

**Neighborhood Air Toxics Modeling Project
For
Houston and Corpus Christi
Case # 2:11-MC-00044**

**Phase 1A
Modeling Project**

and

**Phase 1B
Monitoring Network Extension**

**Report for the Period
January 1, 2011 through September 30, 2012**

Submitted to

**The Honorable Janis Graham Jack
US District Court Judge, Southern District of Texas
Corpus Christi, Texas**

Submitted by

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April 1, 2013

I. Introduction

On February 1, 2008, the Court entered an Order (D.E. 981, Order (pp.1, 7-11)) regarding unclaimed settlement funds in Lease Oil Antitrust Litigation (No.11) Docket No. MDL No.1206. The Court requested a detailed project proposal from Dr. David Allen, the Gertz Regents Professor in Chemical Engineering and the Director of the Center for Energy and Environmental Resources at The University of Texas at Austin (UT Austin), regarding the use of \$9,643,134.80 in the Settlement Fund. The proposal was for a project titled “Neighborhood Air Toxics Modeling Project for Houston and Corpus Christi” (hereinafter “Air Toxics Project”). The Air Toxics Project was proposed in two stages. In Stage 1, UT Austin would develop, apply, demonstrate and make publicly available, neighborhood-scale air quality modeling tools for toxic air pollutants in the Corpus Christi, Texas and would extend the operation of the air quality monitoring network in Corpus Christi, Texas. The ambient monitoring results from Stage 1 would be used in synergy with the neighborhood-scale models to improve the understanding of emissions and the spatial distribution of air toxics in the region.

On February 21, 2008, the US District Court for the Southern District of Texas issued an order to the Clerk of the Court to distribute funds in the amount of \$4,586,014.92, plus accrued interest, to UT Austin for the purposes of implementing Stage 1 of the Air Toxics Project as described in the detailed proposal submitted to the Court by UT Austin on February 15, 2008 (D.E. 998).

Under the Order to Distribute Funds in MDL No. 1206, on March 3, 2008, at the direction of the Settlement Administrator, \$4,602,598.66 was disbursed to UT Austin for Stage 1 of the Project. This amount includes the interest accrued prior to distribution from the MDL No. 1206 Settlement Fund.

In Stage 2, subject to the availability of funds, it was planned that UT Austin would extend the modeling to the Houston, Texas ship channel region, develop a mobile monitoring station that could be deployed in Corpus Christi and in other regions of Texas and/or further extend the operating life of the existing stationary network in the same or a modified spatial configuration. Based on recent legal decisions, UT Austin does not anticipate receiving the Stage 2 funding at any point in the future. Therefore, this annual report and all future quarterly reports will focus exclusively on Stage 1 projects.

Work on the modeling portion of Stage 1 (Stage 1A) was completed June 30, 2011. All future progress reports (both quarterly and annual) will describe only new work on Stage 1B (extending the operation of the air quality monitoring network). This Stage 1 quarterly report has been prepared pursuant to the requirements of the Air Toxics Project and is being submitted to the US District Court.

II. Air Toxics Project – Stage 1 - Phase 1A Overview

A. Scope and Objectives

The objective of Stage I - Phase 1A of The Air Toxics Project for UT Austin and its subcontractors was to develop, apply, and make publicly available, neighborhood-scale air quality modeling tools for toxic air pollutants in the Corpus Christi area. Stage 1 – Phase 1A of the Air Toxics Project provided significant and discernible environmental benefits to the Corpus Christi area by providing analyses of air pollutant concentrations

experienced by the community, and providing post-event evaluation of pollutants emitted during releases. UT Austin has performed this work in collaboration with subcontractors at Texas A&M University and ENVIRON International Corporation. The work on Stage 1A was completed during the quarter ending June 30, 2011.

