

**O3 FLEX INTERGOVERNMENTAL AGREEMENT
FOR
NUECES COUNTY AND SAN PATRICIO COUNTY IN TEXAS

(THE CORPUS CHRISTI URBAN AIRSHED)**

INTRODUCTION

Two adjoining counties, Nueces County and San Patricio County in Texas, contain a large urbanized area with a number of industrial point sources of air emissions and a concentration of mobile sources. The two counties are home to the nation's fifth busiest deep-water port, a large industrial and petrochemical complex, two major military bases, and a network of highways including the Interstate Highway System that facilitates commerce and a thriving tourism industry.

Such urbanized areas are referred to as “urban airsheds,” coinciding with metropolitan statistical areas defined by the U.S. Census Bureau. The Corpus Christi metropolitan statistical area, comprised of Nueces County and San Patricio County, may be considered an urban airshed in which air emissions from sources in both counties interact to influence the level of ambient air pollution in the community. Control of ambient air quality requires a strategy that considers sources of air emissions in both counties.

The urban airshed of Nueces County and San Patricio County in Texas is an area in which local entities, the Texas Commission on Environmental Quality (TCEQ), and the U.S. Environmental Protection Agency (EPA) are working together to plan and implement voluntary actions appropriate to community needs to improve air quality. This collaboration makes it possible to design common sense strategies that reflect the weather, driving habits, and economy of the region in the creation of a model program. A Flexible Attainment Region Memorandum of Agreement in 1996 among these parties formalized a plan:

City of Corpus Christi	Texas Commission on Environmental Quality
Nueces County	U.S. Environmental Protection Agency
San Patricio County	
Port of Corpus Christi Authority	
Corpus Christi Regional Transportation Authority	

Other stakeholders making major contributions to this effort include the following:
Port Industries of Corpus Christi, Inc., and its member companies.
Texas A&M University-Corpus Christi, Department of Community Outreach
Texas A&M University-Kingsville, Department of Environmental Engineering

The success of this effort has been measured by monitoring of ambient ozone levels. Annual maximum daily high ozone levels have been reduced so that no exceedances of the National Ambient Air Quality Standard for ozone (based on one-hour averages) have occurred in the Corpus Christi urban airshed since 1995.

Since no exceedances have occurred in the Corpus Christi urban airshed since 1995, it was not necessary to implement the contingency measures of the 1996 Flexible Attainment Region Memorandum of Agreement. The contingency measures are still viable options that could be implemented if needed in the future in the unlikely event that exceedances occur even after full implementation of voluntary measures.

A detailed analysis of the 1996 Flexible Attainment Region Memorandum of Agreement and its results is attached as Appendix 1.

In 2001, the EPA adopted a policy and issued guidelines for a new program to encourage voluntary air emission reductions that will help keep an area in attainment of the one-hour ozone standard, while contributing positively to achieve the health benefits envisioned under the 8-hour ozone standard. The new program is called "O3FLEX" and eligible communities are invited to develop an O3FLEX Intergovernmental Agreement. Stakeholders in Nueces County and San Patricio County have expressed their desire to participate in the O3FLEX program. This intent was expressed in a letter by the Mayor of Corpus Christi dated July 9, 2001 and acknowledged in a reply from the EPA Regional Administrator dated August 14, 2001.

The following table reflects the estimate of quantifiable emissions reductions achieved as a result of the voluntary programs established in the 1996 FAR agreement. There were additional reductions resulting from ozone action day alerts and similar educational outreach efforts that are much more difficult to quantify. Since there is no reliable method to verify results, we have not attempted to associate numbers to those programs.

Emission Reduction Estimates From Voluntary Controls¹

Voluntary Control Strategy	VOC (Tons/Yr)	NOx (Tons/Yr)
Stage I Vapor Recovery	1776	---
7.8 RVP Gasoline	622	26
Voluntary Marine Loading Controls	2538	---
Voluntary Industrial Reductions	593	2320

¹ Corpus Christi Air Quality Assessment, 1998-1999, Project Report, Dr. Kuruvilla John, Ph.D., Texas A&M University-Kingsville. Also includes reduction estimates from individual industrial sources.

BACKGROUND

PARTICIPATING STAKEHOLDERS. A proactive Air Quality Committee was established in 1995 to review the ozone attainment issues for the Corpus Christi urban airshed, comprised of Nueces and San Patricio counties in the Texas Coastal Bend Region. The membership includes local government, business and industry, local universities, the military, representation from the press, and the meetings are open to the public. The attached Appendix 2 is a list of participants in the Air Quality Committee.

APPLICABLE STANDARDS. This O3 FLEX Intergovernmental Agreement is applicable under the current National Ambient Air Quality Standard for ozone based on one-hour averages. The standard requires that the daily maximum one-hour average ozone level as recorded at a Continuous Air Monitoring Station may exceed 0.12 parts per million on no more than three days in the most recent three calendar year period.

If the current one-hour standard is withdrawn or is determined by the EPA to be inapplicable in the Corpus Christi urban airshed at a future date, then this agreement may be terminated or revised in accordance with state and federal law.

STATUS OF AIR QUALITY. The Corpus Christi urban airshed, comprised of Nueces and San Patricio Counties, is designated attainment for the National Ambient Air Quality Standard for ozone based on one-hour averages. The TCEQ considers the Corpus Christi area to be one of several near-nonattainment areas in Texas. There have been no recorded exceedances of the one-hour standard since 1995.

SOURCES OF POLLUTANTS. Scientific research performed by Texas A&M University - Kingsville, including emissions inventory activities and backward trajectories for high ozone episodes, indicates the primary sources of ozone precursors:

1. Inbound transport. Cluster analysis of high ozone episodes from 1995 through 2001 showed that a significant majority were heavily influenced by inbound transport of ozone and ozone precursors from northeast of the Corpus Christi area. This information is detailed in the Conceptual Model of weather patterns attached as Appendix 3. Progress in reducing ambient ozone and ozone precursors in areas northeast of Nueces County and San Patricio County along and near the Texas coast and in Louisiana is needed to assist in controlling ambient ozone in the Corpus Christi urban airshed.
2. Stationary sources. The most current emissions inventory study submitted to the TCEQ in August 2001 for calendar year 1999 indicates that point sources account for 52% of nitrogen oxide emissions and 29% of volatile organic compounds. Electric generating facilities and other industrial facilities are the largest local sources of nitrogen oxide emissions.

