NCDENR
North Carolina Department of Environment and Natural Resources
Division of Air Quality

Michael F. Easley, Governor

William G. Ross, Jr., Secretary
B. Keith Overcash, P.E., Director

December 19, 2002

J.I. Palmer, Jr.
Regional Administrator
USEPA Region 4
ATTN: Ms. Kay Prince
12th Floor-APTMD/APB
Sam Nunn Federal Center
61 Forsyth Street, SW
Atlanta, Georgia 30303- 8960

Dear Mr. Palmer:

We are very pleased to forward the Early Action Compact for the UNIFOUR area of North Carolina (Hickory-Morganton-Lenoir Metropolitan Statistical Area). This is the first Compact completed in this state and it represents a lot of hard work and a strong commitment to clean air by the local officials in the UNIFOUR area.

Secretary William G. Ross, Jr. signed this Compact on December 17, 2002. I request that EPA Region 4 sign the enclosed three copies before December 31, 2002 and return two copies to us for distribution.

We really appreciate the hard work EPA staff members contributed to this effort. Their cooperation made our work a lot easier. Should there be any questions, please contact Brock Nicholson (919-715-0587)

Sincerely,

B. Keith Overcash, P.E.

Enclosure

cc: Mr. William G. Ross, Jr.
Mr. Doug Taylor
Mr. John Tippett

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Application of the Early Action Compact for 8-hour State Implementation Plan Development in the Unifour Area of North Carolina

An Agreement of Partnership by USEPA Region 4, North Carolina Department of Environment and Natural Resources, and the Local Governments in the Unifour Area (Hickory-Morganton-Lenoir Metropolitan Statistical Area)

December 2002

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I. Purpose of the Early Action Compact

The Early Action Compact (EAC) is an agreement between the North Carolina Department of Environment and Natural Resources (DENR), local governments and organizations, and the United States Environmental Protection Agency Region 4 (EPA) office. This EAC represents a partnership of Local, State, and Federal agency efforts to develop a State implementation plan (SIP) for the Unifour Area. The SIP is the technical analysis showing what control measures are necessary to attain the 8-hour ozone standard, as well as the adopted rules for those measures. The SIP will be a combination of Local, State, and Federal rules. This EAC includes the memorandum of agreement by all parties, the protocol for the local Early Action Plan (EAP) and the overall SIP development and the schedule the plan development will follow. The result of this EAC is that the SIP will be developed early, the control measures implemented sooner, and the 8-hour ozone standard achieved in a more expeditious manner than following the normal SIP development timeline. Under the EAC schedule, the SIP is due no later than December 31, 2004. Under the normal schedule, the SIP is due three years after the nonattainment designation (expected in 2004, so the SIP would be due in 2007). The ultimate result of the EAC approach is that North Carolinians will breathe clean air sooner. If any party to the EAC fails to achieve a milestone, then the nonattainment designation becomes effective upon EPA finding that failure, and all consequences of nonattainment designation apply to the area. The EAC contains necessary and appropriate mechanisms to return the area to the regular nonattainment planning process should any party fail to meet the agreed upon milestones contained in the EAC.

II. Background and History of Air Quality

Ozone, or O3, is formed in the atmosphere when two primary pollutants, volatile organic compounds and oxides of nitrogen react in the presence of sunlight. DENR operates the ozone monitors from April 1 through October 31 of each year, though most exceedances, or days above the ozone standard, occur in the May through September timeframe. There are currently two ozone standards that have been set by EPA to protect the public's health. The first standard is a 1-hour standard, which was set in 1977. The standard is set at 0.12 parts per million (ppm) ozone in the air. The Unifour area has always met the 1-hour ozone standard.

The second standard is the new 8-hour ozone standard, set by EPA in 1997. This new standard is based on the maximum 8-hour average concentration and is set at .08 ppm. This compact is intended to address the new 8-hour standard and how the Unifour area will attain this new standard. There are two monitors in the Unifour area – one in the City of Lenoir in Caldwell County, and one in the Town of Taylorsville in Alexander County. Both monitors currently violate the 8-hour ozone standard.

