

SUMMARY

2003 Voluntary Ozone Reduction Program



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Acknowledgements

The Regional Air Quality Council would like to thank the following organizations for their efforts to reduce ozone pollution during the 2003 summer ozone season. Without these partners, the 2003 Voluntary Ozone Reduction Program would not have been possible.

Air Quality Control Commission

Boulder County Health Department

CH2M HILL

City and County of Denver, Employee Transportation Coordinator Network

Colorado Department of Public Health and Environment

Colorado Petroleum Association

Denver Regional Council of Governments

Envirotest Systems, Corp. (Air Care Colorado)

John's 4x4 Center

Metropolitan Area Local Governments, in specific the Cities of Boulder, Brighton, Broomfield,

Denver, Federal Heights, Golden, Lakewood, Longmont, Westminster, and Wheat Ridge

NAPA Auto Parts and the NAPA Auto Care Council Members

Suncor Energy U.S.A.

Tri-County Health Department

U.S. 36 Transportation Mobility Organization

Valero Energy Corporation

Wild Oats Natural Marketplace

Overview of 2003 Voluntary Ozone Reduction Program

The Regional Air Quality Council (RAQC) has concluded the fifth year of its Voluntary Ozone Reduction Program. The 2003 program, launched with numerous stakeholders from the Denver metropolitan area, worked with local governments, businesses, transportation organizations, and citizens to educate people in the Denver-metropolitan area about the health effects of ozone pollution and voluntary activities to help reduce ozone throughout the region.

Ground-level ozone pollution is a summertime pollutant that occurs when volatile organic compounds (VOCs) and nitrogen oxides (NO_x) react in the presence of sunlight. These pollutants come from everyday items such as local industry, gasoline-powered vehicles and lawn equipment, and household paints, stains, and solvents.

Ozone pollution can cause breathing problems and respiratory infections in the elderly, young, and those with pre-existing ailments. Even healthy people who exercise or work outdoors can experience breathing problems when exposed to elevated ozone levels.

The region experienced several days in 2003 in which ozone levels were high enough to push the three-year average over the federal limit at three area monitors, therefore resulting in a violation of the Environmental Protection Agency's (EPA) new, stricter 8-hour standard (see the section on "Ozone Standards" for more information).

It is imperative that the Denver-metropolitan area increase its efforts to reduce ozone pollution to improve air quality and public health. In addition, it is important to make sure ozone levels are well below the standard for years to come to reduce the amount of mandatory control measures that may have to be introduced in order to meet federal

requirements (see the section on the "Early Action Compact – Ozone Action Plan" for more information).

The 2003 Voluntary Ozone Reduction Program aimed to reach as many people as possible to increase awareness about ground-level ozone pollution. The program consisted of the following activities:

- ' A continuation of the ozone advisory program, designed to warn people in advance of potential high ozone days and to encourage changes in ozone-forming activities;
- ' Securing voluntary reductions in the Reid Vapor Pressure (volatility) of gasoline through a partnership with the petroleum refining industry;
- ' Car Care Fairs for Cleaner Air – partnered with NAPA's Car Care Council and metro-area local governments to host six clinics around the metro area;
- ' Targeted public service announcements in six metro-area movie theaters;
- ' Continuation and expansion of the "Put a Cap on Ozone" gas cap replacement program, focusing on local governments;
- ' Changes in operations by local governments to help reduce ozone-causing VOCs;
- ' Regional Public Information breakfast to educate regional communicators on what ozone is, ways to reduce it, and how to communicate ozone issues to the public;
- ' Public information web site where regional communicators downloaded ready-to-insert articles for newsletters, web sites, and cable television stations;

- ' Launched a "Citizens Choose Clean Air" campaign (3CA) to emphasize that there are many choices people can make to reduce ozone pollution; and

- ' Launched the "Repair Your Air" campaign, which identified high-emitting vehicles using remote sensing technology and offered motorists up to \$500 in repairs.

This 2003 program was made possible through support from the Colorado Department of Public Health and Environment and a federal Congestion Mitigation/Air Quality (CMAQ) grant administered by the Denver Regional Council of Governments (DRCOG).

Additional support came from Envirotest Systems, Corp., NAPA Auto Parts, Valero Energy Corporation, and local governments throughout the metropolitan area.

Ozone Standards

8-Hour Ozone Standard

After a several-year court battle, EPA entered into a settlement agreement with national environmental organizations in November 2002 regarding the timeline for making nonattainment designations for the 8-hour standard.

