

# Appendix E

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## Lead Waiver Renewal

Texas Commission on Environmental Quality  
Texas Five-Year Ambient Monitoring Network Assessment

## **TCEQ Interoffice Memorandum**

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**To:** Lindsey Jones, Assistant Director  
Monitoring Division  
Office of Compliance and Enforcement

**Thru:** Daniel Menendez, Team Leader  
Air Dispersion Modeling Team (ADMT)  
Air Permits Division

**From:** Matthew Kovar  
ADMT  
Air Permits Division

**Date:** April 7, 2015

**Subject:** **Modeling Analysis of Lead for the Lower Colorado River Authority (LCRA) (RN100226844)**

### **Project Identification Information**

On November 12, 2008, the U.S. Environmental Protection Agency (EPA) finalized the new 0.15 microgram per cubic meter ( $\mu\text{g}/\text{m}^3$ ) NAAQS for lead based on a rolling three-month average. On December 27, 2010 (75 Federal Register 81134), 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. The rule further requires that this monitoring be conducted at or near the maximum off-site ambient air lead concentration, as predicted by modeling. The LCRA Fayette Power Project was identified as having emissions at or above the threshold based on the reported 2013 TCEQ Emissions Inventory.

The TCEQ conducted air dispersion modeling of lead emission sources at the site in 2012 in support of a lead monitoring waiver for the LCRA. The ADMT reviewed the 2012 modeling analysis and determined that additional modeling is not required for the renewal of the lead monitoring waiver.

### **Report Summary**

The predicted maximum ground level concentration (GLCmax) is 0.0036  $\mu\text{g}/\text{m}^3$  for a rolling three-month average. This concentration was determined by multiplying the 2012 modeling result to the ratio of the current permit allowable emission rates to the previously modeled permit allowable emission rates. Please refer to section 3 below for further details. The location of the GLCmax is approximately 1370 meters from EPN 3-1B to the north-northwest. Table 1 lists the location of the predicted GLCmax. The location is in the UTM Zone 14 North, North American Datum of 1983 (NAD83) coordinate system.

**Table 1. Modeling Results for Lead**

<b>Easting (meters)</b>	<b>Northing (meters)</b>	<b>Averaging Time</b>	<b>GLC (<math>\mu\text{g}/\text{m}^3</math>)</b>	<b>Standard (<math>\mu\text{g}/\text{m}^3</math>)</b>
716900	3312900	rolling three-month	0.0036	0.15

### **Modeling Discussion**

The 2012 modeling analysis utilized the permit allowable emission rates for the three boiler stacks (EPNs 3-1B, FPP-1N, and FPP-2N) located at the site. The total short-term permit allowable emission rate for all three boiler stacks was modeled for each boiler stack. The maximum predicted concentration of the three boiler stacks was determined to be less than half the lead NAAQS (0.00145  $\mu\text{g}/\text{m}^3$ ). The 2012 modeling report is attached for reference.

In order to show that the 2012 modeling analysis is still valid, the ADMT reviewed recent permitting actions to determine if any changes have been made to the modeled sources since 2012. Based on the review, the ADMT determined that there have been no changes related to the modeled source parameters. However, the total short-term permit allowable emission rate for the three boiler stacks has increased since 2012. Table 2 shows what the change to the modeled emission rates would be for each source.

**Table 2. On-Property Source Modeled Emission Rates**

<b>EPN</b>	<b>Pollutant</b>	<b>2012 Emission Rate (lb/hr)</b>	<b>2015 Emission Rate (lb/hr)</b>
3-1B	Lead	0.29	0.72
FPP-1N	Lead	0.29	0.72
FPP-2N	Lead	0.29	0.72

Since the model predicted concentrations are proportional to the modeled emission rates, the ADMT conducted a simple scaling exercise to demonstrate

that the increased emissions would result in a maximum predicted concentration less than half the lead NAAQS.

The ADMT multiplied the 2012 maximum predicted concentration (0.00145  $\mu\text{g}/\text{m}^3$ ) by the ratio of the 2015 permit allowable emission rate to the modeled 2012 permit allowable emission rate (0.72 lb/hr/0.29 lb/hr) to derive a maximum predicted concentration that is less than half the lead NAAQS, as reported in Table 1. Given this demonstration, additional modeling is not required.