III. Current Air Quality Levels

Ozone data is evaluated over a three year period to determine compliance with the ozone standard. The current design value based on 2000 to 2002 ozone season data is as follows: Lenoir monitor - .086 ppm, Taylorsville monitor - .091 ppm. Table 1 presents the number of days that each monitor exceeded the 8-hour ozone standard over the most recent three years.

Table 1 Number of Days Over the 8-Hour Standard

Year	2000	2001	2002
Lenoir	4	2	10
Taylorsville	9	5	17

IV. Components of the Early Action Compact

A. Area Covered by the Compact
The area covered by this compact is the Hickory-Morganton-Lenoir Metropolitan Statistical Area, also known as the Unifour, which includes the following counties: Alexander, Burke, Caldwell and Catawba. The following cities in the MSA have agreed to join the Compact: Hickory, Morganton, Lenoir, Taylorsville, Newton and Conover.

B. Participating Agencies in the Compact
The State agency will be the Department of Environment and Natural Resources. USEPA will be represented by the Region 4 office. At a minimum, the local agencies will be represented by the Chair of the Board of County Commissioners (or designee) for each county in the area, and the Mayors (or designee) of the major cities or towns in the area. Other local organizations are invited to participate.

C. Requirements of the Early Action Compact
There are certain key requirements that will be addressed in the EAC and in the SIP development. These requirements are described in more detail below:

i. Milestones and Reporting
The EAC must identify key milestones and an associated schedule. The milestones include the development of the emissions inventories, base case modeling evaluation, identification of local measures, evaluation of local measures, adoption of local measures, and submittal of SIP incorporating local measures. Status reports are required every six months. The status reports must contain information regarding the completion of the milestones, or progress on an upcoming milestone.

ii. Emissions Inventory
The NC Department of Environment and Natural Resources (NCDENR) will be responsible for developing several emissions inventories for the project. Episode specific inventories will be developed for the July 1995, June 1996, and July 1997 events. Additionally, a current year inventory

will be developed for 2000 or 2001 for purposes of applying the attainment test. Finally, future year inventory for 2007, 2012 and 2017 will also be developed.

iii. Modeling
The NCDENR will conduct the modeling analysis based on EPA's "Draft Guidance on the Use of Models and Other Analyses in Attainment Demonstrations for the 8-hour Ozone NAAQS," May 1999 (EPA-454/R-99-004). The technical analysis will follow the guidance as facilitated by the EPA regional office.

iv. Control Strategies
All of the signatories will participate in the evaluation and selection of control strategies. The Local agency signatories will primarily be responsible for the identification of the local measures. The NCDENR will be responsible for the state measures and for the development of the complete SIP including state and local measures.

v. Maintenance for Growth
A key component of the plan is the annual check of growth from the mobile and stationary source sector. In addition, a projection of growth to 2012 will be performed. Although not required by the protocol, NCDENR will also project emissions to 2017 and run the air quality model for that year in order to provide a ten year maintenance period.

vi. Public Involvement
The development of the control measures and the SIP will be done through a public involvement process. Stakeholders including environmental/citizens groups, local governments, local businesses and industry will be invited to participate in this open process.

Unifour Area Early Action Compact

Memorandum of Agreement

This Early Action Compact (EAC) is a Memorandum of Agreement between the local governments representing the counties of Alexander, Burke, Caldwell, and Catawba and the cities of Hickory, Morganton, Lenoir, Taylorsville, Newton and Conover (collectively, the local governments), the North Carolina Department of Environment and Natural Resources (NCDENR) and the United States Environmental Protection Agency (EPA). It is for the express purpose of developing and implementing an Early Action Plan (EAP) that will reduce ground-level ozone concentrations in the Unifour Area to comply with the 8-hour ozone standard by December 31, 2007, and maintain the standard beyond that date. Failure to meet these obligations results in immediate reversion to the traditional nonattainment process.

I. General Provisions

A. The signatory parties commit to develop, implement and maintain the EAP according to EPA Protocol for Early Action Compacts issued June 19, 2002, and adhere to all terms and conditions stated in the guidelines. See Appendix A for EPA Protocol for Early Action Compacts Designed to Achieve and Maintain the 8-Hour Ozone Standard.

