

US EPA ARCHIVE DOCUMENT

December 19, 2003

Mr. J. I. Palmer, Jr., Regional Administrator  
USEPA, Region 4  
Sam Nunn Atlanta Federal Center  
61 Forsyth Street, SW  
Atlanta, GA 30303

Dear Mr. Palmer:

As a requirement for continued participation in South Carolina's 8-Hour Ozone Early Action Compact, enclosed you will find the December 2003 Progress Report completed by participating counties and the South Carolina Department of Health and Environmental Control (DHEC). Enclosure 1 includes the report for DHEC and Enclosure 2 includes the report for each participating county, grouped by the following areas:

Appalachian: Anderson, Cherokee, Greenville, Oconee, Pickens, Spartanburg  
Catawba: Chester, Lancaster, Union, York  
Pee Dee: Chesterfield, Darlington, Dillon, Florence, Marion, Marlboro  
Waccamaw: Georgetown, Horry, Williamsburg  
Santee Lynches: Clarendon, Kershaw, Lee, Sumter  
Berkeley-Charleston-Dorchester: Berkeley, Charleston, Dorchester  
Low Country: Beaufort, Colleton, Hampton, Jasper  
Lower Savannah: Aiken, Allendale, Bamberg, Barnwell, Calhoun, Orangeburg  
Central Midlands: Fairfield, Lexington, Newberry, Richland  
Upper Savannah: Abbeville, Edgefield, Greenwood, Laurens, Saluda

The modeling and emissions inventory components of the early action process remain on schedule. Meetings continue to be held with local stakeholder groups to assist in determining the emission reduction strategies that will be included in the final local Early Action Plans due to EPA in March 2004. DHEC has requested assistance from EPA, Region 4 in determining emission reductions from proposed strategies.

Thank you for the assistance and support EPA has provided in this process. We look forward to continuing to work with EPA as we implement measures to achieve cleaner air sooner for South Carolina and our neighboring states. Should you have questions or desire additional information, please do not hesitate to contact Jim Joy, Chief of DHEC's Bureau of Air Quality at (803) 898-4123 or Henry Phillips of his staff at (803) 898-3260.

Sincerely,

R. Lewis Shaw, P.E.  
Deputy Commissioner  
Environmental Quality Control

Enclosures: 1. South Carolina DHEC December 2003 Progress Report  
2. December 2003 Progress Reports for Participating Local Areas

cc: Kay Prince, EPA Region 4  
County Officials (no attachments\*)  
Ron Methier, GA Dept. of Natural Resources (no attachments\*)  
Keith Overcash, NC Dept. of Environmental and Natural Resources (no attachments\*)  
EQC District Directors (no attachments\*)

\*All those not receiving attachments will be notified when materials are placed on website.

## Statewide Initiatives and Emission Reduction Strategies

Early Action Compact Milestone December, 2003  
 List of Emission Reduction Strategies Under Consideration  
 Bureau of Air Quality – DHEC  
 State of South Carolina

Based on stakeholder consultation and taking into consideration resource and political constraints, the following control measures under consideration can be reasonably implemented. It is anticipated these measures under consideration will assist South Carolina in achieving and/or maintaining the 8-hour ozone standard by 2007 and beyond.

Measure under Consideration	Detailed description of measure	Current assessment of emission reductions	Proposed date for implementation	Geographic area and/or local government
Ozone Forecast/Outreach and Education	The Division of Emissions, Modeling and Support develops a forecast for the 8-hour ozone standard. The forecast is for four areas within South Carolina. These areas include the Upstate, Central Midlands, Central Savannah River and Pee Dee. The Catawba area, including Chester, Lancaster and York counties is included in North Carolina's forecast through a cooperative partnership. A link for the Catawba forecast is included on DHEC's website. This year, 2003, was the first year that South Carolina forecasted for the Pee Dee area. The Division of Air Planning, Development and Outreach is responsible for disseminating the ozone forecast to interested individuals and groups across the state, primarily during the summer months. The forecast serves as a public health advisory to protect those persons who are most at risk to the effects of ozone.	Directionally Sound	Ongoing	Forecast Areas: Upstate area - Anderson, Oconee, Pickens, Greenville, Abbeville, Laurens, Greenwood, Spartanburg, Cherokee, and, Union counties.  Central Midlands area – Newberry, Fairfield, Kershaw, Lexington, Richland, Calhoun, Kershaw, and, Sumter.  Central Savannah River area – Allendale, Barnwell, Aiken, Saluda, Edgefield, and, McCormick.  Pee Dee area – Lee, Darlington, Florence, and, Chesterfield
Support activities implemented by local areas participating in the EAC	SC has been and will continue to work with EPA to assist local areas in determining the emission reduction strategies that will assist the area in achieving emission reductions needed for attaining and maintaining the 8-hour ozone standard within their respective area.  The Division of Air Planning, Development and	Directionally Sound	Ongoing	Statewide

Refer to the December 2003 Progress Reports submitted by individual areas for additional activities.

