4) ESLs have not been subjected to true scientific peer review process; 5) questionable, if not faulty bases were used for at least a third of the ESLs; 6) questionable, if not faulty, process has been used to derive the ESLs; 7) there is no method for validating either the process or the final ESL values; 8) there is no complete agency documentation of the ESL derivation process; 9) the guideline approach reduces accountability of the ESL process and 10) the toxicology review does not consider synergistic impacts (Sierra).

**RESPONSE 26:** For NRG Limestone 3, Silica and lime do not exceed the ESLs. For Limestone 3 all of the compounds evaluated were less than their respective effects screening levels (ESLs), with the exception of Ammonia, Coal Dust, Limestone Dust, and Vanadium. Ammonia is predicted to exceed the short term ESL of 170 by 2.3 times for not more than 22 hours per year at receptors on the northern fence line. Coal dust is predicted to exceed the short-term ESL by approximately 61 percent for not more than 23 hours per year at receptors on the northern fence line. Limestone dust is predicted to exceed the short-term ESL by approximately 5 percent at one fence line receptor. Vanadium is predicted to exceed the short-term ESL by approximately 75 percent for not more than 5 hours at any individual receptor. Short-term impacts for all other compounds and annual impacts for all compounds are below ESLs. The exceedances have been reviewed by the Toxicology and Risk Assessment Section and are acceptable.

Health-based ESLs are set well below the concentrations reported to cause adverse health effects in any of the organisms studied. 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.

Standard toxicological practices/processes are used to derive ESLs. Simply described, the majority of current ESLs were derived in one of three ways. First, occupational standards, which are scientifically peer-reviewed values, are considered to be No Observed Adverse Effect Levels (NOAELs) set to protect workers. If an occupational standard is used as a NOAEL to derive an ESL, the occupational standard is divided by two safety factors of 10 each to derive the short-term ESL. The first safety factor is used to account for the uncertainty of differences in exposure time (using a

chronic occupational value to derive an acute value) and the second safety factor is used to assure ESLs are protective of the sensitive individuals within the general population (total safety factor of 100). Another safety factor of 10 to account for differences in exposure time is applied to the short-term ESL to derive the long-term ESL (total safety factor of 1000). Therefore, if occupational standards are used to derive short-term and long-term ESLs, the ESLs are fractions of the occupational standards.

Second, 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 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 resultant ESL is.

Finally, if only lethality data exist, the concentration that causes death in 50 percent of animals ( $LC_{50}$ ) is divided by a total safety factor of 10,000. This total safety factor includes: a factor of 10 to account for uncertainty in exposure between the  $LC_{50}$  and the Lowest Observable Adverse Effect Level (LOAEL); a factor of 10 to account for uncertainty in exposure between a LOAEL and a NOAEL; a factor of 10 to consider differences between animals and humans; and a factor of 10 to consider differences between people to ensure that ESLs are protective of sensitive individuals within the general population.

ESLs are guideline concentrations set to protect public health and welfare, they are not enforceable standards. The setting of standards through rulemaking is not as flexible as guidelines 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 Texas Clean Air Act (Chapter 382 of the Texas Health and Safety Code) authorizes the TCEQ to conduct air permit reviews of all new and modified facilities to ensure that the operation of a proposed facility will not cause or contribute to a condition of air pollution. The Texas Health and Safety Code is comprehensive in that it states that ESLs should be developed for as many air contaminants as possible, even for chemicals with limited toxicity data. Therefore, the ESL process is 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 Toxicology Section of the TCEQ evaluates both short- and long-term concentrations of constituents, whereas other states and the EPA tend to evaluate only one or the other. This review is also more comprehensive than many other states in that it considers non-health impacts (odor and vegetative) for substances, as warranted by the available information.

The majority of current ESLs were derived based on occupational standards, which are scientifically peer-reviewed values set to protect workers. When obtaining toxicity data or toxicity values from

other sources, preference is given to values that have undergone external peer review and public involvement. However, external scientific peer reviews are expensive and the TCEQ does not have the resources to conduct peer reviews for every chemical for which it develops ESLs.