B. If the region does not meet all the terms of the EAC, including meeting agreed-upon milestones, then it will forfeit its participation, deferral of the area's nonattainment designation may be withdrawn and its nonattainment designation for the 8-hour NAAQS will become effective.

C. Before formal adoption into the SIP, this agreement may be modified or terminated by mutual consent of all signatory parties, or any party may withdraw from the agreement. The local government signatories will approve the local control measures before they are submitted to NCDENR for inclusion in the SIP. Once the EAP is incorporated into the SIP, any modifications will be treated as SIP revisions.

D. The signature date of the EAC is the start date of the agreement's term and the agreement remains in effect until December 31, 2007.

II. Local Government Responsibilities

The local governments agree to develop and implement a local EAP that will, when combined with State and Federal measures, demonstrate attainment by year's end 2007 of the 8-hour ozone standard and maintenance until at least 2012. The local governments will develop this plan in coordination with NCDENR, EPA, stakeholders and the public. The EAP will include a process

to monitor and maintain long-term compliance with the standard. The local governments will develop and submit a list of control measures being considered for adoption as part of the EAP by June 16, 2003. The EAP will be submitted to NCDENR and EPA for review by January 31, 2004, and finalized by March 31, 2004, for inclusion in the SIP by December 31, 2004.

In the event a development or issue arises that may impact performance or progress toward milestones (including if a milestone will be or has been missed and/or if a termination or modification has been requested), the Western Piedmont Council of Governments, serving as the Lead Planning Agency, or the signatory party responsible will notify all other signatories as soon as possible.

III. The North Carolina Department of Environment and Natural Resources

The state, represented by NCDENR, will provide support to areas throughout the planning and implementation process, including:

1. Development of emission inventories, modeling process, trend analysis and quantification and comparison of emission reduction strategies;
2. Necessary information on all Federal and State adopted emission reduction strategies which affect the area;
3. Technical and strategic assistance, as appropriate, in the selection and implementation of emission reduction strategies;
4. Technical and planning assistance in developing and implementing processes to address the impact of emissions growth beyond the attainment date;
5. Maintenance of monitors and reporting and analysis of monitoring data;
6. Support for public education efforts;
7. Coordinate communication between local areas and EPA to facilitate continuing EPA review of local work;
8. Expeditious review of the locally developed EAP, and if deemed adequate, propose modification of the SIP to adopt the EAP;
9. Adoption of emission reduction strategies into the SIP as expeditiously as possible. The final complete SIP revision must be completed, adopted, and submitted by the state to EPA by December 31, 2004.

IV. The Environmental Protection Agency

1. The EPA will provide technical assistance to the state and local area in the development of the early action plan.

2. The EPA will take final action by September 30, 2005 on any SIP revisions submitted by December 31, 2004 pursuant to the compact

3. When EPA's 8-hour implementation guidelines call for designations, if the area has met the first two milestones (signed compact by December 31, 2002 and list of measures being considered for local adoption by June 16, 2003), EPA will defer the effective date of nonattainment designation and related requirements for participating areas that fail to meet the 8-hour ozone standard until September 30, 2005 contingent upon the area's submission of local control measures by March 31, 2004. As part of the SIP approval mentioned in item 2 above and assuming the SIP is approvable, EPA will propose as part of the SIP approval action, the second deferral of the effective date of nonattainment designation until December 31, 2006. If the June 30, 2006 progress assessment is submitted, implementation of the SIP measures have occurred, and air quality improvement is taking place, EPA will propose and, if appropriate, take final action on the third deferral of the effective date until April 15, 2008.

4. Provided that the monitors in the area reflect attainment by December 31, 2007, EPA will move expeditiously to designate the area as attainment and impose no additional requirements.

5. If at any time the area does not meet all the terms of this EAC, including meeting agreed-upon milestones, then it will forfeit its participation, deferral of the area's nonattainment designation may be withdrawn and its nonattainment designation will become effective. The EPA will offer such an area no delays, exemptions or other favorable treatment because of its previous participation in this program.