Measure under Consideration	Detailed description of measure	Current assessment of emission reductions	Proposed date for implementation	Geographic area and/or local government
	<p>Outreach continues to develop a Resource Guide for Air Quality Improvement that contains useful information to assist counties in planning for cleaner air sooner. This guide is a work-in-progress in which DHEC will continue to search for new information and ask that any information gathered and/or found by counties be shared so that it can be added and used for the benefit of everyone. This guide consists of informational text, pamphlets, hand-outs, useful websites, and other resources that will serve as a tool for county planning.</p> <p>Fact sheets have either been developed or revised to assist with understanding ozone, ozone monitoring and the ozone design value. Copies of these fact sheets were included in the June 2003 submittal.</p> <p>Forms for the milestones have been developed by the Division and provided to the participating areas to assist with the reporting aspect of the EAC. These forms were approved by EPA and were shared with other states involved in the EAP process.</p>			
Open Burning	<p>Revise the existing state regulation (R.61-62.2, Prohibition of Open Burning) to reduce statewide NOx/PM/CO emissions. The DHEC Board granted initial approval of the proposed regulation on October 9, 2003. An informational forum was held on November 24, 2003. Final approval by the DHEC Board will be requested January 8, 2004, for submittal to the state legislature.</p>	Currently Evaluating	<p>Promulgation should occur by June 2004. Implementation expected by 2005.</p>	Statewide
South Carolina NOx Control Regulation	<p>This proposed regulation is designed to help control the growth of NOx emissions statewide and focuses on sources currently not subject to NOx control requirements. This proposed regulation would apply to new NOx sources but would exempt units that are regulated by other NOx regulations with equivalent requirements. The DHEC Board granted initial approval of the proposed regulation on October 9, 2003. An informational forum was held on November 24, 2003.</p>	Currently Evaluating (See Attachment 1)	<p>Promulgation should occur by June 2004. Implementation expected by 2005.</p>	Statewide

Refer to the December 2003 Progress Reports submitted by individual areas for additional activities.

Measure under Consideration	Detailed description of measure	Current assessment of emission reductions	Proposed date for implementation	Geographic area and/or local government
	Final approval by the DHEC Board will be requested January 8, 2004, for submittal to the state legislature.			
CAIGE	Develop, implement and market a plan for reducing ground-level ozone precursors by state government.	Voluntary efforts Directionally Sound	April 2005	Statewide
Smart Highways	A plan to ensure transportation plans, programs and projects consider statewide and local air quality goals. Certain aspects of the Transportation Conformity regulations may be incorporated into such a plan.	Not applicable		Statewide
Initiative to reduce NOx emissions from large facilities within South Carolina	Staff within the Bureau of Air Quality, have met with some of the "larger" facilities in South Carolina to negotiate NOx emissions through the permitting process. Those reductions will be made available once they are finalized.	Currently Evaluating	April 2005	Statewide
Tier 2 standards	Federal emission standard for passenger cars, light trucks, and larger passenger vehicles. Program designed to focus on reducing the emissions most responsible for the ozone and particulate matter impact from these vehicles, including NOx and VOCs.	Currently Evaluating (See Attachment 2)	Phase in period 2004-2007	Statewide
Low Sulfur	Program to reduce average gasoline sulfur levels nationwide	Currently Evaluating (See Attachment 2)	Phase in period 2004-2007	Statewide
NOx SIP Call	Federal Rule calling for SIP revision that requires sources in 17 states, including South Carolina to reduce summertime NOx emissions.	18 percent reduction in NOx (See Attachment 2)	2004	Statewide

Refer to the December 2003 Progress Reports submitted by individual areas for additional activities.

**Estimated Reductions Achieved by NOx Control Standards from Uncontrolled Levels**

Source Type	Control Technology and/or Emission Limit	Percent Reduction from Uncontrolled
<b>Boilers and Water Heaters</b>		
<b>Natural Gas Fired Boilers</b>		
≥10mmBTU/hr and < 100mmBTU/hr	Low NOx Burners or equivalent technology capable of achieving 30ppmv @ 3% O2 Dry (0.036 lb/mmBTU)	50% <sup>1</sup>
≥100mmBTU/hr	Low NOx Burners + Flue Gas Recirculation or equivalent technology capable of achieving 30 ppmv @ 3% O2 Dry (0.036 lb/mmBTU)	50- 60% <sup>1</sup>
<b>Distillate Oil Fired Boilers</b>		
≥10mmBTU/hr and < 100mmBTU/hr	Low NOx Burners or equivalent technology capable of achieving 0.15 lb/mmBTU	50% <sup>1</sup>
≥100mmBTU/hr	Low NOx Burners + Flue Gas technology capable of achieving 0.14 Recirculation or equivalent lb/mmBTU	60% <sup>1</sup>
<b>Residual Oil Fired Boilers</b>		
≥10mmBTU/hr and < 100mmBTU/hr	Low NOx Burners or equivalent technology capable of achieving 0.3 lb/mmBTU	50% <sup>1</sup>
≥100mmBTU/hr	Low NOx Burners + Flue Gas Recirculation or equivalent technology capable of achieving 0.3 lb/mmBTU	60% <sup>1</sup>

Refer to the December 2003 Progress Reports submitted by individual areas for additional activities.