It is a common approach to identify NOAELs and Lowest Observable Adverse Effects Levels (LOAELs) from the available published literature and to subsequently apply safety factors in deriving concentrations which are protective of members of the general public, including sensitive subpopulations. This is the general approach used by the EPA in deriving reference concentrations and by other states in deriving their own ambient air levels.

The ESL system has been in place for more than 20 years. Improvements in air quality seen in ambient air monitoring data despite population and industrial growth during that time indicate that the ESL system is valid. Conservative ESLs, along with the comprehensive review process provided by the *Modeling and Effects Review Applicability: How to Determine the Scope of Modeling and Effects Review for Air Permits* procedure combine to provide a time-proven system that is protective of the general public's health and welfare.

Any person and/or interested parties who requested how a chemical-specific ESL was derived may contact Toxicology Section staff to obtain documentation of a chemical-specific ESL. Prior to November 2006, the ESL derivation procedures were never written as an official agency document. Beginning in October 2003, staff from the Toxicology Section wrote a draft document entitled "Development of Effects Screening Levels, Reference Values, and Unit Risk Factors," also referred to as the ESL Methodology. A peer-review panel of eight scientific experts met to review the ESL Methodology, and interested parties submitted written and oral comments. The ESL Methodology was revised by the Toxicology Section to address the issues raised by the scientific peer review panel and public comments. The revised methodology was then submitted for additional public comment, which was again addressed. The final TCEQ regulatory guidance document, RG-442 entitled "*Guidelines to Develop Effects Screening Levels, Reference Values, and Unit Risk Factors*" was completed in November 2006.

In order for synergism to occur, adverse health effects must occur due to exposure to high concentrations of each chemical individually. Because ESLs are set well below concentrations at which adverse health effects are observed, synergistic effects are not anticipated.

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 27 (COAL WASHING):** Commenter complains the application does not examine the opportunities for obtaining sulfur and mercury emissions reductions through coal washing and coal washing could achieve a 20 percent reduction in mercury (Sierra).

**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.

**COMMENT 28 (AUXILIARY BOILER):** Commenter claims that the draft permit establishes a NO<sub>x</sub> limit of 0.36 lb/MMBtu in Special Condition 11 and this is not BACT and gives examples of natural gas fired boilers with lower levels (Sierra).

**RESPONSE 28:** The TCEQ thanks Sierra for pointing out a typographical error in the draft permit Special Condition 11. The correct value is 0.036 lb/MMBtu and this is verified in the Technical Review and Preliminary Decision Summary which both refer to 30 ppmv NO<sub>x</sub> which equates to 0.036 lb/MMBtu and the Maximum Allowable Emissions Rate Table which reflects an hourly rate based upon 0.036 lb/MMBtu. The 0.036 lb/MMBtu the same as two of the examples given and the third (Turner Energy Center) appears to refer to a combined cycle power plant and not a boiler. The 10 percent annual capacity factor limitation in the permit combined with the low NO<sub>x</sub> burners makes this BACT for this boiler. The draft permit has been corrected.

**COMMENT 29 (PRECONSTRUCTION MONITORING):** Commenter states the Waco, Texas airport meteorological data are unreliable for Class II PSD and NAAQS compliance air dispersion modeling (Sierra). Commenter states preconstruction meteorological monitoring, in accordance with EPA's guidance document Meteorological Monitoring Guidance for Regulatory Modeling Applications, should have been required (Sierra).

**RESPONSE 29:** While the meteorological data used in the air dispersion modeling analysis were not collected at the project site, use of the Waco airport meteorological dataset in the air dispersion modeling analysis is reasonable and does not constitute a serious flaw with the air quality analysis submitted by the Applicant.

The Environmental Protection Agency (EPA) Guideline on Air Quality Models - Appendix W of 40 Code of Federal Regulations (CFR) 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 Waco 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 30 (RECEPTOR ARRAYS):** Commenter states TCEQ failed to model complete receptor arrays for all air impacts. As a result, TCEQ failed to model peak impact receptors and did not identify 24-hour PM10 Class II PSD increment violations (Sierra).

