Corpus Christi Air Monitoring and Surveillance Camera Installation and Operation Project
Case Number: 2:11-MC-00044

Quarterly Report for the Period

April 1, 2012 through June 30, 2012

Submitted to

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

Ms. Kathleen Aisling
US Environmental Protection Agency, Region 6
Dallas, Texas

Ms. Susan Clewis
Texas Commission on Environmental Quality, Region 14
Corpus Christi, Texas

Submitted by

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August 29, 2012

I. Introduction

On October 1, 2003, 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 $6,700,000, plus interest accrued, to The University of Texas at Austin (UT Austin) to implement the court ordered condition of probation (COCP) project *Corpus Christi Air Monitoring and Surveillance Camera Installation and Operation* (Project). This quarterly report has been prepared pursuant to the requirements of the project and is being submitted to the US District Court, the US Environmental Protection Agency (EPA), and the Texas Commission on Environmental Quality (TCEQ).

II. Project Progress Report

The focus of work during the quarter ending June 30, 2012 has been directed to the following activities.

A. Operations and Maintenance Phase of the Project

A detailed description of the data analyses for this quarter appears in Appendix A, pages 10 through 37, and a summary of these analyses appears in this section.

The Project consists of a network of six (6) active air monitoring stations with air monitoring instruments and surveillance camera equipment, and one inactive monitoring station awaiting redeployment. A map showing locations of the COCP Project monitoring sites, along with TCEQ sites in the Corpus Christi area, appears in Figure 1, on page 3. Table 1, on page 3, identifies the location and instrumentation found at each of the COCP Project sites. TCEQ sites and some sites farther from the COCP area than the TCEQ sites that are operated by Texas A&M at Kingsville (TAMUK) provide additional data used in these analyses.

Some changes in the monitoring network occurred during this quarter. To conserve monitoring resources, the TNMHC and methane instruments were removed from the Solar Estates CAMS 633 and Oak Park CAMS 634 sites during the first week of May. Hourly total nonmethane hydrocarbon (TNMHC) measurements can still be determined at these sites using data from the two project automated gas-chromatographs (auto-GCs). On Tuesday, May 15, 2012, as a result of a lease termination notice, the West End Harbor continuous ambient monitoring station (CAMS) 631 site was shut down, moved to a temporary location and is being stored there pending redeployment at a to-be-determined location.

Figure 1. Corpus Christi Monitoring Sites, "X" marks recently terminated/to-be-relocated site

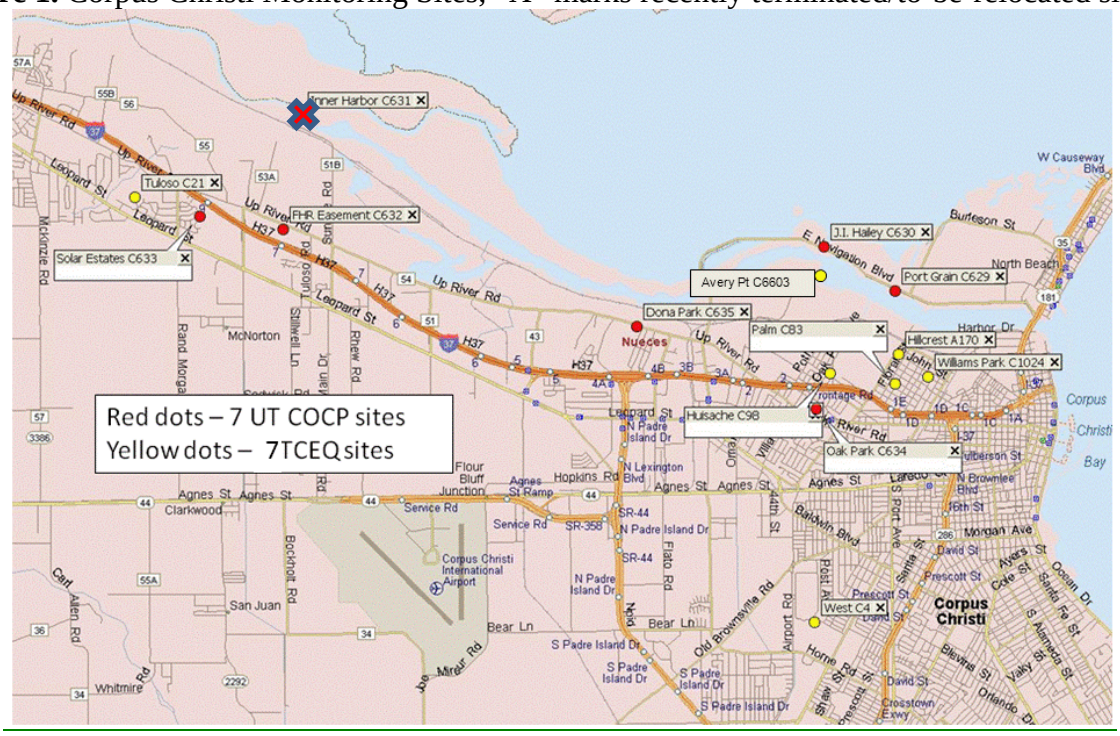


Table 1. Schedule of Air Monitoring Sites, Locations and Major Instrumentation

TCEQ CAMS#	Description of Site Location	Monitoring Equipment				
		Auto GC	TNMHC (T) / Canister (C)	H_2S & SO_2	Met Station	Camera
634	Oak Park Recreation Center (**OAK**)	Mar 2005 to date	C: Dec 2004 to Feb 2009 T: Dec 2004 to Apr 2012		Dec 2004 to date	
629	Grain Elevator @ Port of Corpus Christi (**CCG**)		T&C: Dec 2004 to date	Dec 2004 to date	Dec 2004 to date	
630	J. I. Hailey Site @ Port of Corpus Christi (**JIH**)		T&C: Dec 2004 to date	Dec 2004 to date	Dec 2004 to date	
635	TCEQ Monitoring Site C199 @ Dona Park (**DPK**)		T&C: Dec 2004 to date	Dec 2004 to date	Dec 2004 to date	Jan 2005 to date
632	Off Up River Road on Flint Hills Resources Easement (**FHR**)		T&C: Dec 2004 to date	Dec 2004 to date	Dec 2004 to date	
633	Solar Estates Park at end of Sunshine Road (**SOE**)	Mar 2005 to date	C: Dec 2004 to Feb 2009 T: Dec 2004 to Apr 2012	Dec 2004 to date	Dec 2004 to date	Jan 2005 to date
631	*Port of Corpus Christi on West End of CC Inner Harbor (**WEH**) (to be relocated)*		T&C: Dec 2004 to May 2012	Dec 2004 to May 2012	Dec 2004 to May 2012	

Legend

CAMS	continuous ambient monitoring station
Auto GC	automated gas chromatograph
TNMHC	total non-methane hydrocarbon analyzer (all except CAMS 634 & 633 also have canister hydrocarbon samplers)
H_2S	hydrogen sulfide analyzer
SO_2	sulfur dioxide analyzer
Met Station	meteorology station consisting of measurement instruments for wind speed, wind direction, ambient air temperature and relative humidity
Camera	surveillance camera

A discussion of data findings for the quarter appears in Appendix A, pages 10 through 37. Specifically, the appendix contains the following elements:

- **Auto-GC Data Summary –** In examining the validated first quarter of 2012 hourly auto-GC data from Oak Park, Solar Estates, and TCEQ's Palm sites, no individual measurements were found to have exceeded a short-term air monitoring comparison value (AMCV). The validated first quarter average concentrations were below each compound's long-term AMCVs. For second quarter 2012 data, the preliminary values were also below respective AMCVs. A summary of data appears in Appendix A, pages 16 through 20.

- **Benzene Summary** – A review of the seven years of data is presented, with focus on the quarterly means from 2005 through 2012. Details appear in Appendix A, pages 21 through 24.

- **Analysis of Sulfur Dioxide at Several Sites** – The JIH CAMS 630 site continues to measure concentrations high enough and often enough to violate the SO_2 annual National Ambient Air Quality Standards (NAAQS). Trends from various CAMS site are examined. These issues are expanded upon in Appendix A, pages 24 through 31.

- **Case Studies of Pollution Events** – Two case studies of elevated concentration measurements are presented in Appendix A, pages 32 through 36.

B. Scheduled Meetings of the Volunteer Advisory Board

The Corpus Christi Project Advisory Board met on April 27, 2012. The meeting notes from that Advisory Board Meeting are found in Appendix B, pages 38 through 40.
The Corpus Christi Project Advisory Board also met for a Special Project Meeting on June 12, 2012. The meeting notes from that Advisory Board Meeting are found in Appendix B, pages 41 and 42.

C. Project Management and Planning

Project Management and Planning during this period has focused on the following four (4) major activities.

1. **Air Monitoring Operations**

Operations and maintenance of the seven monitoring sites reporting data via the TCEQ LEADS is on-going. The data can be accessed and reviewed at the project website (http://www.utexas.edu/research/ceer/ccaqp/).

Termination of West End of Corpus Christi Inner Harbor Air Monitoring Site Lease

On March 27, 2012, UT Austin received notice from the Port of Corpus Christi Authority (POCCA) that it was terminating the lease for the use of the land at the project's West End of Corpus Christi Inner Harbor (IH) air monitoring site, CAMS 631. The notice required that all site improvements be removed by June 30, 2012. This lease termination is about 14 months earlier than the end of the current lease (September 8, 2013). UT Austin notified the US District Court of this development on March 28, 2012 and the project's Advisory Board on March 29, 2012.

In this quarter, UT Austin continued its efforts to assess options and develop a response to POCCA's termination notice. A teleconference was held (April 5, 2012) with the Honorable Judge Jack to obtain input from the Court. On April 11, 2012, a meeting was held on site with the POCCA representative, Mr. Darrin Aldrich, to confirm the timeline of the termination notice and to explore the possibility of moving IH CAMS 631 to other POCCA property. A meeting with the project's Advisory Board was held April 27, 2012 to summarize the legal requirements of the termination notice, the teleconference with the Honorable Judge Jack, the meeting with the POCCA representative, and to seek their input on this matter. In addition, plans to remove all site improvements were also developed by UT project personnel. The results of these activities are summarized in the following paragraphs.

Teleconference with the Honorable Judge Jack – April 5, 2012

Judge Jack expressed great concern with this early termination and wanted to know why this was occurring before the end of the lease term and what it would cost the project. It was explained that POCCA has a tenant adjacent to the IH CAMS 631 that wants to expand their operations and can only do so by expanding on to the land occupied by the IH CAMS 631. If the site must be relocated, she wanted to ensure minimum future cost impact to the project by requiring several terms in any new lease developed. These terms are: 1) end of new lease to extend as long as the current funding is projected to last; 2) one optional renewal period to allow for the possibility of obtaining additional funding to extend the life of the project; and 3) a no termination clause in the lease. Judge Jack offered to help in any way she could.

Meeting with Mr. Darrin Aldrich, POCCA Representative – April 11, 2012

During this meeting with Mr. Aldrich, five locations near to the IH CAMS 631, identified by UT project personnel, were visited. These five locations are shown in Figures 2 and 3, on page 6, as A(1), A(2), B, C(1) and C(2) by red circles. UT staff eliminated Location B during the site visit as not practical or cost effective to establish a site on, due to the terrain and projected cost for installing utilities. During this meeting, Mr. Aldrich informed UT Staff that location C(1) is owned by the Driscoll Foundation. Subsequent to the meeting, Mr. Aldrich informed UT staff that POCCA will not allow a monitoring site

at locations A(1) and C(2) due to planned development of these areas by POCCA but that location A(2), near the fishing bank, was a possibility and could be pursued by the project.

Figure 2. Initial Alternate Locations A(1) and A(2) for Inner Harbor CAMS 631

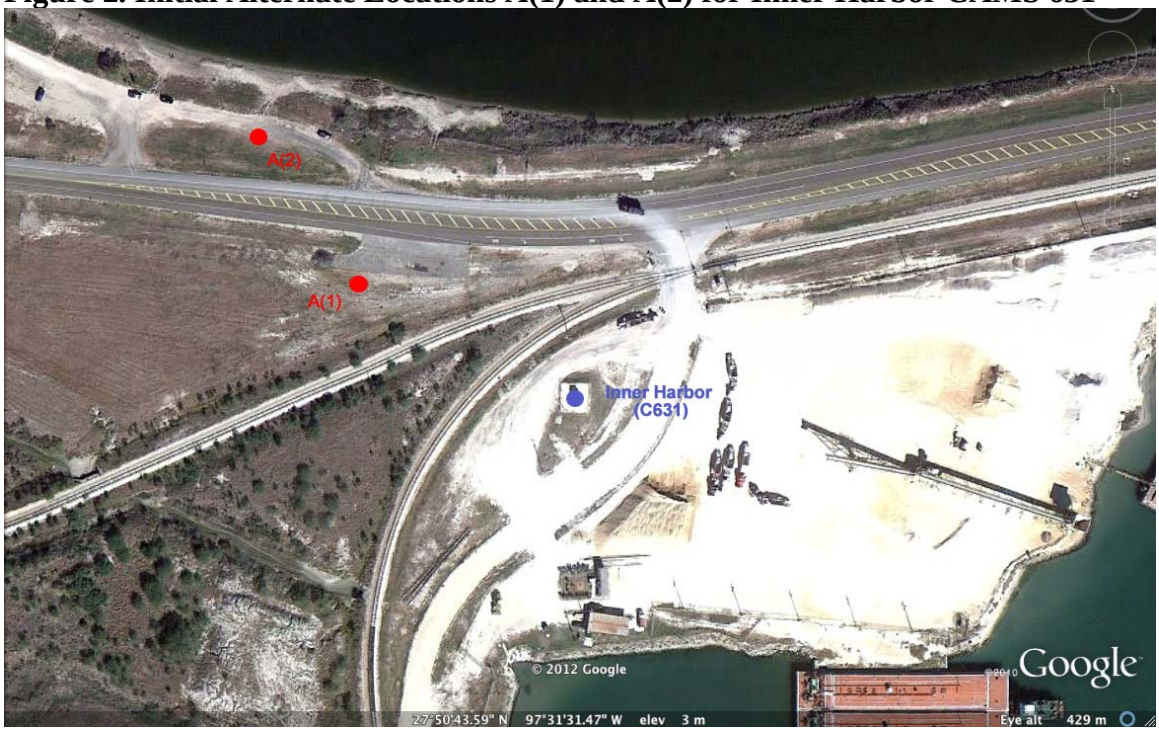
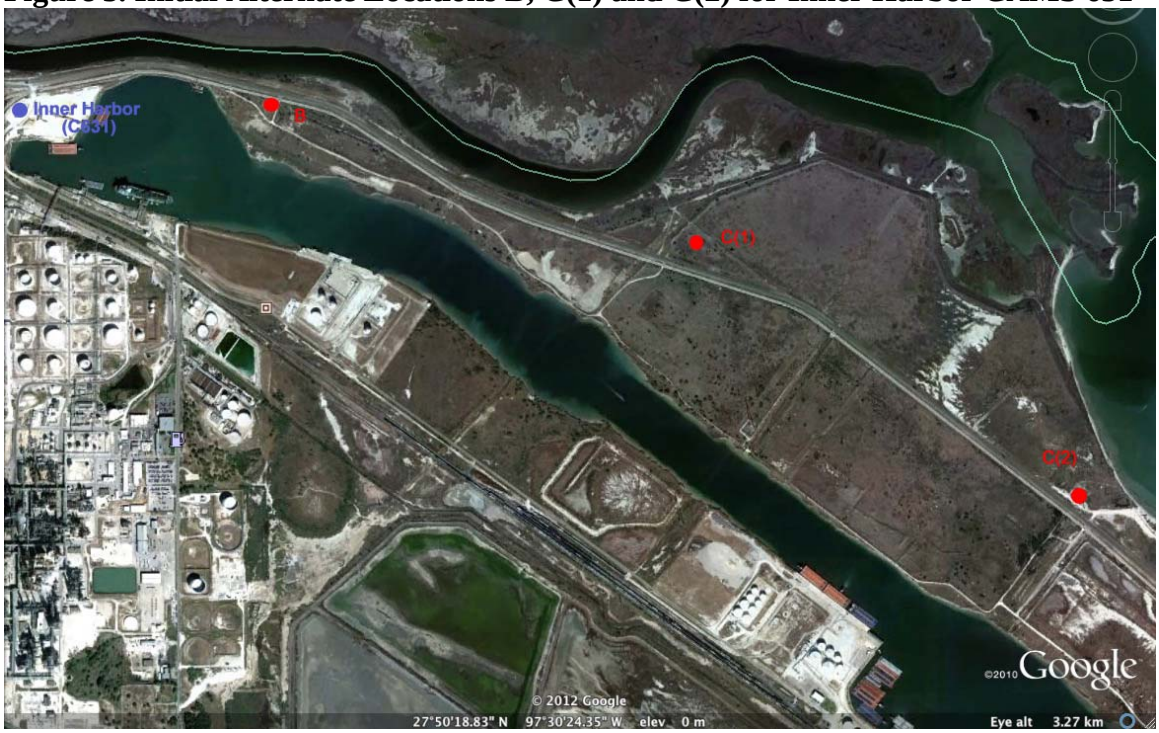