6. If the area violates the standard as of December 31, 2007, and the area has had a nonattainment designation deferred, the nonattainment designation will become effective no later than April 15, 2008. The state will then submit a revised attainment demonstration SIP revision according to the Clean Air Act (CAA) and EPA's 8-hour implementation rule, unless the 8-hour implementation schedule requires SIPs from 8-hour nonattainment areas before December 31, 2008. In that event, a revised attainment demonstration SIP revision for the participating area will be due as soon as possible but no later than December 31, 2008. In no event will EPA extend the attainment date for the area beyond that required by the CAA and/or EPA's 8-hour implementation rule.

7. The region will not be allowed to renew this EAC after December 31, 2007, or to initiate a new compact if it has previously forfeited its participation.

V. The Protocol for Completing the EAP and the 8-Hour Ozone SIP

A. Milestones and Reporting

1. Milestones

EAC/CAAP Milestones (Responsible Party)	
December 31, 2002	Signed EAC (All parties)
May 31, 2003	Initial modeling emissions inventory completed (NCDENR)
	Conceptual modeling completed (NCDENR)
	Base case modeling completed (NCDENR)
June 16, 2003	Identify and describe local strategies being considered for inclusion in local clean air plans (Local Governments)
June 30, 2003	Biannual status reports to begin (Lead Planning Agency/NCDENR)
October 31, 2003	Future year emissions inventory modeling completed (NCDENR)
	Emissions inventory comparison and analysis completed (NCDENR)
	Future case modeling completed (NCDENR)
January 31, 2004	Attainment maintenance analysis completed (NCDENR)
	One or more modeled control cases completed (NCDENR)
	Local emission reduction strategies selected (Local Governments)
	Submission of preliminary EAP to NCDENR and EPA (Local Governments)
March 31, 2004	Final revisions to modeled control cases completed (NCDENR)
	Final revisions to local emission reduction strategies completed (Local Governments)
	Final revisions to attainment maintenance analysis completed (NCDENR)
	Submission of final EAP to NCDENR and EPA (Local Governments)
December 31, 2004	EAP adopted and incorporated into the SIP, SIP submitted to EPA (NCDENR)
December 31, 2005	Local emission reduction strategies implemented no later than this date (Implementing Agency)
June 30, 2006	Biannual status reports on implementation of measures begin on this date (Lead Planning Agency/NCDENR)
December 31, 2007	Attainment of the 8-hour standard no later than this date (All Parties)

2. Reporting

In order to facilitate self-evaluation and communication with EPA, NCDENR, stakeholders, and the public, the region will assess and report progress towards milestones in a regular, public process, at least every six months.

B. Emissions Inventories

1. An **initial modeling emissions inventory** will be developed by May 31, 2003. This inventory will include:
   a. Emissions modeling data for a July 1995, June 1996 and July 1997 episode, all of which are representative of a typical ozone season event and meets EPA episode selection guidance;
   b. MOBILE6 data with link based Travel Demand Model (TDM) mobile data in urban areas;
   c. NONROAD model data adjusted for local equipment populations and usage rates where available;
   d. Area source data, based on local survey data, when possible.

2. A 2007 **future year modeling emissions inventory** will be developed by July 31, 2003. This inventory will sufficiently account for projected future growth in ozone precursor emissions through 2007, particularly from stationary, non-road and on-road mobile sources.

3. Selection of specific episode inventories was partially determined by the conceptual model, which reflects an analysis of meteorological conditions typical of high ozone events. The conceptual model will be updated by May 31, 2003.

4. Emissions inventories will be compared and analyzed for trends in emission sources over time. The **emissions inventory comparison and analysis** will be completed by October 31, 2003.

C. Modeling

1. **Base case modeling** will be completed by May 31, 2003 and **future case modeling** will be completed by October 31, 2003. One or more **modeled control cases** will be completed by January 31, 2004, with final revisions completed by March 31, 2004. All modeling:
   a. Will be SIP quality, consistent with the latest EPA modeling guidance and perform within EPA's accepted margin of accuracy;
   b. Will be carefully documented;
   c. Will sufficiently account for projected future growth in ozone precursor emissions;
   d. Will be accomplished by NCDENR and reviewed by EPA;
   e. Will be used to determine the effectiveness of NOx and/or VOC reductions. The control case(s) will be used to determine the relative effectiveness of different emission reduction strategies and to aid in the selection of appropriate emission reduction strategies.

