TCEQ AIR QUALITY PERMIT NUMBER 933

APPLICATION BY	**§**	**BEFORE THE**
LUMINANT GENERATION	**§**	
COMPANY LLC	**§**	**TEXAS COMMISSION ON**
MARTIN LAKE STEAM ELECTRIC	**§**	
STATION	**§**	**ENVIRONMENTAL QUALITY**
TATUM, RUSK COUNTY		

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.

As required by Title 30 Texas Administrative Code (TAC) § 55.156, before an application is approved, the Executive Director prepares a response to all timely, relevant and material, or significant comments. The Office of Chief Clerk timely received comment letters from the following: Caddo Lake Institute (represented by Richard Lowerre), Environmental Integrity Project, Texas Campaign for the Environment, and Sierra Club (represented by Ilan Levin). This Response addresses all timely public comments received, whether or not withdrawn.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 Public Education Program at 1-800-687-4040. General information about the TCEQ can be found at our website at www.tceq.texas.gov.

BACKGROUND

Description of Facility

Luminant Generation Company, LLC (Luminant or applicant) has applied to the TCEQ for a New Source Review (NSR) Authorization under Texas Clean Air Act (TCAA), §382.0518. This will authorize the continued operation of an existing plant, Martin Lake Steam Electric Station (MLSES), that may emit air contaminants.

If renewed, this permit will authorize the applicant to continue operation of an existing permitted facility, which includes three lignite/western coal-fired steam generators and appurtenant equipment which operate in order to provide electricity to the grid. The facility is located at 8850 Farm to Market Road 2658 North, Tatum, Rusk County, Texas. Contaminants authorized under this permit include carbon monoxide (CO), nitrogen oxides (NO_x), particulate matter (PM) including particulate matter with diameters of 10 microns or less (PM_{10}) and 2.5 microns or less ($PM_{2.5}$), sulfur dioxide (SO_2), organic compounds, sulfuric acid (H_2SO_4), and hazardous air pollutants including (but not limited to) hydrogen fluoride (HF) and lead (Pb).

Procedural Background

To continue operating an existing permitted facility that may emit air contaminants, the person planning the continued operation must obtain a permit renewal from the commission. This permit application is for a permit renewal of Air Quality Permit Number 933.

The permit application was received on March 3, 2014, and declared administratively complete on March 10, 2014. The Notice of Receipt and Intent to Obtain an Air Quality Permit (public notice) for this permit application was published in English on April 2, 2014, in the *Henderson Daily News* and in Spanish on April 2, 2014, in *La Opinion*.

COMMENTS AND RESPONSES

The comments received are summarized below by topic:

1. TCEQ Mediation
2. Air Quality
3. Controls
4. Application Deficiencies
5. Deficiencies in Public Comment
6. Requested Permit Changes
7. Emission Calculations
8. Emission Concerns
9. Enforceability
10. Demonstrating Compliance

COMMENT 1, CONTESTED CASE HEARING REQUEST:
Mr. Lowerre, on behalf of the Caddo Lake Institute (CLI), has requested a contested case hearing. Mr. Levin, on behalf of the Environmental Integrity Project (EIP), Texas Campaign for the Environment, and Sierra Club reserves the right to request a contested case hearing after reviewing any proposed draft permit.

RESPONSE 1:
A public Notice of Receipt of Application and Intent to Obtain Permit and comment period as described above allowed opportunities for the public to comment on the existing (draft) permit prior to permit renewal. The contested case hearing request received for this renewal application will be processed in accordance with the TCAA and applicable TCEQ rules. A public Notice of Application and Preliminary Decision (second notice) is not required per 30 TAC §39.419(e). The TCAA provides that the commission may not hold a contested case hearing for a renewal application where there is no change in the allowable emissions rates or in the emission of any new contaminant, unless the facility is classified as a "poor performer" under the commission's compliance history rules, found in 30 TAC Chapter 60. Luminant's compliance history rating does not fall into the "poor performer" category. A final determination of whether a contested case hearing will be granted will be made by the commission in an open meeting.

COMMENT 2, AIR QUALITY:
CLI, EIP, Texas Campaign for the Environment, and Sierra Club have members who are sensitive to / adversely affected by emissions from MLSES, such as people with asthma, the elderly, and children; including Sierra Club member Eddie Gomez of Henderson, TX.