Figure 3. Initial Alternate Locations B, C(1) and C(2) for Inner Harbor CAMS 631



Advisory Board Meeting – April 27, 2012
At this Project Advisory Board meeting, the board was briefed on the termination notice and POCCA's reason for doing so, the teleconference with the Honorable Judge Jack, and the results of the meeting on site with the POCCA representative Darrin Aldrich and subsequent communications with him. When asked for their input on direction for moving the IH CAMS 631 site, the board requested more information to understand the technical reasons one would consider in identifying a location for a new site. Staff agreed to provide a memo report addressing the information the board desired. A follow-up meeting was scheduled for June 12, 2012, to allow UT staff time to prepare the memo report on the background material requested by the board and to allow the Board time to review this document and ask questions.

Special Project Advisory Board Meeting - June 12, 2012
At this special meeting of the Project Advisory Board, Dr. Dave Sullivan gave a presentation on the memo report sent to the board. After discussion of the report, the board agreed that UT staff should pursue three options for relocating the IH CAMS 631 subject to securing a lease with the terms specified by the Court and consistent with the purpose for selecting the IH CAMS 631 location in the original court order. In order of priority these sites were: 1) the fishing bank site approved by the POCCA, 2) a site on the Driscoll property, 3) a site on City of Corpus Christi property near the old land fill and shooting range northwest of the current IH CAMS 631 site, and 4) a site on Flint Hills property, similar to the current sites on Flint Hills property, but nearer to the area of the other alternate site locations being pursued. As these activities will take UT staff some time to obtain responses and information, a follow-up meeting with the board will be scheduled as soon as sufficient information is developed but no later than the next meeting of the board in the November-December time frame.

Removal of IH CAMS 631 Site Improvements
Site air monitoring operations were terminated on May 15, 2012. All site improvements were removed by June 30, 2012 and acknowledgement that the condition of the vacated site was acceptable to POCCA (per Mr. Dave Michelson, PE, POCCA Chief Engineer) was received July 3, 2012. Equipment from this site is being stored in Corpus Christi at the remaining sites in the network.

Developments Since the Advisory Board Meeting of June 12, 2012
UT staff has responded to an initial version of the POCCA lease for the fishing bank site specifying changes based on the requirements of the Court. UT project staff had not heard back from POCCA as of the end of the quarter. UT staff has contacted the Driscoll Foundation and are preparing documentation requested to consider the project's request to site an air quality monitoring station on the Driscoll property. UT staff has inquired with the City of Corpus Christ about locating a site on City of Corpus Christi property in the area of the old landfill or the shooting range. A meeting was requested by city representatives and will be scheduled for the month of July. UT staff has also contacted representatives from Flint Hills and is attempting to determine if any land owned by Flint

Hills would be available as an alternate site. A response from Flint Hills had not been received before the end of the quarter.

2. **Communication and Reporting**
   The status of the Project has been communicated through the website, which is operational with portions under continual updating, quarterly and annual reports.

3. **Budget Monitoring**
   Budget monitoring during the period has focused on projects costs for Phase II – Sites Operation and Maintenance costs. Financial reports for the quarter are included in Appendix C, pages 43 and 44.

4. **Other Contributions**
   There were no other contributions made to the project during this quarter.

III. Financial Report

As required, the following financial summary information is provided. Details supporting this financial summary are included in Appendix C, pages 43 and 44.

A. Total Amount of COCP Funds and Other Funds Received Under the Project
The COCP funds received through June 30, 2012 totals $7,576,934.50. This total includes interest earned through June 30, 2012.

B. Detailed List of the Actual Expenditures Paid from COCP Funds
Expenditures of COCP funds during this quarter totaled $240,657.63. The detailed breakdown of the actual expenditures is included in Appendix C, page 44. The activities for which these expenditures were used are detailed in Section II, on page 2 of this report.

C. Total Interest Earned on COCP Funds during the Quarter
The interest earned during this quarter totaled $895.94. A report providing detailed calculations of the interest earned on the COCP funds during each month of the quarter is included in Appendix C, pages 43 and 44.

D. Balance as of June 30, 2012, in the COCP Account
The balance in the COCP account, including interest earned totals $189,879.11.

E. Expected Expenditures for the Funds Remaining in the COCP Account
The projected expenditures for the funds remaining totals $189,879.11.

Quarterly Report Distribution List:

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Members of the Advisory Board

APPENDIX A

Data Analysis for Corpus Christi Quarterly Report

April 1, 2012 through June 30, 2012

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Data Analysis for Corpus Christi Quarterly Report

This technical report describes results of monitoring and analysis of data under the Corpus Christi Air Monitoring and Surveillance Camera Installation and Operation Project, with primary focus on the period April 1 through June 30, 2012. The monitoring network is shown earlier in this report in Figure 1, on page 3, and is described in Table 2, below. This report contains the following elements:

- A summary of Oak Park, Solar Estates, and Palm (TCEQ) auto-GC data for the first and second quarters of 2012;
- Information on the trends for benzene concentrations at the two project auto-GCs and the TCEQ's auto-GC in residential areas, now for a full seven years of data, with eight instances of second quarters;
- A discussion of the sulfur dioxide (SO_2) data from several sites;
- Brief case studies of two pollution events.

Table 2. Schedule of air monitoring sites, locations and major instrumentation

TCEQ CAMS#	Description of Site Location	Monitoring Equipment				
		Auto GC	TNMHC (T) / Canister (C)	H_2S & SO_2	Met Station	Camera
634	Oak Park Recreation Center (**OAK**)	Mar 2005 to date	C: Dec 2004 to Feb 2009 T: Dec 2004 to Apr 2012		Dec 2004 to date	
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Legend

Auto-GC	automated gas chromatograph
TNMHC	total non-methane hydrocarbon analyzer (all except CAMS 633 & 634 also have canister hydrocarbon samplers)
H_2S	hydrogen sulfide analyzer
SO_2	sulfur dioxide analyzer
Met Station	meteorology station consisting of measurement instruments for wind speed, wind direction, ambient air temperature and relative humidity
Camera	surveillance camera

Glossary of terms

- **Pollutant concentrations** – Concentrations of most gaseous pollutants are expressed in units denoting their "mixing ratio" in air; i.e., the ratio of the number molecules of the pollutant to the total number of molecules per unit volume of air. Because concentrations for all gases other than molecular oxygen, nitrogen, and argon are very low, the mixing ratios are usually scaled to express a concentration in terms of "parts per million" (ppm) or "parts per billion" (ppb). Sometimes the units are explicitly expressed as ppm-volume (pp<u>m</u>V) or ppb-volume (pp<u>b</u>V) where 1 ppmV indicates that one molecule in one million molecules of ambient air is the compound of interest and 1 ppbV indicates that one molecule in one billion molecules of ambient air is the compound of interest. In general, air pollution standards and health effects screening levels are expressed in ppmV or ppbV units. Because hydrocarbon species may have a chemical reactivity related to the number of carbon atoms in the molecule, mixing ratios for these species are often expressed in ppb-carbon (ppbV times the number of carbon atoms in the molecule), to reflect the ratio of carbon atoms in that species to the total number of molecules in the volume. This is relevant to our measurement of auto-GC species and TNMHC, which are reported in ppbC units. For the purpose of relating hydrocarbons to health effects, this report notes hydrocarbon concentrations in converted ppbV units. However, because TNMHC is a composite of all species with different numbers of carbons, it cannot be converted to ppbV. Pollutant concentration measurements are time-stamped based on the start time of the sample, in Central Standard Time (CST), with sample duration noted.

- **Auto-GC** – The automated gas chromatograph collects a sample for 40 minutes, and then automatically analyzes the sample for a target list of 46 hydrocarbon species. These include benzene and 1,3-butadiene, which are air toxics, various species that have relatively low odor thresholds, and a range of gasoline and vehicle exhaust components. Auto-GCs operate at Solar Estates CAMS 633 and Oak Park CAMS 634. In June 2010 TCEQ began operating an auto-GC at Palm CAMS 83 at 1511 Palm Drive in the Hillcrest neighborhood.

- **Total non-methane hydrocarbons (TNMHC)** – TNMHC represent a large fraction of the total volatile organic compounds released into the air by human and natural processes. TNMHC is an unspeciated total of all hydrocarbons, and individual species must be resolved by other means, such as with canisters or auto-GCs. However, the time resolution of the TNMHC instrument is much shorter than the auto-GC, and results are available much faster than with canisters. TNMHC analyzers operate at the five sites that do not take continuous hydrocarbon measurements with auto-GCs (CAMS 629, 630, 631, 632, and 635).

- **Canister** – Electro-polished stainless steel canisters are filled with air samples when an independent sensor detects that *elevated* (see below) levels of hydrocarbons (TNMHC) are present. Samples are taken for 20 minutes to try to capture the chemical make-up of the air. In most cases, the first time on any day that the monitored TNMHC concentration

exceeds 2000 ppbC at a site for a continuous period of 15 minutes or more, the system will trigger and a sample will be collected. Samples are sent to UT Austin and are analyzed in a lab to resolve some 60 hydrocarbon and 12 chlorinated species. Canister samplers operate at the four active sites that do not take continuous hydrocarbon measurements with auto-GCs (CAMS 629, 630, 632, and 635).

- **Air Monitoring Comparison Values (AMCV) –** The TCEQ uses AMCVs in assessing ambient data. Two valuable online documents ("fact sheet" and "AMCV document") that explain AMCVs are at http://www.tceq.texas.gov/toxicology/regmemo/AirMain.html#compare (accessed July 2012). The following text is an excerpt from the TCEQ "fact sheet":

  > Effects Screening Levels are chemical-specific air concentrations set to protect human health and welfare. Short-term ESLs are based on data concerning acute health effects, the potential for odors to be a nuisance, and effects on vegetation, while long-term ESLs are based on data concerning chronic health and vegetation effects. Health-based ESLs are set below levels where health effects would occur whereas welfare-based ESLs (odor and vegetation) are set based on effect threshold concentrations. The ESLs are screening levels, not ambient air standards. Originally, the same long- and short-term ESLs were used for both air permitting and air monitoring.
  > There are significant differences between performing health effect reviews of air permits using ESLs, and the various forms of ambient air monitoring data. The Toxicology Division is using the term "air monitoring comparison values" (AMCVs) in evaluations of air monitoring data in order to make more meaningful comparisons. "AMCVs" is a collective term and refers to all odor-, vegetative-, and health-based values used in reviewing air monitoring data. Similar to ESLs, AMCVs are chemical-specific air concentrations set to protect human health and welfare. Different terminology is appropriate because air permitting and air monitoring programs are different.

- **Rationale for Differences between ESLs and AMCVs** – A very specific difference between the permitting program and monitoring program is that permits are applied to one company or facility at a time, whereas monitors may collect data on emissions from several companies or facilities or other source types (e.g., motor vehicles). Thus, the protective ESL for permitting is set lower than the AMCV in anticipation that more than one permitted emission source may contribute to monitored concentrations.

- **National Ambient Air Quality Standards (NAAQS) –** U.S. Environmental Protection Agency (EPA) has established a set of standards for several air pollutions described in the Federal Clean Air Act[1]. NAAQS are defined in terms of *levels* of concentrations and particular *forms*. For example, the NAAQS for particulate matter with size at or less than 2.5 microns ($PM_{2.5}$) has a *level* of 15 micrograms per cubic meter averaged over 24-hours, and a *form* of the annual average based on four quarterly averages, averaged over three years. Individual concentrations measured above the level of the NAAQS are called

[1] See http://epa.gov/air/criteria.html accessed July 2012

exceedances. The number calculated from a monitoring site's data to compare to the level of the standard is called the site's *design value*, and the highest design value in the area for a year is the regional design value used to assess overall NAAQS compliance. A monitor or a region that does not comply with a NAAQS is said to be *noncompliant*. At some point after a monitor or region has been in noncompliance, the U.S. EPA may choose to label the region as *nonattainment*. A nonattainment designation triggers requirements under the Federal Clean Air Act for the development of a plan to bring the region back into compliance.

A more detailed description of NAAQS can be found on the TCEQ's Website at http://www.tceq.texas.gov/airquality/monops/naaqs.html (accessed July 2012).

One species measured by this project and regulated by a NAAQS is sulfur dioxide (SO_2). Effective June 2, 2010, EPA modified the SO_2 NAAQS to include a level of 0.075 ppm, or 75 ppb averaged over one hour, with a form of the three-year average of the annual 99^{th} percentiles of the daily maximum one-hour averages. There is also a secondary SO_2 standard of 0.500 ppm (500 ppb) over three hours, not to be exceeded more than once in any one year. The reason that there has been little attention to the SO_2 NAAQS on this project until recently is that the State of Texas's standard of 0.400 ppm or 400 ppb over 30 minutes for SO_2 was much more likely to be exceeded than the older NAAQS. With the addition of a new NAAQS for SO_2 in June 2010, however, the situation has changed.

