TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

AGENDA ITEM REQUEST

for State Implementation Plan Adoption

AGENDA REQUESTED: August 17, 2011

DATE OF REQUEST: July 29, 2011

INDIVIDUAL TO CONTACT REGARDING CHANGES TO THIS REQUEST, IF NEEDED: Joyce Spencer, 239-5017

CAPTION: Docket No. 2011-0065-SIP. Consideration of the adoption of the Lead Transport State Implementation Plan (SIP) Revision for the 2008 Lead National Ambient Air Quality Standard (NAAQS).

The adopted SIP revision would meet the requirements of the Federal Clean Air Act (FCAA), §110(a)(2)(D)(i), relating to the interstate transport of lead under the 2008 Lead NAAQS. These revisions reference existing control strategies to reduce the concentration of lead in Collin County, as well as dispersion modeling of major lead sources in Texas. Additionally, the revision verifies that the Prevention of Significant Deterioration and Nonattainment New Source Review permitting programs are being implemented in Texas, and that lead is not considered a visibility-impairing pollutant. This revision, once adopted, would fulfill Texas' obligation regarding interstate transport of lead under §110(a)(2)(D)(i) of the FCAA. (Shelley Naik, Amy Browning) (Non-Rule Project No. 2011-005-SIP-NR)

Susana Hildebrand
Chief Engineer

Kim Herndon for David Brymer
Division Director

Joyce Spencer
Agenda Coordinator

Copy to CCC Secretary? NO X YES

Texas Commission on Environmental Quality
Interoffice Memorandum

To: Commissioners **Date:** July 29, 2011

Thru: Melissa Chao, Acting Chief Clerk
Mark R. Vickery, P.G., Executive Director

From: Susana M. Hildebrand, P.E., Chief Engineer

Docket No.: 2011-0065-SIP

Subject: Commission Approval for Lead Transport State Implementation Plan (SIP) Revision for the 2008 Lead National Ambient Air Quality Standard (NAAQS) Adoption
Non-Rule Project No. 2011-005-SIP-NR

Background and reason(s) for the SIP revision:
On October 15, 2008, the United States Environmental Protection Agency (EPA) substantially strengthened the lead NAAQS. The new standard, set at 0.15 micrograms per cubic meter (µg/m^3) measured as a rolling three-month average, is 10 times more stringent than the previous standard of 1.5 µg/m^3 measured as a quarterly average.

Section 110(a)(1) of the Federal Clean Air Act (FCAA) requires states to submit a SIP revision to provide for the implementation, maintenance, and enforcement of the NAAQS. States must adopt and submit new SIP revisions within three years after the promulgation of a new or revised NAAQS. Section 110(a)(2) lists the elements that the new SIP revisions must contain. Among other things, each state's SIP must contain provisions adequate to prevent emissions that significantly contribute to violations of the NAAQS in any other state, interfere with maintenance in any other state, interfere with any other state's required measures to prevent significant deterioration of its air quality, or interfere with any other state's required measures to protect visibility.

On August 15, 2006, the EPA issued its "Guidance for State Implementation Plan (SIP) Submission to Meet Current Outstanding Obligations Under Section 110(a)(2)(D)(i) for the 8-Hour Ozone and $PM_{2.5}$ National Ambient Air Quality Standards" for states to use to address the §110(a)(2)(D)(i) interstate transport requirements. The EPA Region 6 communicated to the Texas Commission on Environmental Quality (TCEQ) on May 17, 2007, that the §110(a)(2)(D)(i) submittal for 1997 eight-hour ozone and 1997 fine particulate matter ($PM_{2.5}$) should be submitted as a SIP revision, and required notice, comment, and public hearing by the state. Based on this previous EPA guidance, the 2008 Lead NAAQS is also likely to require a SIP revision that has been opened to public notice and comment. The EPA has not yet issued additional guidance to address §110(a)(1) and (2) requirements for the 2008 lead NAAQS.

Re: Docket No. 2011-0065-SIP

Scope of the SIP revision:

A.) Summary of what the SIP revision will do:
The adopted SIP revision would meet the requirements of the FCAA, §110(a)(2)(D)(i), relating to the interstate transport of lead under the 2008 lead NAAQS. The SIP revision will reference existing control strategies to reduce the concentration of lead in Collin County, as well as dispersion modeling of major lead sources in Texas. Additionally, the revision verifies that the Prevention of Significant Deterioration and Nonattainment New Source Review permitting programs are being implemented in Texas and that lead is not considered a visibility-impairing pollutant.

B.) Scope required by federal regulations or state statutes:
Pursuant to FCAA, §110(a)(2)(D)(i), this SIP revision must contain several elements that provide supporting information demonstrating that Texas is:

- not contributing significantly to nonattainment of the lead NAAQS for areas in other states;
- not interfering with the maintenance of the lead NAAQS in any other state;
- not interfering with measures required to meet an implementation plan for any other state related to prevention of significant deterioration; and
- not interfering with measures required to meet the implementation plan for any other state related to regional haze and visibility.

C.) Additional staff recommendations that are not required by federal rule or state statute:
None

Statutory authority:
The authority to propose and adopt the SIP is derived from Texas Health and Safety Code, Texas Clean Air Act (TCAA), §382.002, which provides that the policy and purpose of the TCAA is to safeguard the state's air resources from pollution; TCAA, §382.011, which authorizes the commission to control the quality of the state's air; TCAA, §382.012, which authorizes the commission to prepare and develop a general, comprehensive plan for the control of the state's air; and Texas Water Code, §5.02, General Powers, and §5.013, General Jurisdiction of the Commission.

The FCAA, 42 USC §§7401, *et seq*., requires states to submit SIP revisions that specify the manner in which the NAAQS will be achieved and maintained within each air quality control region of the state**.** Additionally, the specific requirements for the 2008 Lead

NAAQS were published in the November 12, 2008, issue of the *Federal Register* (73 FR 66963).

Effect on the:

A.) Regulated community:
This SIP revision contains no new control measures and will not affect the regulated community.

B.) Public:
None

C.) Agency programs:
This SIP revision will have no new effect on agency programs.

Stakeholder meetings:
Because there are no new rules associated with this SIP revision, no stakeholder meetings were held.

Public comment:
The commission offered a public hearing for the proposed SIP revision on May 17, 2011, at 10:00 a.m. at the TCEQ Headquarters in Austin. A question and answer session was held 30 minutes prior to the meeting. The hearing was not officially opened because no party indicated a desire to give comment.

The public comment period opened April 22, 2011, and closed May 23, 2011. One comment was received, but it was outside the scope of the SIP revision.

Significant changes from proposal:
After proposal, the TCEQ completed modeling for the two facilities that emit between 0.5 tons per year (tpy) and 1.0 tpy of lead: the International Power Coleto Creek Power Station near Fannin and San Miguel Electric Cooperative, Incorporated in Christine. Modeling for these two facilities was conducted after proposal to determine the need for monitoring. Modeled lead emissions from Coleto Creek and San Miguel each result in ambient concentrations of less than 1% of the level of the 2008 lead NAAQS and indicate that there will be no impact on surrounding areas or states.

Potential controversial concerns and legislative interest:
Based on the TCEQ's analysis of Texas' lead nonattainment area and the radius of impact of the major lead sources in the state, it has been concluded that Texas sources do not impact other states' attainment or maintenance of the lead NAAQS. However, the EPA has not yet issued guidance to address §110(a)(1) and (2) requirements for the 2008 lead NAAQS and may require additional analysis to approve this SIP revision.

Does this SIP revision affect any current policies or require development of new policies?
No
What are the consequences if this SIP revision does not go forward? Are there alternatives to this SIP revision?
The lead transport SIP is required by FCAA, §110(a). If a SIP revision is not submitted, the EPA will have an obligation to promulgate a Federal Implementation Plan (FIP) for Texas and possibly to begin a sanctions clock pursuant to FCAA, §179.

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REVISIONS TO THE STATE OF TEXAS AIR QUALITY IMPLEMENTATION PLAN CONCERNING TRANSPORT EMISSIONS

LEAD TRANSPORT

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
P.O. BOX 13087
AUSTIN, TEXAS 78711-3087

LEAD TRANSPORT PLAN FOR THE 2008 LEAD NATIONAL AMBIENT AIR QUALITY STANDARD

PROJECT NUMBER 2011-005-SIP-NR

Adoption
August 17, 2011

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EXECUTIVE SUMMARY

This revision to the State Implementation Plan (SIP) for lead transport sets forth how the Texas Commission on Environmental Quality (TCEQ) will meet the Federal Clean Air Act (FCAA), §110(a)(1) requirement for states to submit SIP revisions within three years after the promulgation of new or revised National Ambient Air Quality Standards (NAAQS) to meet the requirements of FCAA, §110(a)(2), including FCAA, §110(a)(2)(D)(i), relating to interstate transport. On October 15, 2008, the United States Environmental Protection Agency (EPA) substantially strengthened the NAAQS for lead. The new standard, set at 0.15 micrograms per cubic meter ($\mu g/m^3$) measured as a rolling three-month average, is ten times more stringent than the previous standard of 1.5 $\mu g/m^3$ measured as a quarterly average. The purpose of this SIP revision is to document that any emissions from sources in Texas do not interfere with attainment or maintenance of the 2008 lead NAAQS in another state.

Section 110(a)(2)(D)(i) also contains a requirement for all states to submit SIP revisions that contain adequate provisions prohibiting emissions that will interfere with measures required to be included in the applicable implementation plan in any other state to prevent significant deterioration of air quality or to protect visibility. The EPA's September 25, 2009, "Guidance on SIP Elements Required Under Sections 110(a)(1) and (2) for the 2006 24-Hour Fine Particle ($PM_{2.5}$) National Ambient Air Quality Standards" indicates that these requirements are satisfied if a state's SIP includes New Source Review (NSR) and Prevention of Significant Deterioration (PSD) programs. This SIP revision includes verification that the PSD and NSR permitting programs are being implemented in Texas. According to the EPA's July 6, 2005, regional haze regulations and guidelines for Best Available Retrofit Technology (BART) determinations, lead is not included as a visibility-impairing pollutant and therefore is not expected to interfere with measures to protect visibility.

The October 15, 2008, final rule for the 2008 lead NAAQS (73 FR 66964) included a requirement for monitors to be placed in areas with sources, such as industrial facilities, that emit 1.0 ton per year (tpy) or more of lead and in urban areas with more than 500,000 people. The EPA may waive the source-oriented monitoring requirements if the monitoring agency demonstrates that emissions from the source would not contribute to maximum air lead concentrations greater than 50% of the revised standard or 0.075 $\mu g/m^3$. On December 14, 2010, the EPA revised the ambient monitoring requirements for measuring lead in the air. The EPA changed the emissions threshold for industrial facilities to 0.5 tpy, reduced from the previous threshold of 1.0 tpy. At the time of proposal, the TCEQ had completed modeling for the five operational facilities that emit 1.0 tpy or more and after proposal completed modeling for the two facilities that emit 0.5 to 1.0 tpy.

There are six facilities in Texas that emit 1.0 tpy or more of lead into the air: the United States Army Fort Hood installation near Killeen (Fort Hood), Oxbow Carbon in Port Arthur (Oxbow), the Red River Army Depot near Texarkana (Red River), the American Smelting and Refining Company facility near Amarillo (ASARCO), the ECS Refining plant in Terrell (ECS), and the Exide Technologies, Incorporated lead battery recycling facility in Frisco (Exide). Two facilities in Texas emit between 0.5 and 1.0 tpy of lead into the air: the International Power Coleto Creek Power Station near Fannin (Coleto Creek) and San Miguel Electric Cooperative, Incorporated in Christine (San Miguel).