<b>Multiple Fuel Boilers</b>		The emission limits for boilers burning multiple fuels are calculated in accordance with the formulas below. Additional fuels shall be addressed on a case-by-case basis.
≥10mmBTU/hr and < 100mmBTU/hr	$E_n = [(0.036 \text{ lb/mmBTU } H_{np}) + (0.15 \text{ lb/mmBTU } H_{do}) + (0.3 \text{ lb/mmBTU } H_{ro}) + (0.35 \text{ lb/mmBTU } H_c) + (0.2 \text{ lb/mmBTU } H_w)] / (H_{np} + H_{do} + H_{ro} + H_c + H_w)$ <p>where:  <math>E_n</math> is the nitrogen oxides emission limit (expressed as NO<sub>2</sub>), ng/J (lb/million Btu)  <math>H_{np}</math> is the heat input from combustion of natural gas,  <math>H_{do}</math> is the heat input from combustion of distillate oil  <math>H_{ro}</math> is the heat input from combustion of residual oil,  <math>H_c</math> is the heat input from combustion of coal,  <math>H_w</math> is the heat input from combustion of wood residue.</p>	≈50% <sup>1</sup>
≥100mmBTU/hr	$E_n = [(0.036 \text{ lb/mmBTU } H_{np}) + (0.14 \text{ lb/mmBTU } H_{do}) + (0.3 \text{ lb/mmBTU } H_{ro}) + (0.25 \text{ lb/mmBTU } H_c) + (0.2 \text{ lb/mmBTU } H_w)] / (H_{np} + H_{do} + H_{ro} + H_c + H_w)$ <p>where:  <math>E_n</math> is the nitrogen oxides emission limit (expressed as NO<sub>2</sub>), ng/J (lb/million Btu)  <math>H_{np}</math> is the heat input from combustion of natural gas,  <math>H_{do}</math> is the heat input from combustion of distillate oil  <math>H_{ro}</math> is the heat input from combustion of residual oil,  <math>H_c</math> is the heat input from combustion of coal.  <math>H_w</math> is the heat input from combustion of wood residue.</p>	≈60% <sup>1</sup>
<i>Wood Residue Boilers</i>		
All types	Combustion controls to minimize NOx emissions or equivalent technology capable of achieving 0.20 lb/mmBTU	0-50% <sup>2</sup>
<b>Coal Fired Stoker Fed Boilers</b>		
< 250 mmBTU/hr	Combustion controls to minimize NOx emissions or equivalent technology capable of achieving 0.35 lb/mmBTU	34% <sup>3</sup>

Refer to the December 2003 Progress Reports submitted by individual areas for additional activities.

≥ 250 mmBTU/hr	Combustion controls to minimize NO <sub>x</sub> emissions or equivalent technology capable of achieving 0.25 lb/mmBTU	53% <sup>3</sup>
<b>Pulverized Coal Fired Boilers</b>		
< 250 mmBTU/hr	Low NO <sub>x</sub> Burners + Combustion controls to minimize NO <sub>x</sub> emissions or equivalent technology capable of achieving 0.35 lb/mmBTU	50% <sup>1</sup>
≥ 250 mmBTU/hr	Low NO <sub>x</sub> Burners + Combustion controls to minimize NO <sub>x</sub> emissions + SCR or equivalent technology capable of achieving 0.14 lb/mmBTU	70%+ <sup>1</sup>
<b>Municipal refuse fired boilers</b>		
< 250 mmBTU/hr	Combustion modifications to minimize NO <sub>x</sub> emissions + Flue Gas Recirculation or equivalent technology capable of achieving 200 ppmv @12% CO <sub>2</sub> (0.35 lb/mmBTU)	12% <sup>3</sup>
≥ 250 mmBTU/hr	Staged Combustion and Automatic Combustion Air Control + SCR or equivalent technology capable of achieving 0.18 lb/mmBTU	55% <sup>3</sup>
<b>Internal Combustion Engines</b>		
Compression Ignition	Timing Retard ≤ 4° + Turbocharger w/ Intercooler or equivalent technology capable of achieving 490 ppmv @ 15% O <sub>2</sub> (7.64 gm/bhp-hr)	20-30% <sup>1</sup>
Spark Ignition	Lean Burn Technology or equivalent technology capable of achieving 1.0 gm/bhp-hr	87% <sup>1</sup>
Landfill or Digester Gas Fired	Lean Burn Technology or equivalent technology capable of achieving 1.25 gm/bhp-hr	≈50% <sup>EST</sup>

Refer to the December 2003 Progress Reports submitted by individual areas for additional activities.