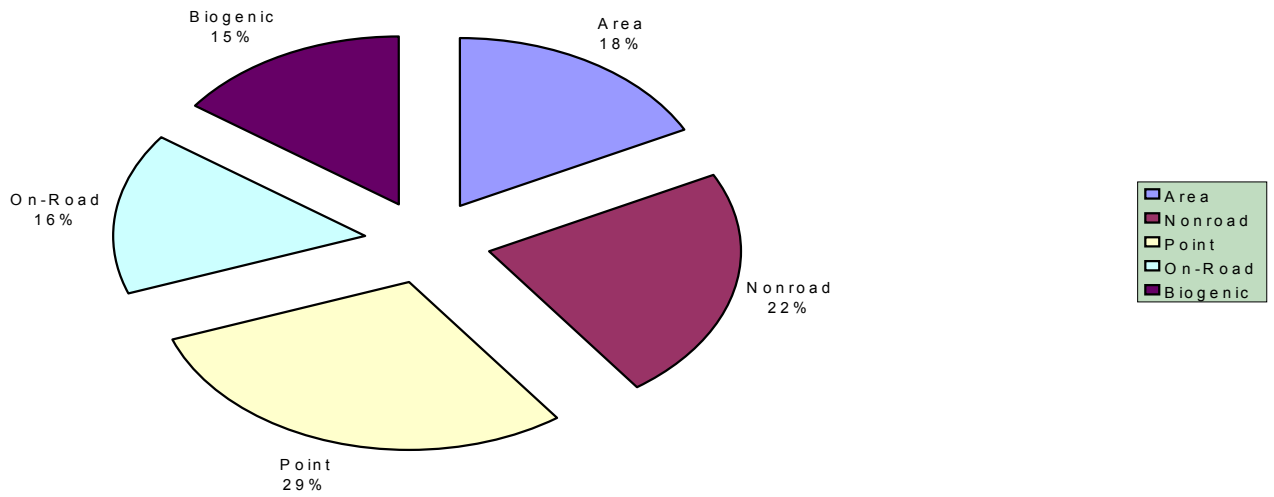
3. Mobile sources. The calendar year 1999 emissions inventory indicates that on-road and off-road mobile sources produce 46% of nitrogen oxides and 39% of volatile organic compounds. The inventory data was supplied by the Texas Transportation Institute from Mobile-5A. Mobile sources are the largest local sources of volatile organic compound emissions.

**Figure 1: 1999 Summary Of Emission Inventory Estimates
(All Emissions in Tons / Year)**

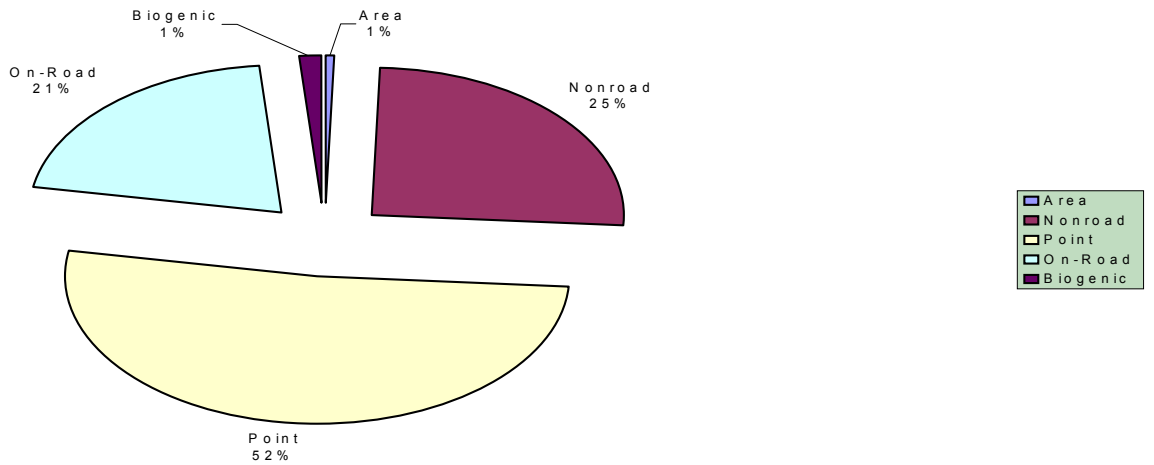
Nueces County						
Pollutant	Area	Non-Road	On-Road	Biogenic*	Point	Total
VOC	5,867.45	7,245.12	6,464.75	3,110.33	12,563.48	35,193.22
NOX	274.17	12,080.86	10,019.44	401.41	25,339.79	48,115.66
CO	270.41	27,628.24	66,924.34		13,673.90	108,496.89
San Patricio County						
Pollutant	Area	Non-Road	On-Road	Biogenic*	Point	Total
VOC	2,263.73	3,190.35	1,455.65	3,830.30	999.32	11,707.90
NOX	53.11	3,031.87	2,376.05	347.48	5,430.77	11,239.28
CO	323.83	11,309.88	15,075.74		3,235.35	29,944.79
Airshed Total						
Pollutant	Area	Non-Road	On-Road	Biogenic*	Point	Total
VOC	8,163.01	10,435.47	7,920.40	6,940.63	13,652.17	47,022.32
NOX	327.28	15,112.74	12,395.49	748.89	30,770.55	59,354.95
CO	594.24	38,938.12	82,000.08		16,909.25	138,441.69

*1996 data

VOC All Sources Both Counties



NOX All Sources Both Counties



MONITORING. The Texas Commission on Environmental Quality operates two Continuous Air Monitoring Stations in Corpus Christi. Station C4 is located at the State School at 902 Airport Road. Station C21 is located in West Guth Park at 9705 Up River Road. A map identifying the locations of the monitors in the City of Corpus Christi is included as Figure 12, page 31, of the Conceptual Model Report, Appendix 3.