**RESPONSE 30:** The Applicant performed the air quality analysis in support of federal permit PSD-TX-1072 and state permit 79188. TCEQ staff reviewed the air quality analysis and found it to be complete.

When conducting an air dispersion modeling analysis for an existing site undergoing a major modification, the new and increased emissions from the project-related sources are modeled to determine an Area of Impact (AOI) for each applicable pollutant and averaging period. The AOI for each applicable pollutant and averaging period is defined as the farthest distance from the sources under review to the location where predicted concentrations are greater than or equal to the applicable de minimis values. If the predicted concentrations for any given pollutant are less than the de minimis values, then the review is complete since the project, as represented in the permit application, would not cause or contribute to a violation of the National Ambient Air Quality Standards (NAAQS) or PSD Increments by definition. If the predicted concentrations for any given pollutant are greater than the de minimis values, then a full impacts analysis is conducted. The receptors included in the full impacts analysis are those receptors with predicted concentrations greater than the applicable de minimis values. The receptors with predicted concentrations less than the de minimis values are not required to be included in the full impacts analysis since the project, as represented in the permit application, would not cause or contribute to a violation of the NAAQS or PSD Increments by definition at those receptors.

**COMMENT 31 (ROAD DUST):** Commenter states TCEQ failed to include any of NRG's road dust fugitive emissions in the 24-hr PM10 modeling analysis (Sierra).

**RESPONSE 31:** The Applicant performed the air quality analysis in support of federal permit PSD-TX-1072 and state permit 79188. TCEQ staff reviewed the air quality analysis found it to be complete.

Under the Texas Clean Air Act, a road is not a facility, meaning its operation does not require an authorization. However, though it is not a facility, it can be a source of emissions. It has been agency policy to evaluate all sources in permit application reviews. In the past, that evaluation would be exclusively through air dispersion modeling. Experience using air dispersion models has shown it is not technically feasible to model emissions from roads and obtain a reasonable estimate of predicted concentrations. The rationale is twofold: first, the source is assumed to continuously emit the pollutant--a primary assumption used to develop the air dispersion model. This modeling assumption means a source emits at a constant, consistent rate. When vehicles travel on a road, they cannot be over the entire road all of the time at the same time, but that is how the dispersion model treats this activity. Because the dispersion model predicts concentrations of particulate from roads that do not accurately reflect this activity, particulate emissions from roads are not included in air dispersion modeling. Second, the emission factors for particulate emissions from roads in AP-42<sup>39</sup> had a high degree of uncertainty. The text in AP-42 warns that the emission factors should not be used for short-term (24-hour) analyses.

Due to the uncertainty with both the emission rates and the treatment of the emissions by the dispersion model, the ED developed certain practices and procedures that apply to all applications. Though the road emissions are not modeled, they are evaluated. If Best Management Practices (BMP) are implemented, through watering of roads and/or other dust suppression methods, PM emissions will be minimized and there should be no significant emissions from the roads. The BMPs are included as permit conditions to ensure that road emissions are minimized.

**COMMENT 32 (MODEL):** Commenter states TCEQ used an outdated dispersion model (Sierra).

**RESPONSE 32:** The Applicant performed the air quality analysis in support of federal permit PSD-TX-1072 and state permit 79188. TCEQ staff reviewed the air quality analysis found it to be complete.

On November 9, 2005, EPA promulgated an update to the Guidelines on Air Quality Models - Appendix W of 40 CFR Part 51 - to list AERMOD as a preferred air quality model for regulatory purposes, e.g., New Source Review (NSR) permitting, and to remove the Industrial Source Complex Short-term model Version 3 (ISCST3) as a preferred air quality model. In the promulgation notice, EPA defined a one-year transition period from use of ISCST3 to the American Meteorological Society Environmental Protection Agency Regulatory Model (AERMOD) for federal permitting beginning December 9, 2005 and ending December 9, 2006. During this period, both AERMOD and ISCST3 were considered preferred air quality models by rule.

