Neighborhood Air Toxics Modeling Project
For
Houston and Corpus Christi – Stage 1

Quarterly Report for the Period

January 1, 2011 through March 31, 2011

Submitted to

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

Submitted by

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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 will develop, apply, demonstrate and make publicly available, neighborhood-scale air quality modeling tools for toxic air pollutants in the Corpus Christi, Texas and will extend the operation of the air quality monitoring network in Corpus Christi, Texas. In Stage 2, subject to the availability of funds, UT Austin will extend the modeling to the Houston, Texas ship channel region, develop a mobile monitoring station that can 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. If a mobile monitoring station is deployed, it will be used to map the spatial distributions of air pollutant concentrations and to inform the public. All ambient monitoring results will 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. Stage 2 funding has not been awarded by the US District Court.

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 is 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 will provide 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 is performing this work in collaboration with subcontractors at Texas A&M University and ENVIRON International Corporation.

B. Major Tasks

The major tasks for Stage I, Phase IA include:

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 will identify 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 will be used to identify historical periods that can be used to develop and test air toxics modeling systems for Corpus Christi.
2. *Development of emissions inventory and land cover input information.*
   These data will be developed at a spatial resolution that will allow 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 will be 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 will also be developed and applied in order to address uncertainties in predicted concentrations obtained from the dispersion model. A state-of-the-science meteorological model will be 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. Simulation of local circulation features will be carefully assessed, and additional analyses will customize the model for best performance in the Corpus Christi area.
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 will predict three-dimensional concentrations of selected air toxic pollutants throughout the Corpus Christi area using the meteorological modeling, emission inventory and land cover data described above. An evaluation framework will be 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 will be 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 will be made available on a Project website.

C. Project Milestone Schedule
The meteorological and air quality modeling is on-going as described below.

D. Scheduled Project Presentations and Meetings
The Corpus Christi Air Monitoring and Surveillance Camera Project Advisory Board met on March 1, 2011 on the campus of Texas A&M University in Corpus Christi, Texas. Dr. Allen presented the results of the SO_2 emissions analysis. The meeting notes from the Advisory Board Meeting are found in Appendix A, page 8.

On March 29, 2011, the annual air toxics project report was presented to the Honorable Janis Graham Jack, US District Court, in Corpus Christi, Texas. The annual report focused on the results from of the past seven years of ambient monitoring and the contributions of the data analysis and dispersion and photochemical modeling to the understanding of air toxics concentrations in the region. Plans for modification and continuation of the network were presented.

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

A. Scope and Objectives
The initial workplan for the Stage I funding called for application of the modeling tools to the Houston Ship Channel region after their demonstration in Corpus Christi with the goal of demonstrating that the neighborhood-scale air toxics modeling framework is applicable to other urban areas. The area surrounding the Ship Channel in east Harris County, Texas was to be used for this demonstration, and the period to be modeled will be August 15-September 15, 2006, which corresponds to the period of the Second Texas Air Quality Study (TexAQS II).

The initial workplan for Stage I has been restructured and Phase 1B of the project reserves approximately 50% of Stage 1 project funds, approximately $2.3 million, to extend the operation of the Corpus Christi ambient monitoring network. As a result the modeling of the Houston Ship Channel region will be deferred pending availability of Stage 2 funds.

B. Goals
Under Phase 1B the project team will use the air quality modeling results 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 the air toxics exposure patterns.

IV. Stage 1 – Phase 1A Project Progress Report

A. Meteorological Team
Dr. Nielsen-Gammon's group at Texas A&M University completed the development and evaluation of the September 2005 - February 2006 and September 2008 – February 2009 Weather Research and Forecast (WRF) meteorological modeling simulations at a 1-km spatial resolution. A report on the results was submitted to UT Austin.

B. Modeling Team

Dispersion modeling simulations of benzene and 1,3-butadiene concentrations using AERMOD and CALPUFF were completed by UT Austin. An accompanying report was completed that includes descriptions of the modeling methodology, comparisons of the dispersion modeling results to ambient observations, maps of predicted spatial distribution of benzene and 1,3-butadiene concentrations, and discussions of key findings and recommendations for the region. ENVIRON completed an effort similar in nature, but involving CAMx photochemical modeling simulations of air toxics using the WRF meteorological model output generated by Dr. Nielsen-Gammon's group. ENVIRON has completed a report describing the photochemical modeling methodology and results. The documentation of the dispersion modeling and photochemical modeling studies was submitted to the Honorable Janis Graham Jack, US District Court, in Corpus Christi, Texas.

