Seventh Biannual Report on the Early Action Compact for Northeast Texas

June 30, 2006

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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 Seventh (June 2006) progress report covering activities for the first half of 2006.

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

Implementing the Clean Air Action Plan

The TCEQ incorporated NETAC's CAAP into a SIP revision on November 17, 2004. The TCEQ submitted the SIP revision to EPA on schedule by December 31, 2004. On May 16, 2005, the EPA published a proposed rule for approval and promulgation of the Northeast Texas CAAP (Federal Register 70(93): 25794-25798). On August 19, 2005 EPA published the final rule approving and promulgating the Northeast Texas CAAP with an effective date of September 19, 2005 (Federal Register 70(160): 48642-48645).

Ozone Attainment Status

The Northeast Texas ozone monitoring data determine whether the area is in compliance with the National Ambient Air Quality Standards (NAAQS) for ozone. The TCEQ operates three ozone monitors (Continuous Air Monitoring Station, CAMS) in Northeast Texas at Longview, Tyler and Karnack. NETAC operates a research ozone monitor that was located at Waskom in 2002/2003 and in Panola County in 2004/2005. The Panola research monitor began operating for 2006 on April 21 and reports data through the TCEQ as CAMS 627.

The annual 4th highest 8-hour ozone values at monitors in Northeast Texas are shown in Table 2 along with the resulting 2003-2005 8-hour design values. These data are preliminary pending final quality assurance by the TCEQ in 2006. The monitors at Longview, Tyler and Karnack have complete 2002-2004 data and monitored attainment of the 8-hour ozone NAAQS in 2004. The Panola monitor also is attaining the 8-hour standard based on two years of data. EPA designated all five NETAC counties as 8-hour ozone attainment areas on April 15, 2004 (see 69 FR 23858).

Table 2. Annual 4th highest 8-hour ozone values (ppb) and 2005 8-hour ozone design values for Northeast Texas

Year	Longview	Tyler	Karnack	Panola
2003	82	79	80	N/A
2004	83	81	77	75
2005	88	83	84	79
2003-2005 Design Value	84	81	80	77

The recent trends in 8-hour ozone design values for Northeast Texas monitors are shown in Table 3, including the 2003-2005 design values. Design values have declined at Karnack and are holding steady at 81 ppb at Tyler. The design value at Longview has increased over the past three years and the preliminary 2003-2005 value of 84 ppb is just below the level of the 8-hour standard. Based on the 2005 data, the Longview monitor must have a 4th high 8-hour ozone of 83 ppb or lower in 2006 for the Longview design value to remain in compliance with the 8-hour standard.

Table 3. Recent trends in 8-hour ozone design values (ppb) for Northeast Texas

Design Value for Years	Longview	Tyler	Karnack	Panola
2001-2003	82	81	84	N/A
2002-2004	83	81	81	N/A
2003-2005	84	81	80	77

Analysis of 2005 Ozone Data

NETAC has studied the high ozone days recorded in 2005 and considered how the 2005 ozone season compares to previous high ozone days that were considered in developing the CAAP for the EAC. Factors that contributed to high ozone in Northeast Texas in 2005 were:

- Regional 8-hour ozone levels in air entering the region typically were 70 ppb or higher on days when Northeast Texas monitors record values of 85 ppb or higher. This high regional ozone background allows little margin for ozone production within Northeast for the region to remain in compliance with the 8-hour ozone standard.
- High ozone days at Longview were associated with ozone production from local sources on top of the regional background. On several high ozone days at Longview elevated sulfur dioxide was observed at the same time as the ozone peak, indicative of plume impacts from nearby power plants. Some days had light and variable winds that may have combined emissions from several nearby sources to produce elevated ozone at the Longview monitor.
- The high ozone day at Tyler had easterly winds that combined a high regional background with ozone production from sources within Northeast Texas to impact the Tyler monitor.
- Two high ozone days at the Panola and Karnack monitors, which are located close to the border with Louisiana, were influenced by easterly winds that transported elevated ozone across the border into Texas.

The factors that contributed to high ozone levels in Northeast Texas in 2005 are consistent with the factors that occurred on the days that NETAC modeled to develop the CAAP. The surface monitoring data from the 2005 ozone season do not change the conceptual understanding of what factors lead to ozone levels exceeding the 8-hour ozone standard in 2005. However, the high ozone levels observed at Longview in 2005 leave the region at the edge of attaining the ozone standard.