RESPONSE 2:
For permits such as this, potential impacts to human health and welfare or the environment are

determined by comparing air dispersion modeling predicted emission concentrations from the proposed facility to appropriate state and federal standards and effects screening levels.[1] The specific health-based standards or guidance levels employed in evaluating the potential emissions include the National Ambient Air Quality Standards (NAAQS); TCEQ standards contained in 30 TAC Chapter 111, specifically 30 TAC §111.153, and 30 TAC § 112.3; and TCEQ Effect Screening Levels (ESLs).[2]

NAAQS are created by the United States Environmental Protection Agency (EPA) and are set to protect sensitive members of the population such as children, the elderly, and individuals with existing respiratory conditions. The NAAQS, as defined in the federal regulations (Title 40 Code of Federal Regulations [40 CFR], § 50.2), 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. 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 (O3), lead, carbon monoxide (CO), sulfur dioxide (SO2), nitrogen dioxide (NOx), and particulate matter (PM), including particulate matter with diameters of 10 microns or less (PM_{10}) or 2.5 microns or less ($PM_{2.5}$). "Criteria pollutants" are those pollutants for which a NAAQS has been established.

In addition to complying with the federal and state standards and guidelines mentioned above, applicants must also 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." As long as the facility is operated in compliance with the terms and conditions of the permit, nuisance conditions or conditions of air pollution are not expected.

Individuals are encouraged to report concerns about nuisance issues or suspected noncompliance with the terms and conditions of any permit or other environmental regulation by contacting the Tyler TCEQ Regional Office at 1-903-535-5100, or by calling the 24-hour toll-free Environmental Complaints Hotline at 1-888-777-3186. If the facility is found to be out of compliance with the terms and conditions of the permit, it will be subject to possible enforcement action. Citizen-collected evidence may be used in such an action. See 30 TAC § 70.4, Enforcement Action Using Information Provided by Private Individual, for details on gathering and reporting such evidence. The TCEQ has long had procedures in place for accepting environmental complaints from the public but now has a new tool for bringing potential environmental problems to light. Under the citizen-collected evidence program,

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[1] Documents referenced in this response are available on the TCEQ website at http://www.tceq.texas.gov/ and are also available in printed form at a small cost from the TCEQ Publications office at 512-239-0028.
[2] To view the ESL list or obtain more information on ESLs, visit the TCEQ website at http://www.tceq.texas.gov/toxicology/esl/list_main.html.

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 http://www.tceq.texas.gov (click on the Publications link on the left sidebar and search for Publication Number 278).

COMMENT 3, CONTROLS:
Mr. Lowerre believes controls and monitoring for mercury (Hg), NO_x, and SO_2 are inadequate or lacking, and he would like assurances that there are adequate controls to prevent contamination of fish or wildlife.

RESPONSE 3:
The facility has a mercury sorbent injection system authorized by Standard Permit Registration No. 85302 (issued in July 2008) which ensures control of mercury. The installation of the injection system was required in order to meet standards associated with federal rules for Maximum Available Control Technology (MACT) for Coal- and Oil-Fired Electric Utility Steam Generating Units (40 CFR 63, Subchapter UUUUU). Monitoring for mercury is performed per 40 CFR § 63.10020. Low NO_x burners are present to control NO_x and monitoring of NO_x is performed per 40 CFR § 60.45 which is found within the federal Standards of Performance for Fossil-Fuel-Fired Steam Generators (40 CFR 60 Subpart D). Flue gas desulfurization controls SO_2 and an SO_2 Continuous Emissions Monitoring System (CEMS) is present and operating as required by Special Condition No. 7. Continuous monitoring and recordkeeping of opacity, Hg, NO_x, SO_2, and other emissions occur in compliance with federal requirements for this Title V site.

COMMENT 4, APPLICATION DEFICIENCIES:
Mr. Levin states that the application fails to comply with 30 TAC 116 renewal requirements because it does not demonstrate meeting the requirements in 30 TAC § 116.311(a). He also states that the application does not demonstrate compliance with 30 TAC § 116.111 nor how the facility meets Best Available Control Technology (BACT). Mr. Levin states that the application should be amended to avoid a condition of air pollution and ensure compliance with federal requirements. The amended application should include additional information on pollution control efficiencies and equipment, how these meet BACT, and modeling and impacts of emissions from the facility. The application fails to demonstrate that the facility is being operated in accordance with all requirements and conditions of the existing permit. The application fails to demonstrate that the facility meets 40 CFR 60, 40 CFR 61, 40 CFR 63 (MACT) or 40 CFR 63 (National Emission Standards for Hazardous Air Pollutants [NESHAPS]). Mr. Levin has requested a written response to the following: "The Martin Lake plant is not being operated in accordance with all requirements and conditions of the existing Permit No. 933, including representations in the application for permit to construct and subsequent amendments and any previously granted renewal.