No exceedances of the one-hour standard have occurred since 1995 (Fig. 4, page 20, Appendix 3).

HIGH OZONE EPISODES. Monitoring has shown that normally low ozone levels in the Corpus Christi area are occasionally elevated to near the National Ambient Air Quality Standard. These episodes are characterized by hot sunny days, cloudless skies, light northeasterly winds, and high background levels of ozone and ozone precursors associated with inbound transport from northeast of the community (Fig. 14 & 15, page 35, Appendix 3).

These conditions facilitate buildup of ozone levels from local emissions of ozone precursors. Special events such as holiday weekends and festivals generate additional motor vehicle traffic that increases local sources. High ozone episodes usually span several days, and end when the inbound transport from the northeast ends.

REGIONAL PHOTOCHEMICAL MODELING. The Corpus Christi Air Quality Committee and Texas A&M University-Kingsville are participating in a major regional photochemical modeling effort on the September 1999 ozone episode in cooperation with the TCEQ and the communities of San Antonio, Austin, and Victoria. The University's Department of Environmental Engineering began doing air quality studies for the Air Quality Committee in 1995 using funds contributed by local businesses and government entities. The product of the regional study is a base case Comprehensive Air Quality Model for the region installed on the computer system at the University that will be used for a series of sensitivity analyses. The impact of selected source categories on ozone formation in the area can be estimated, and emissions reduction strategies tested for their impact on the region. Use of the model will provide a determination of the most effective strategies for ozone control unique to the Corpus Christi urban airshed.

To date modeling for the area has been utilized to investigate the impact of local emissions sources on downwind areas. Since the Corpus Christi urban airshed is in attainment with the one-hour ozone standard, modeling efforts have been directed toward determining the areas affected by local emissions and the magnitude of any detected impact. An episode from 1993 was used for an initial "zero out" investigation. A base case using data developed for the COAST Study was run followed by a control case in which point source emissions of nitrogen oxides in the Corpus Christi airshed were deleted. The modeling was performed by Atmospheric & Environmental Research, Inc. under the direction of Texas A&M University-Kingsville. The results of this study were shared with TCEQ and served to direct additional study by TCEQ and local researchers.

A second round of modeling was conducted by Texas A&M University-Kingsville researchers as part of the Air Quality Research Project funded by the State through Rider 17 to the 1998/1999 State Budget. The report on the second modeling project is included as Appendix 4 to this Agreement. In it the area grid network for a 1999 emissions inventory is developed for the Regional Modeling project mentioned above, and a more detailed zero out investigation is conducted for a September 1995 regional episode. The purpose was two-fold. The 1999 base case model is to be installed at Texas A&M

University-Kingsville for control mechanism sensitivity testing. The most accurate inventory data available was input and performance of the model was tested. Again the base 1995 “actual” is compared to a control case deleting local sources. Results of these activities are detailed in Appendix 4.

Upon receipt of the September 1999 simulation and performance demonstrated, control strategies may be simulated for impact analysis. Analyze the potential effects of highly reactive VOCs on ozone formation as identified during the recent Texas 2000 Study, conducted for Houston by the TCEQ and numerous federal government and university researchers, will be investigated. If this phenomenon can be simulated, it will be quite useful to the area due to the large petrochemical and refining presence. It could also be quite useful in assisting the regulated industries to determine the most economical and effective control strategies for their use.

TRENDS. Monitoring has shown a significant reduction in maximum daily one-hour average ozone levels for the years 1997 through 2000, compared to prior years. This improvement is attributed to the voluntary measures implemented under the provisions of the Flexible Attainment Region Agreement approved in June 1996. A violation of the one-hour ozone standard could occur in 2002 only if either monitor records four exceedances in 2002. No exceedances have occurred since 1995.

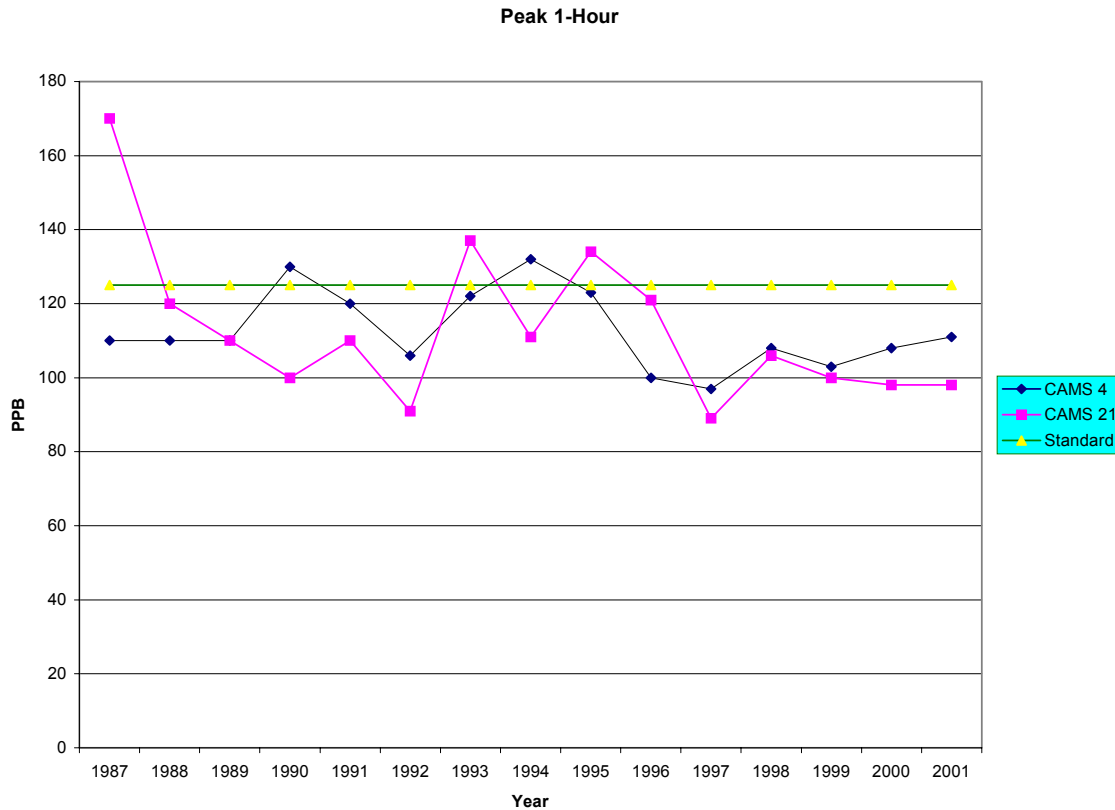


Figure 2: Peak one-hour ozone levels observed by year.

