

US EPA ARCHIVE DOCUMENT

Second Biannual Report on the Early Action Compact for Northeast Texas

December 2003

Second Biannual Report on the Early Action Compact for Northeast Texas

December 2003

Background

On December 20, 2002 local governments in a five county area of Northeast Texas (Gregg, Harrison, Rusk, Smith, and Upshur counties) entered into an Early Action Compact (EAC) with the U.S. Environmental Protection Agency (EPA) and the Texas Commission on Environmental Quality (TCEQ). The purpose of the EAC is to develop and implement a Clean Air Action Plan (CAAP) that will reduce ground level ozone concentrations throughout the five county area to comply with the 8-hour ozone standard by December 31, 2007 and maintain the standard beyond that date. The EAC includes a series of milestones to guide progress toward the development of the CAAP and as shown in Table 1. The area also must submit progress reports to EPA documenting progress in implementing the EAC and achieving the milestones. The requirements for the progress reports are given in EPA's April 4, 2003 guidance. This is the second (December 2003) progress report covering activities for the second half of 2003. The first progress report was submitted in June 2003.

Table 1. Key milestone dates for the Northeast Texas Early Action Compact (EAC).

Date	Item
December 31, 2002	Signed EAC agreement
June 16, 2003	Identify/describe potential local emission reduction strategies
November 30, 2003	Initial modeling emission inventory completed Conceptual model completed Base case (1999) modeling completed
December 31, 2003	Future year (2007) emission inventory completed Emission inventory comparison for 1999 and 2007 Future case modeling completed
January 31, 2004	Schedule for developing further episodes completed Local emission reduction strategies selected One or more control cases modeled for 2007 Attainment maintenance analysis (to 2012) completed Submit preliminary Clean Air Action Plan (CAAP) to TCEQ and EPA
March 31, 2004	Final revisions to 2007 control case modeling completed Final revisions to local emission reduction strategies completed Final attainment maintenance analysis completed Submit final CAAP to TCEQ and EPA
December 31, 2004	State submits SIP incorporating the CAAP to EPA
December 31, 2005	Local emission reduction strategies implemented no later than this date
December 31, 2007	Attainment of the 8-hour ozone standard

I. Stakeholder Process

In 1995 local elected officials and other leaders in local government, business and industry created Northeast Texas Air Care (NETAC) in order to provide leadership and guidance in addressing ozone air quality issues in a five county area consisting of Gregg, Harrison, Rusk, Smith, and Upshur counties. NETAC is governed by a 26 member policy committee consisting of representatives of local government, business and industry, the general public and environmental interest groups. (Attachment 1)

From its inception NETAC has placed significant emphasis on the need to ensure that air quality planning activities are developed using scientifically sound techniques. In order to achieve this objective NETAC created a Technical Advisory Committee to undertake, supervise, and guide technical studies such as emission inventory development, air quality modeling and control strategy development, and specialized monitoring studies. The Technical Advisory Committee reports to the policy committee. The Technical Advisory Committee consists of representatives from local government, local business and industry, EPA technical staff, TCEQ technical staff, Texas Department of Transportation planning staff, and the general public and environmental interest groups. (Attachment 2)

NETAC is actively involved in public education and outreach programs concerning ozone air quality issues. This work is guided by NETAC's Public Education/Outreach Committee, which consists of representatives from local government, local business and industry, TCEQ staff, and environmental interest groups. (Attachment 3) The Public Education/Outreach Committee reports to the NETAC Policy Committee.

NETAC receives staff support for its activities from the East Texas Council of Governments (ETCOG), which receives and administers grant funds provided by the Texas Legislature for air quality planning activities.

NETAC and its subcommittees meet on an as-needed basis. All meetings are open to the public and are posted at the East Texas Council of Governments and advertised through the distribution of information packets to local media outlets.

During the second half of 2003 NETAC's focus has continued to be on implementing the EAC. The NETAC Policy Committee met on October 13, 2003 to discuss progress on the technical projects required to meet EAC milestones and discuss potential additional local emission reduction strategies including the Texas Emissions Reduction Plan (TERP). During the second half of 2003 NETAC's Technical Advisory Committee held six meetings. Its activities focused primarily on completion of a regional scale model to be used for ozone modeling and evaluation of control strategies for the 8-hour ozone standard. The NETAC Technical Committee also supervised the development of an updated conceptual model for ozone formation in Northeast Texas. NETAC's Public Education/Outreach committee continued with activities planned for the second half of 2003 as described below.