<b>Gas Turbines</b>		
<b>Simple Cycle – Natural Gas</b>		
< 50 Megawatts	Combustion Modifications (e.g. dry low-NOx combustors) to minimize NOx emissions or equivalent technology capable of achieving 25 ppmv @ 15% O <sub>2</sub> Dry (0.054 lb/mmBTU)	81% <sup>4</sup>
≥ 50 Megawatts	Combustion Modifications (e.g. dry low-NOx combustors) to minimize NOx emissions or equivalent technology capable of achieving 9.0 ppmv @ 15% O <sub>2</sub> Dry (0.033 lb/mmBTU)	84% <sup>1</sup>
<i>Combined Cycle – Natural Gas</i>		
< 50 Megawatts	Dry Low-NOx Combustors or equivalent technology capable of achieving 9.0 ppmv @ 15% O <sub>2</sub> Dry (0.033 lb/mmBTU)	84% <sup>1</sup>
≥ 50 Megawatts	Dry Low-NOx Combustors + SCR or equivalent technology Capable of achieving 3.0 ppmv @ 15% O <sub>2</sub> Dry (0.011lb/mmBTU)	94% <sup>1</sup>
<i>Simple Cycle - Distillate oil combustion</i>		
< 50 Megawatts	Combustion Modifications and water injection to minimize NOx emissions or equivalent technology capable of achieving 42 ppmv @ 15% O <sub>2</sub> Dry Basis (0.16 lb/mmBTU)	68% <sup>1</sup>
≥ 50 Megawatts	Combustion Modifications and water injection to minimize NOx emissions or equivalent technology capable of achieving 42 ppmv @ 15% O <sub>2</sub> Dry Basis (0.16 lb/mmBTU)	68% <sup>1</sup>
<i>Combined Cycle - Distillate oil combustion</i>		
< 50 Megawatts	Dry Low-NOx Combustors with water injection, or equivalent technology capable of achieving 42 ppmv @ 15% O <sub>2</sub> Dry Basis (0.16 lb/mmBTU)	68% <sup>1</sup>

Refer to the December 2003 Progress Reports submitted by individual areas for additional activities.

≥ 50 Megawatts	Dry Low-NOx Combustors, water injection, and SCR or Equivalent technology capable of achieving 10.0 ppmv @ 15% O <sub>2</sub> Dry Basis (0.038 lb/mmBTU)	90% <sup>1</sup>
Landfill Gas Fired	Water or steam injection or low NOx turbine design or equivalent technology capable of achieving 25 ppmv @ 15% O <sub>2</sub> (0.097 lb/mmBTU)	48% <sup>4</sup>
<b>Cement Kilns</b>		
All	Low NOx Burner or equivalent technology capable of achieving a 30% reduction from uncontrolled levels	30%
<b>Fluidized Bed Combustion (FBC) Boiler:</b>		
Coal Fired	SNCR- Urea (Selective Noncatalytic Reduction - Urea) capable of achieving 0.07 lbs/mmBTU (51.8 ppm @ 3% oxygen)	75% <sup>1</sup>
Wood Fired	SNCR- Urea (Selective Noncatalytic Reduction - Urea) capable of achieving 0.07 lbs/mmBTU (51.8 ppm @ 3% oxygen)	55% <sup>1</sup>
<b>Recovery Furnaces</b>		
All	4 <sup>th</sup> level or air to recovery furnace/good combustion practices or equivalent technology capable of achieving 100 ppm @8% oxygen	0-30% <sup>5</sup>
<b>Lime Kilns</b>		
All	Combustion controls or equivalent technology capable of achieving 175 ppm @ 10% oxygen	25% <sup>3</sup>
<b>Fuel Combustion Sources Not Otherwise Specified: (Examples include but are not limited to process heaters, dryers, furnaces, ovens, duct burners, incinerators, and smelters)</b>		

Refer to the December 2003 Progress Reports submitted by individual areas for additional activities.

All	Low NOx Burners or equivalent technology capable of achieving 30 ppmv @ 3% O <sub>2</sub> Dry (0.036 lb/mmBTU)	0-60% <sup>1</sup>
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- <sup>1</sup> – EPA 456/F-99-066R “EPA Technical Bulletin – Nitrogen Oxides (NO<sub>x</sub>), Why & How they are Controlled”, Nov. 1999.
- <sup>2</sup> – EPA 453/R-94-022 “Alternative Control Techniques Document – NO<sub>x</sub> Emissions from Industrial/Commercial/ Institutional Boilers”, March 1994
- <sup>3</sup> – Compared with emissions from EPA’s AP-42 “Compilation of Air Pollutant Emission Factors”
- <sup>4</sup> – EPA’s “Emission Factor Documentation for AP-42 Section 3.1 Stationary Gas Turbines”, April 2000
- <sup>5</sup> - Information found on EPA’s RACT/BACT/LAER Clearinghouse plus information found in the Willamette PSD permit review (SC).

### Utility Reductions from EGUs in the NOx SIP Call

<i>Utility</i>	<i>1998 Emissions<sup>1</sup> (tons/day)</i>	<i>2007 Emissions (tons/day)</i>	<i>2012 Emissions (tons/day)</i>
Progress Energy	13.76	30.97	30.97
SCE&G	147.8	84.06	84.06
Santee Cooper	151.65	21.34	30.97
Duke Power	17.21	13.70	13.70
<b>Total</b>	330.42 tons/day	150.07	159.70
Reduction from 1998 Levels	-	54.6%	51.7%

<sup>1</sup> - Emission data represents modeling episode only.

Note: Data is for the EGU units under the NOx Trading Program Only.

**Reductions from Tier II and Low Sulfur Fuel Regulatory Changes**  
(For May 1998 Episode & Future Years Using Mobile6 Model)

<b>Year</b>	<b>Mobile On-Road Emissions (tons/day)</b>	<b>% Reduction from 1998 Levels</b>
1998	345	-
2007	153	55.6%
2010	128	62.9%
2012	116	66.3%

Refer to the December 2003 Progress Reports submitted by individual areas for additional activities.