EPA committed to promulgate nonattainment designations by April 15, 2004. Governors had to recommend designations by April 15, 2003.

The new ozone standard limits the allowable level of ozone to 0.08 parts per million (ppm) averaged over eight hours. A violation of the 8-hour standard occurs when the three-year average of the 4th maximum concentration at any given monitor reaches or exceeds 85 ppb.

It is important to continue our efforts to keep ozone levels in check so the region meets the new standard by 2007, a date set by EPA.

1-Hour Ozone Standard

EPA approved the Denver Region's 1-Hour Ozone Redesignation Request and Maintenance Plan in the Federal Register on September 11, 2001 and the attainment redesignation became effective on October 11, 2001.

The maintenance plan details strategies to keep the region in attainment of National Ambient Air Quality Standards (NAAQS) for ozone and also requests that the EPA redesignate the metropolitan-Denver area to attainment status for ozone. The region has not violated the 1-hour standard since 1988.

The federal 1-hour ozone standard is 0.12 parts per million (ppm) and a violation occurs when the three-year average of exceedances is greater than one per year.

Early Action Compact – Ozone Action Plan

State and regional agencies in the Denver metropolitan area entered into a voluntary agreement with EPA in December 2002 that lays out a process for achieving attainment with EPA's new 8-hour ozone standard in an expeditious manner.

Called an Early Action Compact for Ozone ("the EAC"), the agreement sets forth a schedule for the development of technical information and the adoption and implementation of the necessary control measures into the state implementation plan (SIP) in order to comply with the 8-hour standard by December 31, 2007 and maintain the standard beyond that date.

In exchange for implementing strategies earlier than the traditional nonattainment process, EPA agreed to defer a potential nonattainment designation.

So, on April 15, 2004, EPA designated the seven county metro-Denver region – in addition to portions of Larimer and Weld Counties – as a deferred nonattainment area for the new, stricter 8-hour standard.

The region now has until the end of 2005 to fully implement the strategies outlined in the EAC. Failure to meet the obligations of the agreement will result in immediate reversion to the traditional nonattainment process. The Ozone Action Plan can be obtained through the RAQC's web site at www.raqc.org.

While the EAC outlines a variety of mandatory strategies, it does not include a voluntary outreach and education component. It is vital that the RAQC continues its outreach efforts in order to raise awareness about ozone (see the section on "Ozone Advisory Program" for more information on RAQC's summertime outreach activities).

2003 Ozone Monitoring Data

Ozone levels during the 2003 ozone season exceeded the new 8-hour standard, therefore resulting in a violation of the standard. Consequently, the levels recorded at several metro area monitors will be crucial to ensuring the region's attainment status over the next few years.

The basis for the federal 8-hour ozone standard is the 4th maximum concentration at each monitor. In 2003, the Rocky Flats North monitor recorded a 4th maximum value of 91 ppb, which when averaged with the 4th maximum levels from the two previous years, equates to 87 ppb, equating to a violation of the standard. The monitors at NREL and Chatfield also violated the standard. NREL's three year average equaled 86 ppb and Chatfield's average was 85 ppb. All other monitors had averages below the 85 ppb limit.

Although the Denver region violated the standard, the values were just over the

allowed 85 ppb. It will be more important than ever to implement strategies to bring the area into compliance with the new standard by the 2007 deadline set by EPA.

No monitors violated EPA's existing 1-hour standard.

Additional ozone monitoring data for the 2003 summer ozone season, as well as previous seasons, are contained in tables in the Appendix starting on page 11.

Ozone Advisory Program

Description

The Technical Services staff of the Air Pollution Control Division (APCD) at the CDPHE developed a system to forecast imminent meteorological conditions that support the development of ozone concentrations above 75 ppb.

APCD staff meteorologists used national and local weather data and an array of national predictive models to make the advisory calls, which take effect daily at 4:00 p.m. The advisories remain in effect for the following 24 hour period.

Using the APCD's advisory calls, the RAQC faxed and e-mailed ozone action alerts to the media, local governments, businesses, and citizens when the conditions were right for elevated ozone levels.

The RAQC faxed ozone action alerts to over 300 local governments, media outlets, businesses, and citizens, including two Spanish television stations.

The ozone alerts allowed local governments to make changes in operational behavior to reduce VOC emissions. It was also an opportunity for them to inform their citizens of the high ozone day through e-mail, signs, and web site and cable updates.