Modeled lead emissions from Fort Hood and Oxbow each result in ambient concentrations of less than 15% of the level of the 2008 lead NAAQS. Additionally, the September 8, 2005, Defense Base Closure and Realignment Commission report pursuant to Sections 2903 and 2914 of the Defense Base Closure and Realignment Act of 1990 requires the munitions

demilitarization activities at Red River to be relocated to another facility.[1] These demilitarization activities are scheduled to cease by September 30, 2011. The TCEQ has submitted waiver requests for the source-oriented lead monitoring requirements for these three facilities, since emissions from these sources are not expected to contribute to an ambient air concentration of lead greater than 50% of the NAAQS. Source-oriented lead monitors have been installed for ASARCO, Exide, and ECS. Modeling of the five[2] operational facilities indicates that lead emissions do not transport over long distances and will therefore not impact surrounding nonattainment areas, maintenance areas, or states. Modeling for the two facilities that emit between 0.5 and 1.0 tpy was conducted after proposal to determine the need for monitoring. Modeled lead emissions from Coleto Creek and San Miguel each result in ambient concentrations of less than 1% of the level of the 2008 lead NAAQS and indicate that there will be no impact on surrounding states. Fort Hood and Oxbow model results predict levels of less than 15% of the NAAQS. For Exide, ECS, and ASARCO the predicted concentrations dropped to below half the level of the NAAQS within 2 kilometers of the property line. To further validate this modeling, there are currently no lead nonattainment or maintenance areas in any of the four states that border Texas: Louisiana, Oklahoma, Arkansas, and New Mexico.

Texas has only one nonattainment area under the 2008 lead NAAQS. On November 16, 2010, the EPA designated a portion of Collin County, located in Frisco, Texas, as a lead nonattainment area, effective December 31, 2010 (75 FR 71033). This nonattainment area surrounds the Exide lead battery recycling facility. An area surrounding Exide was originally designated nonattainment for the 1978 lead NAAQS on November 6, 1991. On November 29, 1994, the EPA approved the Collin County lead attainment demonstration SIP revision. On August 31, 1999, the governor of Texas submitted to the EPA a request to redesignate the nonattainment portion of Collin County to attainment and to approve a ten-year maintenance plan for the area. The EPA redesignated the area to attainment and approved the ten-year maintenance plan effective December 13, 1999 (64 FR 55421). In 2009, the governor of Texas submitted to the EPA the final ten-year maintenance plan for the 1978 lead NAAQS. This SIP revision included contingency measures set in place to promptly correct any violations of the 1978 lead NAAQS. The attainment demonstration for the 2008 lead NAAQS will be due to the EPA by June 30, 2012.

Based on the control strategies currently in place to reduce lead emissions in the Collin County nonattainment area, modeling that predicts that lead emissions from Texas will not impact surrounding states, and lack of nonattainment or maintenance areas in the four surrounding states, Texas has adequately addressed interstate transport of lead.

[1] "2005 Defense Base Closure and Realignment Commission Report," September 8, 2005, http://www.brac.gov/docs/final/BRACReportcomplete.pdf.

[2] Red River was not modeled, because it will be shut down in 2011.

SECTION V: LEGAL AUTHORITY

A. General

The Texas Commission on Environmental Quality (TCEQ) has the legal authority to implement, maintain, and enforce the National Ambient Air Quality Standards (NAAQS) and to control the quality of the state's air, including maintaining adequate visibility.

The first air pollution control act, known as the Clean Air Act of Texas, was passed by the Texas Legislature in 1965. In 1967, the Clean Air Act of Texas was superseded by a more comprehensive statute, the Texas Clean Air Act (TCAA), found in Article 4477-5, Vernon's Texas Civil Statutes. The legislature amended the TCAA in 1969, 1971, 1973, 1979, 1985, 1987, 1989, 1991, 1993, 1995, 1997, 1999, 2001, 2003, 2005, 2007, 2009, and 2011. In 1989, the TCAA was codified as Chapter 382 of the Texas Health and Safety Code.

Originally, the TCAA stated that the Texas Air Control Board (TACB) was the state air pollution control agency and was the principal authority in the state on matters relating to the quality of air resources. In 1991, the legislature abolished the TACB effective September 1, 1993, and its powers, duties, responsibilities, and functions were transferred to the Texas Natural Resource Conservation Commission (TNRCC). With the creation of the TNRCC, the authority over air quality is found in both the Texas Water Code and the TCAA. Specifically, the authority of the TNRCC is found in Chapters 5 and 7. Chapter 5, Subchapters A - F, H - J, and L, include the general provisions, organization, and general powers and duties of the TNRCC, and the responsibilities and authority of the executive director. This chapter also authorizes the TNRCC to implement action when emergency conditions arise and to conduct hearings. Chapter 7 gives the TNRCC enforcement authority. In 2001, the 77th Texas Legislature continued the existence of the TNRCC until September 1, 2013, and changed the name of the TNRCC to the Texas Commission on Environmental Quality (TCEQ). In 2009, the 81st Texas Legislature, during a special session, amended section 5.014 of the Texas Water Code, changing the expiration date of the TCEQ to September 1, 2011, unless continued in existence by the Texas Sunset Act. In 2011, the 82nd Texas Legislature continued the existence of the TCEQ until 2023.

The TCAA specifically authorizes the TCEQ to establish the level of quality to be maintained in the state's air and to control the quality of the state's air by preparing and developing a general, comprehensive plan. The TCAA, Subchapters A - D, also authorize the TCEQ to collect information to enable the commission to develop an inventory of emissions; to conduct research and investigations; to enter property and examine records; to prescribe monitoring requirements; to institute enforcement proceedings; to enter into contracts and execute instruments; to formulate rules; to issue orders taking into consideration factors bearing upon health, welfare, social and economic factors, and practicability and reasonableness; to conduct hearings; to establish air quality control regions; to encourage cooperation with citizens' groups and other agencies and political subdivisions of the state as well as with industries and the federal government; and to establish and operate a system of permits for construction or modification of facilities.

Local government authority is found in Subchapter E of the TCAA. Local governments have the same power as the TCEQ to enter property and make inspections. They also may make recommendations to the commission concerning any action of the TCEQ that affects their territorial jurisdiction, may bring enforcement actions, and may execute cooperative agreements with the TCEQ or other local governments. In addition, a city or town may enact and enforce

ordinances for the control and abatement of air pollution not inconsistent with the provisions of the TCAA and the rules or orders of the commission.

Subchapters G and H of the TCAA authorize the TCEQ to establish vehicle inspection and maintenance programs in certain areas of the state, consistent with the requirements of the Federal Clean Air Act; coordinate with federal, state, and local transportation planning agencies to develop and implement transportation programs and measures necessary to attain and maintain the NAAQS; establish gasoline volatility and low emission diesel standards; and fund and authorize participating counties to implement vehicle repair assistance, retrofit, and accelerated vehicle retirement programs.

B. Applicable Law

The following statutes and rules provide necessary authority to adopt and implement the state implementation plan (SIP). The rules listed below have previously been submitted as part of the SIP.

Statutes

All sections of each subchapter are included, unless otherwise noted.

TEXAS HEALTH & SAFETY CODE, Chapter 382	September 1, 2009
TEXAS WATER CODE	September 1, 2009

Chapter 5: Texas Natural Resource Conservation Commission
- Subchapter A: General Provisions
- Subchapter B: Organization of the Texas Natural Resource Conservation Commission
- Subchapter C: Texas Natural Resource Conservation Commission
- Subchapter D: General Powers and Duties of the Commission
- Subchapter E: Administrative Provisions for Commission
- Subchapter F: Executive Director (except §§5.225, 5.226, 5.227, 5.2275,5.231, 5.232, and 5.236)
- Subchapter H: Delegation of Hearings
- Subchapter I: Judicial Review
- Subchapter J: Consolidated Permit Processing
- Subchapter L: Emergency and Temporary Orders (§§5.514, 5.5145, and 5.515 only)
- Subchapter M: Environmental Permitting Procedures (§5.558 only)

Chapter 7: Enforcement
- Subchapter A: General Provisions (§§7.001, 7.002, 7.0025, 7.004, and 7.005 only)
- Subchapter B: Corrective Action and Injunctive Relief (§7.032 only)
- Subchapter C: Administrative Penalties
- Subchapter D: Civil Penalties (except §7.109)
- Subchapter E: Criminal Offenses and Penalties (§§7.177, 7.179-7.183)

Rules

All of the following rules are found in 30 Texas Administrative Code, as of the following latest effective dates:

Chapter 7: Memoranda of Understanding, §§7.110 and 7.119	December 13, 1996 and May 2, 2002
Chapter 19: Electronic Reporting	March 15, 2007

SECTION VI: CONTROL STRATEGY

A. Introduction (No change)
B. Ozone (No change)
C. Particulate Matter (No change)
D. Carbon Monoxide (No change)
E. Lead (No change)
F. Oxides of Nitrogen (No change)
G. Sulfur Dioxide (No change)
H. Conformity with the National Ambient Air Quality Standards (No change)
I. Site Specific (No change)
J. Mobile Sources Strategies (No change)
K. Clean Air Interstate Rule (No change)
L. Transport (Revised)
M. Regional Haze (No change)

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LIST OF ACRONYMS

BART	Best Available Retrofit Technology
EPA	United States Environmental Protection Agency
FCAA	Federal Clean Air Act
FR	Federal Register
IQ	Intelligence Quotient
NAAQS	National Ambient Air Quality Standard
NSR	New Source Review
PSD	Prevention of Significant Deterioration
$PM_{2.5}$	Fine Particulate Matter
SIP	State Implementation Plan
TAC	Texas Administrative Code
TACB	Texas Air Control Board
TCAA	Texas Clean Air Act
TCEQ	Texas Commission on Environmental Quality (commission)
TNRCC	Texas Natural Resource Conservation Commission
tpy	tons per year
$\mu g/m^3$	micrograms per cubic meter

LIST OF APPENDICES

CHAPTER 1: GENERAL

1.1 BACKGROUND

"The History of the Texas State Implementation Plan (SIP)," a comprehensive overview of the SIP revisions submitted to the United States Environmental Protection Agency (EPA) by the State of Texas, is available at the following Web site at:
http://www.tceq.texas.gov/airquality/sip/sipintro.html

1.2 INTRODUCTION

This SIP revision for the transport of lead under the 2008 Lead National Ambient Air Quality Standard (NAAQS) describes how the Texas Commission on Environmental Quality (TCEQ) will meet the requirements of §110(a)(2)(D)(i) Federal Clean Air Act (FCAA), which requires states to submit a SIP that contains adequate provisions that prohibit any source or other type of emissions activity within the state from emitting any air pollutants in amounts that will:

- contribute significantly to nonattainment of the NAAQS for areas in other states;
- interfere with maintenance of the NAAQS by any other state;
- interfere with measures required for any other state to meet an implementation plan related to Prevention of Significant Deterioration; or
- interfere with measures required for any other state to meet the implementation plan related to regional haze and visibility.