II. Public Outreach

NETAC is actively engaged in public education and outreach activities concerning ozone air quality issues. Public education and outreach programs that have been established and that continue on an ongoing basis include:

1. Production and distribution of public service announcements broadcast on local radio stations providing information on ozone air quality issues and recommending actions to reduce ozone levels on ozone action days.
2. Printing and distribution to local public schools book covers designed to increase public awareness of ozone air quality issues.
3. Establishment and maintenance of a website (<http://www.netac.org>) to provide information concerning ozone air quality issues and NETAC's ongoing activities.
4. Annual sponsorship of an ozone awareness event prior to the commencement of ozone season in order to highlight ozone air quality issues and encourage public support for programs designed to minimize ozone formation.

In cooperation with the Texas Commission on Environmental Quality, NETAC and local governments in the area provide "ozone action alerts" for the public on days when TCEQ predicts meteorological conditions are favorable for high ozone formation. Notification is provided through the NETAC website, local government public access channels, and the display of ozone alert flags.

III. Technical Activities

A. Ambient Monitoring

NETAC conducts ambient monitoring for ozone and precursors in Northeast Texas to supplement and enhance the data collected by the TCEQ. NETAC operates a research ozone-monitoring site currently located near Waskom in Harrison County, which is toward the east of the NETAC region near the Texas/Louisiana border. This location was selected to provide information on ozone levels entering the NETAC region when winds are from the east because these wind conditions are associated with high ozone levels in Northeast Texas. The Waskom ozone, NO_x and meteorological data are reported to the TCEQ's data system and are immediately available via the TCEQ's web page. The Waskom research site operated during the 2003 ozone season. NETAC also collects and analyzes VOC canister samples at the TCEQ's CAMS19 monitoring site near Longview. These VOC samples supplement the TCEQ's data for ozone, NO_x, SO₂ and meteorological parameters. NETAC collected 100 VOC samples at Longview in 2003.

The Northeast Texas ozone monitoring data determine whether the area is in compliance with the National Ambient Air Quality Standards (NAAQS) for ozone. The 2003 ozone season data are now complete but are preliminary until they have been quality assured by the TCEQ and formally submitted to EPA. Based on the preliminary 2003 data, there have been no exceedances of the 1-hour ozone standard in Northeast Texas in the past 3 years and so the area is monitoring attainment of the 1-hour ozone NAAQS in 2003. The annual 4th highest 8-hour ozone values at monitors in Northeast Texas are shown in Table 2 along with the resulting preliminary 2001-2003 8-hour design values. Since Karnack and Waskom do not have 3 years of complete data they would not be used by EPA for attainment designation, but they have 2 year design values that are below the level of the 8-hour ozone NAAQS. The monitors at Longview and Tyler have complete 2001-2003 data and are monitoring attainment of the 8-hour ozone NAAQS in 2003. Completing the implementation of the EAC process is intended to maintain compliance with air quality standards.

Table 2. Annual 4th highest 8-hour ozone values (ppb) and preliminary 2003 8-hour ozone design values for Northeast Texas

Year	Longview	Tyler	Karnack	Waskom
2001	82	82	Partial season	Not Operating
2002	84	84	88	86
2003	82	79	80	82
Preliminary 2003 Design Value	82	81	84	84

B. Conceptual Model for Ozone Formation

In the second half of 2003 NETAC prepared an updated conceptual model for ozone formation in Northeast Texas. The conceptual model evaluates available air quality, emissions and meteorological data to describe the current air quality situation in the area, recent trends in emissions and air quality, and the relationships between trends in air quality, emissions and meteorology. The conceptual model incorporates air quality data from surface monitoring sites that report to EPA's AIRS system, the NETAC research monitoring site, the NETAC VOC sampling program, a NETAC aircraft study for August/September 2002 and an aircraft flight from the TexAQs 2000 study.

The conceptual model is an EAC milestone because it is an important part of developing an understanding of the causes for high ozone in Northeast Texas. The conceptual model also is important to the ozone modeling in determining the types of meteorological events and specific episodes that should be modeled and plays a qualitative role in evaluating the ozone model performance. The trends analyses in the conceptual model will be part of a weight of evidence analysis in the attainment demonstration for the CAAP.