NETAC conducted an aircraft study in August and September of 2005 to obtain data on ozone contributions from local sources in Northeast Texas and ozone transport. The aircraft was operated by Baylor University and collected data for ozone, nitric oxide (NO), nitrogen oxides (NOx), total reactive nitrogen (NOy), sulfur dioxide (SO_2), carbon monoxide (CO), light scattering by haze, total olefins and meteorological parameters. Successful flights were completed on seven days from August 24 to September 9, 2005. Data from the flights have been analyzed and made available in a "Data Atlas" report. The aircraft observed ozone production from sources in Northeast Texas including chemical plants, power plants, forest fires, and urban

areas. The aircraft observed ozone transport into Northeast Texas across the border with Louisiana. These factors are consistent with NETAC's analysis of 2005 surface monitoring data, discussed above. In addition, the aircraft data provided a more detailed picture of ozone production from several sources at the specific times when the aircraft was nearby. The aircraft data differ from ground based data because they are instantaneous (i.e., a few seconds duration) and recorded aloft (typically above 500 m altitude) rather than hourly averages at the surface. The following observations from the aircraft study are noted:

- On the morning of September 9, 2005 the aircraft recorded instantaneous ozone levels exceeding 200 ppb downwind of the chemical plants near Longview operated by Eastman Chemical Company and Huntsman Chemical. These high ozone levels were associated with emissions of highly reactive VOCs and nitrogen oxides. Three other flights downwind of the chemical plants did not find similarly elevated ozone levels. There were no upset reports from the chemical plants for the morning of September 9, 2006 that explain the observed high ozone levels. The NETAC Technical Committee continues to evaluate these data.

- On several flights near the Texas-Louisiana border the aircraft encountered an unidentified plume with elevated nitrogen oxide, sulfur dioxide and ozone levels that were similar to those associated with a coal-fired power plant. Data analysis suggests that this plume was not from a power plant, but could be from a large paper mill. NETAC had not previously considered paper mills as potential ozone sources of significance on the same order as coal-fired power plants.

Early 2006 Ozone Data

In the first half of 2006 (through June 29, 2006) the ozone monitors in Northeast Texas have recorded one 8-hour ozone value of 85 ppb or higher. The Longview monitor (CAMS 19) recorded an 8-hour ozone average of 90 ppb on June 12, 2006. NETAC will be evaluating the air quality and meteorological data for this day to understand what factors may have contributed to the high ozone levels at Longview.

Emission Reduction Measures

NETAC's CAAP includes a demonstration that the area expects to remain in compliance with the 8-hour ozone standard through 2007 and 2012 due to a combination of local and regional emission reduction measures. The local measures included in the attainment demonstration are reductions in NOx emissions at several facilities operated by AEP, TXU and Eastman Chemical Company in Northeast Texas and VOC reductions at facilities operated by Eastman Chemical Company and Huntsman Chemical Company. The local NOx reduction measures are in place now. The local VOC reduction measures are enhanced leak detection and repair (LDAR) programs at two chemical plants near Longview. Eastman Chemical completed projects in their polyethylene units in 2004 and completed implementing ethylene MACT

regulations in their cracking plants before July 12, 2005. Huntsman Chemical completed implementing their enhanced LDAR programs in the first half of 2005.

The CAAP also describes additional local emission reduction strategies that go beyond the attainment demonstration to further improve air quality in Northeast Texas. In particular, NETAC completed a pilot program to demonstrate NOx emission reduction technologies for gas compressor engines. Previous studies by NETAC indicate that an estimated 32 tons/day of NOx emissions are generated by a large number of relativity small gas compressor engines that are widely distributed throughout the five county area. NETAC's pilot program retrofitted five gas compressor engines and demonstrated that NOx emissions could be reduced by approximately 96% at a cost effectiveness of less than $200 per ton of NOx reduced. NETAC sought funding in 2005 for broader implementation of the gas compressor retrofit program through TCEQ's supplemental environmental projects (SEP) program and through the TERP program. To date, funding has not been authorized under either program.

EPA's October 17, 2005 memorandum to EAC areas provided guidance on reporting progress with implementing local emission reductions. Six local measures discussed in the CAAP are described below.