ACTION PLAN

PLANNING MEASURES. Air quality planning measures will afford the opportunity for scientific research and study. The results will enable appropriate and effective control measures to be identified, prioritized, and selected as necessary through the process established in this agreement.

The air quality planning measures for the Corpus Christi urban airshed are sponsored by the near-nonattainment area funding program through TCEQ. The Department of Environmental Engineering of Texas A&M University-Kingsville, in cooperation with the Corpus Christi Air Quality Committee leads the research effort, which has as its goal a mechanism enabling sound decisions to reduce emissions, especially the types of emissions that affect peak ambient ozone levels more than others. The following programs comprise that effort:

1. Inventorying sources of emissions of ozone precursors;
2. Monitoring air pollution levels;
3. Modeling the photochemistry of ozone formation;
4. Utilize the Base Case photochemical model and a series of sensitivity runs to determine if control of volatile organic compounds, nitrogen oxides, or a combination of controls is most effective;
5. Determine the effect of olefin emissions;
6. Analyzing sensitivity to assess relative effectiveness of control strategies; and
7. Evaluating specific control strategies.

The full Work Plan for the 2002/2003 contract period is attached as Appendix 5. A summarized scope of work follows:

Objectives of inventorying sources of emissions of ozone precursors

- Further update and improve the emissions inventory for the Corpus Christi urban airshed 1999, and project future year emissions inventories. Resolve uncertainties in the overall mobile and stationary source emissions inventory for Nueces County and San Patricio County.
- Obtain a better estimate of marine emissions, including loading and unloading operations of petroleum products and other chemicals at the port, and emissions from the shipping channels.
- Obtain a better representation of the mobile source emissions of nitrogen oxides and volatile organic compounds in collaboration with the TCEQ and the Texas Transportation Institute. Use line-source modeling and MOBILE-6 or other EPA approved mobile source model to obtain improved estimates of on-road emissions. Use accurate data reflecting fleet composition and age of vehicles on-road.
- Obtain more accurate estimates of off-road emissions, including emissions from pleasure boats, agricultural implements, and lawnmowers.

- Estimate emissions from general, commercial and military aircraft.
- Develop an improved estimate of the biogenic component of the emissions estimate in collaboration with the Texas Commission on Environmental Quality, including an estimate of emissions from the soil resulting from excessive fertilizer application.

Objectives of monitoring air pollution levels

- Monitor and measure ozone, its precursors and meteorological variables affecting air pollution levels in the Corpus Christi urban airshed.
- Determine appropriate locations for ozone, precursor, and meteorological monitors on the basis of key criteria, such as upwind/downwind sites; rural/urban locales; target populations; offshore/coastal/inland sites; and clustered/distributed monitoring network.
- Evaluate ozone concentrations and distribution within Nueces County and San Patricio County and within the urban area of Corpus Christi.
- Investigate causes of any elevated episode to determine if it was the result of an “international event” or other extraordinary cause and determine the influence of transport and the effect controls promulgated for areas upwind would have on mitigating the extent of the episode if possible.

Analyzing sensitivity to assess relative effectiveness of control strategies

- Determine the relative effectiveness of regional versus local controls.
- Determine the relative effectiveness of reducing nitrogen oxides versus reducing volatile organic compounds.
- Develop the theoretical maximum emissions inventory and spatial distribution of emissions to continue attainment of the ozone standard in the Corpus Christi urban airshed, assuming implementation of all regional controls that have the potential to reduce inbound transport.

Evaluating specific control strategies

- Evaluate the potential for reducing emissions of volatile organic compounds and nitrogen oxides from possible control strategies.
- Test the effectiveness of each identified strategy in reducing ozone levels.

The base case regional model was completed and a draft report issued April 3, 2002 by the contractor, Environ. The base case model provided a good simulation of ozone production in the central part of the state. Coastal meteorology is much more difficult to accommodate and additional work needs to be done to improve performance along the coast. Appropriations Rider funding was budgeted by both Corpus Christi and Victoria for that purpose as both cities experience the same effect.

Once the meteorology issue is addressed, sensitivity analyses will be undertaken with Appropriations Rider funding provided by the Texas Legislature during the fiscal years 2002/2003 biennium. A report on the results of those analyses will be issued by August 31, 2003 or as the contract with the TCEQ may be amended. Conclusions and recommendations will be reached at various times during the course of the project and new analyses may be conducted beyond that date based on any new information. The Air Quality Committee will evaluate the conclusions and recommendations when received and consult with TCEQ and EPA to determine whether necessary additional response measures should be considered for implementation.

The project scope was to provide the base case model from which emissions reduction strategies may be evaluated. As noted, there are some facets of the model that need to be addressed, the key issue for Corpus Christi being simulation of the coastal meteorology. Between the efforts of scientists from Texas A&M University-Kingsville and the University of Texas-Austin, that issue will be resolved.

Appendix 8 contains the Conclusions and Recommendations from the draft Environ Report. The following bullet points summarize the more significant items:

- Large under prediction of the ozone peaks noted throughout the domain.
- Transport of ozone and precursors from the Houston area is of prime concern for all four NNAs. In this particular episode, wind directions throughout most of the period were aligned along the Gulf coast, which would indicate a sufficient transport path from Houston to Victoria and Corpus Christi.
- The biggest sources of NO_x-generated ozone appears to be mobile and elevated point sources for San Antonio and Austin and area/non-road sources in Corpus Christi. The biggest sources of VOC generated ozone appears to be biogenic and area/non-road for three of the four NNAs based on model sensitivity analyses. This is not directly related to the relative inventory contribution from source categories, rather to other factors such as the spatial distribution of the emissions.