## **TCEQ Interoffice Memorandum**

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**To:** Lindsey Jones, Assistant Director  
Monitoring Division  
Office of Compliance and Enforcement

**Thru:** Daniel Menendez, Team Leader  
Air Dispersion Modeling Team (ADMT)  
Air Permits Division

**From:** Matthew Kovar  
ADMT  
Air Permits Division

**Date:** April 23, 2015

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

### **Project Identification Information**

On November 12, 2008, the U.S. Environmental Protection Agency (EPA) finalized the new 0.15 microgram per cubic meter ( $\mu\text{g}/\text{m}^3$ ) NAAQS for lead based on a rolling three-month average. On December 27, 2010 (75 Federal Register 81134), 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. The rule further requires that this monitoring be conducted at or near the maximum off-site ambient air lead concentration, as predicted by modeling. U.S. Army (Fort Hood) was identified as having emissions at or above the threshold based on the reported 2013 TCEQ Emissions Inventory.

The TCEQ conducted air dispersion modeling of lead emission sources at the site in 2009 in support of a lead monitoring waiver for U.S. Army (Fort Hood). The ADMT reviewed the 2009 modeling analysis and determined that additional modeling is not required for the renewal of the lead monitoring waiver.

### **Report Summary**

The predicted maximum ground level concentration (GLCmax) is  $0.02 \mu\text{g}/\text{m}^3$  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**

<b>Easting (meters)</b>	<b>Northing (meters)</b>	<b>Averaging Time</b>	<b>GLC (<math>\mu\text{g}/\text{m}^3</math>)</b>	<b>Standard (<math>\mu\text{g}/\text{m}^3</math>)</b>
618000	3446900	rolling three-month	0.02	0.15

### **Modeling Discussion**

The 2009 modeling analysis utilized the reported emissions for the 2007 Texas Emissions Inventory (1.0501 tpy). The lead emissions originate from the firing ranges at Fort Hood. In the modeling analysis, the reported emissions were divided amongst the various firing ranges based on the ratio of each firing range area to the total firing range area. The maximum predicted concentration from the firing ranges was determined to be less than half the lead NAAQS, as reported in Table 1. The 2009 modeling report is attached for reference.

In order to show that the 2009 modeling analysis is still valid, the ADMT reviewed recent permitting actions to determine if any changes have been made to the modeled sources since 2009. Based on the review, the ADMT determined that there have been no changes related to the modeled source parameters. In addition, the ADMT reviewed the reported emissions from the 2013 Texas Emissions Inventory (0.74 tpy). Since the reported emissions have decreased from 1.0501 tpy to 0.74 tpy, any additional modeling would utilize lower emission rates for the firing ranges compared to the 2009 modeling analysis. Table 2 shows what the change to the modeled emission rates would be for each source.

**Table 2. On-Property Source Modeled Emission Rates**

<b>Source ID</b>	<b>Pollutant</b>	<b>2009 Emission Rate (lb/hr)</b>	<b>2015 Emission Rate (lb/hr)</b>
NFHS	Lead	0.0056	0.004
NFHR	Lead	0.0079	0.0055
OBJID_8	Lead	0.0105	0.0074
OBJID_9	Lead	0.0062	0.0044
IHSR	Lead	0.0306	0.0215
HGQ	Lead	0.0026	0.0018
PKGL	Lead	0.0053	0.0037

<b>Source ID</b>	<b>Pollutant</b>	<b>2009 Emission Rate (lb/hr)</b>	<b>2015 Emission Rate (lb/hr)</b>
BGRB	Lead	0.0113	0.0079
BGPQ	Lead	0.0017	0.0012
BGRC	Lead	0.0255	0.018
PKAT4	Lead	0.0054	0.0038
BWPA	Lead	0.0018	0.0013
BWPB	Lead	0.0017	0.0012
HGC	Lead	0.0025	0.0017
NFHRB	Lead	0.0128	0.009
HGDA	Lead	0.0023	0.0016
BWGL	Lead	0.0149	0.0105
PKRZ	Lead	0.0068	0.0048
PKRA	Lead	0.0066	0.0047
BWMS	Lead	0.0411	0.029
PSR	Lead	0.0367	0.0258

Modeling these lower emission rates would result in lower predicted lead concentrations than the reported lead concentrations associated with the 2009 modeling analysis. Therefore, the 2009 modeling analysis results are valid for the purposes of renewing the lead monitoring waiver for U.S. Army.