- **Elevated Concentrations** – In the event that measured pollutant concentrations are above a set threshold they are referred to as "elevated concentrations." The values for these thresholds are summarized by pollutant below. As a precursor to reviewing the data, the reader should understand the term "*statistical significance*." In the event that a concentration is higher than one would typically measure over, say, the course of a week, then one might conclude that a specific transient assignable cause may have been the pollution source, because experience shows the probability of such a measurement occurring under normal operating conditions is small. Such an event may be labeled "statistically significant" at level 0.01, meaning the observed event is rare enough that it is not expected to happen more often than once in 100 trials. This does not necessarily imply the occurrence of a violation of a health-based standard. A discussion of "elevated concentrations" and "statistical significance" by pollutant type follows:

    - For H_2S, any measured concentration greater than the level of the state residential standards, which is 80 ppb over 30 minutes, is considered "elevated." For SO_2, any measured concentration greater than the level of the NAAQS, which is 75 ppb over one hour, is considered "elevated." Note that the concentrations of SO_2 and H_2S need not persist long enough to constitute an exceedance of the standard to be regarded as elevated. In addition, any closely spaced values that are statistically significantly (at 0.01 level) greater than the long-run average concentration for a period of one hour or more will be considered "elevated" because of their unusual appearance, as opposed to possible health consequence. The rationale for doing so is that unusually high concentrations at a monitor may suggest the existence of unmonitored concentrations closer to the source area that are potentially above the state's standards.

- For TNMHC, any measured concentration greater than the canister triggering threshold of 2000 ppbC is considered “elevated.” Note that the concentrations need not persist long enough to trigger a canister (900 seconds) to be considered elevated.
- For benzene and other air toxics in canister samples or auto-GC measurements, any concentration above the AMCV is considered “elevated.” Note that 20-minute canister samples and 40-minute auto-GC measurements are both compared with the short-term AMCV.
- Some hydrocarbon species measured in canister samples or by the auto-GC generally appear in the air in very low concentrations close to the method detection level. Similar to the case above with H_2S and SO_2, any values that are statistically significantly (at 0.01 level) greater than the long-run average concentration at a given time or annual quarter will be considered “elevated” because of their unusual appearance, as opposed to possible health consequence. The rationale for doing so is that unusually high concentrations at a monitor may suggest an unusual emission event in the area upwind of the monitoring site.

1. Auto-GC Data Summaries in Residential Areas

In this section the results of semi-continuous sampling for hydrocarbons at the three Corpus Christi auto-GC sites – UT's Solar Estates CAMS 633, UT's Oak Park CAMS 634, and TCEQ's Palm CAMS 83 – are presented. These three sites are located in residential areas. Solar Estates and Oak Park are generally downwind of industrial emissions under northerly winds. Palm, located near the TCEQ's Hillcrest and Williams Park sites in Figure 1, on page 3, is generally downwind under northerly and westerly winds. In examining aggregated data one observes similar patterns of hydrocarbons at all three sites.

Table 3, on page 17, lists the data completeness from the project auto-GCs during 2011 and 2012 for which data have been validated.

Table 4, on page 18, summarizes the validated average data values from the first quarter of 2012. Data in this table are available to TCEQ staff at http://rhone3.tceq.texas.gov/cgi-bin/agc_summary.pl (accessed July 2012). Table 5, page 19, summarizes the as-yet-unvalidated average data values from the second quarter of 2012.

As noted in the preceding paragraph, Tables 4 and 5 show the averages (arithmetic mean of measured values) for 27 hydrocarbon species for the periods of interest, and Table 4 also shows the maximum one-hour values and the maximum 24-hour average concentrations for the quarter's validated data. All concentration values in the tables are in ppbV units. No concentrations or averages of concentrations from the 27 species were greater than TCEQ's air monitoring comparison values (AMCV). The average data columns in Table 4 for the validated first quarter data and Table 5 for the as-yet-unvalidated second quarter data are shown graphically in Figures 4 and 5, respectively, on page 20. Figures 4 and 5 are plotted on the same y-axis scale, so they can be compared directly. Mean concentrations for all 27 species measured consistently above their respective method detection limits are generally comparable for the fourth and first quarters each year (late autumn, winter, early spring), and are generally higher than the second and third quarters (late spring, summer, early autumn). Increased maritime southerly flow in the spring and summer is a contributor to lower concentrations in the second and third quarters. As can be observed by comparing Figures 4 and 5, average concentrations for many species were about half the level in the second quarter compared to the first quarter this year.

The rows for ***benzene*** are bold-faced in Tables 4 and 5 owing to the concern that the concentrations for this species tend to be closer to the AMCV than are concentrations of other species. The benzene short-term AMCV is 180 ppbV and the benzene long-term AMCV is 1.4 ppbV. The maximum one-hour (Peak 1-hr column) benzene value at the TCEQ Palm auto-GC in Table 4 was measured on January 30, 2012, and was the highest concentration measured to date at the site, and the third highest one-hour value measured to date by the three auto-GCs. More information about this measurement appears in the next section of this report on page 21.

Table 3. Percent data recovery by month, 2011-2012, validated data only

Date	Oak Park	Solar Estates
Jan 2011	100	96
Feb 2011	84	77
Mar 2011	100	95
Apr 2011	100	80*
May 2011	78	100
Jun 2011	69*	93
Jul 2011	95	96
Aug 2011	56	95
Sep 2011	92	78
Oct 2011	99	83
Nov 2011	97	94
Dec 2011	100	100
Jan 2012	94	99
Feb 2012	97	100
Mar 2012	97	100
Average	**90**	**91**

* Months with planned preventive maintenance

Table 4. Validated auto-GC statistics 1st quarter 2012

Units ppbV	Oak 1Q12			Solar 1Q12			Palm 1Q12		
Species	Peak 1hr	Peak 24hr	Mean	Peak 1hr	Peak 24hr	Mean	Peak 1hr	Peak 24hr	Mean
Ethane	103.687	25.958	9.139	78.446	26.775	9.346	243.083	33.080	10.085
Ethylene	36.338	4.186	0.668	3.527	1.473	0.368	22.988	2.649	0.522
Propane	115.181	20.126	6.066	48.502	18.355	5.836	158.041	24.611	6.789
Propylene	5.276	1.597	0.392	6.148	1.014	0.215	4.720	1.120	0.352
Isobutane	41.239	7.836	1.898	27.156	6.026	1.650	72.133	8.710	2.437
n-Butane	73.293	11.800	3.282	45.421	7.901	2.657	115.912	15.971	4.232
t-2-Butene	1.364	0.360	0.258	1.655	0.160	0.028	1.779	0.238	0.059
1-Butene	0.956	0.157	0.055	1.595	0.167	0.030	0.965	0.213	0.078
c-2-Butene	1.259	0.184	0.087	1.298	0.125	0.019	1.864	0.209	0.046
Isopentane	54.546	8.472	1.814	21.171	4.136	1.144	45.583	5.774	1.776
n-Pentane	50.495	6.539	1.147	16.284	2.622	0.797	30.071	4.002	1.083
1,3-Butadiene	0.802	0.143	0.032	4.180	0.340	0.031	0.611	0.118	0.032
t-2-Pentene	3.086	0.347	0.064	0.829	0.094	0.012	4.830	0.467	0.078
1-Pentene	1.535	0.178	0.035	0.432	0.051	0.009	2.813	0.284	0.048
c-2-Pentene	1.596	0.178	0.032	0.430	0.049	0.005	2.489	0.247	0.043
n-Hexane	27.262	3.832	0.534	7.010	1.040	0.307	15.483	2.062	0.446
Benzene	**21.471**	**2.557**	**0.468**	**4.769**	**0.673**	**0.198**	**87.410**	**7.186**	**0.450**
Cyclohexane	6.662	1.139	0.207	5.590	0.787	0.153	4.947	0.723	0.157
Toluene	10.102	2.182	0.479	4.583	0.891	0.237	5.255	1.867	0.364
Ethyl Benzene	0.907	0.172	0.042	0.616	0.112	0.026	0.878	0.161	0.026
m&p -Xylene	3.186	0.588	0.143	6.166	0.720	0.151	3.837	0.835	0.151
o-Xylene	0.848	0.165	0.043	0.941	0.157	0.027	1.113	0.170	0.042
Isopropyl Benzene	1.290	0.279	0.032	0.563	0.078	0.008	0.966	0.173	0.011
1,3,5-Trimethylbenzene	0.419	0.075	0.014	0.955	0.103	0.012	0.265	0.076	0.015
1,2,4-Trimethylbenzene	1.069	0.184	0.044	3.639	0.280	0.026	0.738	0.271	0.051
n-Decane	1.387	0.205	0.027	2.432	0.235	0.029	1.277	0.102	0.022
1,2,3-Trimethylbenzene	0.273	0.058	0.008	0.415	0.042	0.004	0.132	0.073	0.013

Table 5. Unvalidated auto-GC mean statistics 2nd quarter 2012

Units ppbV	Oak 2Q12	Solar 2Q12	Palm 2Q12
Species	**Mean**	**Mean**	**Mean**
Ethane	4.770	5.183	4.048
Ethylene	0.380	0.175	0.306
Propane	2.563	2.891	2.308
Propylene	0.332	0.103	0.229
Isobutane	0.916	0.947	0.813
n-Butane	1.306	1.253	1.290
t-2-Butene	0.215	0.009	0.030
1-Butene	0.039	0.011	0.049
c-2-Butene	0.227	0.007	0.024
Isopentane	0.954	0.698	0.917
n-Pentane	0.531	0.464	0.515
1,3-Butadiene	0.030	0.014	0.025
t-2-Pentene	0.044	0.004	0.051
1-Pentene	0.029	0.003	0.032
c-2-Pentene	0.023	0.002	0.025
n-Hexane	0.276	0.196	0.249
Benzene	**0.196**	**0.098**	**0.156**
Cyclohexane	0.104	0.106	0.115
Toluene	0.246	0.141	0.236
Ethyl Benzene	0.028	0.015	0.020
mp -Xylene	0.093	0.082	0.094
o-Xylene	0.030	0.015	0.032
Isopropyl Benzene	0.120	0.005	0.005
1,3,5-Trimethylbenzene	0.013	0.008	0.009
1,2,4-Trimethylbenzene	0.055	0.014	0.031
n-Decane	0.031	0.020	0.017
1,2,3-Trimethylbenzene	0.011	0.009	0.013

Figure 4. Mean ppbV for 27 species at three auto-GCs, 1st quarter 2012 (validated data)

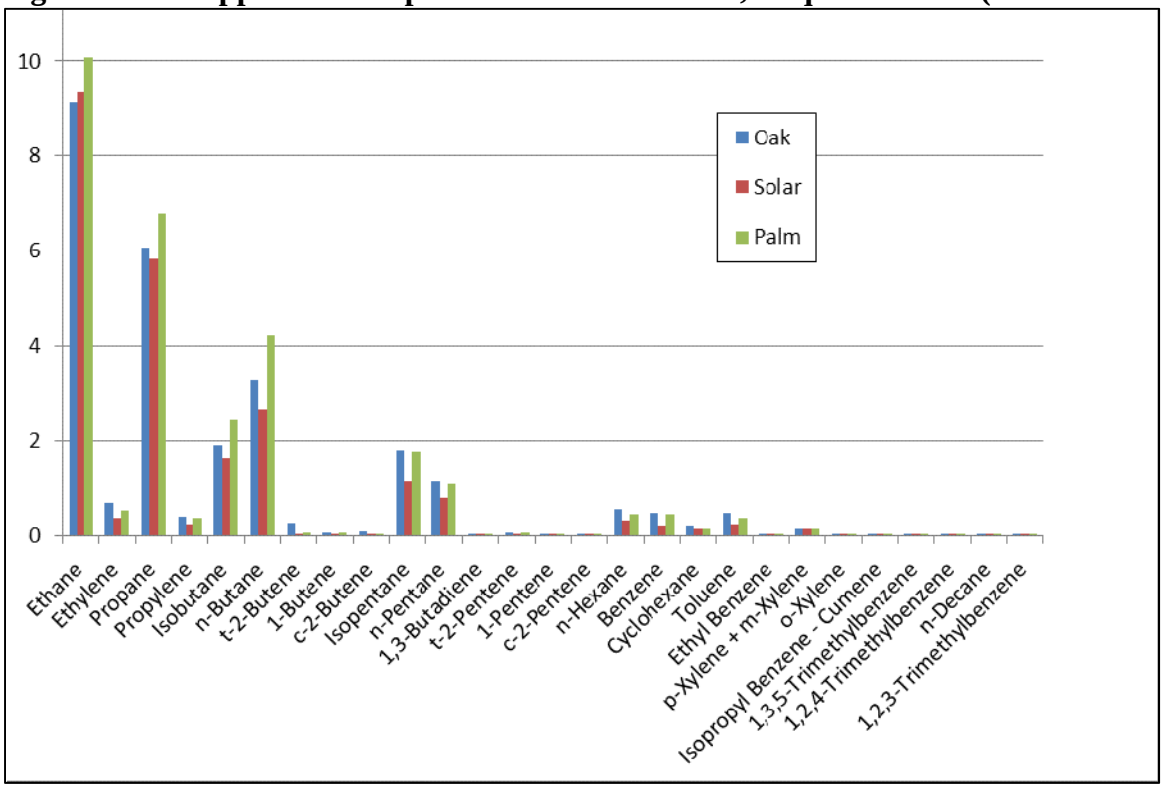
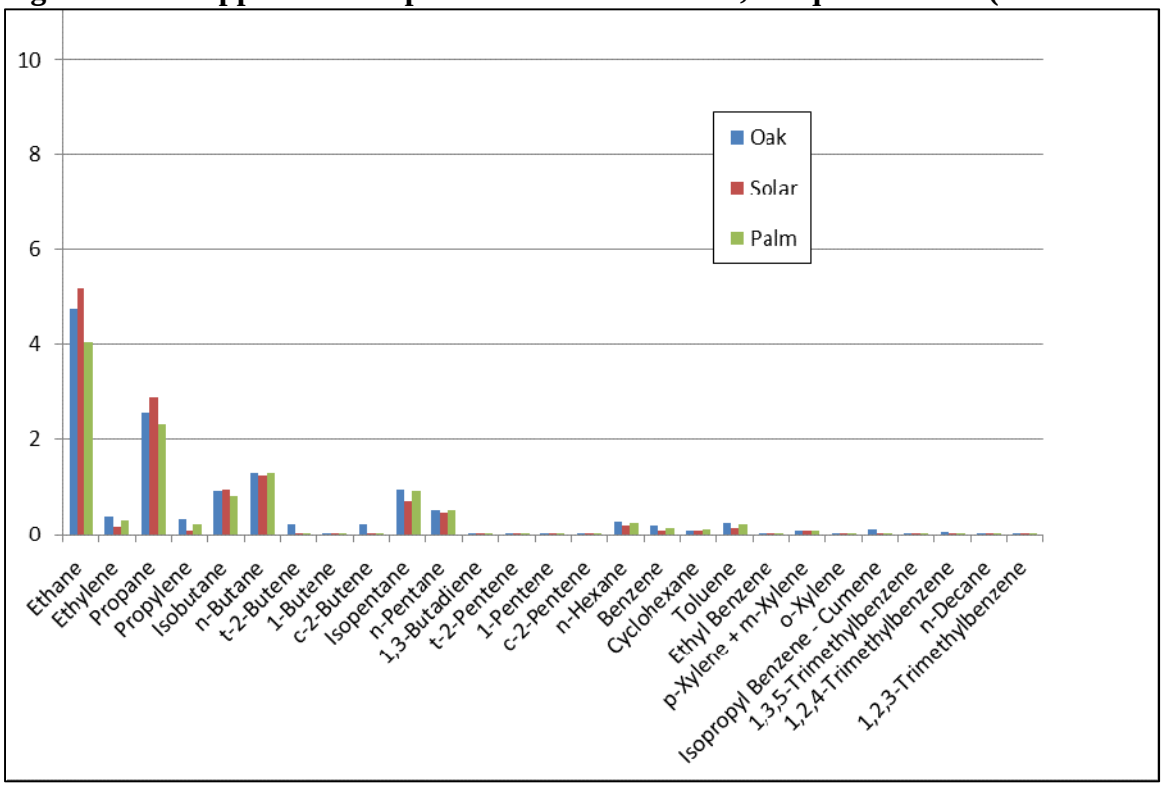


Figure 5. Mean ppbV for 27 species at three auto-GCs, 2nd quarter 2012 (unvalidated data)



2. Benzene Concentrations in Residential Areas

As has been discussed in past reports, benzene concentrations in the recent years are lower than in the first three years of operation at the two auto-GCs operated at Oak Park CAMS 634 and Solar Estates CAMS 633. Also, in recent years, concentration means have generally been relatively constant. No individual one-hour benzene values have been measured above the AMCV since the beginning of monitoring. A time series for hourly benzene in ppbV units with two points annotated by date appears in Figure 6, below, for Oak Park. The two points – from 6:00 CST Saturday January 27, 2007 and 4:00 CST Friday November 6, 2009 – are identified as statistical outliers in that they are unusually high given the balance of the data. The same graph is reproduced without these two points in Figure 7, on page 22. The time series for Solar Estates appears in Figure 8, on page 22. Note the different y-axis scales for the two sites, as Oak Park does tend to measure higher concentrations than Solar Estates. Figure 9, on page 23, shows the time series for the two-year old TCEQ Palm auto-GC, with two apparent outliers on January 30, 2012 indicated. Note that for all three sites, the data from the second quarter 2012 have not been validated yet.