RESPONSE 4:
Pursuant to 30 TAC § 116.314(a), "The executive director shall renew a permit and notify the permit holder in writing if it is determined that the facility meets the requirements of this subchapter." Subchapter D of Section 116, concerning permit renewals, provides for a limited application review by the Executive Director when the applicant has a satisfactory compliance history, and does not seek any change to production rates, controls, raw materials, character of emissions, or emissions rates.

Luminant originally received construction and operating permits for these coal-fired steam generators in 1973 and 1974. The issued permit represented that the pollution controls employed at Luminant's facility met BACT, as required by applicable state law. As part of the original permit evaluation process, the permit reviewer identifies all sources of air contaminants at the proposed facility and assures that the facility will be using BACT applicable for the sources and types of contaminants emitted. BACT is based upon control measures that are designed to minimize the level of emissions from specific sources at a facility. Applying BACT results in requiring technology that best controls air emissions with consideration given to the technical practicability and economic reasonableness of reducing or eliminating emissions. See Texas Health and Safety Code § 382.0518 and 30 TAC § 116.111(a)(2)(C).

The generators were subject to New Source Performance Standards (NSPS) Subchapter D at the time of their original authorization, which limited emissions of PM, NO_x, and SO_2. Luminant uses electrostatic precipitators, flue gas desulfurization, and low NO_x burners to control these contaminants. These processes and controls were BACT at the time of permit issuance.

Special Condition No. 2 specifies provisions of 40 CFR 60 (Subparts A and D) and 63 (Subparts A, DDDDD, and UUUUU) with which the facility must comply; and Special Condition No. 3 requires retention of emission records to demonstrate compliance. Emissions will be monitored using a Continuous Emission Monitoring System (CEMS) which will measure NO_x, SO_2, and diluent gases from the generators on a 3 hour average based on at least four data points per hour. Recordkeeping and CEMS (for some emissions) are used for periodic monitoring of other emissions, which are determined based on the duration and frequency of each event. The site is a major source with Compliance Assurance Monitoring requirements (including CEMS and Continuous Opacity Monitoring System) in their existing Title V permits. Note that because the site is subject to Title V (federal) requirements, its owner is required to submit annual compliance certifications and deviation reports. Beyond its effects on a facility's compliance history, the compliance certification process is not part of the NSR review but part of the Title V process. Both permits are necessary for continued operation of the facility.

As discussed further in Response 2 above, individuals are encouraged to report concerns about suspected noncompliance with the terms and conditions of any permit or other environmental regulation by contacting the Tyler TCEQ Regional Office at 1-903-535-5100, 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.

30 TAC § 116.311(b) states that the commission shall impose only economically reasonable and technically practicable conditions for a permit renewal of a facility in consideration of the age of

the facility and the impact of its emissions on the surrounding area. Luminant requested a permit renewal without any change to production rates, controls, raw materials, character of emissions, or emission rates. The commission's finding that existing controls satisfy BACT and that the facility operations would not result in adverse health effects remains constant and unchanged.

The TCEQ is not aware of any outstanding state or federal noncompliance issues with regard to the operations at MLSES. During the technical review, a compliance history review of the company and the site is conducted based on the criteria in 30 TAC Chapter 60. These rules may be found at the following website: http://www.tceq.state.tx.us/rules/index.html. The compliance history for the company and site is reviewed for the five year period prior to the date the permit application was received by the Executive Director. The compliance history includes multimedia compliance related components about the site under review. These components include the following: enforcement orders, consent decrees, court judgments, criminal convictions, chronic excessive emission events, investigations, notices of violations, audits and violations disclosed under the Audit Act, environmental management systems, voluntary on-site compliance assessments, voluntary pollution reduction programs and early compliance.

