

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

**Quarterly Report for the Period
March 1, 2010 through June 30, 2010**

Submitted to

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

Submitted by

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and
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August 24, 2010

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 April 29, 2010 on the campus of Texas A&M University in Corpus Christi, Texas. Dr. McDonald-Buller reviewed goals and accomplishments and discussed the framework and benefits of the air quality models being used for the project. The meeting notes from the Advisory Board Meeting are found in Appendix A, page 7.

On May 4, 2010, 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 of the conceptual model of air toxics events in the region, on trends in the relationship between ambient measurements and reported point source emission inventories, and on differences between existing point source emission inventories for the region. The presentation also included preliminary results of the dispersion modeling simulations using AERMOD and CALPUFF and inter-comparison of modeled and measured benzene concentrations.

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 transfer 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 to ENVIRON and UT.

B. Modeling Team

AERMOD and CALPUFF modeling with emissions for all anthropogenic sources in the 2005 TCEQ Photochemical Modeling Inventory is on-going. Preparation of a draft final report on the results of the dispersion modeling is also on-going. This report will include 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.

V. Collaborative Relationships and Leveraging of the Air Toxics Project

Representatives from the Agency for Toxics Substances and Disease Registry (ATSDR) and their subcontractor attended the Corpus Christi Air Monitoring and Surveillance Camera Project Advisory Board on April 29, 2010 and met with the UT team on the campus of Texas A&M University in Corpus Christi Texas. They expressed interest in using the dispersion modeling results to spatially map predicted concentrations of air toxics in areas of Corpus Christi without monitors.

VI. Financial Summary

A. Financial Report

In the Neighborhood Air Toxics Modeling Project Quarterly Report for the period ending September 30, 2009, it was reported that The University of Texas at Austin had received a check for \$5854.24 from the Garden City Group. These funds were additional interest earned while the project funds were being held by the Garden City Group.

These funds were immediately submitted to the University Business Office for deposit into the project account. In March 2010, the Project Team was notified that the check for \$5854.24 had been returned to the University by the University's bank in September 2009 with the reason "Refer to Maker." The Garden City Group was notified, and their records indicated that the check had been deposited into a bank in which The University of Texas at Austin does not have an account. The Garden City Group notified their bank, JP Morgan Chase, of the situation and all parties involved submitted an Affidavit of Unauthorized Endorsement or Altered Item. The matter was investigated by JP Morgan Chase.

Because the funds were not available to be spent at that time, the University removed the amount of the check from the funds received in the Neighborhood Air Toxics Modeling Project. That information was reflected in the financial information for the Quarterly Report for the quarter ending March 31, 2010.

On May 11, 2010, the Garden City Group notified UT-Austin that JP Morgan Chase had completed its investigation and that the funds had been returned to the Lease Oil Litigation account. A new check was issued to UT-Austin and was received on May 12, 2010. That check was successfully deposited in the Neighborhood Air Toxics

Modeling account at UT-Austin. The increase in funds is reported in the information below.

Details of the following financial summary information are included in Appendix B, beginning on page 11.

1. Detailed List of the Actual Expenditures Paid from Air Toxics Project Funds through June 30, 2010
Expenditures of Air Toxics Project funds during this quarter totaled \$191,449.06. The breakdown of expenditures can be found in Appendix B, page 12. The activities for which these expenditures were used are detailed in this report.
2. Total Interest Earned on Air Toxics Project Funds through June 30, 2010
The interest earned during this quarter totaled \$20,950.79. A report providing detailed calculations of the interest earned on the Air Toxics Project funds is included in Appendix B, page 12.
3. Balance as of June 30, 2010, in the Air Toxics Project Account
The balance in the Air Toxics Project account, including interest earned totals \$3,190,327.17.
4. Anticipated Expenditures for the Funds Remaining in the Air Toxics Project Account
The anticipated expenditures for the remaining funds will total \$3,190,327.17.

Quarterly Report Distribution List:

U.S. District Court

Ms. Marianne Serpa, Assistant Deputy-In-Charge, District Court Operations
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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

April 29, 2010

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 1003, NRC Building

1:30 pm – 4:00 pm

April 29, 2010

Advisory Board Members Present:

Ms. Gretchen Arnold
Ms. Joyce Jarmon
Dr. Glen Kost
Ms. Pat Suter

Corpus Christi Pollution Prevention Partnership TAMUCC
Corpus Christi Community Council
Public Health Awareness
Coastal Bend Sierra Club

Advisory Board Guests Present:

Arnold Ott
Glenn Monette
John Wilhelmi
Danielle Langmann
George Pettigrew
Lillian Riojas
Laurie Wood
Mike Wood
Suzie Canzales

Railroad Commission
Railroad Commission
Eastern Research Group
Agency for Toxic Substances & Disease Registry
Agency for Toxic Substances & Disease Registry
Valero
Community Member
Community Member
Community Member

Project Personnel Present:

Mr. James Martinez
Dr. David Allen
Mr. Vince Torres
Dr. David Sullivan
Mr. David Kennebeck
Ms. Susan Clewis
Dr. Elena McDonald-Buller
Mr. Edward Michel
Mr. Yosuke Kimura
Ms. Terri Mulvey
Ms. Maria Stanzione

Probation Office - US District Court
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TCEQ – Region 14
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I. Call to Order and Welcome

A. Mr. Vince Torres called the meeting to order at 1:35 pm. Introductions of advisory board members and invited guests.

B. SEP Projects

Mr. Torres provided the following update through a written summary provided at the meeting. Any questions about the SEP update should be directed to Mr. Torres.