**These are the Draft Plans of Emission Reduction Strategies for the B-C-D Region submitted for the December 10, 2003 Early Action Compact Milestone.**

Early Action Compact Milestone - December 2003  
 List of Emission Reduction Strategies Under Consideration

**BERKELEY COUNTY**

According to the latest 8-hour ozone monitoring data, Berkeley County should remain attainment for the 8-hour ozone standard. However, in an effort to assist other areas in South Carolina and in the interest of public health and the environment, in December 2002, Berkeley County agreed to participate in the 8-hour ozone early action process. Therefore, based on stakeholder consultation and taking into consideration resource and political constraints, the following emission reduction strategies remain under consideration. Berkeley County will continue to evaluate the air quality within the county and may implement one or more of the following measures under consideration.

Measure under consideration	Detailed description of measure	Current assessment of emission reductions	Proposed date for implementation	Geographic area and/or local government
Awareness	Joined and currently participating in the SC Early Action Plan for 8-hour ozone	N/A	December 2002 (on-going effort)	Countywide
Awareness	Meet with SCDHEC staff and County staff to collect and disseminate information including ideas and suggestions that will attempt to maintain current attainment for County. Forwarded information to municipalities, the Water and Sanitation Authority and the school district within the County.	N/A	June and October 2003 (on-going effort)	Countywide
Awareness	Information for employees and public now available with applicable web links on the County's website	N/A	June 2003	Countywide (Potentially worldwide)
Awareness	Consider restricting (when applicable) mowing and interior/exterior painting days and times during ozone season/action days on County owned property.	N/A	During ozone "season"	County owned facilities
Awareness - Energy	Consider turning off lights and computers daily of County equipment (when applicable).	N/A	June 2003	County owned facilities
Awareness	Consider purchase of electric equipment used to maintain County owned properties.	N/A	As reasonably cost effective	County owned facilities

Awareness - Energy	Purchase "Green Power"	N/A	When reasonably cost effective	County owned facilities where available
Awareness - Energy	Best management practices in accordance with Energy Management Guidelines (AC control systems)	N/A	On-going effort	County owned facilities
Awareness - Energy	Participate in "Rebuild South Carolina" – County has participated in the past	N/A	When reasonably cost effective	Countywide
Ozone Action Coordinator	County staff person responsible for ozone education/outreach and dissemination of ozone standard.	N/A	March 2003 (on-going effort)	Countywide
Land Use	Zoning ordinance requires landscaped buffers between unlike uses that include trees and shrubs. Review ideas regarding interior lot landscaping requirements (parking lots).	N/A	August 2001 (on-going effort)	Unincorporated areas of County
Land Use	Cooperative initiative between County, Conservation District and Conservation Trust to endorse "Greenspace Initiative" that promotes the protection and conservation of recommended areas strictly on a voluntary basis.	N/A	September 2000 (on-going effort)	Countywide
Conservation	Implementation of "Greenspace Initiative" – promotion of the protection and conservation of properties in guidance with the plan established in September 2000.	N/A	September 2000 (on-going effort)	Countywide
Land Use	Encourage the development of non polluting industry	N/A	On-going effort	Countywide
Conservation	Promote and encourage the increased activity of recycling goods (plastics, metal, glass, etc.) through the Berkeley County Water & Sanitation Authority *	N/A	On-going effort	Countywide
Mobile Sources	Consider replacement of gasoline golf carts with electric – one has already been replaced.	N/A	When reasonably cost effective	Organizational
Mobile Sources	Evaluate the purchase and operation of alternative fuel vehicles and if feasible, set progressive goals for replacement of existing vehicles.	N/A	When reasonably cost effective	Organizational

Mobile Sources	Review County policies of scheduled maintenance of vehicles to ensure best management practices are being utilized to decrease the buildup of pollutants in engines.	N/A	On-going effort	Organizational
Mobile Sources	Support development of park and ride facilities within region	N/A	When reasonably cost effective	Regional
Mobile Sources	Evaluate the possibility of staggered work schedules to mitigate commuter traffic congestion	N/A	When reasonable	Countywide

\* Per Berkeley County Water and Sanitation Authority, the following includes a list of current and planned programs designed to conserve resources and improve air quality:

- The recycling of materials (tires, paper, glass, plastics, cooking oil, scrap metals, and motor oil).
- The Authority is actively involved in composting and providing educational programs for backyard composting.
- The installation of passive gas vents during the closure of the County’s “Pre-Subtitle D Landfill”. The Authority has also recently purchased flares for a pilot program to improve odors and air quality from the closed landfill. If the program is successful, additional flares will be purchased and installed.
- The Authority is currently in the preliminary planning stages for the installation of a landfill gas extraction system and potentially a landfill gas to energy (LFGTE) facility at its operational municipal solid waste landfill.

Early Action Compact Milestone - December 2003  
List of Emission Reduction Strategies Under Consideration

## Charleston County

According to the latest 8-hour ozone monitoring data, Charleston County should remain attainment for the 8-hour ozone standard. However, in an effort to assist other areas in South Carolina and in the interest of public health and the environment, in December 2002, Charleston County agreed to participate in the 8-hour ozone early action process. Therefore, based on stakeholder consultation and taking into consideration resource and political constraints, the following emission reduction strategies remain under consideration. Charleston County will continue to evaluate the air quality within the county and may implement one or more of the following measures under consideration.