Luminant's permit renewal application was received after September 1, 2002, and the company and site have been rated and classified pursuant to 30 TAC Chapter 60. A company and site may have one of the following classifications and ratings:

- High: rating below 0.10 – complies with environmental regulations extremely well;
- Satisfactory: rating 0.10 – 55.00 – generally complies with environmental regulations;
- Unsatisfactory: rating greater than 55.00 – fails to comply with a significant portion of the relevant environmental regulations.

This site has a rating of 0.02 and a classification of "High". The company rating and classification, which is the average of the ratings for all sites the company owns, is 0.00 and a classification of "High".

TCEQ records reflect that the applicant has a satisfactory compliance history. Insofar as the renewal application meets all of the applicable regulation requirements, the Executive Director has no grounds to deny the renewal of permit number 933.

COMMENT 5, DEFICIENCIES IN PUBLIC COMMENT:
Mr. Levin is concerned about the limited period (15 days) for public notice, the limited additional public participation opportunities, and states that the Federal Clean Air Act provides at least 30 days' notice and guarantees a right to appeal a draft or final permit once issued.

RESPONSE 5:
Luminant has provided TCEQ with documentation that it met the regulatory requirements by publishing notice of application in a general circulation newspaper, posting signage at the site, and making available a copy of the application in a public place. Luminant initially published notice in English on April 2, 2014, in the *Henderson Daily News* and in Spanish on April 2, 2014, in *La Opinion*, with the comment period ending 15 days later on April 17, 2014 (as required by 30 TAC § 55.152(a)(2)). All comments received through April 17, 2014 are

considered in processing this renewal application. See also Response 4 regarding permit renewal limitations.

COMMENT 6, REQUESTED CHANGES TO THE PERMIT:
Mr. Levin requested written responses to the following: Please specify all the changes requested in the Application that alter, modify, or amend the pre-existing permit or SIP conditions, such as revision to Special Condition No. 3 (now No. 4 due to Special Condition renumbering) and incorporation of Standard Permit Registration No. 85302. Please explain these and any other changes to pre-existing permit or SIP conditions. Clarify which emission factors are being revised and why.

RESPONSE 6:
The applicant has requested the following revisions with this renewal:

- Reduce annual NOx to reflect the acid rain requirements in 40 CFR § 76.7(a)(1).

- Revise PM and SO2 emission factors for auxiliary No. 2 fuel fired boilers due to EPA update of AP-42 Section 1.3. These updated factors, which now include minute amounts of condensable particulate matter, were published by the EPA in May 2010. These emissions have always been present, but they are just now being included in the emission factors. Pursuant to the provisions of the preamble to the Public Notice Rule (26 Tex. Reg. 9097, 9099 (November 9, 2001)) and agency guidance governing permit renewals, emission rate changes without BACT or impacts review are allowed to be made at a renewal when due to a newly published EPA emission factors in which emissions which were previously present, but not represented, are now quantified. As such, these changes are not to be considered increases. Additionally, the new factors also reflect a decrease in short-term SO2 emissions from the Auxiliary Boilers.

- Revise Special Condition No. 4 to replace the average subbituminous coal characteristics requirements with a reference to the requirement for CEMS in Special Condition No. 7. CEMS requires continuous monitoring of emissions as compared to the MAERT, and MAERT values were calculated based on the average subbituminous coal characteristics, which have now been removed. The requirements and emissions have not changed.

- Incorporate Standard Permit Registration No. 85302 (mercury sorbent injection) by reference. 30 TAC § 116.615 requires that changes authorized by a Standard Permit be administratively incorporated into that facility's NSR permit when it is amended or renewed. A reference to the standard permit was added as Special Condition No. 17 for the renewed Permit No. 933. Standard Permit Registration No. 85302 is still in effect and authorizes the mercury sorbent injection system.

The emission factors for PM and SO_2 resulting from fuel oil combustion (affecting EPNs S1-A and S1-B) are being revised due to an EPA update of its Compilation of Air Pollution Emission Factors (AP-42), Section 1.3 in May 2010 to reflect current emission calculation methodology.

COMMENT 7, EMISSION CALCULATIONS:
Mr. Levin requested written responses to the following: Clarify calculation of maximum hourly worst-case emissions for the Units 1, 2, and 3 (EPNs S-1, S-2, and S-3) and justification for the bases of calculations. Explain appropriateness of the Southern Method for calculation of H_2SO_4, and why direct measurement of H_2SO_4 is not being used. Provide all bases and explanations for generator startup emission calculations for PM and lead (application page A-38).