For the air quality analysis in support of their federal NSR permit, the Applicant selected ISCST3 from the list of preferred air quality models. The air quality analysis submitted by the Applicant was

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<sup>39</sup> EPA's *Compilation of Air Pollutant Emission Factors*.

received by the TCEQ November 2006. The air quality analysis submitted by the Applicant was received within the transition period defined by the EPA.

**COMMENT 33 (ISC3 MODEL):** Commenter states TCEQ underestimates state property line and air toxic impacts since modeling was conducted with ISC3 and with one year of meteorological data (Sierra).

**RESPONSE 33:** The Applicant performed the air quality analysis in support of federal permit PSD-TX-1072 and state permit 79188. TCEQ staff reviewed the air quality analysis found it to be complete.

When conducting State Health Effects and State Property Line analyses, the single maximum 1-hour average concentration is compared to the applicable state guideline or standard. Given the manner in which NWS data are gathered, wind speed reported to the nearest knot and the wind direction to the nearest 10 degrees, there are a limited number of combinations of meteorological conditions that are reported in any one year. Of those limited number of combinations, there are several combinations that typically provide the highest predicted concentrations given the type of sources included in the analysis. Of the 8760 hourly observations included in the air dispersion modeling analysis performed by the Applicant, it is likely that a reasonable worst-case meteorological condition will occur at least once during the year.

The maximum predicted 1-hour average concentration considers the worst-case meteorological condition occurring at the same time as the maximum allowable emission rate for all sources. Given the conservatism of this assumption, using five years of meteorological data rather than one year might produce a different result, however, it would be no more reasonable or significantly change the protectiveness review.

**COMMENT 34 (COOLING TOWER):** Commenter states TCEQ uses inappropriate cooling tower exhaust temperatures (Sierra).

**RESPONSE 34:** The Applicant performed the air quality analysis in support of federal permit PSD-TX-1072 and state permit 79188. TCEQ staff reviewed the air quality analysis found it to be complete.

The representation made by the Applicant for exit temperature from the cooling towers was reviewed by the permit reviewer and considered a reasonable value. Though a change in the exhaust temperature difference would affect the plume rise, because the nearest cooling towers being more than 700 meters (2297 feet) from the location of the maximum predicted concentration, the effect on the modeling results would not be significant.

**COMMENT 35 (FUGITIVE ADJUSTMENT FACTOR):** Commenter states TCEQ applies an unjustifiable 0.6 low-level fugitive dust adjustment factor (Sierra).

**RESPONSE 35:** The Applicant performed the air quality analysis in support of federal permit PSD-TX-1072 and state permit 79188. TCEQ staff reviewed the air quality analysis found it to be complete.

In a March 6, 2002 memorandum by Dom Ruggeri, the TCEQ has documented and provided supporting references that explains the motivation, development, and rationale related to the adjustment of predicted concentrations from low-level sources with little vertical momentum or buoyancy flux. In the air quality analysis, the Applicant made the selection of applying an adjustment factor to the modeled emissions from sources that met the applicable criteria specified in the March 6, 2002 memorandum. TCEQ staff concurred with the Applicant's technical justification for selecting the adjustment factor for the affected sources.

The procedure on how to apply the adjustment factor, background documentation, explanation of the technical justifications used, derivation of the adjustment factor, and a listing of supporting documentation are included in the 10 page March 6, 2002 memorandum. Application of this factor is limited to use with SCREEN3 and ISCST3 dispersion models as these models do not consider plume meander for low-level sources with little vertical momentum or buoyancy flux during light wind and very stable meteorological conditions. This factor is not applicable for use with the AERMOD dispersion model as AERMOD's model algorithms do take into account plume meander.

**COMMENT 36 (ROAD DUST PARAMETERS):** Commenter states TCEQ modeled road dust emissions using unreliable release parameters (Sierra).

**RESPONSE 36:** The Applicant performed the air quality analysis in support of federal permit PSD-TX-1072 and state permit 79188. TCEQ staff reviewed the air quality analysis found it to be complete.