Based on the control strategies already in place to reduce lead emissions in the Collin County nonattainment area, modeling that predicts that lead emissions from Texas will not impact surrounding states, and lack of nonattainment or maintenance areas in the four surrounding states, this SIP revision demonstrates that Texas has adequately addressed the FCAA §110(a)(2)(D)(i) requirements.

1.3 HEALTH EFFECTS

On October 15, 2008, the EPA substantially strengthened the NAAQS for lead. The new standard, set at 0.15 micrograms per cubic meter ($\mu g/m^3$) measured as a rolling three-month average, is ten times more stringent than the previous standard of 1.5 $\mu g/m^3$ measured as a quarterly average. According to the EPA, scientific evidence about lead and its potential health effects has expanded dramatically since the EPA issued the initial standard of 1.5 $\mu g/m^3$ in 1978, and more than 6,000 new studies on lead health effects, environmental effects, and lead in the air have been published since 1990. Evidence from health studies shows that adverse effects occur at much lower levels of lead in blood than previously thought.

Lead that is emitted into the air can be inhaled directly or ingested after it settles onto surfaces or soils. However, for the general population, exposure to lead occurs primarily via ingestion through contact with contaminated soils or other surfaces. Once taken into the body, lead distributes throughout the body in the blood and accumulates in the bones. Depending on the level of exposure, lead can adversely affect the nervous system, kidney function, immune system, reproductive and developmental systems, and the cardiovascular system. Lead exposure also affects the oxygen-carrying capacity of the blood.

The lead effects most commonly encountered in current populations are neurological effects in children and cardiovascular effects (e.g., high blood pressure and heart disease) in adults. Children are at a relatively higher risk of exposure to lead when compared to adults. The risk of exposure is higher because children tend to put their hands and other objects which may contain

lead into their mouths (e.g., lead-based paint chips from older homes). Children also have a higher risk of adverse effects because their brains are still developing. Infants and young children are especially sensitive to low levels of lead, which may contribute to behavioral problems, learning deficits, and lowered intelligence quotient (IQ).

1.4 PUBLIC HEARING AND COMMENT INFORMATION

The commission offered a public hearing for the proposed SIP revision on May 17, 2011, at 10:00 a.m. at the TCEQ Headquarters in Austin. A question and answer session was held 30 minutes prior to the meeting. The hearing was not officially opened, because no party indicated a desire to give comment.

The public comment period opened on April 22, 2011, and closed on May 23, 2011. Written comments were accepted via mail, fax, or through the eComments system. A summary of the comment and the TCEQ response is provided as part of this SIP revision in the *Response to Comments*.

Copies of the proposed SIP revision and its appendices can be obtained from the TCEQ Web site at: http://www.tceq.texas.gov/airquality/sip/criteria-pollutants/sip-lead.

1.5 SOCIAL AND ECONOMIC CONSIDERATIONS

Because rulemaking is not a part of this SIP revision, there are no changes that would have an impact on society or the economy.

1.6 FISCAL AND MANPOWER RESOURCES

The TCEQ has determined that its fiscal and manpower resources are adequate and will not be adversely affected through the implementation of this plan.

1.7 COORDINATION WITH LOCAL AGENCIES

The TCEQ has determined that there will be no assignment to local agencies. However, pre-existing assignments to local agencies regarding various enforcement activities remain in effect and could be utilized if enforcement activities are delegated to the TCEQ from the EPA.

1.8 ORGANIZATIONS RESPONSIBLE FOR DEVELOPMENT, IMPLEMENTATION, AND ENFORCEMENT

The TCEQ is the agency delegated authority by the Texas Legislature regarding the protection of air quality in the State of Texas. Other local government entities have limited authority regarding air quality matters in the State of Texas.

1.9 DATA AVAILABILITY

The TCEQ affirms that it will retain all data used in the preparation of this SIP revision. All supporting documents and data are publicly available via the TCEQ Web site at: http://www.tceq.texas.gov/airquality/sip or are available from the TCEQ upon request.

CHAPTER 2: REQUIRED CONTROL STRATEGY ELEMENTS

2.1 BACKGROUND

There are currently six facilities in Texas that emit 1.0 ton per year (tpy) or more of lead. They are the United States Army Fort Hood installation near Killeen (Fort Hood), Oxbow Carbon in Port Arthur (Oxbow), the Red River Army Depot near Texarkana (Red River), the American Smelting and Refining Company facility near Amarillo (ASARCO), the ECS Refining plant in Terrell (ECS), and the Exide Technologies, Incorporated lead battery recycling facility in Frisco (Exide). Dispersion modeling of lead emissions from the five operational facilities (the Red River Army Depot was not modeled because it will be shut down in 2011) indicates that lead does not transport over long distances and will therefore not impact the four surrounding states: Louisiana, Arkansas, New Mexico, and Oklahoma. There are currently no lead nonattainment or maintenance areas in any of these four states.

Texas has only one nonattainment area under the 2008 Lead National Ambient Air Quality Standard (NAAQS). On November 16, 2010, the United States Environmental Protection Agency (EPA) designated a portion of Collin County, located in Frisco, Texas, as a lead nonattainment area, effective December 31, 2010 (75 FR 71033). This nonattainment area surrounds the Exide lead battery recycling facility. An area surrounding Exide is currently a maintenance area under the 1978 Lead NAAQS. Control measures are in place under this maintenance plan. The attainment demonstration for the 2008 Lead NAAQS is due to the EPA by June 30, 2012, and will include additional control measures, if necessary, to meet the attainment deadline of December 31, 2015.

Texas has existing control strategies in place in Collin County and modeling that indicates that lead emissions from the six statewide sources that emit 1.0 tpy or more will not transport to surrounding states. Therefore, interstate transport of lead emissions in Texas has been adequately addressed.

2.2 CONTROL STRATEGY OVERVIEW

Federal Clean Air Act (FCAA) §110(a)(2)(D)(i) requires states to submit a state implementation plan (SIP) revision that contains adequate provisions to prohibit any source or other type of emissions activity within the state from emitting any air pollutants in amounts that will:

- contribute significantly to nonattainment of the NAAQS for areas in other states;
- interfere with maintenance of the NAAQS in any other state;
- interfere with measures for any other state required to meet an implementation plan related to Prevention of Significant Deterioration (PSD); or
- interfere with measures required for any other state to meet the implementation plan related to regional haze and visibility.

2.2.1 Significant Contribution to Nonattainment and Interference with Maintenance Elements

2.2.1.1 Dispersion Modeling

The October 15, 2008, final rule for the lead NAAQS included a requirement for monitors to be placed in areas with sources such as industrial facilities that emit 1.0 tpy or more of lead and in urban areas with more than 500,000 people. The EPA may waive the source-oriented monitoring requirements if the monitoring agency demonstrates that emissions from the source would not contribute to maximum air lead concentrations greater than 50% of the revised standard, or 0.075 micrograms per cubic meter (µg/m^3). On December 14, 2010, the EPA

revised the ambient monitoring requirements for measuring lead in the air. The EPA changed the emissions threshold for industrial facilities to 0.5 tpy, reduced from the previous threshold of 1.0 tpy. At the time of proposal, the Texas Commission on Environmental Quality (TCEQ) had completed modeling for the five operational facilities that emit 1.0 tpy or more and after proposal completed modeling for the two facilities that emit between 0.5 tpy and 1.0 tpy to determine the need for monitoring near those facilities.

Six facilities in Texas emit 1.0 tpy or more of lead into the air: Fort Hood, Oxbow, Red River, ASARCO, ECS, and Exide. Two facilities in Texas emit between 0.5 tpy and 1.0 tpy of lead into the air: the International Power Coleto Creek Power Station near Fannin (Coleto Creek) and San Miguel Electric Cooperative, Incorporated in Christine (San Miguel). Modeled lead emissions from Fort Hood and Oxbow result in predicted concentrations of less than 15% of the 2008 lead NAAQS. Additionally, the September 8, 2005, Defense Base Closure and Realignment Commission report pursuant to Sections 2903 and 2914 of the Defense Base Closure and Realignment Act of 1990 requires the munitions demilitarization activities at Red River to be relocated to another facility. These demilitarization activities are scheduled to cease by September 30, 2011. The TCEQ has submitted waiver requests for the source-oriented lead monitoring requirements for these three facilities since emissions from these sources are not expected to contribute to an ambient air concentration of lead greater than 50% of the NAAQS. Source-oriented lead monitors have been installed for ASARCO, Exide, and ECS. Modeling of the five[3] operational facilities indicates that lead emissions from sources at those facilities do not transport over long distances and will therefore not impact surrounding states. Fort Hood and Oxbow model results predict levels of less than 15% of the NAAQS. For Exide, ECS, and ASARCO the predicted concentrations dropped to below half the level of the NAAQS within 2 kilometers of the property line. Modeling for the two facilities that emit between 0.5 and 1.0 tpy was conducted after proposal to determine the need for monitoring. Modeled lead emissions from Coleto Creek and San Miguel each result in ambient concentrations of less than 1% of the level of the 2008 lead NAAQS, and indicate that there will be no impact on surrounding states.

The finding that lead does not transport over long distances is supported by the EPA in the December 14, 2010, "Revisions to Lead Ambient Air Monitoring Requirements." In that final rule, the EPA indicated when selecting airports for an airport monitoring study, "We selected a maximum distance to ambient air from the location of maximum emissions of 150 meters because the available information indicates that ambient lead concentrations drop off quickly with distance, and it is less likely that an exceedance of the lead NAAQS will occur at greater distances."[4] To further validate this finding, there are currently no lead nonattainment or maintenance areas in any of the four states surrounding Texas: Louisiana, Oklahoma, Arkansas, and New Mexico. Details of the dispersion modeling conducted by the TCEQ can be found in Appendix A: *Lead Modeling Analyses*.

2.2.1.2 Monitoring Sites

The TCEQ lead monitoring network currently includes 15 lead monitors in Amarillo, El Paso, Frisco, Terrell, Houston, Laredo, and Brownsville. These sites are listed in Appendix B: *TCEQ Lead Monitoring Network*. This list includes the EPA-required source-oriented monitors for lead sources that emit 1.0 tpy or more, except for those for which the TCEQ has submitted waiver requests. Changes to the lead monitoring requirements published by the EPA in the

[3] Red River was not modeled, because it will be shut down in 2011.

[4] EPA, "Revisions to Lead Ambient Air Monitoring Requirements," December 14, 2010, http://www.epa.gov/air/lead/pdfs/PbRevision-ForPublication.pdf

Federal Register on December 27, 2010, require source-oriented lead monitors for industrial sources that emit 0.5 tpy or more and operation of one lead monitor at each site that is part of the multi-pollutant site network known as the National Core Monitoring Network. After proposal of this SIP revision, modeling for the two sources that emit between 0.5 and 1.0 tpy was conducted by the TCEQ, and modeled emissions results for both facilities showed ambient concentrations of less than 1% of the level of the 2008 lead NAAQS. Waiver requests for both sources will be submitted in July 2011 as Appendix A to the *TCEQ 2011 Annual Ambient Air Monitoring Network Review*. The final rule also requires lead monitors to be installed at Stinson Municipal Airport in Bexar County and Northwest Regional Airport in Denton County for a one-year airport monitoring study. The new monitors are required to be operational no later than December 27, 2011.