VOLUNTARY EMISSIONS REDUCTION MEASURES. Employers and citizens in the Corpus Christi urban airshed will implement various voluntary control measures to reduce the emission of ozone precursors. As indicated in Figure 2, above, the Corpus Christi airshed continues in attainment of the one-hour ozone standard. The voluntary measures, committed in the FAR plus some additional measures implemented subsequent to execution of the FAR, have proved effective in maintaining compliance with the one-hour ozone standard.

Stationary emission sources, control devices, control procedures. Refineries, petrochemical plants, and other major industries will implement the following actions:

- Marine vapor recovery and control equipment will be used at marine tank ship and barge loading facilities for transfer of products that have a vapor pressure higher than 0.5 psi.

- Uncontrolled loading of volatile products that have a vapor pressure higher than 0.5 psi will be rescheduled to occur on days other than Ozone Action Days to the extent feasible.
- Analyze the potential effects of highly reactive VOCs emissions on ozone formation as identified during the recent Texas 2000 Study, conducted for Houston by TCEQ and numerous federal government and university researchers, will be investigated. If this phenomenon can be simulated, it may be quite useful due to the large petrochemical and refining presence. It could also be quite useful in assisting the regulated industries determine the most economical and effective control strategies for their use.
- Industries and the Port of Corpus Christi Authority have made specific commitments to voluntarily reduce emissions. These voluntary commitments are contained in letters included as Appendix 6.

Public awareness, notification and participation programs. Public awareness, notification, and participation will include the following activities by the Corpus Christi Air Quality Committee under the leadership of the Texas A&M University-Corpus Christi Department of Community Outreach with assistance of other educational institutions, local businesses and government agencies:

- Teacher training workshops
- In-school presentations and materials
- Exhibits at community fairs and special events
- Presentations to local civic and business groups
- Daily television and newspaper ozone data during ozone season
- Ozone season kick-off news media event
- News media conferences and briefings
- Regional briefings of community leaders
- Special notices and briefings for holiday weekends

An annual public awareness campaign will be conducted each year during the ozone season. Results will be measured through surveys. Each annual campaign will be modified and improved using survey results and direct citizen input.

The Corpus Christi Air Quality Committee is participating in the development of a “*Statewide Transportation Air Quality Public Outreach and Education Program*” in partnership with Texas Transportation Institute, Texas Department of Transportation, and TCEQ. The purpose of the program is to develop and launch a statewide public message through television spots, billboards, radio spots, etc. that encourage Texans to “Drive Clean Across Texas”. The program hopes to build and raise public awareness of air quality/transportation issues, motivate behavioral changes, and produce an economy of scale through mass production and distribution. The focus of the spots will be car-pooling, proper vehicle maintenance and alternative transportation options. An advisory resource group was appointed to ensure that the statewide message is compatible with the issues and current messages taking place in local programs throughout Texas. Due to the many successful events and efforts in Corpus Christi with air quality public education

and outreach, a representative of the Corpus Christi Air Quality Committee has been appointed to this advisory resource group and is providing input into the development and implementation of the program.

An ozone action day program will be continued by TCEQ. Major participants include the City of Corpus Christi, Texas A&M University-Corpus Christi Department of Community Outreach, local industries and military installations, the Corpus Christi Regional Transportation Authority, the Port of Corpus Christi Authority, and the Texas Department of Transportation.

Small Business Assistance. The Texas A&M University-Corpus Christi Department of Community Outreach established a program to educate small business on methods to reduce emissions and waste streams at their facilities through an ambitious outreach effort. The program was begun in 1995 with assistance of a \$105,000 demonstration grant from the EPA. The partnership assists small businesses in reducing their emissions of ozone precursors, and it provides public recognition of participants' activities. The strategy for the program is based on the assumption that many small businesses use equipment, materials, and processes that could be changed both to benefit the business and to reduce pollution, and that small businesses will voluntarily make changes to reduce emissions if managers believe it is in their business' best interest to do so.

Business sectors are targeted through an analysis of emissions inventory data. Program staff members meet with small business representatives and consultants to identify motivations for participation, best practices, pollution prevention possibilities, and applicable environmental regulations. Educational seminars, training sessions, and compliance audits are provided based on a program specifically designed for each small business sector to follow the recommendations from industry representatives who participate in focus groups. High-credibility consultants in each business sector are used as needed for technical assistance, while leveraging other volunteer resources.

Technical support comes from the City of Corpus Christi, TCEQ's local office and small business assistance program, Corpus Christi Army Depot, Port Industries of Corpus Christi member companies, Texas Engineering Extension Service, Texas A&M University-Kingsville, EPA, and other public agencies. Participants receive and display the Pollution Prevention Partnership window decal as part of a community wide recognition effort. The small business Pollution Prevention Partnership will be continued using state and local funds to accomplish the following projects:

- Training in methods and materials for industrial coatings contractors and personnel, and users of their services so that painting and similar activities will emit minimum amounts of volatile organic compounds.
- Training of vehicle fleet operators to reduce emissions from fleet vehicles.
- Retraining of tank truck operators and filling station/convenience store personnel to ensure the use of stage one vapor recovery equipment when gasoline is transferred from tank trucks to underground tanks.

- Retraining of owners and employees of small businesses in sectors such as printers, wood product manufacturers, and auto paint and body shops, which have previously participated in the program.
- Continue the emissions inventory project for small business, gas compressor research and recommendations, and agricultural pesticide and herbicide research and recommendations.

Mobile sources, controls. Local refineries have voluntarily provided the Corpus Christi area with gasoline having lower Reid vapor pressure than required by regulation, as a measure to reduce emissions of volatile organic compounds. Beginning in 1996, refineries provided gasoline having a maximum vapor pressure of 7.8 psi during the months May through September, a reduction from the maximum of 9 psi then allowed by regulation. Subsequently, research and monitoring programs have shown that the ozone season in the Corpus Christi urban airshed extends through the month of October. Therefore, beginning in 2000, refineries voluntarily provided gasoline during October having a maximum vapor pressure of 9 psi, a reduction from the maximum of 11.5 psi currently allowed by regulation. Local gasoline suppliers are committed to continue voluntarily providing gasoline having maximum vapor pressure of 9 psi in October. Calculations were performed as part of the 1998 Emissions Inventory project that this effort combined with the voluntary use of Stage I Vapor Recovery result in an annual reduction of nearly 1,800 tons of volatile organic compound emissions.