RESPONSE 7:
The calculation of maximum hourly worst-case emissions of VOC, CO, and PM from Units 1, 2, and 3 (EPNs S-1, S-2, and S-3) have not changed with this application and have been reviewed and authorized in previous permitting actions. VOC maximum hourly emissions are based on EPA's July 2001 VOC hourly maximum emission factor found in AP-42 and the lignite feed rates of the generators. CO maximum hourly emissions are predicted using EPA's Method 19 in 40 CFR 60, Appendix A. The basis values input into the Method 19 calculation are the concentration of CO, hourly firing rate, gas ("F") factor for lignite, correction for excess oxygen, and unit conversions. PM maximum hourly emissions are based on the hourly firing rate and the NSPS Subpart D limit of 0.10 lb PM/MMBtu. The calculation methodologies and emission factors have been established by EPA in its AP-42 or from concentrations required by various permit conditions and/or the maximum allowable emission rate table (MAERT). The use of such emission factors to establish permit limits is quite common and is an accepted practice by EPA, TCEQ, and regulatory agencies in other states. These calculations, factors, and bases for each generator scenario were found in Appendix A of the permit application (PDF attached) which was available during public comment period.

Emission factors for H_2SO_4 found in EPA's AP-42 are intended for use at plants that manufacture H_2SO_4 commercially, and are not appropriate to estimate H_2SO_4 from coal-fired facilities' flue gas. The Southern Method for estimating sulfuric acid from coal-fired boilers is described in the document "An Updated Method for Estimating Total Sulfuric Acid Emissions from Stationary Power Plants," by Larry S. Monroe, Ph.D., with the Research and Environmental Affairs Department, Southern Company Generation and Energy Marketing, PO Box 2641, Birmingham, AL 35291. The method was developed in response to EPA's requirement to estimate emissions of toxic gases from certain facilities starting in 1998 as part of its Toxic Release Inventory. EPA did not require collection of new data, so the estimation method was determined using data and information already available at coal-fired plants, including SO_2 emission rate, type of fuel being burned and type and efficiency of particulate control device(s). The Southern Method of estimating H_2SO_4 emissions from coal-fired power plants is appropriate and was previously reviewed and accepted by the TCEQ when the permit was last renewed in 2004. Many coal-fired power plants do not have direct measurement of H_2SO_4 releases. As discussed in Response 4, TCEQ performs a limited review upon renewals where the facility meets certain compliance criteria and cannot require new controls or monitoring.

The calculation of startup, shutdown, and maintenance emissions of PM and lead (Pb) from Units 1, 2, and 3 (EPNs S-1, S-2, and S-3) have not changed with this application, were reviewed through an MSS amendment to the permit, and authorized December 16, 2011. PM startup emissions are based on the percent ash in the lignite, percent fly ash, maximum lignite feed rate prior to startup / energization of the primary PM control (electrostatic precipitator), and the PM

dropout from the electrostatic precipitator prior to energization. Pb emissions during MSS activities are based on maximum lignite feed rate prior to startup / energization of the primary Pb control (electrostatic precipitator), the representative concentration of Pb for Wilcox lignite (parts per million by weight hourly maximum and annual average), the percent lead in the flyash, and the Pb dropout from the electrostatic precipitator prior to energization (or the efficiency of the electrostatic precipitator if it is energized). These calculation methodologies and emission factors have been established by EPA in its AP-42 or from concentrations required by various permit conditions and/or the MAERT. The use of such emission factors to establish permit limits is quite common and is an accepted practice by EPA, TCEQ, and regulatory agencies in other states. Specific calculations, factors, and bases for each generator scenario were found in Appendix A of the permit application (PDF attached) which was available during the public comment period.

COMMENT 8, EMISSION CONCERNS:
Mr. Levin requested written responses to the following: Explain what is meant by "normal emission rates" for NO_x, SO_2, CO, HF, and H_2SO_4 hourly and annual emission rates from the generators, specifically as compared to maintenance, startup, and shutdown (MSS) emission rates; and how the hourly emissions of these pollutants during MSS do not exceed these normal emission rates. Explain why control device design results in higher PM and lead emissions during MSS per comments found in the application, page 4-2. Also discuss why control device design does not result in increased SO_2 or H_2SO_4 emission rates during MSS.