V. Collaborative Relationships and Leveraging of the Air Toxics Project

None during this reporting period.

VI. Financial Summary

A. Financial Report

Details of the following financial summary information are included in Appendix B, beginning on page 10.

1. Detailed List of the Actual Expenditures Paid from Air Toxics Project Funds through March 31, 2011
   Expenditures of Air Toxics Project funds during this quarter totaled $61,012.34. The breakdown of expenditures can be found in Appendix B, page 11. The activities for which these expenditures were used are detailed in this report.

2. Total Interest Earned on Air Toxics Project Funds through March 31, 2011
   The interest earned during this quarter totaled $18,152.88. A report providing detailed calculations of the interest earned on the Air Toxics Project funds is included in Appendix B, page 11.

3. Balance as of March 31, 2011, in the Air Toxics Project Account
   The balance in the Air Toxics Project account, including interest earned totals $3,063,782.07.

4. Anticipated Expenditures for the Funds Remaining in the Air Toxics Project Account
   The anticipated expenditures for the remaining funds will total $3,063,782.07. All funds remaining after the close of Stage 1, Phase 1A will be allocated to Stage 1, Phase 1B, the extension of the operation of the Corpus Christi ambient monitoring network. It is anticipated that Stage 1 Phase 1A will be complete as of June 30, 2011.

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

APPENDIX A

March 1, 2011

Advisory Board Meeting Notes

ADVISORY BOARD MEETING

Corpus Christi Air Monitoring and Surveillance Camera Installation and Operation Project

Texas A&M University - Corpus Christi

Room 1009, NRC Building

11:30 pm – 1:30 pm

March 1, 2011

Advisory Board Members Present:

Ms. Gretchen Arnold	Corpus Christi Pollution Prevention Partnership TAMUCC
Ms. Joyce Jarmon	Corpus Christi Community Council
Dr. Glen Kost	Public Health Awareness
Ms. Pat Suter	Coastal Bend Sierra Club

Ex-Officio Members of the Board

Ms. Rosario Torres	TCEQ – Region 14
Ms. Susan Clewis	TCEQ – Region 14
Mr. David Kennebeck	TCEQ – Region 14

Project Personnel Present:

Dr. David Allen	The University of Texas at Austin
Mr. Vince Torres	The University of Texas at Austin
Dr. Dave Sullivan	The University of Texas at Austin
Ms. Terri Mulvey	The University of Texas at Austin

I. Call to Order and Welcome

Mr. Vince Torres called the meeting to order at 11:35 pm.

II. Discussion of Development of Plan for Continued Operation of Monitoring Network

Mr. Torres gave the Advisory Board a summary of the projected funding available at the end of year 8. He reported the following:

- Neighborhood Air Toxics - $2,330,889
- Sherwin Alumina SEP _ $10,800
- Equistar SEP (Estimated) - $150,00
- Free Balance in the CCAM & SC Project Funds (Estimated) $141,413
- Total (Estimated) - $2,705,354
- Stage 2 Settlement Funds - $5,057,120*

  *Disposition still uncertain

He went on to explain the 3 year budgetary estimates for major equipment expenses. They include:

- Miscellaneous expenses through the end of the current year will be $20,000.
- Waiting for detailed equipment replacement costs for the auto-GC systems.
- For other monitors, replacement of equipment (plus spares) and installation: hydrogen sulfide (7), sulfur dioxide (7), total non-methane hydrocarbon (8) analyzers, and multi-gas calibrators (10) will cost $400,000.

Mr. Torres also explained the budgetary estimates for selected expenses include:

Item	Equipment & Installation	Annual Operating Cost
1) Network Operations & Maintenance (As is)		$1,200,000
2) NOx Analyzer (each*)	$25,000	$12,000
3) PM (Continuous)	$35,000	$12,000
4) PM (Non continuous)	$16,000	$24,000
5) Relocate a site	Up to $60,000	

*For this equipment, it is recommended that a spare unit also be purchased.