Smoking vehicles are being addressed through the use of mobile tailpipe emissions monitoring equipment and car care clinics. On two occasions, the University of Denver deployed its Smart Sign emissions information system in Corpus Christi. The results showed that a small number of cars and trucks produce a large portion of the total amount of tailpipe emissions from all vehicles sampled. A car care clinic in connection with the Smart Sign system proved popular with participants, as automotive mechanics provided free advice to those with poor tailpipe emissions. Detailed results of the two Smart Sign projects are included in Appendix 7. Continued use of the Smart Sign system on a periodic basis will promote tune-ups and repairs for smoking vehicles.

The use of alternative fuels has been encouraged with the assistance of the Clean Cities Program of the U.S. Department of Energy. The City of Corpus Christi, which operates a consumers' natural gas distribution system, has committed to implement the following measures to promote the use of compressed natural gas as an alternative fuel for vehicles:

- The first public fueling station for compressed natural gas located at 4225 South Port Avenue was constructed and placed into operation in 2001.
- A compressed natural gas fueling station is being installed at the Corpus Christi International Airport as part of a five-year plan to convert airport service vehicles to use alternative fuels.
- A third compressed natural gas fueling facility is planned at the City's Maintenance Service Center located at the intersection of Ayers and Civitan Streets.

Local propane dealers and one local Ford Dealership have actively promoted retail sale and use of propane for vehicle fuel. One of the propane dealers has installed a consumer accessible fueling station with 24-hour, card reader availability. The Ford Dealership utilizes a pick-up truck with dual fuel capability to market the concept at various agricultural shows and exhibits.

The Corpus Christi Regional Transit Authority has aggressively pursued strategies to utilize clean fuels, and currently has 64 vehicles operating on liquified petroleum gas or low sulfur diesel, certified as low emissions vehicles or ultra-low emissions vehicles by EPA. Four buses are being built with catalytic after-treatment to be fueled on low sulfur diesel, and will be certified as low emissions vehicles. Over the next four years, 47 vehicles will be replaced with vehicles certified as low emissions vehicles.

The Corpus Christi Independent School District is utilizing low sulfur diesel for fleet operations.

The Corpus Christi Air Quality Committee will promote the use of alternative fuels by operators of dual fuel vehicles to the maximum extent practicable.

New legislation. The Texas Legislature adopted significant legislation in 1999 and 2001 affecting air emissions in the Corpus Christi urban airshed.

Senate Bill 7 adopted in 1999 requires grandfathered electric utility generating units to obtain a permit to reduce emissions of nitrogen oxides and, for coal fired units sulfur dioxide. Senate Bill 766 adopted in 1999 created the Voluntary Emissions Reduction Permit program for grandfathered sources of air emissions in Texas. This is a voluntary program intended to encourage grandfathered sources to obtain a permit and reduce air emissions. House Bill 2912 adopted in 2001 phases out the grandfathered privileges of older industrial point sources, requiring all grandfathered facilities in the Corpus Christi urban airshed and the rest of eastern Texas to apply for a permit or shut down by September 1, 2003. The TCEQ has begun the rule making process to implement House Bill 2912.

Senate Bill 5 adopted in 2001 created the Texas Emissions Reduction Plan to provide grants and other incentives for improving air quality throughout the state. The plan is being administered by the TCEQ, in cooperation with the following participants: the Texas Emissions Reduction Plan Advisory Board, the Public Utility Commission of Texas, the Comptroller of Public Accounts, the Texas Department of Transportation, the Energy Systems Laboratory of Texas A&M University, the Texas Council of Environmental Technology, and the State Energy Conservation Office. The plan will be implemented in the Corpus Christi urban airshed, as funds are made available to accomplish the following:

- Provide funding for cleaner on- and off-road engines.
- Provide funding for energy efficiency programs.

- Provide funding for cleaner fuels and other infrastructure programs.
- Provide funding for research and development of new technologies.
- Replace rules that would have restricted operation of construction equipment and also would have required early purchase of cleaner off-road diesel equipment in certain counties in Texas.

New Regulations. The TCEQ has adopted new regulations affecting emissions in the Corpus Christi urban airshed as follows:

1. On June 30, 1999 rules were adopted requiring cleaner burning gasoline and stage I gasoline vapor recovery for larger retail outlets in counties along and east of I-35 and I-37, including Nueces and San Patricio. According to the rules, the fuel must have a Reid vapor pressure of 7.8 psi May 1 through October 1 beginning in 2000. Also the fuel will be required to have reduced sulfur content beginning January 1, 2004.
2. On December 6, 2000 rules were adopted as part of the state implementation plan primarily targeting the Houston-Galveston area, but also affecting other parts of the state.
 - a. The rules require cleaner diesel fuel for all on-road and non-road sales along and east of I-35 and I-37, including Nueces and San Patricio Counties.
 - b. The rules require manufacturers to certify large spark-ignition engines to meet California standards, except for agriculture and construction equipment less than 175 hp, recreational equipment, stationary engines, marine vessels, and equipment on tracks.

CONTINGENCY MEASURES. The aforesaid measures are expected to be sufficient to prevent additional exceedances or violations of the one-hour ozone standard, but if exceedances or violations occur, then the region will be expected to voluntarily implement some control measures that may be required in nonattainment areas in addition to other control measures the community may select.

Definitions. For the purpose of this agreement, exceedance and violation are defined as follows:

Exceedance: A daily maximum one-hour average exceeding 0.12 parts per million.

Violation: The fourth occurrence of a daily maximum one-hour average exceeding 0.12 parts per million in a period of three consecutive calendar years.