RESPONSE 8:
Normal emission rates for various contaminants are those expected during normal, steady-state operations of the generators. Predicted hourly and annual emissions of NO_x, SO_2, CO, HF, and H_2SO_4 during MSS activities are those emissions expected during generator startup, generator shutdown, and generator maintenance activities. For generators such as these, because of the nature of the combustion materials and process as well as the limited hours of MSS activities, there is enough conservatism in the calculation methods that the estimated values of the contaminants are no greater for MSS activities than for normal operation.

With regard to higher PM and lead emissions from control devices during MSS, collateral increases (in other non-controlled contaminants such as PM) occur when applying a control device to reduce a certain contaminant (such as NO_x) due to chemical reactions which reduce the emission of the unwanted contaminant in exchange for increased emissions of a lesser contaminant. The rate of such reactions may be slightly higher when a control device and/or generator is warming up or cooling down, that is, during MSS activities. Emissions control and monitoring for sulfur compounds must meet federal requirements and limits at all times. There is enough conservatism in the calculation method that the estimated values of sulfur compounds are no greater for MSS activities than for normal operation.

COMMENT 9, ENFORCEABILITY:
Mr. Levin requested written responses to the following: Clarify how representations used for calculations are enforceable. Identify which bases resulting in the representations in Table 1(a) are enforceable representations and which are not.

RESPONSE 9:
Representations found in Table 1(a) are determined by the emissions calculations (including all bases) and are enforceable through demonstration of compliance with the MAERT as required by Special Condition No. 3.

COMMENT 10, DEMONSTRATING COMPLIANCE:
Mr. Levin requested written responses to the following: Explain methods for determining compliance with all emission limits for the generator stacks for those emissions that are not continuously monitored. Mr. Levin claims that "[t]he Application fails to provide enough information for Commenters to discern how compliance is to be demonstrated for all requested emission limits for the [generators]." Show how actual emissions (for PM) are determined for showing compliance with limits. Explain whether any rule, law, or TCEQ policy bars the Commission from considering other evidence of compliance (other than the method specified in the permit) if credible.

RESPONSE 10:
Regarding methods by which compliance is determined for non-monitored emissions, Special Condition No. 2 specifies provisions of 40 CFR 60 (Subparts A and D) and 63 (Subparts A, DDDDD, and UUUUU) with which the facility must comply; and Special Condition No. 3 requires retention of emission records to demonstrate compliance. Emissions will be monitored using a CEMS which will measure NOx, SO2, and diluent gases from the generators on a 3 hour average based on at least four data points per hour. Recordkeeping and CEMS (for some emissions) are used for periodic monitoring of other emissions, which are determined based on the duration and frequency of each event. The site is a major source with Compliance Assurance Monitoring requirements (including CEMS and Continuous Opacity Monitoring System) in their existing Title V permits.

Regarding a compliance demonstration for maximum emission limits, air contaminants from this facility include CO, NO_x, PM (including PM_{10} and $PM_{2.5}$), SO_2, VOC, H_2SO_4, and hazardous air pollutants. Emissions will be monitored by CEMS, continuous opacity monitoring systems, and maintenance of records demonstrating compliance with maximum allowable emission rates, as required by Special Condition Nos. 3, 6, 7, and 14. Compliance requirements will comply with the appropriate New Source Performance Standards and EPA test methods. Individuals are encouraged to report any concerns about nuisance issues or suspected noncompliance with terms of any permit or other environmental regulation by contacting the TCEQ Regional Office at 903-535-5100, or by calling the 24-hour toll-free Environmental Complaints Hotline at 1-888-777-3186. The TCEQ investigates all complaints received. If the facility is found to be out of compliance with the terms and conditions of the permit, it will be subject to investigation and possible enforcement action. Citizen-collected evidence may be used in such an action. See 30 TAC § 70.4, Enforcement Action Using Information Provided by Private Individual, for details on gathering and reporting such evidence. The TCEQ has long had procedures in place for accepting environmental complaints from the 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 http://www.tceq.texas.gov (click on the Publications link on the left sidebar and search for Publication Number 278).

CHANGES MADE IN RESPONSE TO COMMENT

No changes to the draft permit have been made in response to public comment.