1. Eastman Chemical Company enhanced leak detection/repair (LDAR)

- Summary: Enhanced leak detection/repair programs were implemented in the cracking plants and polyethylene units at Eastman Chemical Company near Longview.
- Status: Measures were implemented by July 11, 2005 and are documented by Voluntary Emissions Reduction Permits #47007, #48588 and #48590.
- Implementation date: July 11, 2005.
- Emission reductions: 0.63 TPD of VOC.
- Resources: Eastman Chemical Company implemented the LDAR programs.

2. Huntsman Chemical Company enhanced leak detection/repair (LDAR)

- Summary: Enhanced leak detection/repair programs at Huntsman Chemical Company near Longview.
- Status: Measures were implemented in the first half of 2005 and are documented by Flexible Plant-wide Applicability Permit Limit (PAL) Permit # 18105.
- Implementation date: 2005
- Emission reductions: 0.08 TPD of VOC by 2005; 0.12 TPD of VOC by 2008
- Resources: Huntsman Chemical Company implemented the LDAR programs

3. NOx reduction strategies for gas compressor engines

- Summary: Retrofit small (< 500 hp), spark-ignited, rich-burn compressor engines used in natural gas production with exhaust catalysts and electronic air/fuel ratio controllers.
- Status: In 2005, NETAC completed a pilot project to demonstrate the effectiveness and cost-effectiveness of this strategy on five engines within the NETAC area. At the end of 2005 these controls were achieving an estimated emission reduction of 0.1 TPD NOx.

This emission reduction is not claimed because the pilot project was a demonstration project, not an enforceable emissions reduction strategy. NETAC sought funding in 2005 for wider and enforceable implementation of this strategy through the TCEQ "TERP" and "SEP" programs. To date, funding has not been authorized under either program.

- Implementation date: NETAC completed its pilot program to demonstrate gas compressor controls in August 2005. The program has yet to be implemented on a wider scale due to lack of TERP or SEP funding.
- Emission reductions: No enforceable emissions reductions to date.
- TCEQ is still evaluating NETAC's application for "SEP" funds and has made no decision concerning funding the program using "TERP" funds.

4. DOE "Clean Cities Program" voluntary on-road vehicle emission reductions

- Summary: Funding for clean-fueled propane vans for local transit agencies.
- Status: 23 propane-fueled vans placed in service by the end of 2005
- Implementation date: On-going
- 0.5 TPY VOC 2.5 NOx TPY
- Funded by DOE's Clean Cities program

5. Public awareness program

- East Texas Council of Governments (ETCOG) runs public awareness programs for the NETAC area. Includes: ozone watch and warning communications network between local gov't & industries to communicate ozone action day forecasts issued by TCEQ; a NETAC website; public service announcements; school programs and teacher training workshops; distribution of public information & educational materials; and an Annual Ozone Season kick-off meeting for the NETAC area.
- ETCOG runs the NETAC public awareness program in 2006 as in previous years.
- Implementation date: On-going through 2006.
- Emission reductions: This measure has program-based benefits but specific emission benefits are not quantified.
- Funded by the State of Texas through Rider funding for near-nonattainment areas (NNAs)

6. Energy efficiency programs

- Summary: The City of Tyler program includes: building lighting; HVAC & Controls Upgrades; Traffic Light Upgrades; Park Lighting Upgrades; and Wastewater Plant Motor and Controls Upgrades. The City of Longview program includes: Improvements in lighting; HVAC systems; swimming pool operations; and purchase of energy efficiency rated equipment for Public Safety communications; The City of Marshall is initiating an energy efficiency plan with assistance from Texas A&M University.
- Status: On-going.
- Implementation date: 2003-2008

- Emission reductions: Emission benefits for the NETAC area are not quantified because it is difficult to determine where the reduced electrical generation would occur.

NETAC's 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. A policy committee consisting of representatives of local government, business and industry, the general public and environmental interest groups governs NETAC. (Attachment 1)

From its inception NETAC has emphasized 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 first half of 2006 NETAC the Technical Advisory Committee held meetings on March 24, April 25 and June 23, 2006. The NETAC Policy Committee met on April 25, 2006.