The January 30, 2012 outlier values at Palm noted above were measured at 5:00 CST (87.4 ppbV) and 6:00 CST (43.1 ppbV) under directions varying from 13 to 34 degrees, averaging 25 degrees, under light winds averaging 3.8 miles per hour. No emission upsets were reported in Nueces County on January 30. The surface back-trajectory (not shown herein) runs directly north and passes over the Flint Hills Resources East property with several storage tanks, pipelines, other equipment, and a dock.

Figure 6. Oak Park hourly benzene March 2005 – June 30, 2012, ppbV units, individual elevated values noted, no observations greater than the TCEQ's AMCV

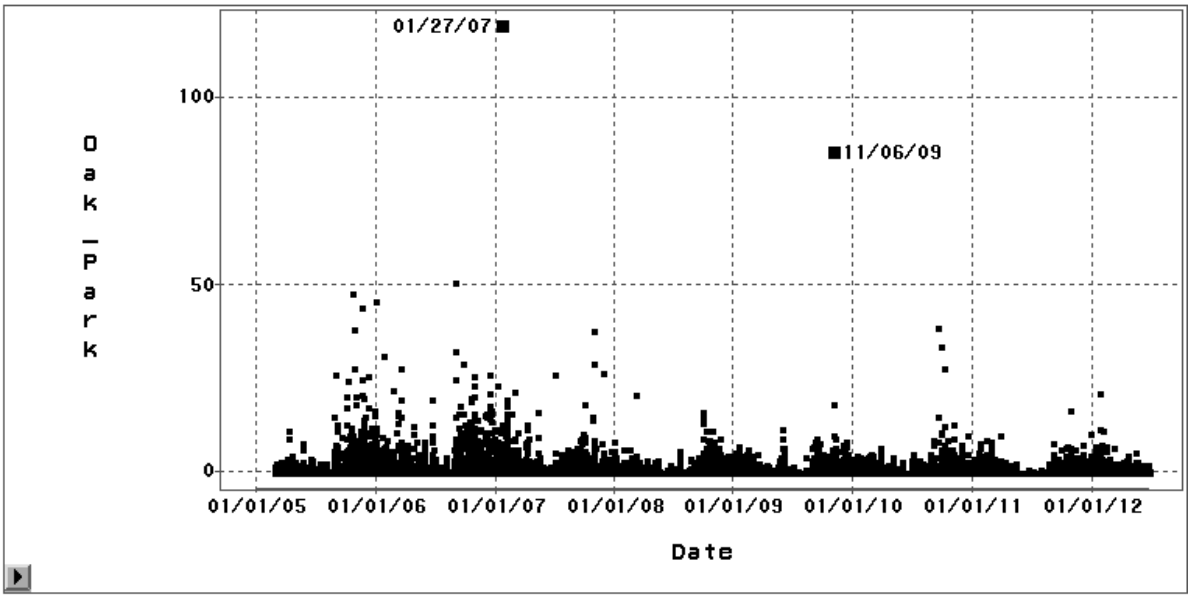


Figure 7. Oak Park hourly benzene Mar. 2005 – June 30, 2012, ppbV units, two outliers from January 27, 2007 and November 6, 2009 removed

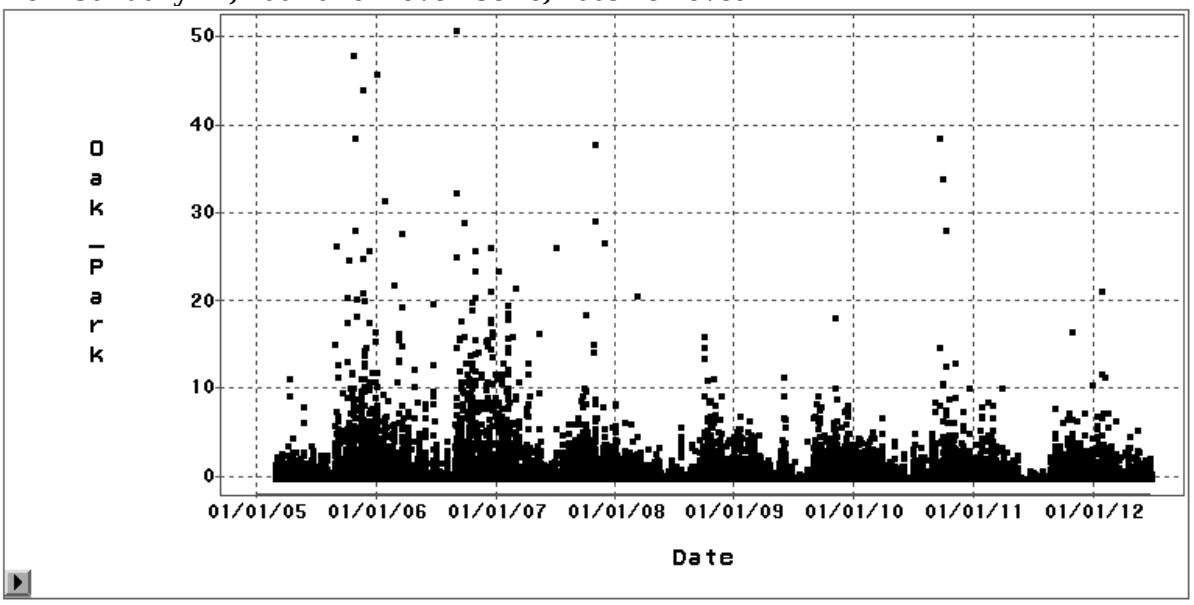


Figure 8. Solar Estates hourly benzene Mar. 2005 – June 30, 2012, ppbV units, no observations greater than the TCEQ's AMCV

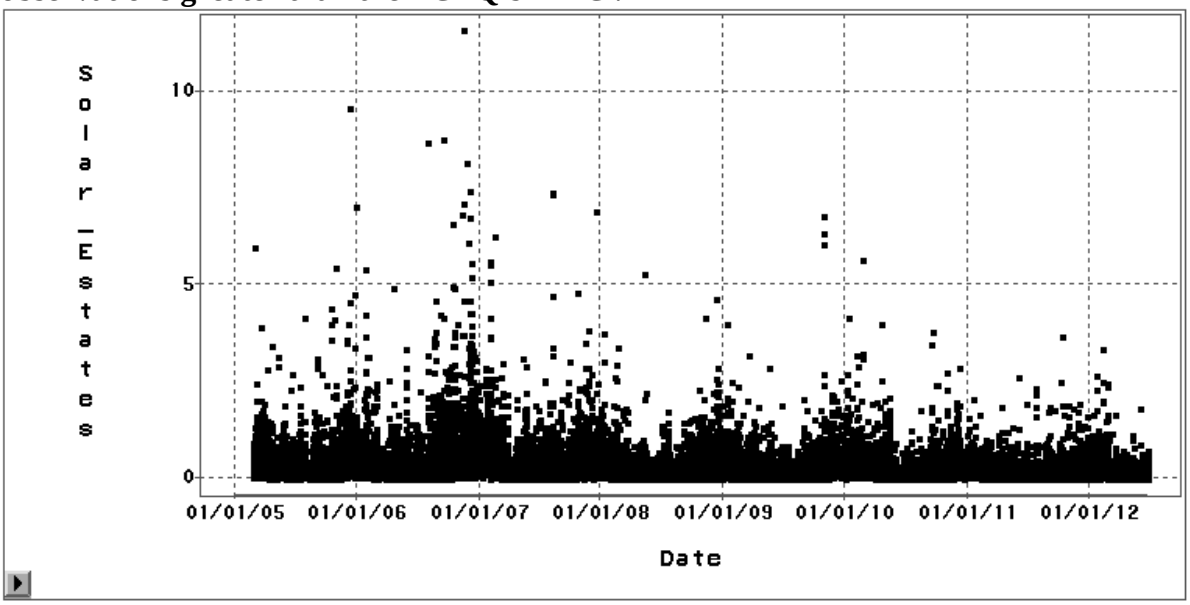


Figure 9. TCEQ Palm hourly benzene June 1, 2010 – June 30, 2012, ppbV units, individual elevated values noted, no observations greater than the TCEQ's AMCV

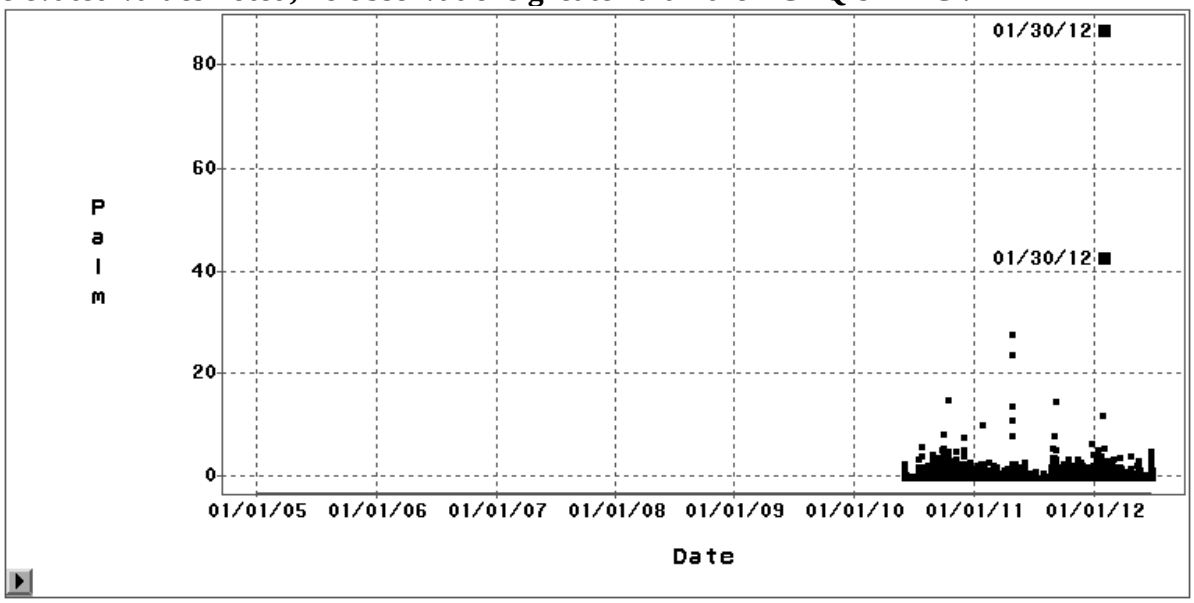
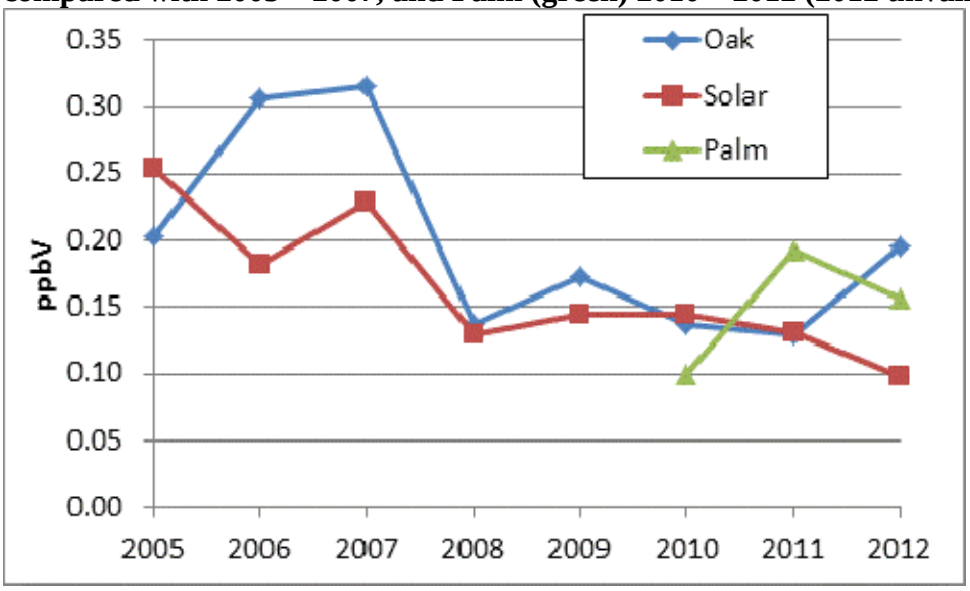


Table 6, on page 24, shows the second quarter average concentrations from the auto-GCs for benzene from 2005 – 2012 (2012 unvalidated). The second quarter means are graphed in Figure 10, on page 24. The means for TCEQ's Palm site are shown for 2010 through 2012 only. The second quarter means at UT sites from 2008 through 2012 are statistically significantly lower than in the second quarters of the project's first three years, and this finding is similar to findings for other quarters in recent reports on this project. The second quarter mean for Oak Park in 2012 is higher, however, than in the preceding four years.