Revised 12/03

Measure under consideration	Detailed description of measure	Current assessment of emission reductions	Proposed date for implementation	Geographic area and/or local government
<p><b>Appoint an Ozone Action Coordinator to alert media and public on high ozone days.</b></p>	<p>Larry Hodge, Risk Manager, will monitor DHEC website, and coordinate with Jamie Thomas, PIO, to notify county departments when state levels are elevated; and with Radio Communication Manager to alert field employees. (Note: currently DHEC does not do forecasts for the Lowcountry.) Information also will be included on County website, for public access. When DHEC alerts are available for this area, Jamie will coordinate media notifications.</p>	<p>Not available</p>	<p>On-going beginning with 2003 Forecast Season</p>	<p>County-wide</p>
<p><b>Add Ozone Alert to Emergency Information on County website.</b></p>	<p>Public Information Office has added Ozone Danger information to Emergency Information section of County web-site (<a href="http://www.charlestoncounty.org">www.charlestoncounty.org</a>). Information links to DHEC Spare the Air Ozone Forecast and to EPA informational sites. Ozone reduction measures and information are included. It is to be noted that our website allows residents to conduct a great deal of County business on-line, thus eliminating vehicle trips to County office locations. E-business opportunities are being expanded constantly.</p>	<p>Not available</p>	<p>2003 Forecast Season - completed</p>	<p>County-wide</p>
<p><b>Develop and implement an ozone public education plan.</b></p>	<p>Charleston County, through its Public Information Office and Safety and Risk Management Office, will develop a comprehensive public information campaign related to health impacts of ground-level ozone, and strategies to reduce ozone producing emissions. This will address best driving practices, fueling, vehicle maintenance, lawn mowing, consumer education and other measures. If funding or private partnerships are identified, programs to test gas caps and provide replacements, or others, will be implemented. Information will be disseminated through newsletters, website, public service announcements and public events.</p>		<p>On-going beginning FY2004</p>	<p>County-wide.</p>
<p><b>Expand use of hybrid cars.</b></p>	<p>Charleston County currently has one hybrid car in its fleet, a Honda Civic used by the Solicitor (1.3-liter 4-cylinder gasoline engine with a 10-kilowatt electric motor). Fuel efficiency is estimated at 46/51 city/highway miles per</p>		<p>FY2005</p>	<p>County government</p>

	gallon. It is proposed to introduce a pilot program to purchase or lease hybrid cars for use in the County motor pool. The goal of any program instituted may be to replace our existing pool inventory to the extent practical with hybrid vehicles. It is recognized such replacement would impact four cost centers: replacement, training, shop equipment and operating (parts) costs. Implementation will be dependent on commitment to and availability of funding. Procurement Director will work with Fleet Operations to study feasibility of implementing the pilot.			
<b>Purchase vehicles with high fuel economy.</b>	Charleston County may research implementation of a policy change to develop criteria for vehicle request approvals to include industry standards based on user requirements. Best fuel efficiency would be factored into specifications for vehicles to meet requirements. Use of SUVs, pick-up trucks and larger vehicles would be limited as practical.		Possible phase in as replacements requested beginning FY2005	County government
<b>As possible, purchase vehicles and light trucks to meet new standards on emissions.</b>	The EPA has announced more protective tailpipe emission standards for all passenger vehicles, including sport utility vehicles, vans and pick-up trucks. The agency also has developed lower standards for sulfur in gasoline which will require passenger vehicles to be significantly cleaner. Both take effect beginning in 2004. Charleston County may implement several initiatives to maximize the benefits of the availability of cleaner vehicles. New vehicles may be purchased, as needed, which meet the cleaner standards. This will include looking at what's available in Ultra Low Emission Vehicles for practical applications. The current policy of placing "replaced" vehicles into the motor pool may be modified to sell or dispose of the replaced vehicles while maintaining a limited motor pool of clean-burning or high fuel-efficiency vehicles. An initiative to pool administrative cars at major County office locations may be implemented to reduce overall fleet size. And finally, fleet fueling sites may be modified to include low-sulfur gasoline for use in vehicles with the technology to use it efficiently. A study of cost impacts would precede any implementation.		Phased in over five-year period	County government