The March 24, 2006 Technical Committee meeting discussed: (a) The status of regional emission reduction strategies for Eastern Texas; (b) Obtaining state funding for gas compressor engine retrofits to reduce NOx emissions in Northeast Texas; (c) Approval of a "Data Atlas" report on NETAC's 2005 aircraft study; (d) Approval of a new project to improve the inventory of emissions from gas compressor engines in the NETAC area.

The April 25, 2006 Technical and Policy Committee meetings discussed: (a) An analysis of high ozone days in 2005 and implications for 2006; (b) Progress on NETACs project to improve the emission inventory for gas compressor engines; (c) Results of ozone modeling studies that evaluated the impacts of regional power plant and gas compressor emissions; (d) Preparation of the next semi-annual EAC progress report (this document).

The June 23, 2006 Technical Committee meeting will include discussion of the June 2006 EAC progress report to be submitted to EPA (this document). Also on the agenda are: (a) Further evaluating the effectiveness of gas compressor emission controls implemented in 2005 for NETAC's compressor "pilot project;" (b) Evaluating the potential impacts of proposed new coal-fired power plants for Northeast Texas; (b) Preparing a proposal for the FY 2008/2009 funding request.

Public Outreach

NETAC is actively engaged in public education and outreach activities concerning ozone air quality issues. The public outreach committee organized an ozone season awareness kickoff event for April 25, 2006. The purpose of the "kickoff event" is to raise public awareness of ozone air quality issues and encourage public support for programs designed to minimize ozone formation.

NETAC Public Education/Outreach activities for 2006 have consisted of the following:

- Hosting the NETAC website (www.netac.org). The website is regularly updated with meeting dates, associated agendas and enclosures for Committee meetings. The public can also find minutes of past meetings, various air quality reports, and a directory of all participants in NETAC.

- 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.

- The Annual Ozone Season Awareness Event was held in Tyler at the Rose Garden Center on April 25, 2006. Speakers at the event included David Schanbacher, TCEQ Chief Engineer, who discussed the DFW SIP and potential rules affecting East Texas. Other speakers included Jim Mathews, NETAC Legal Counsel, who gave the NETAC Progress Report for 2005 and Laura Higgins of Drive Clean Across Texas.

- NETAC also is sponsoring a series of public service announcements (PSAs) that will run on several local radio stations from May through September 2006. A series of five different PSAs sought to educate the public about what they can do at both work and home during the ozone season to reduce their impact on air quality readings.

- The NETAC Public Education/Outreach Committee approved the purchase of book covers for school districts in the five county region for the 2006-2007 school year. The book covers have an informational theme as well as including information on where to learn more about air quality. This is one of the most well received activities as ETCOG receives numerous thank you letters from students and school administrations.

- The NETAC Public Education/Outreach Committee approved the purchase of additional signage for the inside of transit buses operated by ETCOG Rural Transit. The signage promotes the air quality benefits of public transit and the alternative-fueled buses operated by these transit providers.

Technical Activities

NETAC carried out the following technical activities in the first half of 2006 to support the EAC and CAAP.

Air Monitoring

Air-quality data for Northeast Texas in 2006 are available from TCEQ monitoring sites and several NETAC studies. The air-quality data collected by NETAC and TCEQ in 2006 will be analyzed and used to prepare an updated conceptual model for ozone formation in Northeast Texas in the first part of 2006. NETAC's air monitoring activities in 2006 are described below.

NETAC has operated an ozone research-monitoring site for several years. For the 2006 ozone season the research monitor is located in northern Panola County near the border between Texas and Louisiana. The research monitor collects data for ozone, oxides of nitrogen (NOx), sulfur dioxide (SO2) and meteorological parameters that are reported via the TCEQ's web site as CAMS 627. The quality assurance procedures for the NETAC monitor are consistent with operating the site as a research site rather than a NAAQS compliance monitor.

For several years, NETAC has collected canister VOC samples at CAMS 19 to augment the TCEQ's monitoring activities at Longview. NETAC's VOC auto-sampler also collects continuous (hourly) data for total non-methane hydrocarbons (TNMHC) and methane that are reported through the TCEQ's web site. VOC sample collection at CAMS 19 in 2006 was directed toward understanding VOC composition during periods of high TNMHC.