C. Photochemical modeling progress update

During the second half of 2003, NETAC continued development of a regional scale, nested grid ozone model for August 13-22, 1999. The modeling uses the CAMx version 4.03 air quality model with meteorology from the MM5 version 3. Improvements during the second half

of 2003 were focused on including the latest emission inventory data from EPA and TCEQ. Updated emission inventories and ozone modeling were developed for 1999, 2002 and 2007 scenarios. On-road mobile sources are based on MOBILE6.2 and activity data from the TxDOT including local transportation models. Off-road mobile sources are based on NONROAD2002 and include local survey data collected by NETAC. Point sources for Northeast Texas include day specific data from TXU, AEP and Eastman Chemical Company. Other point sources are based on data from TCEQ, LADEQ, EPA's acid rain database and EPA's NEI version 2. Area sources for Northeast Texas are from the 1999 NETAC EI, for the rest of Texas they come from TCEQ and other areas are from the NEI version 2. Biogenic emissions are from GloBEIS version 3. Growth in emissions for 2007 was based on the EGAS model and emission inventories for EPA's Heavy Duty Diesel (HDD) rule-making. Future year emissions reductions include enforceable emission reductions from the Northeast Texas 1-hour ozone SIP, other Texas SIPs, EPA rules embodied in the MOBILE6.2 and NONROAD2002 models, EPA's NOx SIP call as represented in the HDD rule-making, and other measures included by EPA in the HDD rule-making.

Model performance was evaluated for the 1999 base case using the procedures described in EPA's draft modeling guidance for 8-hour ozone (the current guidance). Model performance was good relative to the performance objectives specified in EPA's draft 8-hour modeling guidance. Ozone levels for 2007 were evaluated using the procedures agreed upon by the NETAC technical committee, EPA and TCEQ wherein the 8-hour 2007 design values are estimated by scaling the 2001-2003 design values (Table 2) with relative reduction factors (RRFs) from 2007/2002 modeling. The projected 2007 8-hour ozone design values with existing controls are 77 ppb at Tyler, 80 ppb at Longview, 82 ppb at Karnack and 81 ppb at Waskom. Accordingly, the NETAC ozone modeling demonstrates attainment of the 8-hour ozone standard with existing, enforceable control measures. The attainment demonstration to be included in the CAAP will also consider the weight of evidence from emissions and air quality analyses in addition to the ozone modeling results.

IV. Emission Reduction Measures

NETAC conducted a study to identify control measures that are likely to be appropriate and effective in Northeast Texas. The control strategy assessment was documented in the report "Identification of Potential Emissions Reduction Strategies For the Northeast Texas Early Action Compact" dated June 16, 2003. This report included those strategies that look capable of achieving substantial NOx and HRVOC reductions by December 2005.

NETAC's ozone modeling for 2007 showed that the area expects to remain in attainment of the 8-hour ozone standard in 2007 with the control measures that are currently enforceable. In the NETAC area the existing control measures were developed for the 1-hour ozone State Implementation Plan (SIP) and include NOx reductions at American Electric Power (AEP) and Texas Utilities (TXU) utility sources and Eastman Chemical Company, Texas Operations. For the remainder of Texas the existing control measures were those included in the Texas SIP. The TCEQ continues to develop new SIP rules to further reduce ozone in nonattainment areas.

Therefore, there will be additional emission reductions in Texas by 2007 that are not yet accounted for in the NETAC ozone modeling for 2007.

NETAC is pursuing additional local emissions reductions following the analysis of potential control strategies completed in June 2003. Two chemical plants near Longview are implementing enhanced Leak Detection and Repair (LDAR) programs to reduce emissions of highly reactive VOC (HRVOC). The LDAR programs for Eastman Chemical Company, Texas Operations are summarized in Table 3 with preliminary estimates of emissions reductions, which may change as the programs are developed further and implemented. Huntsman Chemical owns a polypropylene plant that is co-located with Eastman Chemical Company's facility near Longview. Huntsman's improved LDAR program will be implemented over a four-year period and is expected to reduce VOCs by 29 tons/year by 2005 and 44 tons/year by 2008. The HRVOC reductions will be almost the same as the VOC reductions. These estimates may change as the programs are developed further and implemented. The current NETAC attainment demonstration for 2007 does not include the enhanced LDAR programs so these HRVOC reductions will be in addition to the currently modeled local controls.

Table 3. HRVOC Reduction Strategies at Eastman Chemical Company, Texas Operations.

Emission Reduction Strategy	HRVOC Reduction Tons/day	Enforceability/Timing
Enhanced Leak Detection and Repair Programs for Polyethylene Division	0.41 TPD HRVOC	New Source Review Permit / Prior to 2004 Ozone Season
Enhanced Leak Detection and Repair Programs for the Utilities and Feedstocks Division	0.22 TPD HRVOC	New Source Review Permit / Prior to 2004 Ozone Season
Ethylene MACT Leak Detection and Repair Programs for the Utilities and Feedstocks Division	0.23 TPD HRVOC	Ethylene MACT / Prior to 2005 Ozone Season