In their PM<sub>10</sub> annual analysis, the source characterization used by the Applicant to represent road emissions is the same characterization depicted in Figure 1.8 of the *User's Guide For The Industrial Source Complex (ISC3) Dispersion Models Volume II - Description of Model Algorithms* (EPA-454/B-95-003b). The User's Guide suggests multiple volume sources be used to represent a line source, such as a rail line. The User's Guide suggests multiple area sources be used to represent a line source, such as an aqueduct. In TCEQ's assessment, the representation selected by the Applicant to characterize the 3-dimensional emissions source from road traffic is more closely related to the 3-dimensional emissions source from a rail line than the 2-dimensional emissions source from an aqueduct.

**COMMENT 37 (PARTICULATE RESUSPENSION):** Commenter states TCEQ failed to account for particle deposition and subsequent resuspension (Sierra).

**RESPONSE 37:** The Applicant performed the air quality analysis in support of federal permit PSD-TX-1072 and state permit 79188. TCEQ staff reviewed the air quality analysis found it to be complete.

Steady-state Gaussian plume air dispersion models, such as ISCST3 and AERMOD, are based on the premise that an emission source is emitting a pollutant continuously over the averaging period when which the concentration is calculated. Resuspension of particulate matter, such as by a strong gust of wind, would most likely be of duration much shorter than the shortest averaging time (1-hour) the model uses to calculate predicted concentrations; therefore, the steady-state Gaussian plume assumption is no longer valid. Further, a high wind speed, which occurs during a gust, better disperses a pollutant (reducing the concentration) than a low wind speed.

The air quality values that are assessed from the air dispersion modeling results are the predicted concentrations of the pollutant in the ambient air. Though ISCST3 does have options available taking into account particulate deposition, doing so would remove a portion of the particulate matter from the plume resulting in decreased predicted concentrations. By not invoking the deposition option, the predicted concentrations reported are due to the total amount of particulate matter emitted from the source including amount that would have fallen to the ground before reaching off-property locations, which is a conservative approach.

**COMMENT 38 (ADDITIONAL IMPACTS):** Commenter states additional impacts analyses are required (Sierra).

**RESPONSE 38:** An additional impacts analysis was submitted by the Applicant. The applicant concluded that secondary growth from this project is not expected to be substantial and an in-depth growth analysis was not proposed. TCEQ staff concurred with the Applicant's assessment. The project is located at a site with two existing boiler units, and population census data are available for the area. The addition of a third boiler unit is not expected to lead to a significant shift in population.

An air quality analysis was conducted by the Applicant for criteria pollutants and non-criteria pollutants. The NAAQS are set in order to protect health and welfare for criteria pollutants, and Effects Screening Levels (ESLs) are set to protect health and welfare for non-criteria pollutants. Because these pollutants listed in the draft permit are within the NAAQS and passed a health effects review, adverse effects to animals, vegetation, or the environment are not expected as a result of these emissions.

Please refer to Response No. 1 for more information on the NAAQS and ESLs.

**COMMENT 39 (AS-BUILT INFORMATION):** Commenter claims that Special Condition 41 (As-Built Information) is vague and confusing and allows NRG to change engineering specifications after permit issuance (Sierra).

**RESPONSE 39:** Special Condition 41 is a fairly standard condition added to many permits with large complicated, site-specific equipment that is built on site and not standard equipment that is manufactured in a factory and transported to the site and installed. Because design elements of the project are subject to change during construction, this provision requires the submission of the as-built information so the TCEQ can ensure that no major changes are made. Any significant changes that would cause an increase in emission rates would require the applicant to submit a permit amendment.

**COMMENT 40 (30-DAY AVERAGING PERIOD FOR HEAT INPUT):** Commenter states that the 30-day averaging period for heat input in Special Condition 6 is too long for determining the maximum heat input and should be established by the rating of the boiler (Sierra).

**RESPONSE 40:** The boiler rating is established during the design phase of the boiler, but due to design safety factors used in the design, it may be possible to fire at a different rate than designed. Special Condition 6 allows for a 30-day average to account for the varying BTU content of the bituminous, subbituminous coal and petroleum coke blends and is meant to be a maximum heat input rate to ensure the boiler is operated as represented.