III. Preplanning for the Annual report to the Honorable Judge Jack

The following plan was recommended by UT Austin for continuation of the network and presentation to The Honorable Judge Jack at the Annual Presentation on March 29, 2011.

- Largely preserve the existing network.
- Add NOx monitors to the Oak Park and Dona Park sites.
- Move the Flint Hills Reserve site to a location north of the ship channel.
    1. Plan A. - West of Valero West on Port of Corpus Christi property.
    2. Plan B. - South of Dona Park.
- Add measurements for PM2.5 and PM 10 to the network as needed.
- Continue to examine the effectiveness of the network.

Ms. Pat Suter made a motion to approve the plan as recommended by UT. Dr. Glen Kost seconded the motion. The motion was unanimously approved by all Advisory Board Members present.

IV. Adjourn

The meeting was adjourned at 1:45 pm.

APPENDIX B

FINANCIAL REPORT
of
Expenditures
and
Interest Earned

Neighborhood Air Toxics Modeling Project for Houston and Corpus Christi - Stage 1 Phase 1A

Accounting Report for the Quarter
01/01/2011 - 03/31/2011

A. Total Amount of Air Toxics Funds and Other Funds Received Under This Proposal

Total Grant Amount:	$4,608,452.90
Total Interest Earned:	$308,752.48
Total Funds Received:	**$4,917,205.38**

B. Summary of Expenditures Paid by Air Toxics Funds

		Yr 1 and Yr2 Budget	Year 3 Budget	Adjustments this Quarter	Adjusted Budget	Prior Activity	Current Activity 01/01/11 - 03/31/11	Encumbrances	Remaining Balance 3/31/2011
Salaries-Prof	12	$616,882.00	$228,508.00	$0.00	$845,390.00	($745,502.74)	($3,984.00)	$0.00	$95,903.26
Salaries-CEER	15	$66,780.00	$24,045.00	$0.00	$90,825.00	($76,373.30)	($1,807.24)	($1,208.66)	$11,435.80
Fringe	14	$149,185.00	$55,852.00	$0.00	$205,037.00	($180,836.43)	($1,253.73)	($277.90)	$22,668.94
Supplies	50	$61,991.00	-$4,031.00	($1,800.00)	$56,160.00	($34,370.63)	($156.01)	$0.00	$21,633.36
Contingency	51	$6,746.00	$27,805.00	$0.00	$34,551.00	$0.00	$0.00	$0.00	$34,551.00
Consultants	60	$22,500.00	$2,500.00	$0.00	$25,000.00	$0.00	$0.00	$0.00	$25,000.00
Subcontracts	61-63	$600,000.00	$0.00	$0.00	$600,000.00	($492,291.20)	($45,853.23)	$0.00	$61,855.57
Modeling/Computer Sv	67	$46,500.00	$12,500.00	$0.00	$59,000.00	$0.00	$0.00	$0.00	$59,000.00
Computation Center	68	$0.00	$0.00	$1,800.00	$1,800.00	($1,800.00)	$0.00	$0.00	$0.00
Tuition	71	$17,727.00	$0.00	$0.00	$17,727.00	($17,602.00)	$0.00	$0.00	$125.00
Travel	75	$15,000.00	$5,000.00	$0.00	$20,000.00	($2,596.97)	$0.00	$0.00	$17,403.03
Equipment	80	$17,500.00	$7,500.00	$0.00	$25,000.00	($7,245.00)	$0.00	$0.00	$17,755.00
Indirect Costs	90	$243,122.00	$53,952.00	$0.00	$297,074.00	($233,792.70)	($7,958.13)	$0.00	$55,323.17
TOTALS		**$1,863,933.00**	**$413,631.00**	**$0.00**	**$2,277,564.00**	**($1,792,410.97)**	**($61,012.34)**	**($1,486.56)**	**$422,654.13**

C. Interest Earned by COCP Funds as of 03/31/2011

Prior Interest Earned:	$290,599.60
Interest Earned This Quarter:	$18,152.88
Total Interest Earned to Date:	**$308,752.48**

D. Balance of COCP Funds as of 03/31/2011

Total Grant Amount:	$4,608,452.90
Total Interest Earned:	$308,752.48
Total Expenditures:	($1,853,423.31)
Remaining Balance:	**$3,063,782.07**

I certify that the numbers are accurate
and reflect acutal expenditures
for the quarter

Accounting Certification