2.2.2 Collin County SIP Revisions

2.2.2.1 1993 Lead SIP

On November 6, 1991, the EPA published the notice of nonattainment designation for lead in the *Federal Register* (56 FR 56694) for the portion of Collin County that essentially encompassed the plant boundaries of the Gould National Battery, Incorporated facility, later known as GNB Technologies, Incorporated (GNB), and now known as Exide Technologies, Incorporated (Exide). The effective date of the nonattainment designation was January 6, 1992. Under the federal guidelines, the Texas Air Control Board, a predecessor agency to the TCEQ, responded by submitting a site-specific SIP revision to the EPA on June 18, 1993. Under the FCAA, the Collin County nonattainment area was required to attain the 1978 lead NAAQS by January 6, 1997.

The 1993 SIP revision includes an air quality analysis through the fourth quarter of 1992, a 1992 emissions inventory, dispersion modeling that demonstrated NAAQS attainment for the area, control measures in Board Order Number 92-09(k), contingency measures in Board Order Number 93-12, and state New Source Review (NSR) provisions for lead sources. The EPA approved the SIP revision on November 29, 1994 (59 FR 60930). The approval became effective January 30, 1995.

2.2.2.2 1999 Redesignation Request and Maintenance Plan

On August 31, 1999, Texas submitted to the EPA a request that Collin County be redesignated from a nonattainment to an attainment area and a maintenance plan that meets FCAA §175A requirements. The maintenance plan contained an agreed order with GNB (now Exide), making emissions reductions that had occurred since 1993 permanent and enforceable. The permanence of these reductions was to be maintained through permit restrictions, emissions limits, and standard operating procedures for controlling emissions from process sources, process fugitive sources, and fugitive dust sources from National Emissions Standards for Hazardous Air Pollutants mandated maximum achievable control technology for secondary lead smelters.

The plan also included contingency measures that had been included in the 1993 attainment demonstration and that GNB had already implemented. For example, the company added a supplemental ventilation baghouse to its metallurgical furnace operation, enclosed areas that had previously not been enclosed and improved maintenance and operating procedures. The plan also included new contingency measures, their associated triggers, and a description of the monitoring network that would be used to determine when an exceedance of the lead NAAQS occurred for the purpose of triggering contingency measure notification during the ten-year maintenance period. The contingency measures would require GNB to (1) install a new wheel washing facility; (2) install a scale and automatic tuyere punching device at the blast furnace;

and (3) install an alternative measure that will provide, at a minimum, emissions reductions equivalent to those listed previously.

The EPA approved the redesignation request and maintenance plan on October 13, 1999, effective December 13, 1999 (64 FR 55421).

2.2.2.3 2009 Second Ten-Year Maintenance Plan

FCAA §175A requires submission of an additional SIP revision to provide for maintenance of the 1978 NAAQS for lead for the second ten-year period following redesignation of the nonattainment area to attainment. On August 26, 2009, the commission approved this maintenance plan for the Collin County area. The 2009 maintenance plan included new contingency measures set in place to promptly correct any violations of the 1978 lead NAAQS. The contingency measures would require Exide to (1) automate the scale and feed for the reverberatory furnace; (2) expand the existing water misting dust suppression system; and (3) utilize an alternative measure that will provide, at a minimum, emissions reductions equivalent to those listed previously. The contingency measures were made legally enforceable under an agreed order adopted concurrently with the maintenance plan.

2.2.2.4 Nonattainment Designation Under the 2008 Lead NAAQS

Texas has one nonattainment area under the 2008 lead NAAQS. On November 16, 2010, the EPA designated an area surrounding the Exide lead recycling facility in Collin County, Texas as a lead nonattainment area. The attainment demonstration for the 2008 lead NAAQS is due to the EPA by June 30, 2012, and will include control measures necessary to meet the attainment deadline of December 31, 2015.

2.2.3 Prevention of Significant Deterioration and Nonattainment New Source Review Elements

FCAA §110(a)(2)(D)(i)(II) contains a requirement for states to submit SIP revisions that contain adequate provisions to prohibit any source or type of emissions activity within the state from emitting air pollutants in amounts that will interfere with another state's SIP measures for preventing significant deterioration of air quality. The EPA's September 25, 2009, "Guidance on SIP Elements Required Under Sections 110(a)(1) and (2) for the 2006 24-Hour Fine Particle ($PM_{2.5}$) National Ambient Air Quality Standards" indicates that these requirements are satisfied if a state's SIP includes NSR and PSD programs.

All major sources in Texas are subject to PSD and nonattainment NSR permitting programs, implemented in 30 Texas Administrative Code (TAC) Chapter 116. Major sources are defined in 30 TAC §116.12(17) in relation to the federal classification of an area for nonattainment permitting and by reference to 40 Code of Federal Regulations §51.166 for PSD.

2.2.4 Protection of Visibility Element

Section 110(a)(2)(D)(i)(II) also contains a requirement for all states to submit SIPs that contain adequate provisions prohibiting "... any source or other type of emission activity within the state from emitting any air pollutant in amounts which will interfere with measures required to be included in the applicable implementation plan for any other state .... to protect visibility." On July 6, 2005, the EPA published regional haze regulations and guidelines for Best Available Retrofit Technology (BART) determinations in the *Federal Register*. The BART guidelines include the following list of visibility-impairing pollutants: sulfur dioxide, nitrogen oxides, particulate matter, volatile organic compounds, and ammonia. Lead is not included as a visibility-impairing pollutant and therefore is not expected to interfere with measures to protect visibility in any other state.

CHAPTER 3: FUTURE REVISIONS TO THE NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS)

Federal Clean Air Act (FCAA), §110(a)(1) requires states to submit state implementation plans within three years after the promulgation of new or revised NAAQS to meet the requirements of FCAA, §110(a)(2), including FCAA, §110(a)(2)(D)(i), relating to interstate transport. Therefore, if the NAAQS are revised in the future, the Texas Commission on Environmental Quality will need to take the adequate steps relating to the interstate transport of air pollution.

RESPONSE TO COMMENTS RECEIVED REGARDING THE LEAD TRANSPORT PLAN FOR THE 2008 LEAD NATIONAL AMBIENT AIR QUALITY STANDARD

The commission offered a public hearing for the proposed SIP revision on May 17, 2011, at 10:00 a.m. at the TCEQ Headquarters in Austin. A question and answer session was held 30 minutes prior to the meeting. The hearing was not officially opened, because no party indicated a desire to give comment.

The public comment period opened on April 22, 2011, and closed on May 23, 2011. The commission received written comments from one individual.

GENERAL COMMENTS

One individual expressed concern about public-property litter removal efforts in Texas.

The purpose of this plan is to meet the interstate transport requirements of Federal Clean Air Act, §110(a)(2)(D)(i) by documenting that any lead emissions into the air from sources in Texas do not interfere with attainment or maintenance of the 2008 Lead National Ambient Air Quality Standard in another state. Litter removal efforts are beyond the scope of this plan.

APPENDIX A: LEAD MODELING ANALYSES

Texas Commission on Environmental Quality

INTEROFFICE MEMORANDUM

To:	David Brymer Air Quality Planning Division	Date:	June 22, 2009
Thru:	Robert Opiela, P.E., Technical Specialist Technical Program Support Section Air Permits Division		
From:	Matthew Kovar, Megan Cox Air Dispersion Modeling Team Air Permits Division		

Subject: Modeling Analysis of Lead for Asarco LLC (RN101701654)

1.0 Project Identification Information.

On November 12, 2008, the U.S. Environmental Protection Agency (EPA) finalized the new 0.15 microgram per cubic meter ($\mu g/m^3$) NAAQS for lead based on a rolling three-month average (73 *Federal Register* 66964). In general, the rule requires source-oriented ambient air lead monitoring by January 1, 2010, at sites with actual annual lead emissions of one or more tons per year. Asarco LLC was identified as having emissions at or above this level based on the reported 2007 TCEQ Emissions Inventory and/or 2006 Toxics Release Inventory. The rule further requires that this monitoring be conducted at or near the maximum off-site ambient air lead concentration, as predicted by modeling, that results from sources with annual lead emissions of one or more tons.

The TCEQ conducted air dispersion modeling of all the lead emission sources at the site using the most current modeling parameters and associated permitted allowable emissions rates. The TCEQ will use the dispersion modeling results to determine the optimal location of any required source-oriented monitors.

ArcReader Published Map:

\\Msgiswrk\apd\MODEL PROJECTS\Lead NAAQS Analysis_2009\Lead_NAAQS_Analysis_Results.pmf

2.0 Report Summary.

The predicted maximum ground level concentration (GLCmax) is 0.21 $\mu g/m^3$ for a rolling three-month average. The location of the GLCmax is along the southeastern property line. All predicted concentrations exceeding the NAAQS are located to the southeast of the Asarco LLC site and extended less than 150 meters from the site property line. Table 1 lists the location of the predicted GLCmax. The location coordinates are in the UTM Zone 14 North, North American Datum of 1927 (NAD27) coordinate system.

Table 1. Modeling Results for Lead

Location Easting (meters)	Location Northing (meters)	Averaging Time	GLC ($\mu g/m^3$)	Standard ($\mu g/m^3$)
252500	3906900	rolling three-month	0.21	0.15

3.0 Land Use and Terrain.

A land use/land cover analysis was performed using AERSURFACE consistent with guidance given in the AERMOD Implementation Guide (March 19, 2009). The recommended input data, the National Land Cover Data 1992 archives (NLCD92), were used for this analysis.

Terrain elevations within the modeling domain were determined using AERMAP (Version 09040). The input data used for this analysis were United States Geological Survey (USGS) digital elevation models (DEMs) for Pullman, Amarillo East, Mayer, and Pleasant Valley data sets.

4.0 Modeling Emissions Inventory.

The modeled emission source parameters and emission rates were provided by Asarco LLC. The source locations were validated by ADMT using aerial photography. Only source 7A has a listed maximum allowable emission rate for lead. For the other three sources, emissions estimates were submitted by Asarco LLC and then validated by APD permit reviewing staff for use in this analysis. The emission rates represent worst case 1-hour average emission rates and may be more conservative than 24-hour or monthly average emission rates. The emission source coordinates are in the UTM Zone 14 North, North American Datum of 1927 (NAD27) coordinate system.

Table 2. On-Property Point Source Parameter Information

ID	Easting (meters)	Northing (meters)	Stack Height (meters)	Stack Temp (K)	Stack Exit Velocity (meters/sec)	Stack Diameter (meters)
7A	251881.8	3907527.8	24.99	456.48	1.19	5.49
4B	251554.8	3907622.8	38.71	310.37	12.31	1.22
6A	251623.8	3907942.8	30.48	388.71	0.65	5.49
6D	251732.8	3907896.8	30.48	408.15	0.87	5.49

Table 3. On-Property Source Modeled Emission Rates

Source ID	Pollutant	Averaging Time	Emission Rates (lb/hr)
7A	Lead	1-hr	4.27
4B	Lead	1-hr	0.48
6A	Lead	1-hr	0.02
6D	Lead	1-hr	0.04

5.0 Building Wake Effects (Downwash).

Input data to Building Profile Input Program Prime (BPIP-PRM Version 04274) were provided by Asarco LLC. The building locations were validated by ADMT using aerial photography.

6.0 Meteorological Data.

Surface Station and ID: Amarillo, TX (Station #: 23047)

Upper Air Station and ID: Amarillo, TX (Station #: 23047)

Meteorological Dataset: 1987, 1988, 1989, 1990, 1991

Profile Base Elevation: 3591 feet

The AERSURFACE analysis conducted of the area surrounding the Asarco LLC site resulted in a calculated roughness length of 0.155 meters. The vast majority of the area considered industrial and urbanized (and with a higher roughness length) is concentrated near the emission sources. The dispersion of emissions from the sources will be highly influenced by this higher roughness length. A representative roughness length for the area would be approximately 0.5 meters. For this reason, the meteorological data set used for this analysis was developed using a roughness length of 0.5 meters.