The alerts provided the media with information to broadcast the potential of high ozone and to encourage changes in ozone-causing behaviors.

Results

During the 2003 ozone season, 42 alerts were issued, including two in June, 25 in July, and 15 in August. See the Appendix for more information.

Car Care Fairs for Cleaner Air

Description

The RAQC, in conjunction with NAPA, hosted six Car Care Fairs across the metro area and one in Fort Collins. These fairs helped motorists maintain optimum gas mileage and performance as well as reduce emissions and safety risks by NAPA-certified technicians performing visual inspections of the vehicles.

These technicians inspected more than 85 components of the vehicles and NAPA donated a Toshiba DVD/VCR that was given away in a drawing.

In 2004, NAPA and the RAQC will work together planning an Earth Day event to kick off the ozone season.

Results

RAQC, NAPA, and volunteers hosted a total of seven Car Care Fairs on Saturday, June 21 in the following Cities:

- Boulder
- Denver
- Federal Heights
- Fort Collins
- Lakewood
- Longmont
- Wheat Ridge

NAPA technicians and volunteers inspected a

total of 164 vehicles. This also provided an opportunity to hand out more than 150 informational brochures and fact sheets with ozone reduction tips. The event was a success and RAQC and NAPA hope to double attendance for the 2004 event.

“Put a Cap on Ozone” Gas Cap Replacement Program

Description

From early spring through fall of 2003, the RAQC, in conjunction with the CDPHE, Envirotec Systems, Corp., and NAPA Auto Parts, continued the “Put a Cap on Ozone” gas cap replacement program by conducting employer gas cap fairs around the region.

RAQC expanded the program to test gas caps of employees at major employer sites in 2001 and has continued with this approach. This year the RAQC stepped up its efforts by conducting 10 employer gas cap fairs and hosting seven public gas cap fairs. The focus of this year's program was on local government gas cap fairs.

Evaporative mobile source emissions account for approximately 14 percent of anthropogenic emissions. In the summertime, a faulty gas cap can allow one gallon of gas to evaporate every 15 days. Pollutants in evaporative emissions are a key ingredient in ground-level ozone formation.

The \$100,000 program was made possible by support from a Congestion Mitigation and Air Quality (CMAQ) Grant and Envirotec Systems, Corp. NAPA Auto Parts provided replacement gas caps at cost.

“Put a Cap on Ozone” gave free gas caps to any motorist whose vehicle either failed the pressure test or had a missing gas cap altogether. The RAQC issued a voucher for a \$5 credit toward the purchase of a new gas cap at any

NAPAAuto Parts store in the metropolitan area to drivers whose vehicles required unusual or specialized gas caps.

In addition, the “Put a Cap on Ozone” program educated thousands of motorists about the health and regulatory benefits of properly-working gas caps as an ozone pollution control strategy.

Results

At the end of the ozone season, the “Put a Cap on Ozone” tested a total of 847 gas caps at employer and public gas cap fairs. Of the 847 tested, 109 gas caps were replaced and 25 gas cap vouchers were awarded. This is estimated to reduce VOC emissions by about 49 pounds per day, nearly 9 tons per year.

The RAQC successfully tested gas caps at 10 employer sites, including:

- T CH2M Hill**
tested 82 gas caps; replaced 11
- T City of Boulder**
tested 113 gas caps; replaced 11
- T City of Brighton**
tested 17 gas caps; replaced 5
- T City and County of Broomfield**
tested 80 gas caps; replaced 13
- T City of Federal Heights**
tested 108 gas caps; replaced 10
- T City of Golden**
tested 15 gas caps; replaced 1
- T City of Lakewood**
tested 42 gas caps; replaced 5
- T City of Longmont**
tested 114 gas caps; replaced 9
- T Tri-County Health Department**
tested 29 gas caps; replaced 5

- T City of Westminster**
tested 95 gas caps; replaced 16

In addition, the RAQC successfully tested gas caps at seven public gas cap fairs, including:

- T Adams County Chemical Roundup**
tested 53 gas caps; replaced 14
- T Boulder Car Care Fair**
tested 37 gas caps; replaced 2
- T Denver Car Care Fair**
tested 7 gas caps; replaced 1
- T Lakewood Car Care Fair**
The number of caps tested and replaced is unknown.
- T Longmont Car Care Fair**
tested 27 caps; replaced 2
- T Wheat Ridge Car Care Fair**
tested 15 caps; the number replaced is unknown
- T Wild Oats**
tested 13 gas caps; replaced 4

The RAQC plans to conduct additional gas cap fairs at employer sites beginning next spring and continuing throughout the fall.