Exceedances. If there is deterioration in air quality evidenced by occurrence of exceedances, then the cause of the exceedance will be evaluated. Additional voluntary control measures will be implemented. The Air Quality Committee will review and select from the list of available control measures one or more additional voluntary control

measures which will prevent future violations, implement the measures within ten days, and report to TCEQ and EPA within ten days that such control measures will be implemented as appropriate.

1. If an exceedance occurs, then the cause of the exceedance will be evaluated. One or more of the following additional voluntary control measures will be implemented:
 - a. Substantially increase the number of businesses notified on Ozone Action Days.
Implementation: City of Corpus Christi.
 - b. Increase the number of public announcements about ozone.
Implementation: City of Corpus Christi and Texas A&M University-Corpus Christi's Pollution Prevention Partnership.
 - c. Post air quality information on business signs and marquees.
Implementation: Corpus Christi Chamber of Commerce
 - d. Set up an ozone hotline.
Implementation: City of Corpus Christi.
 - f. Implement an employee commute options awareness program for businesses with twenty-five or more employees, including telecommuting, car-pooling, and trip reduction.
Implementation: Corpus Christi Regional Transportation Authority and Corpus Christi Chamber of Commerce.
 - g. Promote participation in Texas A&M University-Corpus Christi's small business Pollution Prevention Partnership by additional business sectors.
Implementation: Texas A&M University-Corpus Christi and Corpus Christi Chamber of Commerce.
 - h. Expand the provision of bus service to special events.
Implementation: Corpus Christi Regional Transportation Authority.
 - i. Incorporate in public purchasing and construction contracts incentives for vendors and contractors to use the various benefits of the Senate Bill 5 Texas Emissions Reduction Plan.
Implementation: Local government agencies.
 - j. Any other measure identified through the program of scientific research described in "Planning Measures" consisting of inventorying emissions, monitoring ozone levels, assessing relative effectiveness of control strategies, and evaluating specific control strategies that will significantly affect ozone levels.
2. On the occasion of a second or subsequent exceedance, then the cause of the exceedance will be evaluated. One or more additional voluntary control measures will be implemented.

Violations. If there is a deterioration of air quality as evidenced by recorded violations of the one-hour ozone standard, then the cause of the violations will be evaluated and additional control measures needed will be identified. Within sixty days of a violation of the one-hour ozone standard, the Air Quality Committee will:

- (1) Review and evaluate control measures currently being used and the monitoring results through an open, participative process;
- (2) Review modeling to evaluate the results of photochemical simulation of select emissions control strategies, and identify measures through the program of scientific research described in "Planning Measures" consisting of inventorying emissions, monitoring ozone levels, assessing relative effectiveness of control strategies, and evaluating specific control strategies that will significantly affect ozone levels; and
- (3) Develop a recommendation to implement one or more additional control measures, in consultation with the TCEQ and the EPA, for consideration by the Corpus Christi City Council, Nueces and San Patricio County Commissioners Courts, the Regional Transportation Authority, and the Port of Corpus Christi.

Upon approval by these local interests, the recommendation will be forwarded within fifteen (15) days to TCEQ and EPA requesting that such control measures are made enforceable as appropriate.

1. If a violation occurs, the City of Corpus Christi will request TCEQ to:
 - a. Prepare and submit an updated emissions inventory to EPA within two years; and
 - b. Amend, within one year of the recommendation being sent to the State and EPA, the State implementation Plan to enforce one or more of the following additional control measures:
 - (1) A regulation, which establishes a maximum Reid vapor pressure of gasoline of 9 psi in the month of October each year;
 - (2) Mandatory implementation of vapor recovery and control systems at marine tank ship and barge loading facilities for products having vapor pressure greater than 0.5 psi, where technically feasible;
 - (3) Mandatory implementation of stage one vapor recovery systems at all gasoline retail outlets (current regulations only apply to the larger outlets);
 - (4) Mandatory vehicle inspection and maintenance, including one or more of the following elements:
 - Two-speed idle emissions test
 - On-board diagnostic system
 - Dynamometer (ASM2) test
 - Remote sensing program
 - (5) Deployment of a mobile emissions monitor to detect tailpipe emissions, and promotion of tune-ups for high polluting vehicles.

- (6) Implementation of mandatory fugitive volatile organic compound emissions control for valves and flanges at the leak detection level of 500 parts per million.
- (7) Additional generally accepted nitrogen oxides reductions or controls for point sources to levels predicted by local modeling necessary to achieve the 1-hour ozone standard.
- (8) Incentives to encourage accelerated turnover of vehicle fleets.
- (9) Early introduction of lower sulfur gasoline and diesel fuels.
- (10) Any other measure identified through the program of scientific research described in "Planning Measures" consisting of inventorying emissions, monitoring ozone levels, assessing relative effectiveness of control strategies, and evaluating specific control strategies that will significantly affect ozone levels.

Implementation of selected enforceable control measures will proceed in a timely manner as to effect reductions in ozone precursors as soon as practicable. Following complete implementation of selected enforceable control measures, a period of one year will be granted to evaluate the effectiveness of selected measures. No additional enforceable measures will be required during the one-year evaluation period. During the evaluation period, an updated emissions inventory will be incorporated into the program of scientific research described in "Planning Measures" to provide updated assessments of the relative effectiveness of control strategies, and ongoing evaluations of specific control strategies, including the selected enforceable control measures.

2. If after the measures in item 1 above have been implemented and if another violation occurs following the evaluation period, then the City of Corpus Christi will request TCEQ to amend the State Implementation Plan to enforce one or more of the following additional control measures:
 - a. A regulation that reduces the maximum allowable Reid vapor pressure of gasoline during selected months of the ozone season.
 - b. A regulation that requires stage two vapor recovery at retail gasoline outlets.
 - c. Any other measure identified through the program of scientific research described in "Planning Measures" using the updated emissions inventory that will significantly affect ozone levels, which the Air Quality Committee recommends and the City Council approves for submittal to the TCEQ and the EPA.