- 1) Equistar Petro Chemicals/Millennium - \$400,000 – Funding for the Equistar SEP award is on indefinite hold. UT Austin will advise the Advisory Board once the final status of the Equistar SEP funds has been determined.
- 2) Sherwin Alumina - \$10,244 – Charges for analyzing 18 canister performed during the period between December 2008 and August 2009 were transferred from the Corpus Christi Air Monitoring Project to the Sherwin Alumina SEP account during the 4th quarter of 2009.
- 3) TM Corpus Christi Services, Ltd. - \$67,900 – A revised proposal was submitted to be used toward the purchase of an infrared camera. The amount of this proposal was \$306,008. Additional SEP funds in the amount of \$234,814 (allowing for \$3,294 interest earned to date) would need to be identified in

order to fully fund this request. UT Austin received official notification that the revised use of the funds had been approved. However, without sufficient funding to conduct the project, the project is on hold until the additional funds needed are identified.

II. Project Overview and Status

A. Data Collection and Analyses

Dr. Dave Sullivan reported there was a slight uptick in benzene concentrations during 1st quarter of 2009. However during the 1st and 4th quarter the benzene concentrations are usually the highest. . At the Solar Estates and Oak Park sites benzene concentrations have downward trends for the multi-year period of the monitoring, now flattening out.

Dr. Sullivan mentioned that he included the FACT SHEET Changes to Health-Based Values used to Review Air Permits and Air Monitoring Data at the end of his handout in the packet.

III. Neighborhood Air Toxics Modeling Project

A. Update on Corpus Christi Neighborhood-Scale Air Toxics Modeling Project

Dr. McDonald-Buller reviewed the 2010 activities to date. The project is a collaborative effort with ENVIRON International Corporation in Novato, California, and Texas A&M University in College Station, Texas. Activities have included analyzing temporal trends in observed 1,3-butadiene concentrations using data from the UT Corpus Christi Air Quality Project and TCEQ Community Air Toxics Monitoring Network sites; dispersion modeling of benzene and 1,3-butadiene from industrial point sources with AERMOD and CALPUFF; developing emission inventories for on-road and non-road mobile sources with ENVIRON; photochemical modeling of benzene and 1,3-butadiene with CAMx with all anthropogenic emissions with ENVIRON; and meteorological modeling with WRF at 1-km spatial resolution for two time-periods: September 2005-February 2006 and September 2008-February 2009 with TAMU.

Dr. McDonald-Buller went on to explain factors can affect model performance, such as model configuration, land surface characteristics, and emission source release characteristics. Ms. Pat Suter inquired why there were differences between Fall/Winter and Spring/Summer. Dr. McDonald-Buller explained that predicted concentrations can be affected by different prevailing wind directions. She continued that impacts on performance can vary by time of day, wind speed, and wind direction

IV. Government Agency Interactions

A. Agency for Toxic Substances and Disease Registry (ATSDR)

Ms. Danielle Langemann provided an informational presentation on a public health assessment the ATSDR is performing in Corpus Christi. She explained that ATSDR is a Federal public health advisory agency. They address public health issues related to toxic chemicals in the environment and people affected by the toxic chemicals. They advised that they are responding to community concerns by preparing a public health assessment (PHA) and conducting an exposure investigation (EI). She further explained that a PHA reviews environmental data, evaluates effects of exposures and presents conclusions and recommendations. In regards to community concerns about the refinery row PHA, ATSDR will identify community environmental health and other public health concerns. They will also develop a community engagement plan.

Ms. Langemann explained that an ATSDR EI can focus on biological or environmental testing or both, to develop better characterization of human exposures and to evaluate exposure more thoroughly. She mentioned eligible participants of the Refinery Row include people who have the highest potential exposures to VOCs; participants from a previous pilot project; smokers and children. Flyers were distributed in the Hillcrest and Dona Park neighborhoods from February 18-19 to recruit participants. Ms. Langemann continued that they collected blood and urine samples, air monitoring badges and tap water samples during the week of March 22-25. ATSDR expects to have an internal agency review in late summer; external peer review by outside experts in late fall and comments by interested members of the

public in late winter 2010 for the PHA report. The participants should receive individual test results in about 6-8 weeks and a report released to the public in about 3 months for the EI report. Ms. Langemann mentioned that benzene is a bio marker for smokers only. Ms. Laurie Wood inquired if ATSDR tested bio markers for any non-smokers? Ms. Langemann replied that they tested bio markers across the board not only for smokers. Dr. David Allen inquired if there are EI performed around other industries? Ms. Langemann replied not as much. They have tested for VOCs in the past. ATSDR tries not to link to a specific source or company.