**COMMENT 41 (NETTING PROPOSAL):** Commenter claims that the reductions used in the netting proposed by NRG for NO<sub>x</sub>, SO<sub>2</sub> and Hg are already required by EPA (Rolke)

**RESPONSE 41:** NRG's proposal to net site wide emissions of NO<sub>x</sub>, SO<sub>2</sub> and Hg does not eliminate the need to comply with any reductions or allowances from EPA or the TCEQ. The proposal from NRG to set a cap at the site will ensure that the reductions are made at the Limestone site and not at other NRG facilities.

### 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.

NO<sub>x</sub> emission standard for Auxiliary Boiler corrected to 0.036 lb/MMBtu in Special Condition 11.

Special Condition 42 has been added in response to NRG's comments that a condition be added to the permit to have no site-wide increase in NO<sub>x</sub>, SO<sub>2</sub> or Hg. Accordingly, the following special condition has been added to the permit:

#### SITE WIDE NETTING COMMITMENT FOR NO NET INCREASE IN EMISSIONS

42. The permit holder will have no net increase in annual site-wide emissions of NO<sub>x</sub>, SO<sub>2</sub> and Hg from the Limestone Electric Generating Station after LMS Unit 3 demonstrates initial

compliance. The reduction of emissions relied upon for ensuring no net increase in annual emissions of NO<sub>x</sub>, SO<sub>2</sub> and Hg shall occur no later than 60 days after LMS Unit 3 achieves maximum load or no later than 180 days after initial start-up of the unit. Following the LMS Unit 3 demonstration of initial compliance, the combined annual NO<sub>x</sub> emissions from the LMS Unit 1, LMS Unit 2 and LMS Unit 3 shall not exceed a total of [12,056.6\*] tons per year and the and the combined annual SO<sub>2</sub> emissions from the LMS Unit 1, LMS Unit 2 and LMS Unit 3 shall not exceed a total of [16,844.8\*] tons per year and the combined annual Hg emissions from the LMS Unit 1, LMS Unit 2 and LMS Unit 3 shall not exceed a total of [1,084.5\*] pounds per year.

Starting the calendar year after the demonstration of initial compliance of LMS Unit 3, the permit holder shall, on or before the date by which the annual emissions inventory is due under 30 Tex. Admin. Code § 101.10, submit a written certification to the Air Permits division reporting the site-wide annual emissions of NO<sub>x</sub>, SO<sub>2</sub> and Hg for the prior calendar year.

\*2007 data will be added when available via permit alteration.

Respectfully submitted,

Texas Commission on Environmental Quality

Glenn Shankle, Executive Director

Stephanie Bergeron, Director  
Environmental Law Division



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REPRESENTING THE  
EXECUTIVE DIRECTOR OF THE  
TEXAS COMMISSION ON  
ENVIRONMENTAL QUALITY

Attachment A  
Members of Group A

1. Joe Alderman
2. James & Mary Bass
3. Janice Bilbrey
4. Judy & Tom Blalock
5. Carolyn & Glenn Brinkman
6. Concerned Citizen (Anita)
7. Dry Creek Cattle
8. Angie Chaney
9. Margie Ellison
10. Rebecca Ferguson
11. Melissa Franklin
12. William Daniel Franks
13. James Hardie
14. D.C. & Norma Holmes
15. Gilbert Honeycutt
16. Alnette B. Hood
17. Cynthia & Weldon G. Hudgins
18. James Hunter
19. Kenneth Isbell
20. Elizabeth & Joe Jones Jr
21. Lorie Marion
22. Carol & Charles William McNatt
23. Shelly Morrison
24. John Murphy
25. Kathy Overby
26. Mary Phillips
27. Helen Pickett
28. Gary W Ratliff
29. Iva J Reed
30. Kenneth R Reed
31. John P Robinson
32. D W & J D Roper
33. Andrew D Saienn
34. Stephanie Taylor
35. Suellen Van Der Colff
36. Ellen Vilardo
37. Lee & Jackie Walker