B. Major Tasks

The major tasks for Stage I, Phase IA included:

1. *Development of a conceptual model of meteorological conditions likely to lead to high concentrations of air toxics in the Corpus Christi area.*
This task identified meteorological conditions (seasons, temperatures, wind speeds, wind directions, frontal passages and other parameters) and air quality conditions that are most likely to lead to high concentrations of air toxics in populated regions of Corpus Christi. The conceptual model was used to identify historical periods that were used to develop and test air toxics modeling systems for Corpus Christi.
2. *Development of emissions inventory and land cover input information.*
These data were developed at a spatial resolution that allows the neighborhood scale air quality models to operate with a resolution of a few hundred meters.
3. *Application of dispersion models to estimate the neighborhood-scale concentrations of air toxics in Corpus Christi.*
Dispersion models represent the current best practice for estimating air toxics concentrations in urban areas. Using emissions, land cover, and meteorological data, a dispersion model was used to estimate concentrations of air toxics in plumes from sources identified in the emissions inventory and during historical meteorological conditions identified during the conceptual model development.
4. *Development of improved meteorological models of air pollutant dispersion in the Corpus Christi area.*
A more rigorous combined plume and gridded model able to characterize the complex coastal meteorology in the region was developed and applied in order to address uncertainties in predicted concentrations obtained from the dispersion model. A state-of-the-science meteorological model was used to simulate the three-dimensional weather conditions in the Corpus Christi area, with a focus on the replication of historical weather patterns identified in the conceptual model.
5. *Development of combined gridded and plume models to estimate neighborhood-scale concentrations of air toxics in Corpus Christi:*
The combined gridded and plume model predicted three-dimensional concentrations of selected air toxic pollutants throughout the Corpus Christi area. An evaluation framework was developed to compare predicted and observed concentrations during specific historical episodes and to refine the modeling approach and performance.
6. *Application of the combined dispersion and gridded modeling tools to estimate concentrations of air toxics in Corpus Christi.*
The combined dispersion and gridded modeling tools were applied to estimate concentrations of air toxics in Corpus Christi under a variety of meteorological conditions for routine emissions and when monitoring data has indicated higher concentrations of air toxics than would be expected under routine emission conditions; spatial mappings of the estimated air toxics concentrations have been made available on a Project website.

C. Project Milestone Schedule

The work on Phase 1A was completed as of June 30, 2011.

III. Air Toxics Project – Stage 1 - Phase 1B Overview

A. Scope and Objectives

The workplan reserves approximately 65% of Stage 1 project funds, approximately \$3 million, to extend the operation of the Corpus Christi ambient monitoring network. This will be referred to as Phase 1B of the project.

In September 2012, the first expenditures were made to the Phase 1B project account, as the funds used to establish the network and operate the monitoring network for 8 years (Corpus Christi Air Monitoring funds) were very close to being fully expended. It is anticipated that the final remaining Corpus Christi Air Monitoring funds will be fully expended by January 2013 and funding for the network will be drawn from the budget for Phase 1B.

B. Goals

The primary goal of Phase 1B will be to prolong the life of the Corpus Christi air monitoring network. Under Phase 1B the project team will use the air quality modeling results (Stage 1A, now complete) in synergy with the data collected from the ambient network to help develop recommendations for future changes in the geographic configuration and/or instrumentation for the network that might facilitate better characterization of air toxics exposure patterns.

IV. Collaborative Relationships and Leveraging of the Air Toxics Project

In December 2008 the Texas Commission on Environmental Quality (TCEQ) approved a Supplemental Environmental Project (SEP) in the amount of \$400,000, resulting from an enforcement action against Equistar Chemicals, LP (Agreed Order Docket No. D1-GV-06-002509.) This SEP Award was originally budgeted to extend the life of the Corpus Christi Air Monitoring and Surveillance Camera Installation and Operation Project and to purchase a FLIR ThermoCAM GasFindIR-HS (IR Camera) under the terms and conditions of a Supplemental Environmental Project Agreement between The University of Texas at Austin (UT Austin) and the Texas Commission on Environmental Quality (TCEQ).

Subsequent to the March 31, 2009 Quarterly Report to the Court, the TCEQ notified UT Austin that Equistar Chemicals (a subsidiary of LyondellBasell Industries and US affiliate Lyondell Chemical Co.), filed for Chapter 11 bankruptcy on January 6, 2009 and that the \$400,000 ordered to be paid by Equistar for this project might be subject to a collection effort in that proceeding on behalf of the creditors. As a consequence, the funding for the Equistar SEP award was placed on indefinite hold. Subsequently the Bankruptcy Trustee filed a lawsuit against UT to recover the \$400,000 as a “preferential transfer” which can void transfers that take place within certain time limits of filing for bankruptcy.