7.0 Receptor Grid.

The receptor grid used in the modeling analysis consisted of receptors with 100 meter spacing and extended approximately 2 kilometers (km) from the Asarco LLC site property line in all directions. The purpose of the receptor grid was to determine a representative maximum ground-level concentration and the extent of ground-level concentrations at or above half of the lead NAAQS standard.

8.0 Model Used and Modeling Techniques.

AERMOD (Version 07026) was used in a refined screening mode. For refined screening, National Weather Service (NWS) meteorological raw input data are used with generalized surface characteristics of the application site. Since the current version of AERMOD is not capable of calculating rolling three-month average concentrations, the EPA post processor LeadPost was used. The input values to LeadPost are monthly average values at each receptor in the POSTFILE output format from AERMOD.

Texas Commission on Environmental Quality

INTEROFFICE MEMORANDUM

To: David Brymer
Air Quality Planning Division

Date: June 29, 2009

Thru: Robert Opiela, P.E., Technical Specialist
Technical Program Support Section
Air Permits Division

From: Matthew Kovar, Megan Cox
Air Dispersion Modeling Team
Air Permits Division

Subject: Modeling Analysis of Lead for ECS Refining Texas LLC (RN100804467)

1.0 Project Identification Information.

On November 12, 2008, the U.S. Environmental Protection Agency (EPA) finalized the new 0.15 microgram per cubic meter ($\mu g/m^3$) NAAQS for lead based on a rolling three-month average (73 *Federal Register* 66964). In general, the rule requires source-oriented ambient air lead monitoring by January 1, 2010, at sites with actual annual lead emissions of one or more tons per year. ECS Refining Texas LLC was identified as having emissions at or above this level based on the reported 2007 TCEQ Emissions Inventory and/or 2006 Toxics Release Inventory. The rule further requires that this monitoring be conducted at or near the maximum off-site ambient air lead concentration, as predicted by modeling, that results from sources with annual lead emissions of one or more tons.

The TCEQ conducted air dispersion modeling of all the lead emission sources at the site using the most current modeling parameters and associated permitted allowable emissions rates. The TCEQ will use the dispersion modeling results to determine the optimal location of any required source-oriented monitors.

ArcReader Published Map:

\\Msgiswrk\apd\MODEL PROJECTS\Lead NAAQS Analysis_2009\Lead_NAAQS_Analysis_Results.pmf

2.0 Report Summary.

The predicted maximum ground level concentration (GLCmax) is 4.06 $\mu g/m^3$ for a rolling three-month average. The location of the GLCmax is along the northern property line. All predicted concentrations exceeding the NAAQS are located within approximately 1.1 kilometers (km) to the north, 0.7 km to the west, 0.6 km to the south, and 0.3 km to the east of the site property line. Table 1 lists the location of the predicted GLCmax. The location coordinates are in the UTM Zone 14 North, North American Datum of 1927 (NAD27) coordinate system.

Table 1. Modeling Results for Lead

Location Easting (meters)	Location Northing (meters)	Averaging Time	GLC ($\mu g/m^3$)	Standard ($\mu g/m^3$)
751500	362440	rolling three-month	4.06	0.15

3.0 Land Use and Terrain.

A land use/land cover analysis was performed using AERSURFACE consistent with guidance given in the AERMOD Implementation Guide (March 19, 2009). The recommended input data, the National Land Cover Data 1992 archives (NLCD92), were used for this analysis.

Terrain elevations within the modeling domain were determined using AERMAP (Version 09040). The input data used for this analysis was the United States Geological Survey (USGS) National Elevation Dataset (NED) for Terrell North, Terrell South, Forney North, and Forney South quadrangles.

4.0 Modeling Emissions Inventory.

The modeled emission source parameters and emission rates were provided by ECS Refining Texas LLC. The source locations were validated by ADMT using aerial photography. The source emission rates modeled were consistent with the maximum allowable emission rates authorized through permit 19430. The emission rates represent worst case 1-hour average emission rates and may be more conservative than 24-hour or monthly average emission rates. The emission source coordinates are in the UTM Zone 14 North, North American Datum of 1927 (NAD27) coordinate system.

Table 2. On-Property Point Source Parameter Information

ID	Easting (meters)	Northing (meters)	Stack Height (meters)	Stack Temp (K)	Stack Exit Velocity (meters/sec)	Stack Diameter (meters)
P6	751508.5	3624260.2	16.04	310.04	8.84	0.78
P12	751514.5	3624253.2	12.85	303.87	16.74	1.07
P14	751488.5	3624262.2	17.63	305.15	12.93	1.12
P15	751494.5	3624268.2	17.28	308.15	13.47	0.66

ID	Easting (meters)	Northing (meters)	Stack Height (meters)	Stack Temp (K)	Stack Exit Velocity (meters/sec)	Stack Diameter (meters)
P17	751464.5	3624251.2	11.4	312.32	6.1	0.48

Table 3. On-Property Source Modeled Emission Rates

Source ID	Pollutant	Averaging Time	Emission Rates (lb/hr)
P6	Lead	1-hr	0.32
P12	Lead	1-hr	0.04
P14	Lead	1-hr	1.01
P15	Lead	1-hr	0.1
P17	Lead	1-hr	0.11

5.0 Building Wake Effects (Downwash).

Input data to Building Profile Input Program Prime (BPIP-PRM Version 04274) were provided by ECS Refining Texas LLC. The building locations were validated by ADMT using aerial photography.

6.0 Meteorological Data.

Surface Station and ID: Dallas/Fort Worth, TX (Station #: 03927)

Upper Air Station and ID: Stephenville, TX (Station #: 13091)

Meteorological Dataset: 1985, 1987, 1988, 1989, 1990

Profile Base Elevation: 551 feet

The AERSURFACE analysis conducted of the area surrounding the ECS Refining Texas LLC site resulted in a calculated roughness length of 0.109 meters. Since the AERSURFACE analysis used land cover data from 1992 and since the area near the site has become more developed and urbanized since 1992 based on comparing the land cover data to 2004 aerial photography, a representative roughness length for the area would be approximately 0.5 meters. For this reason, the meteorological data set used for this analysis was developed using a roughness length of 0.5 meters.

7.0 Receptor Grid.

The receptor grid used in the modeling analysis consisted of receptors with 100 meter spacing and extended approximately 3 kilometers (km) from the ECS Refining Texas LLC site property line in all directions. The purpose of the receptor grid was to determine a representative maximum ground-level concentration and the extent of ground-level concentrations at or above half of the lead NAAQS standard.

8.0 Model Used and Modeling Techniques.

AERMOD (Version 07026) was used in a refined screening mode. For refined screening, National Weather Service (NWS) meteorological raw input data are used with generalized surface characteristics of the application site. Since the current version of AERMOD is not capable of calculating rolling three-month average concentrations, the EPA post processor LeadPost was used. The input values to LeadPost are monthly average values at each receptor in the POSTFILE output format from AERMOD.

Texas Commission on Environmental Quality

INTEROFFICE MEMORANDUM

To:	David Brymer Air Quality Planning Division	Date:	October 8, 2010
Thru:	Robert Opiela, P.E., Technical Specialist Technical Program Support Section Air Permits Division		
From:	Matthew Kovar, Megan Cox Air Dispersion Modeling Team Air Permits Division		
Subject:	Modeling Analysis of Lead for Exide Technologies, Frisco Battery Recycling Plant (RN100218643)		

1.0 Project Identification Information.

On November 12, 2008, the U.S. Environmental Protection Agency (EPA) finalized the new 0.15 microgram per cubic meter ($\mu g/m^3$) NAAQS for lead based on a rolling three-month average (73 *Federal Register* 66964). In general, the rule requires source-oriented ambient air lead monitoring by January 1, 2010, at sites with actual annual lead emissions of one or more tons per year. Exide Technologies, Frisco Battery Recycling Plant was identified as having emissions at or above this level based on the reported 2007 TCEQ Emissions Inventory and/or 2006 Toxics Release Inventory. The rule further requires that this monitoring be conducted at or near the maximum off-site ambient air lead concentration, as predicted by modeling, that results from sources with annual lead emissions of one or more tons.

In 2009, the TCEQ conducted air dispersion modeling of all the lead emission sources at the site using the most current modeling parameters and associated permitted allowable emissions rates. In October 2010, Exide Technologies submitted information to the TCEQ documenting a reduction in permitted allowable emission rates for some sources. Some of these reductions will be validated through stack testing at a future date. This modeling analysis addresses those emission reductions and supersedes the previous modeling analysis report (NSRG document #9136). The TCEQ will use the dispersion modeling results to determine the optimal location of any required source-oriented monitors.

Since monitoring already exists at and near the Exide Technologies site, and monitored values exceeding the new lead standard have been recorded, the dispersion modeling results will also be used to determine the proposed boundaries of a lead non-attainment area.

ArcReader Published Map:

\\Msgiswrk\apd\MODEL PROJECTS\Lead NAAQS Analysis 2010 revised\Lead NAAQS Analysis Results 2010 revised.pmf

2.0 Report Summary.

The predicted maximum ground level concentration (GLCmax) is 0.837 µg/m^3 for a rolling three-month average. The location of the GLCmax is the same as the location of monitor 480850009 on the north property line of the Exide Technologies site. Predicted concentrations exceeding the NAAQS extended approximately 0.8 kilometers (km) to the north, 0.5 km to the south, 0.5 km to the west, and 0.2 km to the east of the site property line. All predicted concentrations greater than the NAAQS are located within Collin County. Table 1 lists the predicted concentrations at the current monitor locations and proposed monitor location near the intersection of 1st Street and Ash Street.

Table 1. Modeling Results for Lead

Monitor ID	Averaging Time	GLC (µg/m^3)	Standard (µg/m^3)
480850009	rolling three-month	0.837	0.15
480850003	rolling three-month	0.477	0.15
480850007	rolling three-month	0.292	0.15
Proposed	rolling three-month	0.311	0.15

3.0 Land Use and Terrain.

A land use/land cover analysis was performed using AERSURFACE consistent with guidance given in the AERMOD Implementation Guide (March 19, 2009). The recommended input data, the National Land Cover Data 1992 archives (NLCD92), were used for this analysis.

Terrain elevations within the modeling domain were determined using AERMAP (Version 09040). The input data used for this analysis were United States Geological Survey (USGS) digital elevation models (DEMs) for Little Elm, Frisco, Lewisville East, and Hebron data sets.

4.0 Modeling Emissions Inventory.

The modeled emission source parameters and emission rates were provided by Exide Technologies. The source locations were validated by ADMT using aerial photography. The source emission rates modeled were consistent with the maximum allowable emission rates authorized through permits 3048A and 1147A. Several source emissions rates were revised through a permit alteration submitted October 2010. The revised emission rates are highlighted in Table 4. The emission source coordinates are in the UTM Zone 14 North, North American Datum of 1927 (NAD27) coordinate system.