B. Texas Railroad Commission

Mr. Arnold Ott provided an overview presentation on the Texas Railroad Commission. He explained that the Railroad Commission of Texas (RRC, Commission) is the state agency with primary regulatory jurisdiction over the oil and natural gas industry, pipeline transporters, natural gas and hazardous liquid pipeline industry, natural gas utilities, the LP-gas industry, and coal and uranium surface mining operations. It is also responsible for research and education to promote the use of LP-gas as an alternative fuel in Texas. The Commission exercises its statutory responsibilities under provisions of the Texas Constitution, the Texas Natural Resources Code, the Texas Water Code, the Texas Health and Safety Code, the Texas Utilities Code, the Coal and Uranium Surface Mining and Reclamation Acts, and the Pipeline Safety Acts.

Dr. Glen Kost inquired about what role the Railroad Commission has with the White Point site? Mr. Ott replied that they have jurisdiction over the number of wells and abandoned wells. The Railroad Commission requires operators to plug abandoned wells, or any wells that are not active any more.

V. Report on Annual Meeting before the Honorable Judge Jack on January 8, 2010

Mr. Torres updated the Board on the presentation of the 2008 Annual Project report to the Honorable Judge Janice Graham Jack, U.S. District Court. It was reported that the Honorable Judge Jack was pleased with the progress of the project.

VI. Site Operations Contractor

Mr. Vincent Torres informed the Advisory Board that UT had been notified by multiple employees of AQSI, a site operations contractor that they had not been paid for work they had performed in relation to the Corpus Christi Air Monitoring and Surveillance Camera Project. Follow-up conversations with the President of AQSI confirmed that this information was correct. Several opportunities were given to AQSI to correct the situation; however, no acceptable resolution was reached. Mr. Torres asked the Advisory Board for their recommendation regarding the situation. The Advisory Board recommended that the contract be terminated. Mr. Torres acknowledged this recommendation and said he would bring this before the Honorable Judge Jack for her input before taking action.

VII. Advisory Board

A. Possible dates for future meeting of the Advisory Board

The week of October 25, 2010 is being held for a possible future 2010 meeting date for the next Advisory Board meeting.

B. Recommendations for agenda items for next meeting

VIII. Other Issues

IX. Adjourn

The meeting was adjourned at 4:15 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 04/01/2010 - 06/30/2010

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

Total Grant Amount:	\$4,608,452.90
Total Interest Earned:	\$250,729.35
Total Funds Received:	<u>\$4,859,182.25</u>

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 04/01/10 - 06/30/10	Encumbrances	Remaining Balance 6/30/2010
Salaries-Prof	12	\$616,882.00	\$228,508.00	\$0.00	\$845,390.00	(\$647,508.80)	(\$71,543.47)	(\$88.89)	\$126,248.84
Salaries-CEER	15	\$66,780.00	\$24,045.00	\$0.00	\$90,825.00	(\$66,714.88)	(\$6,570.70)	\$0.00	\$17,539.42
Fringe	14	\$149,185.00	\$55,852.00	\$0.00	\$205,037.00	(\$156,190.17)	(\$17,842.76)	(\$2,458.84)	\$28,545.23
Supplies	50	\$61,991.00	-\$4,031.00	\$0.00	\$57,960.00	(\$31,544.11)	(\$1,400.99)	\$0.00	\$25,014.90
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	(\$355,869.62)	(\$68,548.89)	\$0.00	\$175,581.49
Modeling/Computer Sv:	67	\$46,500.00	\$12,500.00	\$0.00	\$59,000.00	\$0.00	\$0.00	\$0.00	\$59,000.00
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	(\$2,026.33)	(\$570.64)	(\$0.02)	\$17,403.01
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	(\$192,705.11)	(\$24,971.61)	\$0.00	\$79,397.28
TOTALS		\$1,863,933.00	\$413,631.00	\$0.00	\$2,277,564.00	(\$1,477,406.02)	(\$191,449.06)	(\$2,547.75)	\$606,161.17

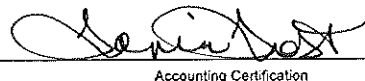
C. Interest Earned by COCP Funds as of 06/30/2010

Prior Interest Earned:	\$229,778.56
Interest Earned This Quarter:	\$20,950.79
Total Interest Earned to Date:	<u>\$250,729.35</u>

D. Balance of COCP Funds as of 06/30/2010

Total Grant Amount:	\$4,608,452.90
Total Interest Earned:	\$250,729.35
Total Expenditures:	<u>(\$1,668,855.08)</u>
Remaining Balance:	<u>\$3,190,327.17</u>

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



Accounting Certification