Table 6. Mean statistics for Benzene at Oak Park and Solar Estates, 2nd quarter 2005 – 2012 Palm 2010 – 2012, ppbV units (2012 unvalidated)

2nd qtr/year	Oak	Solar	Palm
2005	0.203	0.254	
2006	0.307	0.182	
2007	0.316	0.228	
2008	0.137	0.130	
2009	0.173	0.145	
2010	0.137	0.145	0.100
2011	0.129	0.131	0.193
2012	0.196	0.098	0.156

Figure 10. Mean concentrations of benzene during second quarters of each year at Oak Park (blue) and Solar Estates (red), 2005 – 2012, with lower values in 2008 – 2012 compared with 2005 – 2007, and Palm (green) 2010 – 2012 (2012 unvalidated)



3. Sulfur Dioxide Measurements at Corpus Christi Monitors

As has been discussed in recent reports, the JIH CAMS 630 site measures SO_2 concentrations that do not comply with the EPA's SO_2 NAAQS. One hour concentrations above 75 ppb are considered to be individual exceedances of the level of the NAAQS. The maximum one hour value for each day at a site is logged, and at the end of the year the 99th percentile daily maximum is selected. This value is averaged with the same statistic from the previous two years, and the resulting three-year average is compared with 75 ppb to determine compliance. If a site collects a full year of data, then the 99th percentile value would be the 4th highest daily maximum for the year. The resulting statistic is called the *design value* for a monitoring site. Table 7, on page 25, contains the design values for Corpus Christi monitors (TCEQ and UT) for recent three-year periods. The JIH CAMS 630 site shows noncompliance in each three-year period to date.

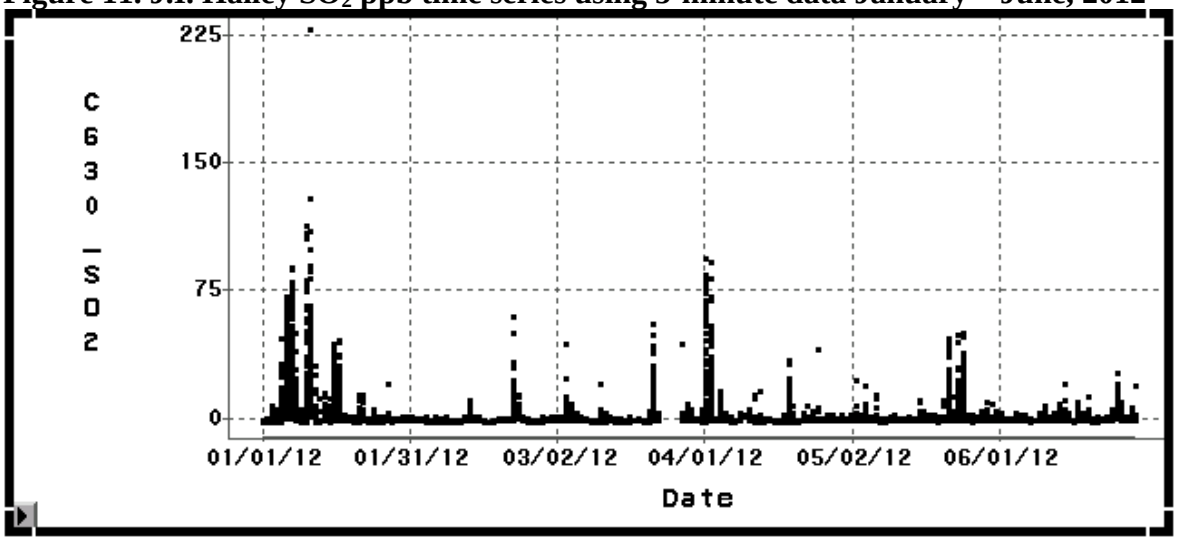
Table 7. SO_2 NAAQS design values for Corpus Christi area sites, ppb units, values greater than 75 ppb represent noncompliance

Years	C21	C4	C629	C630	C631	C632	C633	C635	C98
2005-2007	8	24	34	**119**	38	21	51	34	36
2006-2008	8	21	31	**131**	33	19	31	31	32
2007-2009	9	18	30	**89**	32	17	21	23	28
2008-2010	9	17	26	**103**	21	13	11	22	33
2009-2011	9	12	19	**80**	15	13	30	20	27

J.I. Hailey CAMS 630 and TCEQ Avery Point CAMS 6603

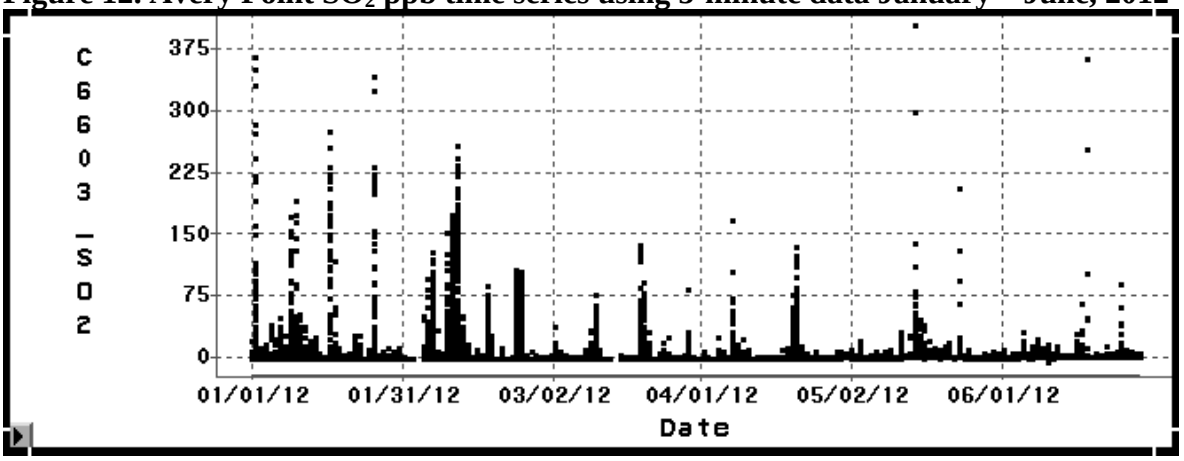
The time series for five-minute time-scale data from the first two quarters of 2012 from the J.I. Hailey CAMS 631 site appears in Figure 11, below. There have been no one-hour exceedances so far this year, and the maximum observed daily maximum in 2012 through June 30 was 73 ppb on January 7.

Figure 11. J.I. Hailey SO_2 ppb time series using 5-minute data January – June, 2012



In late December 2011 the TCEQ began operating an SO_2 monitor on the south side of the ship channel across from JIH. The site, Avery Point CAMS 6603 (mapped in Figure 17, on page 29), is operated by a contractor and wind speed and direction are also measured at the site. The time series for five-minute time-scale data from the first two quarters of 2012 from the site appears in Figure 12, on page 26. Because this site is much closer to suspected emission sources (ships at docks), higher concentrations have been measured there. Over the course of 2012, there have been nine exceedance days at Avery Point, but only one in the second quarter (May 15).

Figure 12. Avery Point SO_2 ppb time series using 5-minute data January – June, 2012



As has been the practice on this project, the pollutant measurements have been merged with coincident wind data and average concentrations as a function of wind direction bins (5 degrees wide) have been calculated and graphed. Figure 13, below, shows the result using the first two quarters of 2012 data for JIH. Three key directions emerge in the figure and are labeled: 180, 230, and 245 degrees. Figure 14, on page 27, shows a different approach for directionality analysis, this known as conditional probability function (CPF) analysis. If a given wind direction bin has a relatively small number of observations in it, then a statistical outlier can have a major effect on the average value in that cell. In CPF a so-called non-parametric approach is taken, where a concentration level of significance is selected (e.g., the 95th percentile of all observations), and the fraction of all observations in a cell greater than the level of significance is calculated. The result of applying this method to the five-minute time scale data from the first two quarters of 2012 from the JIH site appears in Figure 14. The results are very similar to the means by direction graph.

Figure 13. J.I. Hailey mean SO_2 ppb by wind direction January – July 2012

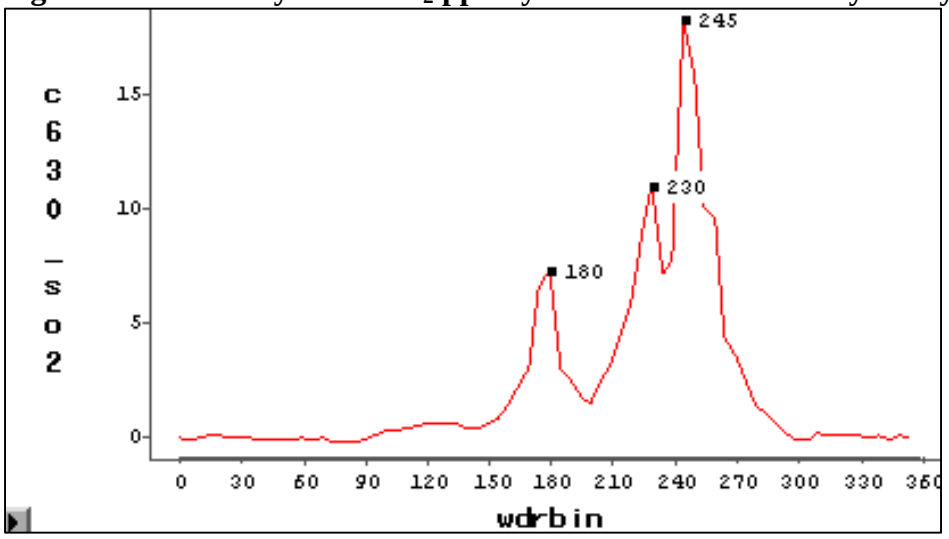
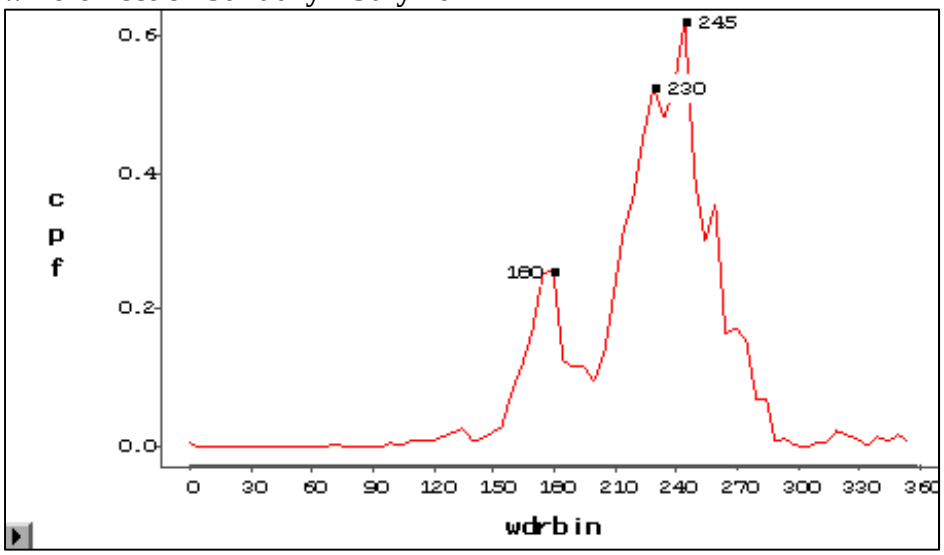


Figure 14. J.I. Hailey fraction of observations at or above the 95th percentile value SO_2 by wind direction January – July 2012



First two quarters of 2012 directionality analyses for TCEQ Avery Point are shown in Figure 15, on page 28, for the mean by direction and in Figure 16, on page 28, for the CPF analysis. Three key directions emerge in Figure 15 and are labeled: 30, 305, and 340 degrees. A minor peak appears at 200 degrees. A few more points have been labeled in Figure 16. The 200 degree point mostly likely is associated with the land-based refinery-related emission points to the south. The three most significant directions are 30, 305, and 340 degrees. TCEQ has provided some correspondence with their contractor that suggests that the wind instrument at Avery Point has a higher potential for error than the TCEQ wind instruments because of its less formal temporary siting. The graphs in Figures 15 and 16 have been remade (but not shown herein) using the Avery Point SO_2 data merged with the J.I. Hailey winds, and the results shift each of the Avery Point resolved peaks by approximately 5 to 10 degrees clockwise. This finding helps to reflect some added uncertainty to the Avery Point directionality results.

Figure 17, on page 29, is a Google Earth Pro aerial map showing the JIH and Avery Point monitors with rays drawn corresponding to the 180, 230, and 245 degrees from JIH and 30, 305, and 340 degrees from Avery Point. In Figure 17 these rays have intersections close to Oil Docks 3, 4, 7, and 11.

Figure 15. Avery Point mean SO_2 ppb by wind direction January – July 2012

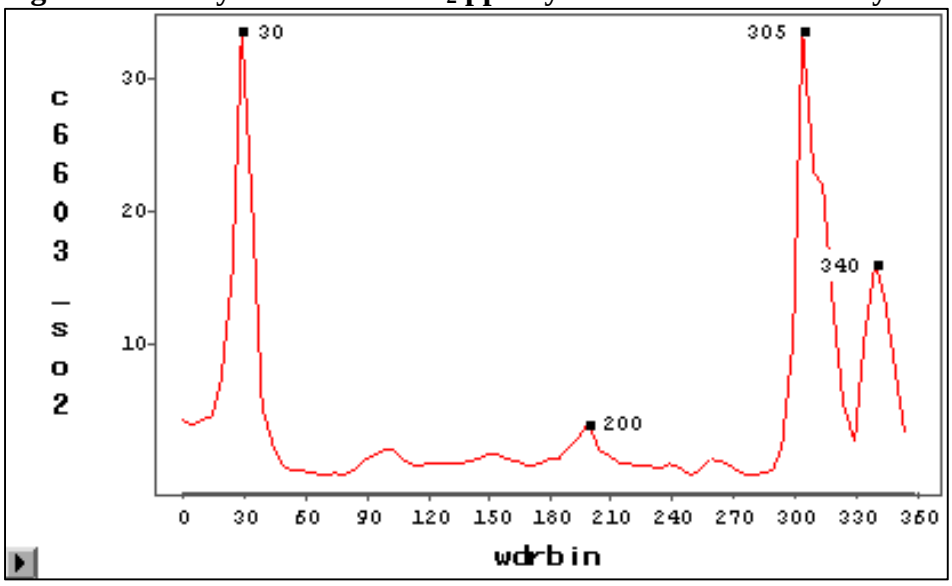


Figure 16. Avery Point fraction of observations at or above the 95th percentile value SO_2 by wind direction January – July 2012