The Texas Attorney General represented UT in that lawsuit. On February 7, 2011, UT was notified that the Assistant Attorney General handling the case, with the agreement of the TCEQ,

succeeded in getting an agreed settlement under the terms of which UT paid \$250,000 to the Bankruptcy Trustee and UT retained the remaining balance free and clear. On February 14, 2011, a payment in the amount of \$250,000 was mailed to the Bankruptcy Trustee.

Due to the reduction of the award amount and that a notice to proceed was never issued for the initial budgeting of the Equistar funds, UT contacted the TCEQ to determine the procedures UT should follow to move forward in utilizing the funds. In a letter dated March 18, 2011, TCEQ asked UT to submit a new Third-Party Application to the SEP Program by June 1, 2011. This would allow UT to transition the Equistar funds to a new SEP Agreement, as the term of the older agreement had ended. It would also provide a conduit for UT to be awarded additional SEP funds in the future.

UT submitted a new Third-Party Application to receive SEP funding on June 1, 2011. As of the writing of this report, that Application is still under review.

On April 26, 2012, UT was contacted by TCEQ regarding UT's participation in the SEP program. Since the Third-Party Application was still under review, it was agreed that UT should issue a request to extend the *prior* SEP Agreement and move forward with utilizing the SEP funds. The extension request along with a project plan for utilizing the Equistar SEP funds was submitted to TCEQ in parallel with the March 31, 2012 Quarterly Report on May 7, 2012. On May 8, 2012, a No Cost Extension was granted through May 31, 2013.

The funds received under this SEP project through September 30, 2012 totals \$150,088.60. This amount includes the interest earned through September 30, 2012.

As of September 30, 2012, UT Austin has expended \$55,101.43 of the SEP award funds to extend the life of the sampling network. These expenditures were for contractor costs and supplies associated with the Corpus Christi Air Monitoring Project.

V. Financial Summary

A. Financial Report

Details of the following financial summary information are included in Appendix A, beginning on page 7.

1. Detailed List of the Actual Expenditures Paid from Air Toxics Project Funds Phase 1B through September 30, 2012
Expenditures of Air Toxics Project funds for Phase 1B total \$9,480.44. The funds remaining in the Air Toxics account (not spent for Phase 1A) are in a separate account so that separate financial reports can be generated.
2. Total Interest Earned on Air Toxics Project Funds through September 30, 2012
The total interest earned through September 30, 2012, is \$387,268.55. All interest generated from these funds have been transferred to the new account for Phase 1B.

3. Balance as of September 30, 2012, in the Air Toxics Project Account
The balance in the Air Toxics Project account, including interest earned totals \$3,123,159.79.
4. Anticipated Expenditures for the Funds Remaining in the Air Toxics Project Account – Phase 1A
There are no additional expenditures anticipated for Phase 1A.
5. Anticipated Expenditures for the Funds Remaining in the Air Toxics Project Account – Phase 1B
All funds remaining after the close of Stage 1, Phase 1A have been allocated to Stage 1, Phase 1B, the extension of the operation of the Corpus Christi ambient monitoring network.

The Stage 1 Phase 1A Neighborhood Air Toxics Modeling Project was originally allocated a budget of \$2,277,564. As of June 30, 2011, total and final expenditures on Phase 1A totaled \$1,863,081.22. The remaining funds totaling \$414,482.78, have been transferred, with the Court's permission, to a new account to allow for easier tracking of the expenses as they are utilized for Stage 1 Phase 1B, the extension of the Corpus Christi Air Monitoring Project.