The NETAC control strategy analysis identified NO_x emissions from compressor engines used in natural gas production as a source where significant emission reductions could potentially be achieved. NETAC estimated area source NO_x emissions related to oil and gas production to be about 35 tons/day in the 5 County NETAC area in 1999 and these emissions are dominated by gas-fueled compressor engines less than 500 hp. Control technologies are readily available for these engines that can reduce NO_x emissions by 50% to 90% depending upon engine type. Implementing a voluntary control program for these engines is challenging because ownership and/or control is widely distributed. NETAC has adopted the following approach to obtaining reductions in NO_x emissions from gas compressors in the 5 county area. The Texas legislature has funded the Texas Emissions reduction plan (TERP) that will pay for a variety of NO_x reduction strategies at sources not currently subject to regulation such as smaller gas

compressor engines in the NETAC area. In the second half of 2003 NETAC held several public meetings with presentations on TERP funding to raise awareness of this program. In addition, NETAC has access to funding that could be used to develop a demonstration program for NOx reductions on gas compressor engines during 2004. NETAC has not yet estimated the amount of NOx reductions that will result from the demonstration program or public response to the TERP funding opportunity. Since the current NETAC attainment demonstration for 2007 does not assume any controls on gas compressors the NOx reductions generated by the demonstration program and TERP funding will be in addition to the currently modeled local controls.

In addition to the measures described above NETAC is continuing with several other programs to improve ozone air quality:

Public Awareness Programs

- Ozone Action Days

Innovative Alternatives Program

- City of Tyler Energy Efficiency Improvements
- City of Longview Energy Efficiency Improvements

Potential strategies for reduction of on-road emissions

- DOE Clean Cities Program, clean-fueled vehicles

NETAC Policy Committee

- Mayor Joey Seeber, Co-Chair, City of Tyler
- Judge Bill Stoudt, Co-Chair, Gregg County
- Judge Becky Dempsey, Smith County
- Judge Fowler, Upshur County
- Judge Wayne McWhorter, Harrison County
- Judge Sandra Hodges, Rusk County
- Mayor Joe Parker, City of Kilgore
- Mayor Murray Moore, City of Longview
- Mayor Edward Smith, City of Marshall
- Mayor Foy Brown, City of Henderson
- Greg Morgan, Project Coordinator, City of Tyler
- Councilman Johnny Taylor, City of Gilmer
- Ricky Childers, City Manager, City of Longview
- Janet Cook, Asst. City Manager, City of Marshall
- Tammy Campbell, WE CAN
- David Duncan, Environmental Regional Manager, TXU
- Darrell J. Rachels, Eastman Chemical Company
- Eric Albritton, Attorney
- L. Dale Rhoades, Environmental Supervisor, LaGloria Oil & Gas Co.
- Lou Ann Nisbett, Director, MEDCO
- John M. Stroud, Executive Director, LEDCO
- Tom Mullins, Executive Director, Tyler Economic Development Corporation
- Keith Honey, General Manager, AEP/SWEPCO

Attachment 1

NETAC Technical Advisory Committee

- Mayor Murray Moore, City of Longview
- Robert Ray, Assistant City Attorney, City of Longview
- Gaylon Butler, City of Longview
- Karen Owen, Longview MPO
- Greg Morgan, Projects Coordinator, City of Tyler
- Bill Morales, Tyler MPO
- Janet Cook, Asst. City Manager, City of Marshall
- Jim Mathews, NETAC General Counsel
- Erik Snyder, EPA Region 6
- Michael Morton, EPA-Region 6
- Jud May, EPA-Region 6
- Gerry Wolfe, SIP Coordinator, TCEQ-Austin
- James Red, TCEQ-Austin
- Charles Murray, TCEQ-Region 5 Air Program
- Dale Spitz, TXDOT-Tyler District
- Sharon Wellman, Eastman Chemical Company
- L. Dale Rhoades, LaGloria Oil & Gas Company
- Kelly Spencer, AEP/SWEPCO
- Howard Ground, Manager Air Quality, AEP/SWEPCO
- Dick Robertson, TXU Air Quality Manager
- David Duncan, TXU
- Dennis Leahey, Huntsman Chemical
- Dwight K. Shellman, Jr., Caddo Lake Institute, Inc.
- Ramon Alvarez, Ph.D., Environmental Defense Fund
- Eric Albritton, Attorney
- Henry C. Bradbury, Environmental Solution

Attachment 2

NETAC Public Education/Outreach Committee

- Stan Whiteford, Communications Consultant, AEP/SWEPCO
- Robert Ray, Assistant City Attorney, City of Longview

- Greg Morgan, Project Coordinator, City of Tyler
- Sharon Wellman, Eastman Chemical Company
- Don Montgomery, TXU
- Kathy Bell, TCEQ-Region 5 Air Program
- Darrell Powell, TCEQ-Austin
- Kelly Spencer, AEP/SWEPCO
- Henry C. Bradbury, Environmental Solution

Attachment 3