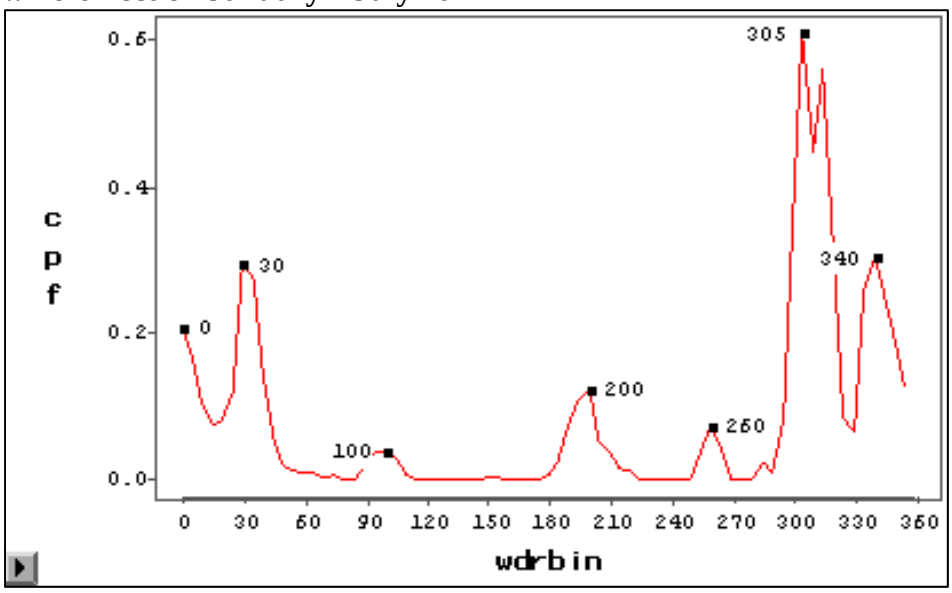
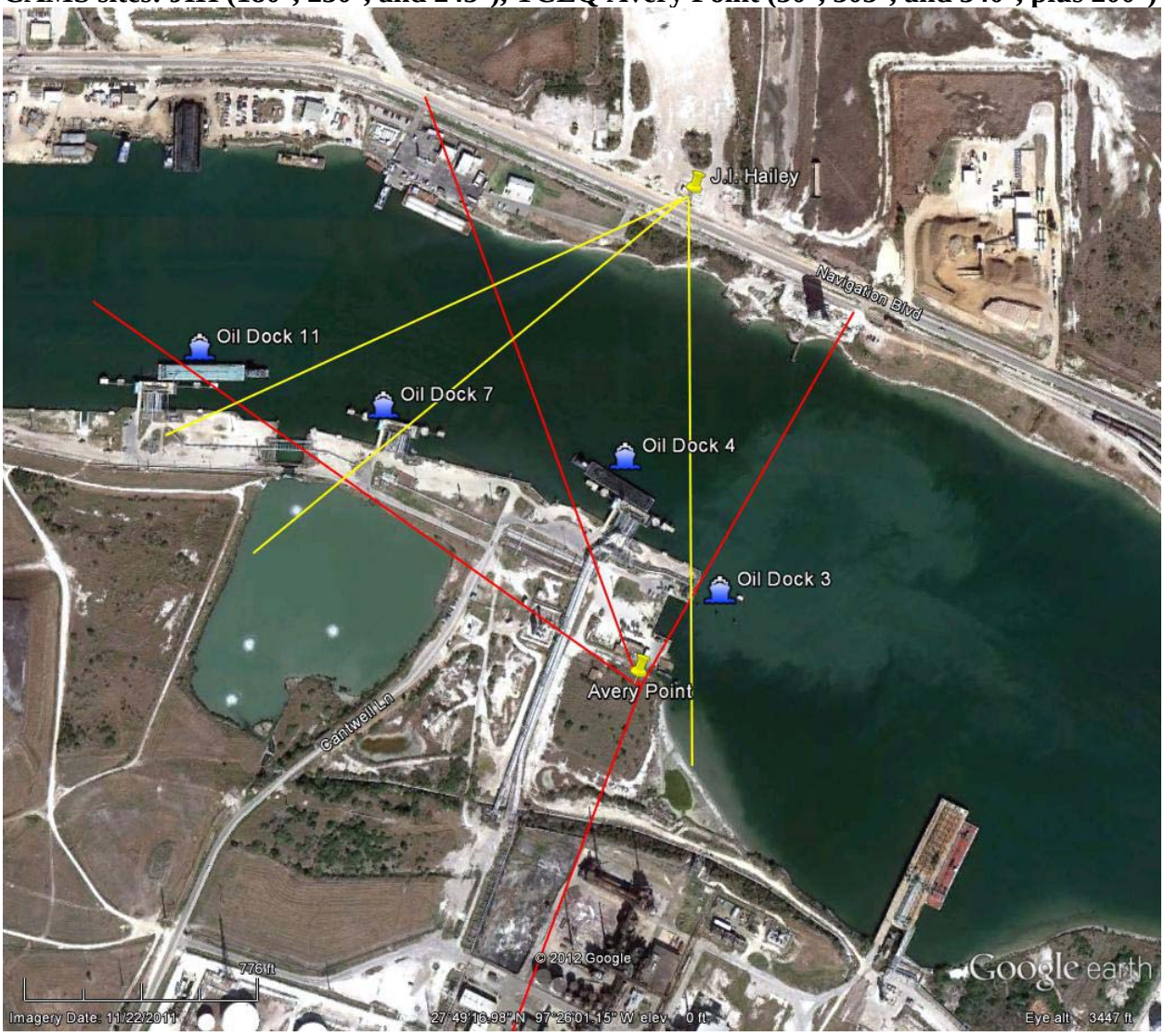


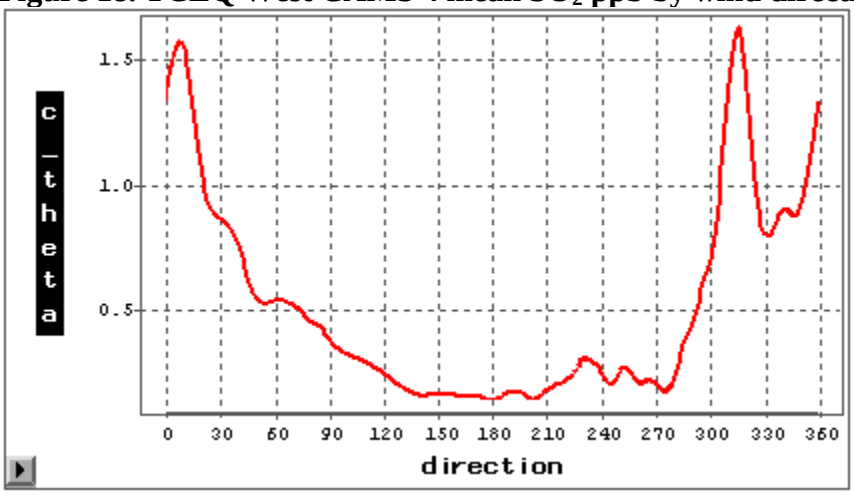
Figure 17. Rays drawn in key directions associated with highest SO_2 concentrations at two CAMS sites: JIH (180°, 230°, and 245°), TCEQ Avery Point (30°, 305°, and 340°, plus 200°)



TCEQ West CAMS 4 SO_2

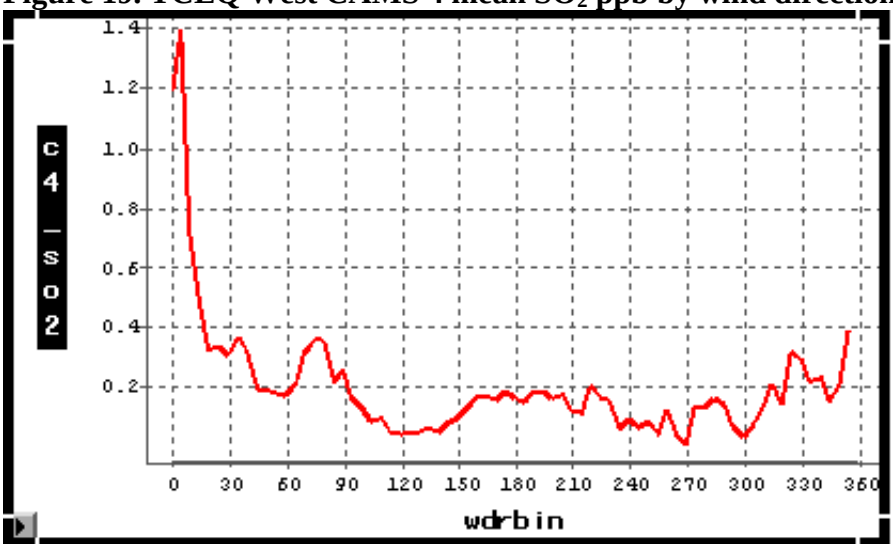
At a meeting of the Advisory Board on June 12, 2012, the graph in Figure 18, on page 30, was shown depicting the average concentration of SO_2 by wind direction at the TCEQ's West CAMS 4 site at the Corpus Christi State School at 902 Airport Road. This site's data were being examined in an effort to select candidate relocation sites for the UT Inner Harbor CAMS 629 site.

Figure 18. TCEQ West CAMS 4 mean SO_2 ppb by wind direction May 2007 – April 2011



The Figure 18 graph, above, was made with data from May 2007 through April 2011, which had been selected as a representative period of time for comparing all local SO_2 monitors. In examining data for this report, similar graphs were made for all sites using 2012 data (not shown herein), and the 2012 graph shown in Figure 19, below, for CAMS 4 looks markedly different from the May 2007 – April 2011 graph.

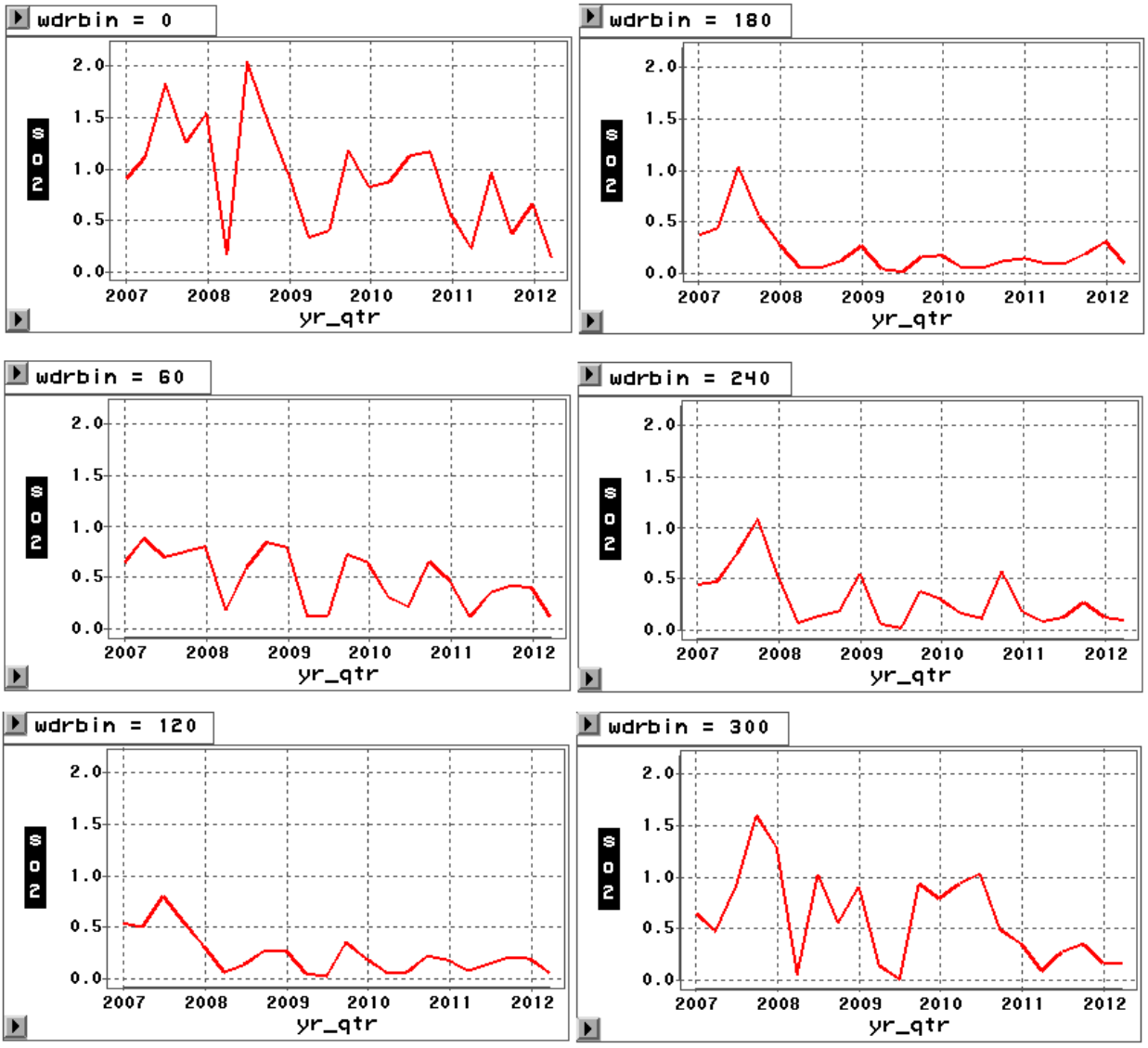
Figure 19. TCEQ West CAMS 4 mean SO_2 ppb by wind direction January – June 2012



Both graphs show a peak to the north-northeast at around 5 degrees, but the newer graph has no peak to the northwest. This suggests that SO_2 emissions associated with sources northwest of CAMS 4 have declined. Figure 20, on page 31, shows six graphs of the mean concentration of SO_2 by quarter for 60-degree wind sectors from January 1, 2007 to June 30, 2012. Each noted "wdrbin" represents the center of a 60 degree arc, so 0 degrees represents 330 to 30 degrees. The year 2007 appeared to have the highest concentrations for southerly winds (120, 180, and 240 degrees), but these directions otherwise produce the lowest means concentrations over the whole time period. Concentrations associated with north and northwest winds (0 degrees and 300 degrees, respectively) have the highest mean values, a finding that agrees with Figure 18. Concentrations have declined significantly for both the 0 degrees and the 300 degrees sectors, which in Figure 19 shows up as the disappearance of the peak near 315 degrees and the much

narrower peak to the north-northeast near 5 degrees. The reason why this is important is that CAMS 4 is more than two and a half miles from the industrial area covered by UT's monitoring network, but is in a position to measure the results of SO_2 emissions under different conditions than UT's sites. Between CAMS 4 and the industrial area there are thousands of residents who would be exposed to higher concentrations than those measured at CAMS 4, and because concentrations are so much lower in recent years, overall exposure is likely much lower than in years past.

Figure 20. TCEQ West CAMS 4 mean SO_2 ppb by quarter, by wind direction 60-degree sectors, 1st Qtr 2007 – 2nd Qtr 2012



4. Two Brief Case Studies of Pollution Episodes

TCEQ CAMS 4 and CAMS 98 SO_2 Episode

On January 2, 2012, TCEQ's Huisache CAMS 98 site measured an exceedance of the one-hour SO_2 NAAQS, recording a one-hour value of 79 ppb at 5 CST under northerly winds. Hourly concentrations greater than 5 ppb were measured continuously at Huisache from 16 CST on January 1 (New Year's Day) through 8 CST on January 2. Also on January 2, the TCEQ CAMS 4 site 2.7 miles to the south measured its highest one-hour value in 2012 over the first two quarters at 6 CST. Winds were from the north on January 1 and 2, and the back-trajectories run with the UT surface trajectory tool suggest that an emission source north of CAMS 98 was likely to have been responsible for elevated SO_2 at both sites. Figure 21, below, shows the time series for hourly SO_2 at the Huisache CAMS 98 site for 2012 through mid-July. Figure 22, on page 33, shows the hourly SO_2 by hourly wind direction at Huisache for the same period. Figure 23, on page 33, shows the time series for hourly SO_2 at the West CAMS 4 site for 2012 through mid-July. Figure 24, on page 33, shows the hourly SO_2 by hourly wind direction at West for the same period. The fact that the two sites are aligned north-south, and both sites had their highest observations of 2012 to date nearly coincidentally under a narrow range of wind directions suggests one source affected both sites. No emission events are reported in the TCEQ's online emission event database between December 29, 2011 and January 5, 2012 that might explain the elevated concentrations. The TCEQ's Avery Point site also measured an exceedance this day at 9 CST under northeast winds, and the Operator Log at the UT JIH CAMS 630 site states that at 8:39 CST two ships at docks were visible from the site. It is difficult to determine whether the exceedance at Huisache and the exceedance at Avery Point were related, or whether emissions from docked ships could have been measured as far away as CAMS 4. Figure 25, on page 34, is a Google Earth Pro aerial map showing the CAMS 4 and CAMS 98 monitors with back-trajectory centerline points created by the UT surface trajectory tool for the hours with the two highest average SO_2 concentrations at each site on the early morning hours of January 2, 2012.