D. Emission Reduction Strategies

1. All adopted Federal and State emission reduction strategies that have been or will be implemented by the December 31, 2007 attainment date will be included in base, future and control case modeling.
2. Additional local emission reduction strategies needed to demonstrate attainment for the Unifour Area by December 31, 2007 will be selected by January 31, 2004, with final revisions completed by March 31, 2004. The selected local strategies will be implemented as soon as practical, but no later than December 31, 2005.
3. Local emission reduction strategies will be specific, quantified, permanent and enforceable. The strategies will also include specific implementation dates and detailed documentation and reporting processes.
4. Voluntary strategies can play a supporting role in the EAP and must be part of the SIP. If emission reductions from voluntary strategies are quantified and credit is taken for them in the EAP, those emission reductions will be enforceable. Additional strategies must be implemented to meet those quantified reduction requirements if quantified voluntary strategies fail. This is true for all quantified emission reductions.
5. Local emission reduction strategies will be designed and implemented by the community with stakeholder participation.
6. Local emission reduction strategies will be incorporated by the state into the SIP. In the event that the region desires to add, delete or substitute strategies after SIP submittal, the region will request a modification. EAP modifications will be treated as SIP revisions and facilitated by the state.

E. Maintenance for Growth

1. The EAP will include a component to address emissions growth at least five years beyond December 31, 2007, ensuring that the area will remain in attainment of the 8-hour standard during that period. Attainment maintenance analysis will be completed by January 31, 2004, with final revisions completed by March 31, 2004. The analysis will employ one or more of the following or any other appropriate techniques necessary to make such a demonstration:
   a. Modeling analysis showing ozone levels below the 8-hour standard in 2012;
   b. An annual review of growth (especially mobile and stationary source) to ensure emission reduction strategies and growth assumptions are adequate;
   c. Identification and quantification of federal, state, and/or local measures indicating sufficient reductions to offset growth estimates.

2. A continuing planning process that includes modeling updates and modeling assumption verification (particularly growth assumptions) will be conducted concurrent with the tracking and reporting process for the EAP. This update and verification will be an ongoing process between the signatories, stakeholders and the public. Modeling updates and planning processes must consider and evaluate:
   a. All relevant actual new point sources;
   b. Impacts from potential new source growth; and
   c. Future transportation patterns and their impact on air quality in a manner that is consistent with the most current adopted Long Range Transportation Plan and most current trend and projections of local motor vehicle emissions.

3. If the review of emissions growth in conjunction with the continuing planning process demonstrates that adopted emission reduction strategies are inadequate to address growth in emissions, additional measures will be added to the EAP.

4. In the event that the continuing planning process identifies the need to add, delete, or substitute emission reduction strategies after the EAP has been incorporated into the SIP, the local area will initiate, and NCDENR will facilitate a SIP revision to accommodate changes.

F. Public Involvement

1. Public involvement will be conducted in all stages of planning by the signatory parties. Outreach may include one or more of the following techniques: public meetings and presentations, stakeholder meetings, websites, print advertising and radio.

2. Public education programs will be used to raise awareness regarding issues, opportunities for involvement in the planning process, implementation of emission reduction strategies, and any other issues important to the area.

3. Interested stakeholders will be involved in the planning process as early as possible. Planning meetings will be open to the public, with posted meeting times and locations. EAP drafts will be publicly available, and the drafting process will have sufficient opportunities for comment from all interested stakeholders.

4. Public comment on the proposed final EAP will follow the normal SIP revision process as implemented by the State.

5. Semi-annual reports detailing, at a minimum, progress toward milestones, will be publicly presented and publicly available.

VI. Early Action Compact Signatures:

Rudy Wright
Mayor, City of Hickory

Darrell Robertson
Chairman, Alexander County Commission

Mel Cohen
Mayor, City of Morganton

Tom K. Johnson
Chairman, Burke County Commission

David Barlow
Mayor, City of Lenoir

Herbert Greene
Chairman, Caldwell County Commission

Wayne Dellinger
Mayor, City of Newton

Katherine W. Barnes
Chairman, Catawba County Commission

Bruce Eckard
Mayor, City of Conover

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Guy Barriger
Mayor, Town of Taylorsville

William G. Ross, Jr.
Secretary, North Carolina
Department of Environment and
Natural Resources