Respectfully submitted,

Texas Commission on Environmental Quality

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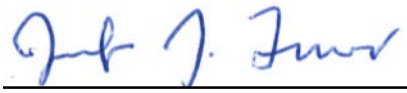

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REPRESENTING THE
EXECUTIVE DIRECTOR OF THE
TEXAS COMMISSION ON
ENVIRONMENTAL QUALITY

A-1
Luminant Generation Company LLC
Martin Lake Steam Electric Station
Permit No. 933 Renewal Application
NO_X, SO_2, PM & VOC Emission Rate Estimate Calculations
Steam Generator Unit 1, 2, or 3

Inputs:

The NO_X, SO2 and PM limits for each boiler are as follows:

NO_X:	0.60	lb/MMBtu (maximum hourly - NSPS Part 60 Subpart D limit)
	0.40	lb/MMBtu (annual average - acid rain permit limit effective 1/1/2008)
SO_2:	1.20	lb/MMBtu (maximum hourly - NSPS Part 60 Subpart D limit)
PM:	0.10	lb/MMBtu (maximum hourly - NSPS Part 60 Subpart D limit)

Per EPA's July 2001 Uncontrolled Emission Factor Listing for Criteria Air Pollutants as part of the EPA's Emissions Inventory Improvement Program, the VOC emission factor is as follows:

VOC:	0.07	lb VOC/ton lignite fired (annual)
	0.7	lb VOC/ton lignite fired (hourly maximum)

Representative annual average hourly firing rate of each boiler [a]:	8,530 MMBtu/hr
The annual operating hours of each boiler:	8,760 hrs/year
The approximate lignite and western coal feed rate of each boiler:	675 tons/hr

Calculations:

1. Estimate the maximum hourly and annual NO_X emission rates for Steam Generator Unit No. 1, 2, or 3

Hourly

E_{NOXH} =	8,530	MMBtu/hr	X	0.6	lb/MMBtu	
E_{NOXH} =	5,118 lb/hr NO_X, per boiler					

Annual

E_{NOXA} =	8,530	MMBtu/hr	X	0.40	lb/MMBtu	X
	8,760	hrs/year	/	2,000	lb/ton	
E_{NOXA} =	14,945 tons/yr NO_X, per boiler					

A-1
Luminant Generation Company LLC
Martin Lake Steam Electric Station
Permit No. 933 Renewal Application
NO_X, SO_2, PM & VOC Emission Rate Estimate Calculations
Steam Generator Unit 1, 2, or 3

2. Estimate the maximum hourly and annual SO2 emission rates for Steam Generator Unit No. 1, 2, or 3

Hourly

E_{SO2H} =	8,530	MMBtu/hr	X	1.20	lb/MMBtu	
E_{SO2H} =	10,236	lb/hr SO_2, per boiler				

Annual

E_{SO2A} =	8,530	MMBtu/hr	X	1.20	lb/MMBtu	X
	8,760	hrs/year	/	2,000	lb/ton	
E_{SO2A} =	44,834	tons/yr SO_2, per boiler				

3. Estimate the maximum hourly and annual PM emission rates for Steam Generator Unit No. 1, 2, or 3

Hourly

E_{PMH} =	8,530	MMBtu/hr	X	0.10	lb/MMBtu	
E_{PMH} =	853	lb/hr PM[b], per boiler				

Annual

E_{PMA} =	8,530	MMBtu/hr	X	0.10	lb/MMBtu	X
	8,760	hrs/year	/	2,000	lb/ton	
E_{PMA}=	3,736	tons/yr PM[b], per boiler				

4. Estimate the maximum hourly and annual VOC emission rates for Steam Generator Unit No. 1, 2, or 3

Hourly

E_{VOCH} =	675	tons/hr	X	0.7	lb VOC/ton
E_{VOCH} =	473	lb/hr VOC, per boiler			

Annual

E_{VOCA} =	675	tons/hr	X	0.07	lb VOC/ton	
X	8,760	hrs/year	/	2,000	lb/ton	
E_{VOCA} =	207	tons/yr VOC, per boiler				

[a] The heat input value used in the calculations is not an operating limit but is a representative value used solely to estimate maximum emission rates for each unit.

[b] For steam generating units, assume all particulate matter (PM) is PM_{10} and $PM_{2.5}$

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Luminant Generation Company LLC
Martin Lake Steam Electric Station
Permit No. 933 Renewal Application
CO Emission Rate Estimate Calculations
Steam Generator Units 1, 2, or 3

Inputs:
Base the CO emissions on the calculation methodology presented in 40 CFR 60, Appendix A, Method 19.