Figure 21. Time series for hourly SO_2 at TCEQ Huisache CAMS 98, Jan. 1 – July 15, 2012

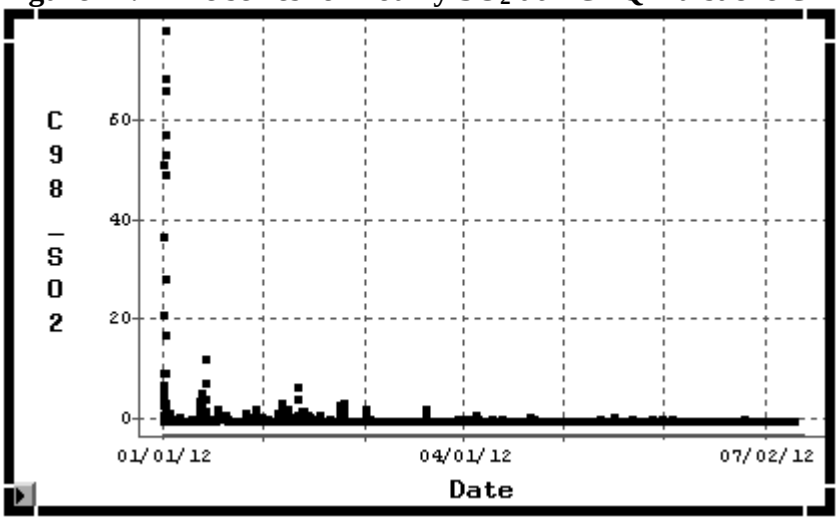


Figure 22. Hourly SO_2 by wind direction at TCEQ Huisache CAMS 98, Jan. 1 – July 15, 2012

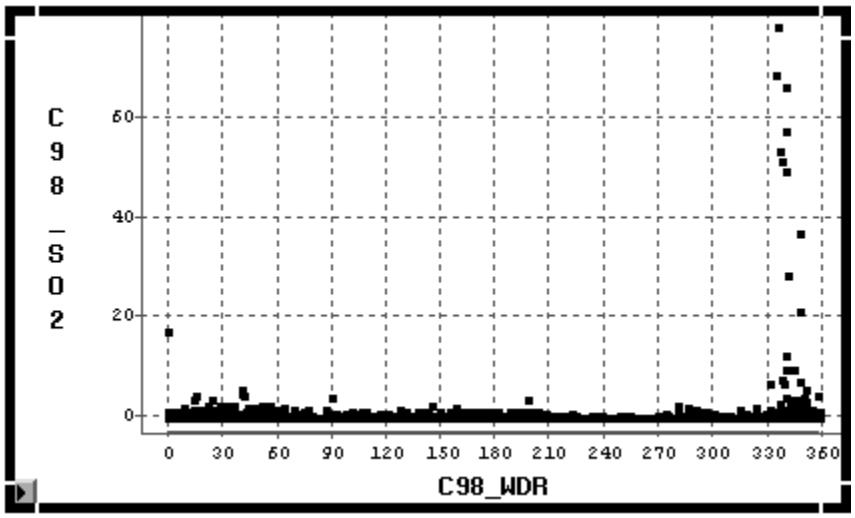


Figure 23. Time series for hourly SO_2 at TCEQ West CAMS 4, Jan. 1 – July 15, 2012

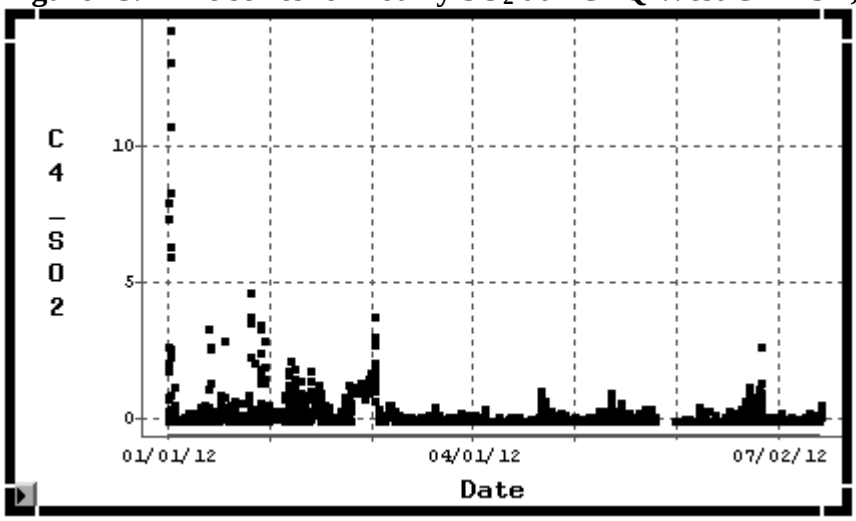


Figure 24. Hourly SO_2 by wind direction at TCEQ West CAMS 4, Jan. 1 – July 15, 2012

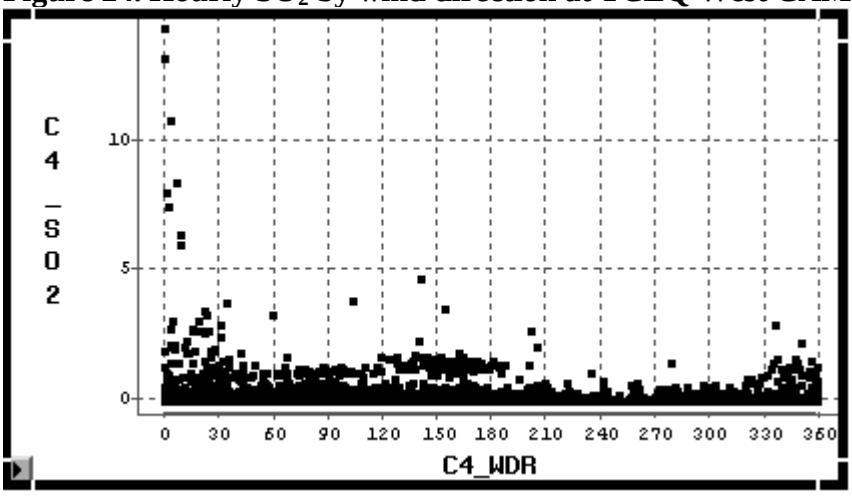
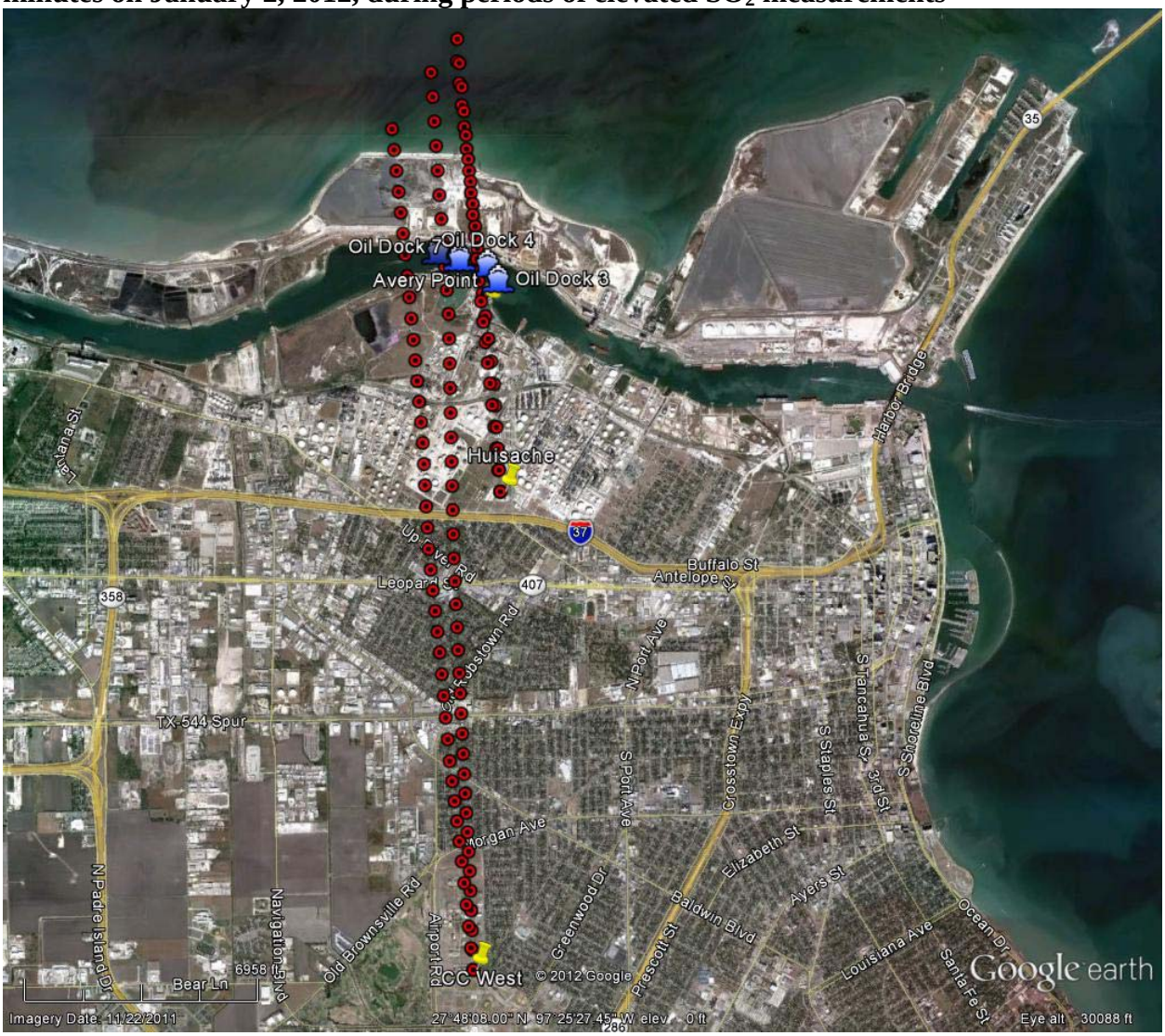


Figure 25. Surface back-trajectories for West CAMS 4 starting at 6:30 CST and 7:30 CST for 40-minutes and at Huisache CAMS 98 starting at 5:30 CST and 6:30 CST for 20-minutes on January 2, 2012, during periods of elevated SO_2 measurements



Canister Sample at Dona Park

A canister sample triggered by elevated TNMHC was taken at the Dona Park CAMS 635 site on June 4 at 1:19 CST. Because the Dona Park site is located in a residential neighborhood, the canister was analyzed in the UT lab. The results of the canister analysis are shown in Figure 26, on page 35. The concentrations in Figure 26 are in ppbC units used for assessing total mass, not toxicity. Propane appears to have an unusually elevated concentration relative to other species, and relative to the concentrations measured at the auto-GCs (divide by 3 to compare with values for propane in ppbV units in Table 4, on page 18). In summing up the mass of identified species in the canister and comparing that to the coincident TNMHC data, excellent agreement was reached: 1,160 ppbC by the TNMHC analyzer and 1,036 ppbC the sum of identified canister species.

Figure 26. Canister sample taken at Dona Park CAMS 635, June 4, 2012, 1:19 – 1:39 CST

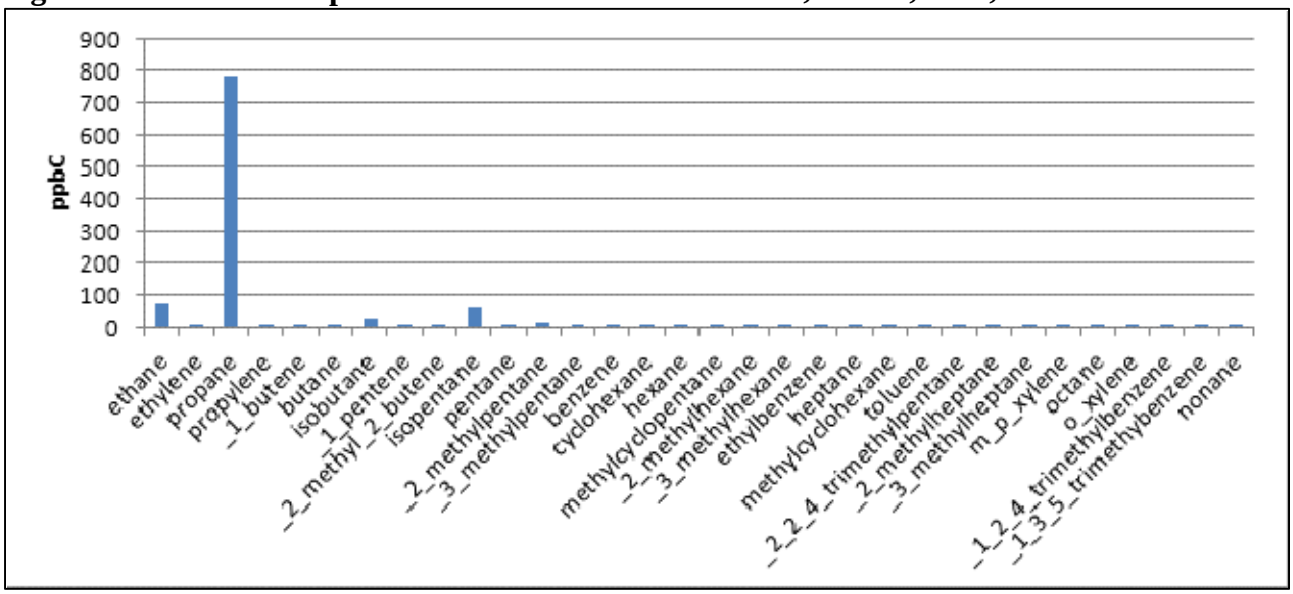


Figure 27, below, shows the time series for TNMHC interpolated to 1-minute time scale associated with this event. Figure 28, on page 36, shows the surface back-trajectory associated with the canister triggering and elevated TNMHC concentrations at 1:20 CST on June 4. Unlike other cases of canister triggering based on refinery, natural gas, or shipping operations, only the adjacent neighborhood was directly upwind during this period. No other pollutants measured at Dona Park showed any usual behavior correlated with the TNMHC. The conclusion here may be that normal residential activity may also produce elevated concentrations for example, in the refilling of a propane tank.