<p><b>Purchase replacement diesel heavy-duty highway trucks, as needed, which comply with most recent EPA standards for PM and NOx emissions, and which utilize low sulfur diesel fuel.</b></p>	<p>The EPA has developed heavy-duty engine and vehicle emission standards and highway diesel fuel sulfur control requirements which will take effect with the vehicle model year 2007. As funding is available, and as replacements are needed, Charleston County may procure clean-burning heavy-duty vehicles. This policy would be expanded to off-road heavy equipment as emission technology for those is improved.</p>		<p>Phased in as technology is available</p>	<p>County government</p>
<p><b>As possible, convert to use of low-sulfur gasoline.</b></p>	<p>It is recognized that sulfur provides lubricity for engine operation and that low-sulfur gasolines currently cannot be used effectively fleet-wide. As low-sulfur fuel is available locally, and we acquire vehicles with the technology to utilize it, we may add or convert tanks and pumps to supply it to our fleet. Cost impacts will be factored in to any implementation plan.</p>		<p>Phased in over five year period</p>	<p>County government</p>
<p><b>Consider pilot/test of bio-diesel fuel for limited vehicle use.</b></p>	<p>In conjunction with area fleets and diesel users (ex.: CARTA, school district), County fleet staff may test a B20 bio-diesel fuel in designated vehicles. A tank for joint use would be established in the Azalea Road area, filled by a local supplier with a soy-diesel mix. Cost subsidies are being investigated to promote this project. It is recognized that bio-diesel fuels increase lubricity and engine efficiency; and also lower particulate matter although increasing NOx emissions.</p>		<p>FY 05 or later; timeline dependent on cost subsidies</p>	<p>Regional area</p>
<p><b>Develop Best Practices for diesel engine driving and fleet fueling.</b></p>	<p>Working with involved departments, Fleet staff may formulate Best Operational Practices for driving and fueling County fleet, for consideration for promulgation. While these may be related to ozone reduction, they would be applicable throughout the year. They would encourage fueling early or late, limiting idling, frequent tire pressure checks, driving at the speed limit, no topping off gas tank, etc. Department heads would incorporate BOPs into operating procedures to the extent feasible.</p>		<p>FY2004</p>	<p>County government</p>
<p><b>Addressing public transit options, pedestrian and bike</b></p>	<p>Charleston County has adopted a comprehensive land use plan, which is updated every five years. As appropriate, this plan may encourage the development of mass transit</p>		<p>Ongoing</p>	<p>County-wide</p>

<p><b>lanes and other planning strategies in comprehensive land-use planning.</b></p>	<p>opportunities, trip reduction, and alternative transportation methods.</p>			
<p><b>Modify lawn maintenance practices to discourage use of gas-powered engines during high ozone hours; and develop department guidelines to replace two-cycle small engines with four-cycle engine small equipment.</b></p>	<p>Charleston County may take measures to modify lawn maintenance practices and utilization of small engine equipment so as to limit ozone-producing emissions. Most County lawn maintenance is under private contract. The RFP may be amended to include clean air practices during the next bidding cycle. Many departments maintain small engine equipment for specific purposes. Two-cycle equipment may be phased out over five years, to be replaced with four-cycle.</p>		<p>Phased in over five years</p>	<p>County-wide</p>
<p><b>Expand in-house testing for gas and pollutant buildups in garages and other facilities; post signs in parking garages to discourage idling.</b></p>	<p>Charleston County Safety and Risk Management currently tests facilities for air quality. Testing will continue as appropriate, with parameters added for CO, NOx and VOCs. It is to be noted that as a result of such testing, diesel forklifts have been replaced by propane powered forklifts in our recycling center and other locations. Signs may be posted in County owned parking garages as an awareness and education measure, to ask users to limit idling.</p>		<p>FY2004</p>	<p>County facilities</p>
<p><b>Employ building energy conservation measures.</b></p>	<p>With the use of technology, Charleston County's Facilities Management team currently employs energy conservation measures at its high use facilities (the Public Services Building, Judicial Center, County Office Building, Charleston Center, Main Library, and the Historic Courthouse) by scheduling down time of utilities when unoccupied or reducing utility services when not required. This program will be expanded to include all Regional Libraries and any new large facilities coming on line. We are currently installing an HVAC control system in the Otranto Regional Library. Also the new Johns Island Regional Library will have this capability when construction is completed. Where ever possible, new energy efficient light bulbs (T-8s and low pressure sodium)</p>		<p>FY2004 and ongoing</p>	<p>County facilities</p>

	are being used. Energy audits will be conducted for our large facilities either in-house or by contract. We will use premium efficient components when replacement parts are required for condensers, compressors, hot water heaters, motors, etc.			
<b>Promote ride-sharing and use of public transit</b>	Charleston County may develop a strategy to promote the use of ride-sharing and use of public transit by County employees. This may include putting a ride-match page on our intranet site, and petitioning CARTA to add a bus stop at our Public Services Building. We further will investigate opportunities to create a park and ride location, in cooperation with CARTA and private property owners. Facilities Management may identify bike security areas at our large facilities to encourage bike ridership by County employees.		Ongoing, beginning FY2004	All County employees
<b>Study and implement flex hours and telecommuting.</b>	Charleston County may investigate opportunities to expand the practice of flexible hours, which is currently utilized by some departments. This would reduce traffic congestion and vehicle emissions created by all employees arriving and leaving at the same time. We also may consider some opportunities for working at home or off-site locations for appropriate projects. Both initiatives would require keen attention to maintaining a high quality of service to our citizens and community.		On-going, beginning FY2004	Departments and projects as appropriate
<b>Formation of regional stakeholders group.</b>	Charleston County is meeting with BCD Council of Governments, Berkeley and Dorchester Counties, urban and rural transportation authorities, Clemson Extension, MUSC, school districts, area industry, environmental groups and others. Ongoing discussions center on education, transportation, intermodal/alternative transportation strategies, advanced technology vehicles, alternative fuels, etc.	Not available	On-going, beginning FY2004	Tri-County area (Berkeley, Charleston, Dorchester)

Early Action Compact Milestone - December 2003  
 List of Emission Reduction Strategies under Consideration  
 Dorchester County

According to the latest 8-hour ozone monitoring data, Dorchester County should remain attainment for the 8-hour ozone standard. However, in an effort to assist other areas in South Carolina and in the interest of public health and the environment, in December 2002, Dorchester County agreed to participate in the 8-hour ozone early action process. Therefore, based on stakeholder consultation and taking into consideration resource and political constraints, the following emission reduction strategies remain under consideration. Dorchester County will continue to evaluate the air quality within the county and may implement one or more of the following measures under consideration.