ANNUAL REVIEW. During the term of this agreement the Air Quality Committee will voluntarily continue meeting to oversee the program of scientific research described in "Planning Measures" and to monitor progress. On an annual basis, the Air Quality Committee during November through March will assess the effectiveness of voluntary or mandatory control measures in conjunction with improved technical understanding of the

ozone problem. As part of the annual review the Committee will consult with TCEQ and EPA to consider whether to recommend any mid-course corrections to the action plan.

Corpus Christi Urban Airshed Memorandum of Agreement

This Memorandum of Agreement (MOA) is between the local governments representing Nueces and San Patricio counties, the Port of Corpus Christi Authority, the Regional Transportation Authority, and the City of Corpus Christi (herein after referred to as the local governments), the Texas Commission on Environmental Quality (TCEQ), and the United States Environmental Protection Agency (EPA) for the purpose of reducing ground-level ozone concentrations in the Corpus Christi Urban Airshed (Airshed) using locally selected control measures that account for the unique character of the region and accommodate the region's social and economic needs.

This agreement emphasizes local flexibility in selecting and implementing emissions reduction measures. Given the varied emissions contributions and socioeconomic characteristics of the entities in the Airshed, not all measures can or should be implemented by all entities. Rather, each entity will implement the measures that work for its specific jurisdiction and, when added together, work for the region as a whole.

I. General Provisions

- A. The signatory parties commit to develop, implement and maintain the O₃ Flex Agreement according to EPA O₃ Flex Guidelines issued June 21, 2001 and adhere to all terms and conditions stated in the guidelines.

II. EPA and TCEQ Responsibilities

- A. The EPA O₃ Flex Guidelines state that “by developing, signing and maintaining such an agreement, a specific area would remain designated attainment for the 1-hour ozone standard for a limited period of years, as long as the control measures in the agreement are being implemented.” EPA agrees to defer redesignation of the Airshed to non-attainment for the 1-hour ozone standard for the duration of this agreement, even if a violation occurs, as long as the control strategies are being implemented.

- B. The signatories' intent in entering into the O₃ Flex Agreement is to proactively implement and sustain air quality improvement strategies that are tailored to local conditions and are effective, practical and measurable in reducing ground-level ozone concentrations. The Agreement should in no way be construed as a strategy to avoid or to defer a non-attainment designation under the 8-hour ozone standard. However, signatories urge EPA to adopt a policy of quickly restoring attainment status to areas that come into expedited compliance with the 8-hour standard as a result of an O₃ Flex Agreement.

C. The EPA O₃ Flex Guidelines also indicate that “In developing an implementation plan for the 8-hour NAAQS, EPA intends to propose streamlined requirements for areas that have chosen on a voluntary basis to implement measures to reduce ozone levels, such as those areas that enter into O₃Flex Memoranda of Agreement (MOA)” and further states that “EPA plans to provide implementation options that recognize the efforts of areas that voluntarily achieve near-term emission reductions”. Therefore, EPA and TCEQ commit to informing the Air Quality Committee of all available options and flexibility, to the extent allowed by the Federal Clean Air Act, in the event that the area, or any portion of the area, is determined to be non-attainment for the 8-hour ozone standard for the duration of this agreement.

D. Attachment B of the EPA O₃ Flex Guidelines indicates that “EPA will allow these elective emission reductions to be credited for any future SIP that may be required”. EPA will, consistent with the Federal Clean Air Act, do all it can do to allow the Airshed appropriate SIP credit for strategies implemented under the terms of this Agreement.

E. The MOA’s terms do not abrogate any state or federal legal requirement. The TCEQ and the EPA enters this MOA solely for the purpose of their responsibilities under Section 107(d)(3)(A) through (D) of the Federal Clean Air Act.

III. Local Government Responsibilities

A. As specified in the EPA O₃ Flex Guidelines, the O₃ Flex Agreement developed by the Air Quality Committee contains an introduction and sections describing the region’s background, action plan, other potential measures, contingency measures, coordination and public participation process, schedules and reporting mechanism. These sections and associated appendices further define the local governments and participating entities commitments and actions.

B. The local interests will continue to conduct air dispersion modeling and design through the Corpus Christi Air Quality committee with funding provided by the Texas Legislature through the TCEQ.

C. The Air Quality Committee will continue to develop and regularly update area emissions inventories with funding from the Legislature through the TCEQ.

D. The Air Quality Committee will implement contingency measure(s) that will be effective if a violation of the 1-hour ozone standard occurs.

1. The contingency measure(s) will be selected from those listed in the “Contingency Measures” section of this document within 60 days of the date of the 1-hour ozone standard violation. The selected measure(s) will

be submitted to TCEQ within 15 days of the date of selection by the signatory parties for adoption into the SIP.

2. The selected contingency measure(s) will be implemented within one year of the date of violation.

IV. Expected Agreement Duration

A. The signature date of the Corpus Christi O₃ Flex MOA is the start date of the agreement's term. This agreement remains in effect until December 31, 2007.

V. Conditions for Modification or Early Termination

A. This agreement may be modified or terminated by mutual consent of all signatory parties.

B. Any signatory party may withdraw from the agreement if provisions of the agreement are not carried out by the other signatory parties.

C. This agreement may be modified at any time.

D. Failure to abide by the terms of the agreement, should violation of the 1-hour standard occur, could lead to redesignation as non-attainment for the 1-hour standard.

VI. Additional Terms of This Agreement

A. This MOA creates no cause of action against any party beyond those, if any, that may already exist under state or federal law. In addition, all parties agree that this MOA cannot be used against one another or by a third party as an enforceable order in any court proceedings. This MOA will be reviewed and modified as needed.

Executed in multiple copies by the signatory parties to this Memorandum of Agreement. The representatives of the signatory parties executing this Agreement represent their authority to sign the Agreement and to bind the signatory party they represent to the terms of this Agreement.

City of Corpus Christi

By: _____

Approved by City Attorney: _____

Date: _____

Date: _____

Nueces County

By: _____

Date: _____

San Patricio County

By: _____

Date: _____

Port of Corpus Christi Authority

By: _____

Date: _____

Corpus Christi Regional Transportation Authority

By: _____

Date: _____

Texas Commission on Environmental Quality

By: _____

Date: _____

U.S. Environmental Protection Agency

By: _____

Date: _____