The CAMS 19 monitor near Longview frequently records higher maximum ozone levels than other monitoring locations in Northeast Texas. Contributing factors appear to be proximity to local point sources and wind patterns that sometimes re-circulate emissions from nearby sources. Lake breezes from nearby Lake Cherokee may influence the wind patterns at CAMS 19. NETAC is conducting a low-cost study of wind patterns near Lake Cherokee using home weather stations operated by local volunteers. The goals are to determine whether lake breezes

re-circulate emissions from sources near lake Cherokee and, if so, how extensive is the area influenced by the lake breeze.

Ozone Modeling

NETAC is performing seasonal ozone modeling for June to September of 2002 and May to September of 2005. These periods were selected to coincide with NETAC's 2002 and 2005 aircraft studies. The modeling will evaluate the relative contributions of local sources and ozone transport throughout two summers. The modeling makes use of recently completed emissions and meteorological data from the Central Regional Air Planning Association (CENRAP). The seasonal modeling will be less detailed than the SIP quality modeling completed for the CAAP and EAC.

Evaluating Emissions Growth

The TCEQ has received permit applications to construct several new coal-fired electrical generating units (EGUs) in eastern Texas to meet future energy demand in the state. NETAC is evaluating the potential ozone impacts on Northeast Texas of proposed new EGUs using NETAC's ozone model for August 1999.

Attachment 1

NETAC Policy Committee

- Mayor Joey Seeber, Co-Chair, City of Tyler
- Judge Bill Stoudt, Co-Chair, Gregg County
- Judge Becky Dempsey, Smith County
- Judge Dean Fowler, Upshur County
- Judge Wayne McWhorter, Harrison County
- Judge Sandra Hodges, Rusk County
- Mayor Jay Dean, City of Longview
- Mayor Edward Smith, City of Marshall
- Mayor John Fullen, City of Henderson
- Jeff Howell, City Manager, City of Kilgore
- Greg Morgan, Project Coordinator, City of Tyler
- Jeff Ellington, City Manager, 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
- Keith Honey, General Manager, AEP/SWEPCO
- Eric Albritton, Attorney
- Scott Snedden, Environmental Supervisor, Delek Refining
- Lou Ann Nisbett, Director, MEDCO
- John M. Stroud, Executive Director, LEDCO
- Tom Mullins, Executive Director, Tyler Economic Development Corporation

Attachment 2

NETAC Technical Advisory Committee

- Mayor Jay Dean, City of Longview
- Robert Ray, Assistant City Attorney, City of Longview
- Councilman John Bolster, City of Longview
- Karen Owen, Longview MPO
- Greg Morgan, Projects Coordinator, City of Tyler
- Heather Nick, Tyler MPO
- Janet Cook, Asst. City Manager, City of Marshall
- Jim Mathews, NETAC General Counsel
- Erik Snyder, EPA Region 6
- Carrie Paige, EPA-Region 6
- Tim Villasana, SIP Coordinator, TCEQ-Austin
- Doug Boyer, TCEQ-Austin
- Charles Murray, TCEQ-Region 5 Air Program
- Dale Spitz, TXDOT-Tyler District
- Sharon Wellman, Eastman Chemical Company
- Scott Snedden, Delek Refining
- Kelly Spencer, AEP/SWEPCO
- Bruce Moore, Manager Air Quality West, AEP/SWEPCO Environmental Services
- Dick Robertson, TXU Air Quality Manager
- David Duncan, TXU
- Dennis Leahey, Huntsman Chemical
- Rick Lowerre, Caddo Lake Institute, Inc.
- Ramon Alvarez, Ph.D., Environmental Defense Fund
- Eric Albritton, Attorney
- Henry C. Bradbury, Environmental Solution
- Laura Guthrie, CenterPoint Energy

Attachment 3

NETAC Public Education/Outreach Committee

- Robert Ray, Assistant City Attorney, City of Longview
- Greg Morgan, Project Coordinator, City of Tyler
- Janet Cook, City of Marshall
- Sharon Wellman, Eastman Chemical Company
- Don Montgomery, TXU
- Kathy Bell, TCEQ-Region 5 Air Program
- Darrell Powell, TCEQ-Austin
- Kelly Spencer, AEP/SWEPCO
- Scott McCloud, AEP/SWEPCO
- Henry C. Bradbury, Environmental Solution