Figure 27. Time series for TNMHC ppbC interpolated to 1-minute time scale, early morning June 4, 2012, Dona Park CAMS 635

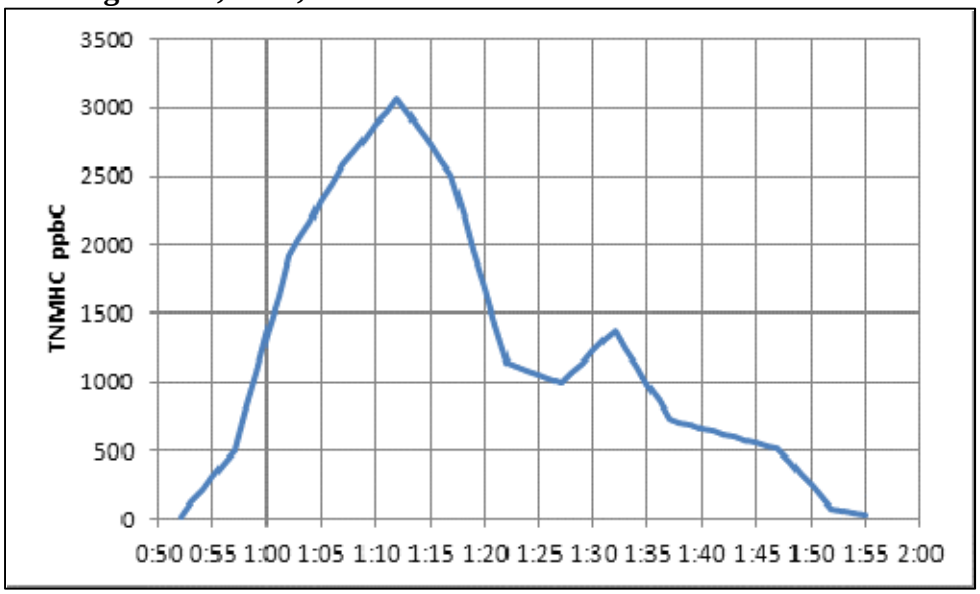
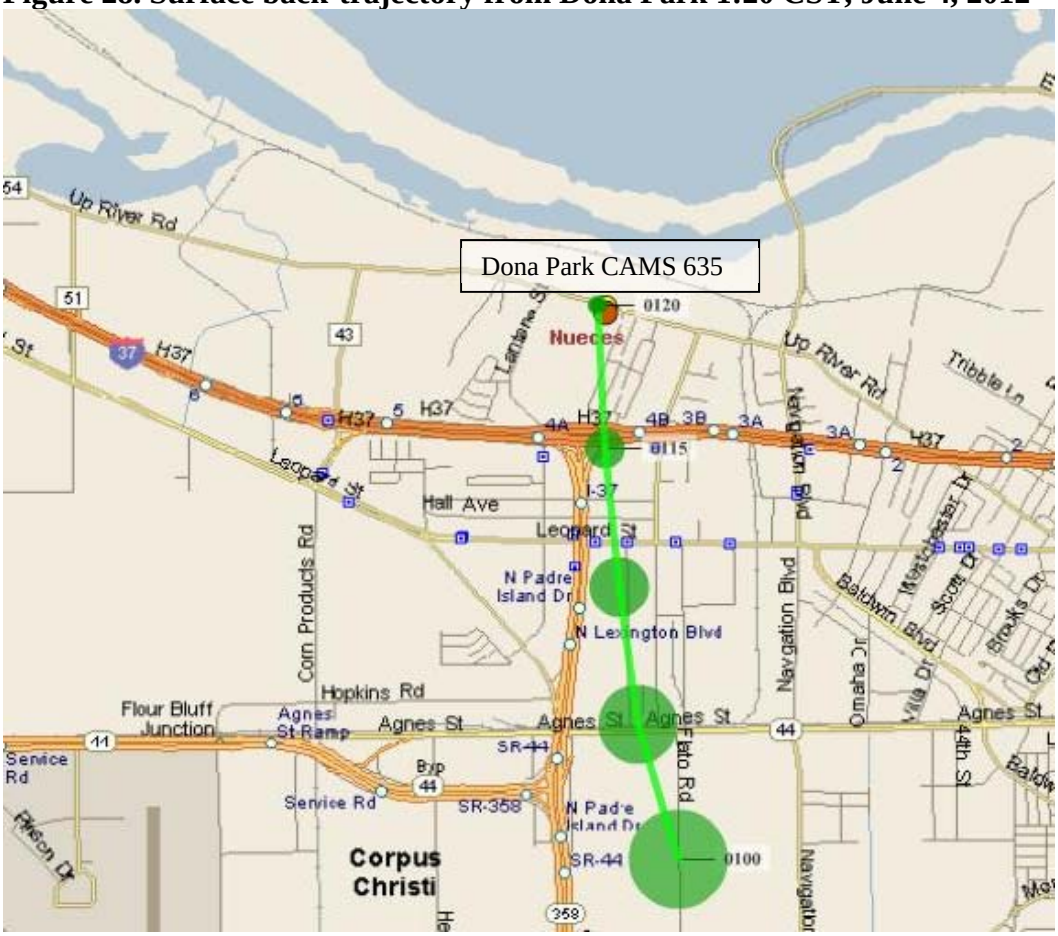


Figure 28. Surface back-trajectory from Dona Park 1:20 CST, June 4, 2012



Conclusions from the Second Quarter 2012 Data

In this quarter's report, several findings have been made:

- First and second quarter 2012 concentrations at the auto-GCs remain well below the TCEQ's AMCVs for all species tracked for this project.
- No exceedances of the EPA SO_2 NAAQS level were measured this quarter at UT sites, and one exceedance was measured at TCEQ's Avery Point site. Combining data from the UT JIH CAMS 630 site and the Avery Point has assisted in triangulating on which docks were the likely sources of emissions that created the highest on-shore concentrations recently.
- A close examination of the data from a TCEQ site, West CAMS 4, located 2+ miles south of the UT monitored area, shows that SO_2 concentrations have declined significantly in the past few years.
- Periodic air pollution events continue to be measured on a routine basis.

Further analyses will be provided upon request.

APPENDIX B

April 27, 2012
Advisory Board Meeting Notes

June 12, 2012
Special Project 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

12:00 pm – 2:00 pm

April 27, 2012

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

Ex-Officio Members of the Board Present:

Ms. Rosario Torres	TCEQ – Region 14
Ms. Micole Gonzalez –St John	TCEQ – Region 14
Ms. Susan Clewis	TCEQ – Region 14
Mr. Chris Owen	TCEQ – Region 14

Guests Present:

Mr. Wayne Rivera	TCEQ
Mr. Brian Miculka	TCEQ

Project Personnel Present:

Mr. Vincent 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. Vincent Torres called the meeting to order at 12:00 pm.

II. Project Overview and Status

Dr. Dave Sullivan gave an update on and analysis of monitoring data collected by the Project for the past 7 years. The Project has now collected 7 years of monitoring data.

III. Follow up to Old Business/Action Items

In response to a request from the Advisory Board at the last meeting, Dr. Sullivan reported that wind turbines have a negligible impact on air quality measurements because the size of the wind turbine is so small relative to area affected by the air quality measurements.

Also in response to a request of the Advisory Board, Dr. Sullivan reported that TCEQ representative Omar Valdez, who is overseeing the testing of emissions from the demolitions at Dona Park, informed Dr. Sullivan that all of the results have not yet been analyzed. Mr. Valdez offered to make a presentation at a future Advisory Board meeting after the results have been finalized. Mr. Torres will contact Mr. Valdez to arrange for a presentation at a future Advisory Board meeting. **ACTION ITEM**

IV. New Business

Mr. Torres provided a presentation on the notice of the termination of the Inner Harbor lease received by University of Texas at Austin. He updated the Advisory Board on discussions with the Port of Corpus Christi Authority (POCCA) representatives that he has been working with.

Mr. Torres also briefed the Advisory Board on the teleconference with The Honorable Judge Jack on 4/05/12. The Honorable Judge Jack expressed concern with the termination of the lease. She wanted the new lease period to extend as long as the current funding is projected to last, including a renewal term option should new funding be identified. She also doesn't want the project to incur the cost of moving again, i.e., no termination clause in the lease.

In light of the discussions with the Port and desires of the court for any future leases with POCCA, the Advisory Board wanted to understand the position and knowledge other Port personnel have on this matter. Ms. Arnold offered to speak with representatives of the Port and requested that since the only POCCA property option is similar to the existing site, which appears to be of limited value based on Dr. Sullivan's presentation today she preferred to:

A. Seek further clarification on timeline requirements of the Port
B. Take time to thoroughly decide what the Project wants, i.e., air monitoring objectives, for a replacement site for the Inner Harbor monitor.

Dr. Glen Kost emphasized that he doesn't want us to delay and upset the court or adversely affect the lease conditions the court desires.

Therefore, it was decided that in response to the Advisory Board concerns, Ms. Arnold would contact the Port on behalf of the Advisory Board to seek clarification of timelines imposed by the POCCA. The UT Project Team would prepare for the Advisory Board a summary of factors considered when locating any air monitoring site based on the air monitoring objectives for the site. **ACTION ITEM**

Before a final recommendation on a new site is made by the Advisory Board, it will be necessary for the Advisory Board to meet again perhaps as early as June, to continue discussing air monitoring objectives and options for relocating the Inner Harbor site, as well, as possibly discontinuing operations of this site if that would best serve the Project.

V. Adjourn

The meeting adjourned at 2:00pm.

ADVISORY BOARD MEETING

Corpus Christi Air Monitoring and Surveillance Camera Installation and Operation Project

Texas A&M University - Corpus Christi

Room 2010, NRC Building

2:00 pm – 3:30 pm

June 12, 2012

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
Mr. James Bowman	Interim, City of Corpus Christi

Guests Present:

Mr. Wayne Rivera	TCEQ
Mr. Brian Miculka	TCEQ
Mr. Kevin Stowers	City of Corpus Christi

Project Personnel Present:

Mr. Vincent 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. Vincent Torres called the meeting to order at 2:00 pm.

II. Relocating Inner Harbor CAMS 631

Dr. Dave Sullivan gave an update and presentation on options for relocating Inner Harbor CAMS 631. He presented seven site options and the air monitoring objectives each site would be designed to achieve. They are as follows:

Option	Site	Objectives
1.	Fishing bank	Trends
2.	Driscoll property	Maximum concentration; downwind of Valero
3.	Tuloso CAMS 21	Human exposure and low cost
4.	Academy Park	Human exposure
5.	Dunn-Meany	Human exposure
6.	Gibson Elem School	Human exposure
7.	Mobile Park	Human exposure

Discussions ensued with the Advisory Board on the pros and cons on the various sites. The Advisory Board recommended that Mr. Torres follow through on the fishing bank site on Port of Corpus Christi property. **ACTION ITEM** However, they are skeptical that the Port Authority will allow use of the site for an air monitoring station with the lease terms required by the Court. The next site the Advisory Board would like to pursue is the property that is owned by the Driscoll Foundation. **ACTION ITEM**

There was discussion of the possibility of looking into other property, such as owned by the Bays and Estuaries Organization. The ideally located Bays and Estuaries properties were deemed unusable due to lack of accessibility.

There was also discussion of the possibility of locating the site on a small strip of land owned by the City of Corpus Christi located near the old dump and firing range. They suggested trying to obtain a 5 year lease term with the City of Corpus Christi.

It was also suggested to investigate if any Flint Hills Resources property may be a possibility, including more flexible lease terms.

Mr. Torres said he would begin looking at each of these options. **ACTION ITEM** However, some of these options may take several months to obtain all the necessary information and responses to critical questions.

III. Adjourn

The meeting adjourned at 3:30pm.

APPENDIX C

Financial Report of Expenditures
Financial Report of Interest Earned

Corpus Christi Air Monitoring and Surveillance Camera Installation and Operation Project

Accounting Report for the Quarter
04/01/2012 - 06/30/2012

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

Total Grant Amount:	$6,761,718.02
Total Interest Earned:	$815,216.48
Total Funds Received:	$7,576,934.50

B. Summary of Expenditures Paid by COCP Funds

		Year 3 Budget	Year 4 Budget	Year 5 Budget	Year 6 Budget	Year 7 Budget	Yrs 1-7 Adjusted Budget	Prior Activity	Current Activity 04/01/12 - 06/30/12	Encumbrances	Remaining Balance 6/30/2012
Salaries-Prof	12	$216,128.63	$160,652.00	$286,279.40	$299,633.00	$318,499.00	$1,218,732.94	($1,205,080.88)	$0.00		$13,652.06
Salaries-CEER	15	$19,606.37	$15,636.00	$33,123.00	$30,948.00	$29,880.00	$162,071.37	($162,071.38)	$0.00		-$0.01
Fringe	14	$47,984.00	$38,783.00	$58,333.00	$72,728.00	$76,643.00	$285,059.91	($307,764.67)	($14,491.65)	($2,680.15)	-$39,876.76
Communication	42	$0.00	$0.00	$0.00	$0.00	$0.00	$1,845.00	($1,665.00)	($90.00)		$90.00
Other/C-Analysis	47/68	$60,474.00	$73,500.00	-$8,656.40	$73,500.00	-$14,219.00	$114,455.00	($114,455.00)	$0.00		$0.00
Supplies	50	$86,844.00	$33,500.00	$68,676.00	$122,682.00	$72,797.32	$512,178.19	($508,905.41)	($8.71)		$3,264.07
Quality Assurance	51	$0.00	$20,300.00	$8,000.00	$0.00	$7,070.00	$16,640.00	($16,640.00)	$0.00		$0.00
Subcontract	62-65	$1,965,693.00	$314,022.00	$296,734.00	$346,289.00	$591,523.00	$3,538,580.91	($3,538,580.91)	$0.00		$0.00
Program Income	66*	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	($414,343.26)	($223,878.72)	($11,675.48)	-$649,897.46
Travel	75	$2,300.00	$2,000.00	$7,719.00	$9,000.00	$6,712.00	$30,191.00	($30,103.73)	$0.00		$87.27
Equipment	80	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00		$0.00
Indirect Costs	90	$359,855.00	$98,759.00	$112,531.00	$143,217.00	$167,601.70	$881,963.70	($846,787.32)	($2,188.55)		$32,987.83
TOTALS		$2,758,885.00	$757,152.00	$862,739.00	$1,097,997.00	$1,284,945.02	$6,761,718.02	($7,146,397.76)	($240,657.63)	($14,355.63)	($639,693.00)

B.1. Summary of Program Income (66) Expenditures

Salaries-Prof	66	$58,252.13
Salaries-CEER	66	$8,549.27
Fringe	66	$0.00
Communication	66	$0.00
Other/C-Analysis	66	$22,435.00
Supplies	66	$28,915.03
Quality Assurance	66	$0.00
Subcontract	66	$104,766.68
Program Income	66	$0.00
Travel	66	$960.61
Equipment	66	$0.00
TOTAL		$223,878.72

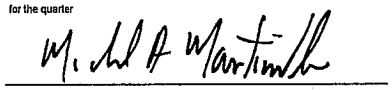
C. Interest Earned by COCP Funds as of 06/30/12

Prior Interest Earned:	$814,320.54
Interest Earned This Quarter:	$895.94
Total Interest Earned to Date:	$815,216.48

D. Balance of COCP Funds as of 06/30/12

Total Grant Amount:	$6,761,718.02
Total Interest Earned:	$815,216.48
Current Q. Expenses	($240,657.63)
Total Expenditures:	($7,146,397.76)
Remaining Balance:	$189,879.11

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



Accounting Certification