Table 2. On-Property Point Source Parameter Information

ID	Easting (meters)	Northing (meters)	Stack Height (meters)	Stack Temp (K)	Stack Exit Velocity (meters/sec)	Stack Diameter (meters)
11	702713.06	3668796.5	16.764	369.26	12.0396	0.3048
12	702713.25	3668793.75	16.764	369.26	8.5039	0.3048
13	702713.25	3668791.5	15.8496	391.48	13.1674	0.3048
14	702721	3668792.75	16.764	327.59	27.9624	0.5334
15	702725.31	3668807.5	16.764	349.82	14.1732	0.381
16	702717.88	3668803	17.3736	369.26	13.4722	0.253
17	702728.88	3668779.5	16.764	355.37	14.0208	0.381
18	702628.13	3668767.75	30.6324	303.71	5.1206	1.6154
21	702626.88	3668739.25	31.242	304.82	16.5811	1.521
22	702685.69	3668804.25	22.86	0	15.1486	0.8108
23	702637.38	3668764.5	6.096	0	1.8288	0.3048
24	702721.88	3668782.5	16.4592	369.26	11.491	0.381
25	702721.75	3668777.75	16.4592	358.15	9.4488	0.381
26	702736.31	3668782.75	9.144	355.37	11.5824	0.1524
37	702682.56	3668810	22.86	298.15	19.6901	1.6764
38	702620.19	3668771.75	33.8328	315.37	16.7945	1.3716
39	702544.5	3668727.75	10.668	0	0.0009	1.524
45	702623.06	3668713.75	32.1564	0	14.0238	1.8044
48	702585	3668771	11.2776	0	1.6764	0.1707

Table 3. Area Source Parameter Information

ID	Easting (meters)	Northing (meters)	Release Height (meters)	Easterly Length (meters)	Northerly Length (meters)	Degrees from north (◦)
10	702642.65	3668770.8	4.572	28.956	24.384	-2
27	702733.81	3668767.5	4.572	0.9144	0.9144	0
28	702756.31	3668782	4.572	0.9144	0.9144	0
35	702654.26	3668740.35	4.572	22.86	30.48	-2
36	702645.75	3668754.8	4.572	32.004	15.24	-2
41	702518.28	3668768.73	0.3048	94.488	21.336	40
42	702625.1	3668693.38	0.3048	80.772	44.196	-2
43	702702.77	3668745.25	0.3048	62.484	39.624	-2
44	702590.79	3668760.22	3.9929	24.384	41.148	-2
52	702631.81	3668765.63	4.572	21.336	16.764	-2
53	702615.56	3668762.28	1.8288	16.764	19.812	-2

Table 4. On-Property Source Allowable Emission Rates

Scenario ID	Pollutant	Averaging Time	Emission Rates (lb/hr)
10	Lead	1-hr	0.08
11	Lead	1-hr	0.05
12	Lead	1-hr	0.03
13	Lead	1-hr	0.05
14	Lead	1-hr	0.03
15	Lead	1-hr	0.05
16	Lead	1-hr	0.02

Scenario ID	Pollutant	Averaging Time	Emission Rates (lb/hr)
17	Lead	1-hr	0.05
18	Lead	1-hr	0.07
21	Lead	1-hr	0.25
22	Lead	1-hr	0.02
23	Lead	1-hr	0.03
24	Lead	1-hr	0.006
25	Lead	1-hr	0.004
26	Lead	1-hr	0.001
27	Lead	1-hr	0.001
28	Lead	1-hr	0.001
35	Lead	1-hr	0.08
36	Lead	1-hr	0.01
37	Lead	1-hr	0.09
38	Lead	1-hr	0.2
39	Lead	1-hr	0.12
41	Lead	1-hr	0.0388
42	Lead	1-hr	0.0388
43	Lead	1-hr	0.0388
44	Lead	1-hr	0.03
45	Lead	1-hr	0.25
48	Lead	1-hr	0.06
52	Lead	1-hr	0.01
53	Lead	1-hr	0.13

5.0 Building Wake Effects (Downwash).

Input data to Building Profile Input Program Prime (BPIP-PRM Version 04274) were provided by Exide Technologies. The building locations were validated by ADMT using aerial photography.

6.0 Meteorological Data.

Surface Station and ID: Dallas/Fort Worth, TX (Station #: 03927)

Upper Air Station and ID: Stephenville, TX (Station #: 13091)

Meteorological Dataset: 1985, 1987, 1988, 1989, 1990

Profile Base Elevation: 551 feet

The AERSURFACE analysis conducted of the area surrounding the Exide Technologies site resulted in a calculated roughness length of 0.129 meters. Since the AERSURFACE analysis used land cover data from 1992 and since the area near the site has become more developed and urbanized since 1992 based on comparing the land cover data to 2008 aerial photography, a representative roughness length for the area would be approximately 0.5 meters. For this reason, the meteorological data set used for this analysis was developed using a roughness length of 0.5 meters.

7.0 Receptor Grid.

The receptor grid used in the modeling analysis consisted of receptors with 50 meter spacing and extended approximately 1.5 kilometers (km) from the Exide Technologies site property line in all directions. An additional grid consisted of receptors with 100 m spacing and extended 3.5 km beyond the first receptor grid in all directions. Discrete receptors were used for the locations of the three existing monitoring stations and the location of a proposed monitoring station near the intersection of 1st Street and Ash Street. The purpose of the receptor grid was to determine a representative maximum ground-level concentration and the extent of ground-level concentrations at or above half of the lead NAAQS standard.

8.0 Model Used and Modeling Techniques.

AERMOD (Version 09292) was used in a refined screening mode. A new version of AERMOD was released on October 23, 2009. This version was used in the modeling analysis because it is the latest approved EPA model version. For refined screening, National Weather Service (NWS) meteorological raw input data are used with generalized surface characteristics of the application site. Since the current version of AERMOD is not capable of calculating rolling three-month average concentrations, the EPA post processor LeadPost was used. The input values to LeadPost are monthly average values at each receptor in the POSTFILE output format from AERMOD.

For this analysis, only emission sources at the Exide Technologies site were considered. The nearest source of lead emissions outside the modeling domain is approximately 20 km from the Exide Technologies site with reported 2007 lead annual emissions approximately one percent of the annual lead emissions reported by Exide Technologies. The largest nearby source of lead emissions is approximately 50 km from the Exide Technologies site with annual reported emissions approximately ten percent of the annual emissions reported by Exide Technologies. Due to the great distance to the Exide Technologies site and the small reported emission, no other sources of lead emissions would have a significant contribution near the Exide Technologies site or the modeling domain used for this analysis.

Texas Commission on Environmental Quality

INTEROFFICE MEMORANDUM

To:	Jim Price Air Quality Division	Date:	September 25, 2009
Thru:	Robert Opiela, P.E., Technical Specialist Technical Program Support Section Air Permits Division		
From:	Matthew Kovar, Megan Cox Air Dispersion Modeling Team Air Permits Division		

Subject: Modeling Analysis of Lead for Oxbow Calcining LLC (RN100209287)

1.0 Project Identification Information.

On November 12, 2008, the U.S. Environmental Protection Agency (EPA) finalized the new 0.15 microgram per cubic meter ($\mu g/m^3$) NAAQS for lead based on a rolling three-month average (73 *Federal Register* 66964). In general, the rule requires source-oriented ambient air lead monitoring by January 1, 2010, at sites with actual annual lead emissions of one or more tons per year. Oxbow Calcining LLC was identified as having emissions at or above this level based on the reported 2007 TCEQ Emissions Inventory and/or 2006 Toxics Release Inventory. The rule further requires that this monitoring be conducted at or near the maximum off-site ambient air lead concentration, as predicted by modeling, that results from sources with annual lead emissions of one or more tons.

The TCEQ conducted air dispersion modeling of all the lead emission sources at the site using the most current modeling parameters and associated permitted allowable emissions rates. The TCEQ will use the dispersion modeling results to determine the optimal location of any required source-oriented monitors.

ArcReader Published Map:

\\Msgiswrk\apd\MODEL PROJECTS\Lead NAAQS Analysis_2009\Lead_NAAQS_Analysis_Results.pmf

2.0 Report Summary.

The predicted maximum ground level concentration (GLCmax) is 0.016 $\mu g/m^3$ for a rolling three-month average. The location of the GLCmax is approximately 70 meters from the northwest property line. Table 1 lists the location of the predicted GLCmax. The location coordinates are in the UTM Zone 15 North, North American Datum of 1927 (NAD27) coordinate system.

Table 1. Modeling Results for Lead

Location Easting (meters)	Location Northing (meters)	Averaging Time	GLC ($\mu g/m^3$)	Standard ($\mu g/m^3$)
407000	3301300	rolling three-month	0.016	0.15

3.0 Land Use and Terrain.

A land use/land cover analysis was performed using AERSURFACE consistent with guidance given in the AERMOD Implementation Guide (March 19, 2009). The recommended input data, the National Land Cover Data 1992 archives (NLCD92), were used for this analysis.

Terrain elevations within the modeling domain were determined using AERMAP (Version 09040). The input data used for this analysis was the United States Geological Survey (USGS) National Elevation Dataset (NED) for the Port Arthur South quadrangle.

4.0 Modeling Emissions Inventory.

The modeled emission source parameters and maximum allowable emission rates were obtained from permits 45622 and 5421. The source locations were validated by ADMT using aerial photography. The emission rates represent worst case 1-hour average emission rates and may be more conservative than 24-hour or monthly average emission rates. The emission source coordinates are in the UTM Zone 15 North, North American Datum of 1927 (NAD27) coordinate system.

Table 2. On-Property Point Source Parameter Information

ID	Easting (meters)	Northing (meters)	Stack Height (meters)	Stack Temp (K)	Stack Exit Velocity (meters/sec)	Stack Diameter (meters)
KS2	406942	3300668	38.1	1366.48	14.78	3.17
WHBS3	406991	3300709	45.72	477.59	23.13	2.07
WHBS4	406935	3300796	45.72	477.59	23.13	2.07
WHBS5	406976	3300631	56.39	477.59	23.96	2.37

Table 3. On-Property Source Modeled Emission Rates

Source ID	Pollutant	Averaging Time	Emission Rates (lb/hr)
KS2	Lead	1-hr	0.13
WHBS3	Lead	1-hr	0.22
WHBS4	Lead	1-hr	0.22
WHBS5	Lead	1-hr	0.31

5.0 Building Wake Effects (Downwash).

Input data to Building Profile Input Program Prime (BPIP-PRM Version 04274) were provided by Oxbow Calcining LLC. The building locations were validated by ADMT using aerial photography.

6.0 Meteorological Data.

Surface Station and ID: Port Arthur, TX (Station #: 12917)

Upper Air Station and ID: Lake Charles, LA (Station #: 3937)

Meteorological Dataset: 1987-1991

Profile Base Elevation: 16 feet

The AERSURFACE analysis conducted of the area surrounding the Oxbow Calcining LLC site resulted in a calculated roughness length of 0.028 meters. Since the AERSURFACE analysis used land cover data from 1992 and since the area near the site has become more developed and urbanized since 1992 based on comparing the land cover data to 2004 aerial photography, a representative roughness length for the area would be approximately 0.05 meters. For this reason, the meteorological data set used for this analysis was developed using a roughness length of 0.05 meters.

7.0 Receptor Grid.

The receptor grid used in the modeling analysis consisted of receptors with 100 meter spacing and extended approximately 1.5 kilometers (km) from the Oxbow Calcining LLC site property line in all directions. The purpose of the receptor grid was to determine a representative maximum ground-level concentration and the extent of ground-level concentrations at or above half of the lead NAAQS standard.