Measure under consideration	Detailed description of measure	Current assessment of emission reductions	Proposed date for implementation	Geographic area and/or local government
1. Stakeholders Groups	Continue with Local and Regional Stakeholders Groups to remain current with citizen concerns and who may be experimenting with new ozone technology developments.	N/A	These programs have been in existence since April 2003.	Local and Tri-county area.
2. CHATS support.	The Charleston Area Transportation Study Group continues to establish SCDOT priorities for the Tri-county area. Dorchester County will continue to support those programs to reduce ozone. e.g. Mass Transit initiatives, "Park & Ride" programs, more "walk and bike trails" and initiatives that promotes car pooling.	N/A	CHATS has been active for over a decade. It is not likely to change in the immediate future.	Tri-county area.
3. Government sets the example.	Study to promote more telecommute positions, provide incentives for car pooling when assigning parking spaces. Stagger work hours for employees to avoid rush hour traffic. Continue with flex-work schedules and 4 day work week. Establish policies to encourage pooling of lunch orders from same vender. Study County owned vehicle schedule to shuttle personnel between upper and lower county. Promote high-bred "alternative fuel" vehicles i.e. electric, bio-diesel, LP gas, ethanol etc. for vehicle fleet operations.	N/A	This measure is an attempt to modify regulations and behavior over a period of time. Some of these practices have already been adopted.	Local Community.

<p>4. Solicit the schools to help in the education process.</p>	<p>There are short courses available to be introduced into the syllabus to discuss health hazards and other dangers of ground level ozone. Request Journalism students and/or English students to write articles about the dangers of ozone to be published in the local newspapers. Students encouraged to produce Educational video for television discussing the ozone issues.</p>	<p>N/A</p>	<p>This program will be initiated when EPA designates Dorchester County as borderline attainment.</p>	<p>Local Community.</p>
<p>5. Schools to review existing policies.</p>	<p>Student Transportation policy to be reviewed: more sidewalks and fewer parking spaces. Driving privileges for those students making grades. Assigned parking for only those students with exceptional need to drive. Minimal fee should be charged for cost of security cameras and police personnel in the parking areas. All others must use bus. Construction of schools will include sidewalks and bike trails on all major arteries within a mile radius of the school. Establish rules for vehicle idle times for those waiting for students to be released. (Parents vehicles and busses.)</p>	<p>N/A</p>	<p>This program will be initiated when EPA designates Dorchester County as borderline attainment.</p>	<p>Local Community.</p>
<p>6. Educate the Public as to "What is OZONE?"</p>	<p>TV News and Meteorologists will broadcast existing and forecast Ozone conditions. In addition, they will provide recommendations for their audience similar to their current hurricane readiness announcements.</p>	<p>N/A</p>	<p>This program is scheduled to start in May 2004.</p>	<p>Local Community.</p>
<p>7. Educate the Public as to "What is OZONE?"</p>	<p>An OZONE tent will become a part of the festivals and fairs in the local area to pass out brochures and tracts about ozone. Various contests and prizes can be awarded to stimulate interest.</p>	<p>N/A</p>	<p>This program will be initiated when EPA designates Dorchester County as borderline attainment.</p>	<p>Local Community.</p>
<p>8. Educate the Public as to "What is OZONE?"</p>	<p>A traveling lecturer will visit hospitals, Nursing Homes, Senior Citizen Centers to educate those who are most at-risk. Recommend minimum outdoor activity during periods of high ozone.</p>	<p>N/A</p>	<p>This program will be initiated when EPA designates Dorchester County as borderline attainment.</p>	<p>Local Community.</p>

9. Educate the Public as to "What is OZONE?"	Publish brochure of house-hold tips to reduce ozone. Schedule mowing and fueling vehicles in early morning or late afternoon to avoid the high ozone period. Select electric operated equipment and avoid gas operated landscape equipment.	N/A	This program will be initiated when EPA designates Dorchester County as borderline attainment.	Local Community
10. Planning for future green spaces.	Tree and Landscape Ordinances should encourage use of more deciduous shade trees and fewer pine trees. SC DOT should be required to provide landscaped mediums. Industrial developers should be required to provide a landscape plan for the entire site. Commercial builders should landscape parking lots and entrances. Residential builders should avoid strip clearing and have a minimum landscape requirement for treed streets, landscaped entrances and a minimum landscape requirement for each lot.	N/A	Some of these programs are currently in existence. We can do better.	Local Community.
11. Planning for a future with fewer vehicles.	Communities are planned with a grocery/drug/hardware stores within walking distance from homes. Promote mixed zoning, i.e. stores with residential spaces on the upper floors. Encourage more sidewalks and bike trails. Cluster development, Smart Growth, PUD's, mass transit, energy efficient building materials, fuel efficient vehicles, should be encouraged.	N/A	Comprehensive Plan for Government agencies already includes these ideas. Promote adoption of these ideas in future ordinances.	Local Community