Quarterly Report Distribution List:

U.S. District Court

Ms. Sondra Scotch, Assistant Deputy-In-Charge, District Court Operations
for distribution to the Honorable Janis Graham Jack

cc: The University of Texas at Austin

Mr. Lee Smith, Associate Vice President for Legal Affairs
Dr. Elena McDonald-Buller, Center for Energy & Environmental Resources
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Mr. Ken Rozacky, Monitoring Operations Division, Headquarters
Mr. Chris Owen, Chief Engineer's Office, Headquarters
Ms. Rosario Torres, Air Section Work Leader, Region 14

Members of the Advisory Board of the *Corpus Christi Air Monitoring and Surveillance Camera Project*

APPENDIX A

FINANCIAL SUMMARY of Expenditures and Interest Earned

ANNUAL PROGRESS REPORT
TO THE U.S. DISTRICT COURT
FOR THE
CORPUS CHRISTI NEIGHBORHOOD AIR TOXICS PROJECT

Financial Summary

As of September 30, 2012

Total Settlement Fund Allocation & Interest Earned **\$9,665,572.78**

Stage 1 – Settlement Fund Allocation	\$4,586,014.92
Interest earned by the U.S. District Court	\$ 16,583.74
Additional interest earned by U.S. District Court	<u>\$ 5,854.24</u>
(Distributed by the Garden City Group in May 2010)	
Stage 1 Funds Total	\$4,608,452.90

Stage 1 Phase 1A - Modeling	\$2,277,564.00
Stage 1 Phase 1B – Monitoring Extension	\$2,330,888.90

Stage 2 Funds - Undistributed pending appeal **\$5,057,119.88**

(UT was notified by the Court that due to the outcome of the appeal, these funds would not be distributed to UT.)

Less Stage 2 Funds **(\$5,057,119.88)**

Total Interest Earned at UT-Austin as of 9/30/2012 **\$ 387,268.55**

Project Expenditures **\$1,872,561.66**

Stage 1, Phase 1A		
First Year Paid Expenditures	(3/3/2008 – 12/31/2008)	\$ 489,853.15
Second Year Paid Expenditures	(1/1/2009 – 12/31/2009)	\$ 786,455.98
Third Year Paid Expenditures	(1/1/2010 – 12/31/2010)	\$ 516,101.84
Fourth Year Paid Expenditures	(1/1/2011 – 12/31/2011)	<u>\$ 70,670.25</u>
Total Project Expenditures	(3/3/2008 – 12/31/2011)	\$1,863,081.22

Stage 1, Phase 1B

First Year Paid Expenditures	(1/1/2012 – 9/30/12)	\$ 9,480.44
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(Partial Year to align with Corpus Christi Air Monitoring Network reporting cycle.)

Funds Remaining **\$3,123,159.79**

CORPUS CHRISTI NEIGHBORHOOD AIR TOXICS PROJECT

Stage 1 Phase 1A – Modeling Funding Summary

Total Funding - Years 1 through 4	\$2,277,564.00
Project Expenditures through 12/31/2011	<u>\$1,863,081.22</u>
Stage 1 Phase 1A Funds Remaining	\$ 414,482.78
Stage 1 Phase 1A Funds Transferred to Phase 1B	<u>(\$ 414,482.78)</u>
Stage 1 Phase 1A Funds Final	\$ 0.00

Expenditure Summary for the Project Period March 3, 2008 through December 31, 2011