From Equation 19-1

$$E = (C_d)(F_d)[\,20.9 / (20.9 - \%O_{2d})\,]$$

Where:

E = CO emission rate (lb/mmBtu)
C_d = CO concentration (lb/dscf)
F_d = Oxygen-gased F Factor on dry basis (dscf/mmBtu)
$\%O_{2d}$ = percent excess oxygen on a dry basis

C_{CO} =	1,000	CO concentration (ppmvd) (30 day average, corrected to 7% oxygen)
F_d =	9,860	(dscf/mmBtu) (From 40 CFR 60, Appendix A, Method 19, Table 19-1 for Lignite)
F_c =	2.59E-09	(lb-mole/dscf·ppmvd) (factor for converting ppmv to lb-mole/dscf)
M =	28.01	Molecular weight of CO (lb/lb-mole)
$O_2\%$ =	7	percent excess oxygen
H =	8,530	Representative annual average hourly firing rate of each boiler (mmBtu/hr)
AOH =	8,760	Annual Hours of Operation

Calculations:

Convert the CO concentration (C_{CO}) from ppm to lb/dscf (C_d) for Martin Lake Unit No. 1,2 or 3 :

C_d = C_{CO} (ppmvd) x F_c (lb-mole/dscf·ppmvd) x F_d (lb/lb-mole)

C_d = 1,000 (ppmvd) x 2.59E-09 (lb-mole/dscf·ppmvd) x 28.01 (lb/lb-mole) = 7.255E-05 (lb/dscf)

Calculate the 30-day average CO Emission Factor (E [lb/mmBtu]) for Martin Lake Unit No. 1, 2 or 3

E = C_d (lb/dscf) x F_d (dscf/mmBtu) x [20.9 / 20.9-$\%O_2$]

E = 7.255E-05 (lb/dscf) x 9,860 (dscf/mmBtu) x [20.9 / (20.9 - 7)]

E = **1.08 lb/mmBtu, 30-day average**

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Luminant Generation Company LLC
Martin Lake Steam Electric Station
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CO Emission Rate Estimate Calculations
Steam Generator Units 1, 2, or 3

Estimate the 30-day Average Hourly CO Emission Rate (lb/hr) for Martin Lake Unit No. 1, 2, or 3[a]

E_h	=	E	(lb/mmBtu)	x	H	(mmBtu/hr)	
E_h	=	1.08	(lb/mmBtu)	x	8,530	(mmBtu/hr)	
E_h	=	9,174	lb/hr CO per boiler, 30-day average				

Estimate the Annual CO Emission Rate (tons/yr) for Martin Lake Unit No. 1, 2 or 3

E_a	=	E_h	(lb/hr)	x	AOH	(hrs/year)	/2,000 lb/ton
E_a	=	9,174	(lb/hr)	x	8,760	(hrs/year)	/2,000 lb/ton
E_a	=	40,183	tons/yr CO, per boiler				

[a] The heat input value used in the calculations is not an operating limit but is a representative value used solely to estimate maximum emission rates for each unit.

Table A-12.17
Luminant Generation Company LLC
Martin Lake Steam Electric Station
Permit No. 933 Renewal Application
Unit 1, 2, and 3 Startup/Shutdown/Maintenance Emissions

Startup Particulate Matter Emissions

Unit	Maximum Coal Feedrate prior to PM Control [a] (tph)	Total Ash in Coal [b] (%)	Fly Ash [c] (%)	De-energized ESP Chamber PM Dropout [d] (%)	Total Uncontrolled PM (lb/hr)
Unit 1	35	15%	70%	60%	2940.00
Unit 2	35	15%	70%	60%	2940.00
Unit 3	35	15%	70%	60%	2940.00

Notes:
a - Based on coal flow prior to PM Control Device energization. from process knowledge at plant
b - Based on coal analysis.
c - Based on engineering knowledge.
d - Based on engineering study conducted on behalf of Luminant Generation Company LLC.

Startup Lead Emissions

Current Permit Limit (lb/hr)	Permit Limit Fuel Flow Basis (tph)	Permit Limit ESP Control Efficiency (%)	Startup Fuel Flow (tph)	Startup ESP Dropout (%)	Startup Uncontrolled Lead Emissions (lb/hr)	Startup Controlled Lead Emissions (lb/hr)
2.2	675	99%	35	60%	11.41	4.56