Voluntary Reductions in the Reid Vapor Pressure of Gasoline

Description

For the fifth consecutive summer, local gasoline suppliers voluntarily reduced the Reid Vapor Pressure (RVP) of the gasoline sold in the region. The RVP measures volatility in gasoline, meaning the higher the volatility, the more VOCs are released when it is used or evaporated.

The voluntary reduction goal lowered the RVP from 9.0 pounds per square inch (psi) to 8.5

psi for non-ethanol fuels and from 10.0 psi to 9.5 psi for ethanol-blended fuels for the summer season. The refiners agreed to make the reduction from June 1 through September 15.

Refiners who participated in the program included Suncor Energy U.S.A., Frontier Oil, Sinclair Oil Corporation, Valero Energy Corporation, Tosco Corporation, and Phillips Petroleum Company. These refiners supply nearly all the gasoline in the Denver market.

Results

APCD staff randomly sampled fuel supplies at metro area gas stations during the 2003 season. For non-ethanol fuel, the RVP was reduced from 9.0 to 8.2 psi. For ethanol-blended fuels, the RVP was reduced from 10.0 to 9.4 psi.

About 65 percent of gasoline sold in the summer of 2003 was blended with ethanol. Therefore, the weighted average for all gasoline was 9.0 psi, meeting the reduction goal.

Targeted Movie Theater Promotions

Description

In past years, radio has been the media of choice to air ozone public service announcements. The 2003 ozone season was the second summer the RAQC took a different approach and ran slides in movie theaters throughout the region. The slide listed three things people can do to help reduce vehicle-related emissions, which form ground-level ozone pollution.

These movie theater public service announcements were developed to target the summer movie going public at the six largest volume theaters in the Denver area. The slides ran 20 minutes before each movie and were shown between three and four times

before the movie began. By reaching people with a short, direct message that they saw up to four times, the RAQC was able to educate thousands of citizens about air quality.

Results

The movie slides were shown at the following movie theaters during the summer:

T AMC Highlands Ranch

18 screens, June 20 – August 1

T AMC Seven Hills in Aurora

10 screens, June 20 – August 1

T AMC Westminster Promenade

18 screens, June 20 – August 1

T Continental Theater Denver

6 screens, June 13 – July 24

T United Artists Denver Pavilions

15 screens, June 13 – July 24

T United Artists Colorado Mills Lakewood

16 screens, June 13 – July 24

It is estimated that approximately 445,000 people attended movies in the three AMC theatres on 46 screens during the weeks that the public service announcement ran. In addition, approximately 262,000 people attended movies in the 37 United Artists theatres during the weeks that the public service announcement ran. Therefore, over 707,000 people attended movies in 83 theaters during the five – seven week period.

Media Outreach

Description

As part of its effort to educate the general public about ozone reduction tools and strategies, the RAQC conducted media outreach to help increase public awareness about ozone's health effects and ways to

reduce ozone pollution.

The RAQC issued a press release on May 28 announcing the start of ozone season. Throughout the summer, the media highlighted ozone alerts in response to advisories issued by the CDPHE and released by the RAQC.

Results

Media broadcast numerous television stories and ozone alert announcements during the 2003 ozone season. Several stations – including WB2 News, News 4, 7 News, and 9 News – all aired ozone-related stories.

In addition, Clear Channel Radio, Jefferson Pilot, and Metro Network Radio stations also conducted radio coverage and interviews.

Also, ozone-related stories were printed in *The Denver Post*, *The Denver Rocky Mountain News*, *The Daily Camera*, *The Longmont Daily Times-Call*, and other local community newspapers.

This year, the RAQC added a virtual press room to its web site – www.raqc.org – where media can easily access press releases, fact sheets, contact information, and information about the RAQC.

Public Outreach

Description

The public outreach effort of the Voluntary Ozone Reduction Program expanded on the accomplishments of the previous years. RAQC staff made presentations, staffed booths at special events and festivals, and distributed information about ozone pollution. The RAQC mailed and distributed ozone alert signs to hundreds of contacts.

The RAQC web site – www.raqc.org – contained information about ozone pollution with much of it downloadable. RAQC staff

was responsible for faxing and e-mailing ozone action alerts to local governments, local English and Spanish language media, businesses, and citizens.