8.0 Model Used and Modeling Techniques.

AERMOD (Version 07026) was used in a refined screening mode. For refined screening, National Weather Service (NWS) meteorological raw input data are used with generalized surface characteristics of the application site. Since the current version of AERMOD is not capable of calculating rolling three-month average concentrations, the EPA post processor LeadPost was used. The input values to LeadPost are monthly average values at each receptor in the POSTFILE output format from AERMOD.

Texas Commission on Environmental Quality

INTEROFFICE MEMORANDUM

To:	David Brymer Air Quality Planning Division	Date:	July 24, 2009
Thru:	Robert Opiela, P.E., Technical Specialist Technical Program Support Section Air Permits Division		
From:	Matthew Kovar, Megan Cox Air Dispersion Modeling Team Air Permits Division		

Subject: Modeling Analysis of Lead for U.S. Army (Fort Hood) (RN101612083)

1.0 Project Identification Information.

On November 12, 2008, the U.S. Environmental Protection Agency (EPA) finalized the new 0.15 microgram per cubic meter ($\mu g/m^3$) NAAQS for lead based on a rolling three-month average (73 *Federal Register* 66964). In general, the rule requires source-oriented ambient air lead monitoring by January 1, 2010, at sites with actual annual lead emissions of one or more tons per year. The U.S. Army (Fort Hood) was identified as having emissions at or above this level based on the reported 2007 TCEQ Emissions Inventory and/or 2006 Toxics Release Inventory. The rule further requires that this monitoring be conducted at or near the maximum off-site ambient air lead concentration, as predicted by modeling that results from sources with annual lead emissions of one or more tons.

The TCEQ conducted air dispersion modeling of all the lead emission sources at the site using the most current modeling parameters. The TCEQ will use the dispersion modeling results to determine the optimal location of any required source-oriented monitors.

ArcReader Published Map:

\\Msgiswrk\apd\MODEL PROJECTS\Lead NAAQS Analysis_2009\Lead_NAAQS_Analysis_Results.pmf

2.0 Report Summary.

The predicted maximum ground level concentration (GLCmax) is 0.02 $\mu g/m^3$ for a rolling three-month average. The location of the GLCmax is along the southern property line. Table 1 lists the location of the predicted GLCmax. The location coordinates are in the UTM Zone 14 North, North American Datum of 1927 (NAD27) coordinate system.

Table 1. Modeling Results for Lead

Location Easting (meters)	Location Northing (meters)	Averaging Time	GLC ($\mu g/m^3$)	Standard ($\mu g/m^3$)
618000	3446900	rolling three-month	0.02	0.15

3.0 Land Use and Terrain.

A land use/land cover analysis was performed using AERSURFACE consistent with guidance given in the AERMOD Implementation Guide (March 19, 2009). The recommended input data, the National Land Cover Data 1992 archives (NLCD92), were used for this analysis.

Terrain elevations within the modeling domain were determined using AERMAP (Version 09040). The input data used for this analysis was the United States Geological Survey (USGS) National Elevation Dataset (NED) for Gatesville West, Gatesville East, Shell Mountains, North Fort Hood, Fort Hood, and Post Oak Mountains quadrangles.

4.0 Modeling Emissions Inventory.

The modeled emission source parameters and emission rates were provided by Fort Hood. The source locations were validated by ADMT. The source emission rates modeled were based on air emissions estimates reported in the Fort Hood 2007 Toxic Release Inventory (TRI). Though the emissions were reported for many firing ranges at various locations around Fort Hood, for this demonstration all of the emissions were conservatively represented to be emitted only from the firing ranges nearest the areas of public activity. From the 2007 TRI data and activity data for 2008, the firing ranges with the highest emissions were the furthest away from public locations and largest in extent. Public activities are limited to the southern and the northern ends of Fort Hood. The central areas and areas on the east and west of Fort Hood are restricted from public access. The emission rates represent worst case 1-hour average emission rates and may be more conservative than 24-hour or monthly average emission rates.

Table 2. On-Property Source Modeled Emission Rates

Source ID	Pollutant	Averaging Time	Emission Rates (lb/hr)
NFHS	Lead	1-hr	0.0056
NFHR	Lead	1-hr	0.0079

Source ID	Pollutant	Averaging Time	Emission Rates (lb/hr)
OBJID_8	Lead	1-hr	0.0105
OBJID_9	Lead	1-hr	0.0062
IHSR	Lead	1-hr	0.0306
HGQ	Lead	1-hr	0.0026
PKGL	Lead	1-hr	0.0053
BGRB	Lead	1-hr	0.0113
BGPQ	Lead	1-hr	0.0017
BGRC	Lead	1-hr	0.0255
PKAT4	Lead	1-hr	0.0054
BWPA	Lead	1-hr	0.0018
BWPB	Lead	1-hr	0.0017
HGC	Lead	1-hr	0.0025
NFHRB	Lead	1-hr	0.0128
HGDA	Lead	1-hr	0.0023
BWGL	Lead	1-hr	0.0149
PKRZ	Lead	1-hr	0.0068
PKRA	Lead	1-hr	0.0066
BWMS	Lead	1-hr	0.0411
PSR	Lead	1-hr	0.0367

5.0 Building Wake Effects (Downwash).

Building downwash is not applicable for area source modeling.

6.0 Meteorological Data.

Surface Station and ID: Waco, TX (Station #: 13959)

Upper Air Station and ID: Stephenville, TX (Station #: 13091)

Meteorological Dataset: 1985, 1987, 1988, 1989, 1990

Profile Base Elevation: 499 feet

The AERSURFACE analysis conducted of the area surrounding the U.S. Army (Fort Hood) site resulted in a calculated roughness length of 0.369 meters. Since the AERSURFACE analysis used land cover data from 1992 and since the area near the site has become more developed and urbanized since 1992 based on comparing the land cover data to 2004 aerial photography, a representative roughness length for the area would be approximately 0.5 meters. For this reason, the meteorological data set used for this analysis was developed using a roughness length of 0.5 meters.

7.0 Receptor Grid.

The two receptor grids used in the modeling analysis consisted of receptors with 100 meter spacing. The larger receptor grid was located in close proximity to the southern firing ranges and extended approximately 2 kilometers (km) from these firing ranges to the south. The smaller receptor grid was located in close proximity to the northern firing ranges and extended approximately 2 km from these firing ranges to the northeast. The purpose of the receptor grid was to determine a representative maximum ground-level concentration and the extent of ground-level concentrations at or above half of the lead NAAQS standard.

8.0 Model Used and Modeling Techniques.

AERMOD (Version 07026) was used in a refined screening mode. For refined screening, National Weather Service (NWS) meteorological raw input data are used with generalized surface characteristics of the application site. Since the current version of AERMOD is not capable of calculating rolling three-month average concentrations, the EPA post processor LeadPost was used. The input values to LeadPost are monthly average values at each receptor in the POSTFILE output format from AERMOD.

Texas Commission on Environmental Quality

INTEROFFICE MEMORANDUM

To:	David Brymer Air Quality Planning Division	Date:	March 30, 2011
Thru:	Robert Opiela, P.E., Technical Specialist Technical Program Support Section Air Permits Division		
From:	Jessica Carter, Justin Cherry Air Dispersion Modeling Team Air Permits Division		

Subject: Modeling Analysis of Lead for Coleto Creek Power Station (RN100226919)

1.0 Project Identification Information.

On November 12, 2008, the U.S. Environmental Protection Agency (EPA) finalized the new 0.15 microgram per cubic meter ($\mu g/m^3$) NAAQS for lead based on a rolling three-month average. On December 14, 2010, the EPA lowered the emission threshold from annual lead emissions of one ton or more to a half a ton or more in actual emissions that state agencies must use to determine if an air quality monitor should be placed near an industrial facility that emits lead (*75 Federal Register 81134*). The rule further requires that this monitoring be conducted at or near the maximum off-site ambient air lead concentration, as predicted by modeling. In general, the rule requires source-oriented ambient air lead monitoring by December 27, 2011 at sites with actual annual lead emissions of half a ton or more per year. Coleto Creek Power Station was identified as having emissions at or above this level based on the reported 2009 TCEQ Emissions Inventory and/or 2009 Toxics Release Inventory.

The TCEQ conducted air dispersion modeling of all the lead emission sources at the site using the most current modeling parameters and associated permitted allowable emissions rates. The TCEQ will use the dispersion modeling results to determine the optimal location of any required source-oriented monitors.

ArcReader Published Map:

\\Msgiswrk\apd\MODEL PROJECTS\3425\3425_Coleto_Creek.pmf

2.0 Report Summary.

The predicted maximum ground level concentration (GLCmax) is 0.000117 $\mu g/m^3$ for a rolling three-month average. The location of the GLCmax is along the northern property line. Table 1 lists the location of the predicted GLCmax. The location coordinates are in the UTM Zone 14 North, North American Datum of 1983 (NAD83) coordinate system.

Table 1. Modeling Results for Lead

Location Easting (meters)	Location Northing (meters)	Averaging Time	GLC ($\mu g/m^3$)	Standard ($\mu g/m^3$)
674100	3179300	rolling three-month	0.000117	0.15

3.0 Land Use and Terrain.

A land use/land cover analysis was performed using AERSURFACE consistent with guidance given in the AERMOD Implementation Guide (March 19, 2009). The recommended input data, the National Land Cover Data 1992 archives (NLCD92), were used for this analysis.

Terrain elevations within the modeling domain were determined using AERMAP (Version 09040). The input data used for this analysis were United States Geological Survey (USGS) seamless data that covers digital elevation models (DEMs) for Fannin, Hensley Lake, Schroeder, and Ander data sets.

4.0 Modeling Emissions Inventory.

The modeled emission source parameters and emission rates were provided by Coleto Creek Power Station. The source locations were validated by ADMT using aerial photography. No sources have a listed maximum allowable emission rate for lead. For all three sources, emissions estimates were submitted by Coleto Creek Power Station and then validated by APD permit reviewing staff for use in this analysis. The emission rates represent worst case 1-hour average emission rates and may be more conservative than 24-hour or monthly average emission rates. The emission source coordinates are in the UTM Zone 14 North, North American Datum of 1983 (NAD83) coordinate system.

Table 2. On-Property Point Source Parameter Information

ID	Easting (meters)	Northing (meters)	Stack Height (meters)	Stack Temp (K)	Stack Exit Velocity (meters/sec)	Stack Diameter (meters)
UNIT 1	674412	3177468	124.66	448.2	35.51	6.096
EMG 1	674495.35	3177551.44	5.33	735.9	35.72	0.253
FWP 1	674499.647	3177628.32	3.89	722	42	0.204

Table 3. On-Property Source Modeled Emission Rates

Source ID	Pollutant	Averaging Time	Emission Rates (lb/hr)
UNIT 1	Lead	1-hr	0.0683
EMG 1	Lead	1-hr	0.0000468
FWP 1	Lead	1-hr	0.0000359

5.0 Building Wake Effects (Downwash).

Input data to Building Profile Input Program Prime (BPIP-PRM Version 04274) were provided by Coleto Creek Power Station. The building locations were validated by ADMT using aerial photography.