Description	Budget Allocation Phase 1A Years 1 - 4	Years 1- 3 paid Expenditures	Year 4 paid Expenditures	Total Expenditures	Balance Available
Salaries and Wages	\$845,390.00	(\$745,502.74)	(\$3,984.00)	(\$749,486.74)	\$95,903.26
Fringe Benefits	\$205,037.00	(\$180,836.43)	(\$1,531.47)	(\$182,367.90)	\$22,669.10
CEER Admin Salaries	\$90,825.00	(\$76,373.30)	(\$3,015.89)	(\$79,389.19)	\$11,435.81
Supplies	\$56,160.00	(\$34,370.63)	(\$156.01)	(\$34,526.64)	\$21,633.36
Contingency	\$34,551.00	\$0.00	\$0.00	\$0.00	\$34,551.00
Consultants	\$25,000.00	\$0.00	\$0.00	\$0.00	\$25,000.00
Subcontract					
Environ Corp.	\$400,000.00	(\$319,985.42)	(\$40,980.38)	(\$360,965.80)	\$39,034.20
Texas A&M Univ.	\$195,763.00	(\$172,305.78)	(\$11,784.64)	(\$184,090.42)	\$11,672.58
Holding	\$4,237.00	\$0.00	\$0.00	\$0.00	\$4,237.00
Modeling/Computer					
Services	\$59,000.00	\$0.00	\$0.00	\$0.00	\$59,000.00
Computation Center	\$1800.00	(\$1800.00)	\$0.00	(\$1,800.00)	\$0.00
Tuition	\$17,727.00	(\$17,602.00)	\$0.00	(\$17,602.00)	\$125.00
Travel	\$20,000.00	(\$2,596.97)	\$0.00	(\$2,596.97)	\$17,403.03
Equipment	<u>\$25,000.00</u>	<u>(\$7,245.00)</u>	<u>\$0.00</u>	<u>(\$7,245.00)</u>	<u>\$17,755.00</u>
Total Direct Costs	\$1,980,490.00	(\$1,558,618.27)	(\$61,452.39)	(\$1,620,070.66)	\$360,419.34
Indirect Costs (15% TDC)	<u>\$297,074.00</u>	<u>(\$233,792.70)</u>	<u>(\$9,217.86)</u>	<u>(\$243,010.56)</u>	<u>\$54,063.44</u>
Total	\$2,277,564.00	(\$1,792,410.97)	(\$70,670.25)	(\$1,863,081.22)	\$414,482.78

In October 2011, all Phase 1A budget categories were rebudgeted to match total expenditures and leave a \$0.00 balance. The remaining funds of \$414, 482.78 were reallocated to Phase 1B.

Stage 1 Phase 1B – Air Monitoring Extension

Funding Allocation	\$2,330,888.90
Funds Transferred from Phase 1A	<u>\$ 414,482.78</u>
Total Funding Allocation	\$2,745,371.68
Interest Earned through 9/30/12	<u>\$ 387,268.55</u>
Total Funding Available	\$3,132,640.23
Project Expenditures through 09/30/2012	<u>\$ 9,480.44</u>
Funds Remaining	\$3,123,159.79

Expenditure Summary for the Project Period January 1, 2012 through September 30, 2012

Description	Budget Allocation Phase 1B Year1	Year 1 paid Expenditures	Total Expenditures	Balance Available
Salaries and Wages	\$109,444.00	(\$6,408.25)	(\$6,408.25)	\$103,035.75
Fringe Benefits	\$24,563.88	(\$1,243.22)	(\$1,243.22)	\$23,320.66
CEER Admin Salaries	\$2,210.00	\$0.00	\$0.00	\$2,210.00
Quality Assurance				
Cell Phone Allowance	\$60.00	\$0.00	\$0.00	\$60.00
SEP Reserve	\$10,800.00	\$0.00	\$0.00	\$10,800.00
Contingency				
Monthly M&O	\$42,117.93	(\$169.50)	(\$169.50)	\$41,948.43
Equip. & Spare Parts				
Communications	\$1,946.00	(\$359.87)	(\$359.87)	\$1,586.13
Electric	\$4,062.00	\$0.00	\$0.00	\$4,062.00
Gases	\$1,439.00	(\$63.02)	(\$63.02)	\$1,375.98
Consultant-Holding				
Consultant Services				
ORSAT	\$83,777.00	\$0.00	\$0.00	\$83,777.00
TMSI	\$80,000.00	\$0.00	\$0.00	\$80,000.00
Analytical				
Travel				
Equipment	<u>\$0.00</u>	<u>\$0.00</u>	<u>\$0.00</u>	<u>\$0.00</u>
Total Direct Costs	\$360,419.81	(\$8,243.86)	(\$8,243.86)	\$352,175.95
Indirect Costs				
(15% TDC)	<u>\$54,062.97</u>	<u>(\$1,236.58)</u>	<u>(\$1,236.58)</u>	<u>\$52,826.39</u>
Total	\$414,482.78	(\$9,480.44)	(\$9,480.44)	\$405,002.34