Attachment B  
Members of Group B

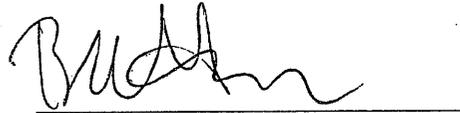
1. Kimberly Dahl
2. Robert & Mary Landon Darden
3. Susan Dunning
4. Robert Fusinato
5. Stacy Guidry
6. Nancy Hartschel
7. David Larrabee
8. Cindy Cohen Mill
9. Richard K Murray
10. Ihor T Nakonecznyj
11. Rael Nidess
12. Rusty Osburn
13. Linda Siefert
14. Gerald Smolinsky
15. Bryan Tarbox
16. Dr. & Mrs David Thornberry
17. Michelle Upchurch
18. Steven Willhite

Attachment C  
Individuals and Organization

1. The Honorable Jim Dunnam, Texas House Of Representatives
2. California Attorney General Edmund Brown Jr. (AGs)
3. Delaware Attorney General Joseph R Biden III (AGs)
4. Rhode Island Attorney General Patrick C. Lynch (AGs)
5. Vermont Attorney General William H. Sorrell (AGs)
6. Daniel Burkeen, County Judge Limestone County
7. Matt Groverton, Limestone County Emergency Coordinator
8. John McCarver, Limestone County Commissioner Pct 1
9. Sharon Barnes, Groesbeck Economic Development Corp
10. Tommy Tucker, Mexia Economic Development Corp
11. Carolyn Martin, City of Mexia
12. Jackie Levingston, Mayor Groesbeck Texas
13. Elenor Holmes, Limestone County Judge
14. Arthur Pertile, City of Waco City Attorney (Waco)
15. Jim Harris, TPower
16. Ruth Pilant, TPower
17. Donna Hoffman Lone Star Chapter Sierra Club (D Hoffman)
18. Sierra Club, Lone Star Chapter (Sierra)
19. East Texas Environmental Concerns Organization (ETECO)
20. Texas Clean Air Cities Coalition (TCACC)
21. Clean Air Coalition of Central Texas (CAC)
22. Sustainable Energy and Economic Development (SEED) Coalition
23. Paul Rolke, Robertson County: Our Land, Our Lives (RC:OLOL)
24. Public Citizen (Citizen)
25. Environmental Defense, Inc, (EDI)
26. Charles Morgan, Citizens for Environmental Clean-Up (Morgan)
27. Robert Durrenberger
28. Cynthia Hoffman (C Hoffman)
29. JacquelinE Holmes
30. Lionel Milberger
31. Niles Seldon
32. Barbra Wilson-Clay
33. EPA Region 6 (EPA)

CERTIFICATE OF SERVICE

On this 19<sup>th</sup> day of February, 2008, a true and correct copy of the foregoing instrument (ED's Response to Comment) was served on all persons on the attached mailing list by the undersigned via deposit into the U.S. Mail, inter-agency mail, facsimile, electronic mail, or hand delivery.



Booker Harrison

TEXAS  
COMMISSION  
ON ENVIRONMENTAL  
QUALITY  
2008 FEB 19 PM 4: 27  
CHIEF CLERKS OFFICE

**NRG TEXAS POWER, LLC**  
**TCEQ DOCKET NUMBER 2007-1820-AIR**  
**SOAH DOCKET NUMBER 582-08-0861**

FOR THE STATE OFFICE OF  
ADMINISTRATIVE HEARINGS

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Craig Bennett  
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State Office of Administrative Hearings  
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INTEREST COUNCIL

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APPLICANT OFFERS APPLICANT'S EXHIBIT NO. 12 INTO EVIDENCE. THE COMMENTS RECITED IN EXHIBIT NO. 12 ARE OFFERED FOR THE LIMITED PURPOSE OF IDENTIFYING THE PUBLIC COMMENTS RECEIVED BY THE TCEQ AND NOT FOR THE TRUTH OF THE MATTERS ASSERTED IN EACH OF THE COMMENTS. THE EXECUTIVE DIRECTOR'S RESPONSES TO THE COMMENTS ARE OFFERED FOR ALL PURPOSES.

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FEB 23 2009

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Applicant's Ex. # 12