Results

RAQC staff presented information about ozone pollution to several organizations, including City and County of Denver Employee Transportation Coordinator Network, the Boulder County Clean Air Consortium, the Tri-County Health Department, and the U.S. 36 Transportation Mobility Organization.

In addition, the RAQC developed a “Citizens Choose Clean Air” card, which provides the public with the top ten ways citizens can “choose clean air.” The card was distributed at outreach events throughout the summer.

The RAQC also distributed over 200 small, key chain tire gauges with the message “Do Your Share for Cleaner Air,” encouraging motorists to check to make sure their tires are properly inflated.

As part of Bike to Work Day 2003, which was held on June 25, RAQC distributed 500 bike reflectors that said, “I am part of the solution to reduce pollution.”

Ozone articles were also placed in local government newsletters, on web sites and cable access television stations, and in utility bills, reaching thousands of households, including those in Arvada, Aurora, Denver, Golden, Lakewood, Northglenn, Parker, Thornton and Westminster.

Local Government Operational Changes

Description

Metropolitan area local governments have been a significant partner in the RAQC’s ozone reduction effort. Many local

governments coordinated with Public Works, Parks and Recreation, Fleet Maintenance, Environmental Services, Facility Maintenance, and Public Information departments to make changes in operational procedures and to get the word out about ozone pollution and ways to reduce it.

Results

After five years of working with metro-area local governments on ozone awareness and ozone reduction activities, most have started to integrate ozone reduction activities into summertime operations.

Many local government employees currently:

- T stop at the click when refueling both city and private vehicles;
- T limit the use of gas-powered lawn equipment; and
- T avoid vehicle idling.

Metro area local governments also e-mailed employees on ozone alert days, displayed ozone alert signs, published newsletter articles, used cable access television, and pursued other avenues to tell citizens and employees about ozone pollution.

On April 9, 2003, an informational breakfast was hosted by the RAQC for local government public information staff. Attendees learned about what ozone is, its effects on the environment, and ways in which local governments can communicate this information to their respective areas.

A major focus of this meeting was to introduce the RAQC's newly developed web page designed specifically for local government communicators. The web page contains a ready-to-insert article for newsletters or other publications. In addition, it includes ozone graphics for use on web sites or cable access television.

Summary

The 2003 Voluntary Ozone Reduction Program complemented and expanded on the efforts of the previous four years. The RAQC conducted outreach not only with local governments, but also with businesses, transportation management organizations, employee transportation networks, citizens, and other concerned groups. This enabled the RAQC to reach a broader audience with the ozone pollution reduction message.

The RAQC also cultivated relationships with media to ensure accurate and pertinent coverage. This helped deliver a consistent message to audiences across the metropolitan area.

Future Plans

Now that the region has violated EPA's new 8-hour ozone standard, it is vital that the RAQC and its partners continue to implement its voluntary program to prevent future nonattainment.

The RAQC will not only continue its past efforts, but increase future efforts as part of the 2004 Voluntary Ozone Reduction Program. In particular, the 2004 program will:

- ' Continue the ozone advisory program;
- ' Kick off the ozone season with Car Care Fairs across the metro area with NAPA;
- ' Host a gas can exchange at the Car Care Fairs where motorists can bring in their old gas cans and replace them with a free non-spill, non-permeable gas can;
- ' Update a public information web site where regional communicators can download ready-to-insert articles for newsletters, web sites, and cable television stations;

- ' Reduce gasoline vapor emissions through continuation of the "Stop at the Click" campaign;
- ' Replace gas caps through "Put a Cap on Ozone" employer and public fairs with a focus on local governments;
- ' Develop targeted public service announcements to educate citizens about ways they can minimize ozone pollution;
- ' Continue a "Citizens Choose Clean Air" campaign (3CA) to emphasize that there are many choices people can make to reduce ozone pollution;
- ' Work with major home improvement retailers on a consumer aisle posters campaign to educate consumers on low or zero VOC choices; and
- ' Conduct additional promotional events to target specific sources and increase public education.

The success of the Voluntary Ozone Reduction Program over the past five years has been dependent upon partnerships with local governments, state and regional agencies, and businesses in the metro Denver region. The RAQC looks forward to continuing and expanding these partnerships in 2004.

For additional information about the 2003 Voluntary Ozone Reduction Campaign, contact RAQC staff at 303-629-5450 or staff@raqc.org.