6.0 Meteorological Data.

Surface Station and ID: Victoria, TX (Station #: 12912)

Upper Air Station and ID: Victoria, TX (Station #: 12912)

Meteorological Dataset: 1983, 1984, 1986, 1987, 1988

Profile Base Elevation: 107 feet

The AERSURFACE analysis conducted of the area surrounding the Coleto Creek Power Station site resulted in a calculated roughness length of 0.081 meters. The vast majority of the area considered water bodies such as the Coleto Creek Resevoir and cooling water lakes at the Coleto Creek Power Station (and with a lower roughness length) is concentrated near the emission sources. The dispersion of emissions from the sources will be highly influenced by this lower roughness length. A representative roughness length for the area would be approximately 0.05 meters. For this reason, the meteorological data set used for this analysis was developed using a roughness length of 0.05 meters.

7.0 Receptor Grid.

The receptor grid used in the modeling analysis consisted of receptors with 100 meter spacing and extended approximately 1.5 kilometers (km) from the Coleto Creek Power Station site property line to the north and east, 1.9 km to the west, and 2.6 km to the south. The purpose of the receptor grid was to determine a representative maximum ground-level concentration and the extent of ground-level concentrations at or above half of the lead NAAQS standard.

8.0 Model Used and Modeling Techniques.

AERMOD (Version 09292) was used in a refined screening mode. For refined screening, National Weather Service (NWS) meteorological raw input data are used with generalized surface characteristics of the application site. Since the current version of AERMOD is not capable of calculating rolling three-month average concentrations, the EPA post processor LeadPost was used. The input values to LeadPost are monthly average values at each receptor in the POSTFILE output format from AERMOD. The results from the LeadPost reports are limited to three decimal places; therefore, the monthly average predicted concentrations were examined from the AERMOD output files using the MAXIFILE option since the AERMOD output files display results out to five decimal places. The rolling 3-month averages to five decimal places were calculated from the monthly averages from the MAXIFILE output.

Texas Commission on Environmental Quality

INTEROFFICE MEMORANDUM

To:	David Brymer Air Quality Planning Division	Date:	March 30, 2011
Thru:	Robert Opiela, P.E., Technical Specialist Technical Program Support Section Air Permits Division		
From:	Jessica Carter, Justin Cherry Air Dispersion Modeling Team Air Permits Division		
Subject:	Modeling Analysis of Lead for San Miguel Electric Cooperative Inc (RN100226539)		

1.0 Project Identification Information.

On November 12, 2008, the U.S. Environmental Protection Agency (EPA) finalized the new 0.15 microgram per cubic meter ($\mu g/m^3$) NAAQS for lead based on a rolling three-month average. On December 14, 2010, the EPA lowered the emission threshold from annual lead emissions of one ton or more to a half a ton or more in actual emissions that state agencies must use to determine if an air quality monitor should be placed near an industrial facility that emits lead (*75 Federal Register 81134*). The rule further requires that this monitoring be conducted at or near the maximum off-site ambient air lead concentration, as predicted by modeling. In general, the rule requires source-oriented ambient air lead monitoring by December 27, 2011 at sites with actual annual lead emissions of half a ton or more per year. San Miguel Electric Cooperative Inc was identified as having emissions at or above this level based on the reported 2009 TCEQ Emissions Inventory and/or 2009 Toxics Release Inventory.

The TCEQ conducted air dispersion modeling of all the lead emission sources at the site using the most current modeling parameters and associated permitted allowable emissions rates. The TCEQ will use the dispersion modeling results to determine the optimal location of any required source-oriented monitors.

ArcReader Published Map:

\\Msgiswrk\apd\MODEL PROJECTS\3425\3425_San_Miguel.pmf

2.0 Report Summary.

The predicted maximum ground level concentration (GLCmax) is 0.00091 $\mu g/m^3$ for a rolling three-month average. The location of the GLCmax is approximately 900 meters from property line to the north. Table 1 lists the location of the predicted GLCmax. The location coordinates are in the UTM Zone 14 North, North American Datum of 1983 (NAD83) coordinate system.

Table 1. Modeling Results for Lead

Location Easting (meters)	Location Northing (meters)	Averaging Time	GLC ($\mu g/m^3$)	Standard ($\mu g/m^3$)
551000	3176600	rolling three-month	0.00091	0.15

3.0 Land Use and Terrain.

A land use/land cover analysis was performed using AERSURFACE consistent with guidance given in the AERMOD Implementation Guide (March 19, 2009). The recommended input data, the National Land Cover Data 1992 archives (NLCD92), were used for this analysis.

Terrain elevations within the modeling domain were determined using AERMAP (Version 09040). The input data used for this analysis were United States Geological Survey (USGS) digital elevation models (DEMs) for Christine East, Christine West, Cross NE, and Caballos Creek data sets.

4.0 Modeling Emissions Inventory.

The modeled emission source parameters and emission rates were provided by San Miguel Electric Cooperative Inc. The source locations were validated by ADMT using aerial photography. Source 6 has a listed maximum allowable emission rate for lead in tons per year only. The maximum hourly emission rate was derived from the tons per year and based on 8,064 operating hours per year. The emission rates represent worst case 1-hour average emission rates and may be more conservative than 24-hour or monthly average emission rates. The emission source coordinates are in the UTM Zone 14 North, North American Datum of 1983 (NAD83) coordinate system.

Table 2. On-Property Point Source Parameter Information

ID	Easting (meters)	Northing (meters)	Stack Height (meters)	Stack Temp (K)	Stack Exit Velocity (meters/sec)	Stack Diameter (meters)
6	551044.673	3175346.667	137.16	347	32.3	6.09

Table 3. On-Property Source Modeled Emission Rates

Source ID	Pollutant	Averaging Time	Emission Rates (lb/hr)
6	Lead	1-hr	0.22

5.0 Building Wake Effects (Downwash).

Input data to Building Profile Input Program Prime (BPIP-PRM Version 04274) were derived from aerial photography by the ADMT.

6.0 Meteorological Data.

Surface Station and ID: San Antonio, TX (Station #: 12921)

Upper Air Station and ID: Del Rio, TX (Station #: 22010)

Meteorological Dataset: 1986, 1987, 1988, 1989, 1991

Profile Base Elevation: 242.3 meters

The AERSURFACE analysis conducted of the area surrounding the San Miguel Electric Cooperative Inc site resulted in a calculated roughness length of 0.200 meters. The meteorological data set used for this analysis was developed using a roughness length of 0.5 meters. A higher roughness length value would tend to enhance dispersion more than a lower value. However, since the only source of lead is a very tall stack, over 100 meters high, enhanced dispersion would mix air contaminants from the source to ground level to a greater extent. Therefore, use of a roughness length of 0.5 meters is conservative.

According to EPA's *Meteorological Monitoring Guidance for Regulatory Modeling Applications*, the meteorological dataset for 1988 does not meet regulatory completeness (only 86.4% complete). There was a total of 1195 hours of missing data for the entire year (8760 hours). The number of hours missing per month ranged from zero hours to 226 hours. April was the month with the highest number of missing hours (226 hours out of 720 hours). There were zero hours missing for the months of August, September, October, and November. Since the predicted concentrations are extremely small, it is unlikely that the results would significantly change due to these missing hours.

7.0 Receptor Grid.

The receptor grid used in the modeling analysis consisted of receptors with 100 meter spacing and extended approximately 2.5 kilometers (km) from the San Miguel Electric

Cooperative Inc site property to the north, and approximately 1.5 km from the site property in all other directions. The purpose of the receptor grid was to determine a representative maximum ground-level concentration and the extent of ground-level concentrations at or above half of the lead NAAQS standard.

8.0 Model Used and Modeling Techniques.

AERMOD (Version 09292) was used in a refined screening mode. For refined screening, National Weather Service (NWS) meteorological raw input data are used with generalized surface characteristics of the application site. Since the current version of AERMOD is not capable of calculating rolling three-month average concentrations, the EPA post processor LeadPost was used. The input values to LeadPost are monthly average values at each receptor in the POSTFILE output format from AERMOD. The results from the LeadPost reports are limited to three decimal places; therefore, the monthly average predicted concentrations were examined from the AERMOD output files using the MAXIFILE option since the AERMOD output files display results out to five decimal places. The rolling 3-month averages to five decimal places were calculated from the monthly averages.

APPENDIX B: TCEQ LEAD MONITORING NETWORK

Table 1: TCEQ Lead Monitoring Network

AQS[i]	CAMS[ii]	Region	Site name	Monitor Type	Monitoring Objective	Sampling	Analysis	Collection Frequency	Sample Duration	Parameter code	Activated
48-375-0024	24	1	Amarillo SH 136	SLAMS[iii]	Highest Concentration	TSP[iv] for Lead	ICP-MS[v]	Every 6th Day	24 hours	14129	4/25/2010
48-085-0009	16	4	Frisco Eubanks	SLAMS	Source Oriented	TSP for Lead	ICP-MS	Every 6th Day	24 hours	14129	1/15/1995
48-085-0007	NA	4	Frisco 7	SLAMS	Population Exposure	TSP for Lead	ICP-MS	Every 6th Day	24 hours	14129	7/17/1999
48-085-0007	NA	4	Frisco 7 (collocated)	SLAMS	Population Exposure	TSP for Lead - Collocated	ICP-MS	Every 6th Day	24 hours	14129	7/17/1999
48-085-0003	NA	4	Frisco 5th St	SLAMS	Source Oriented	TSP for Lead	ICP-MS	Every 6th Day	24 hours	14129	1/1/1984
48-085-0029	29	4	Frisco Stonebrook	SLAMS – Special Purpose	NA	TSP for Lead	ICP-MS	Every 6th Day	24 hours	14129	1/1/2011
48-257-0020	20	4	Terrell Temtex	SLAMS	Highest Concentration	TSP for Lead	ICP-MS	Every 6th Day	24 hours	14129	12/1/2010
48-201-1034	1	12	Houston East	SLAMS - Special Purpose	General/ Background	TSP for Lead	ICP-MS	Every 6th Day	24 hours	14129	5/11/1999
48-479-0016	44/ 144	16	Laredo Border	SLAMS	Population Exposure	Speciated	ICP-MS	Every 6th Day	24 hours	14129	9/12/1996
48-061-0006	80/ 180	16	Brownsville	SLAMS	Population Exposure	Speciated	ICP-MS	Every 6th Day	24 hours	14129	11/11/1995
48-141-0033	NA	6	El Paso Kern Fire Station	SLAMS	Population Exposure	TSP for Lead	ICP-MS	Every 6th Day	24 hours	14129	1/1/1979
48-141-0058	72	6	El Paso Skyline Park	SLAMS	Population Exposure	TSP for Lead	ICP-MS	Every 6th Day	24 hours	14129	7/11/2000
48-141-0002	413	6	El Paso Tillman	SLAMS	Population Exposure	TSP for Lead	ICP-MS	Every 6th Day	24 hours	14129	1/1/1969
48-141-0002	413	6	El Paso Tillman (Collocated)	SLAMS	Population Exposure	TSP for Lead - Collocated	ICP-MS	Every 6th Day	24 hours	14129	1/1/1969
48-141-0055	37/159 /172	6	Ascarate NCORE	SLAMS	Population Exposure	TSP	ICP-MS	Every 6th Day	24 hours	14129	1/27/2011

[i] Air Quality System (AQS)
[ii] Continuous Air Monitoring Station (CAMS)
[iii] State and Local Air Monitoring Station (SLAMS)
[iv] Total Suspended Particles (TSP)
[v] Inductively Coupled Plasma Mass Spectrometry (ICP-MS)