

# AIR QUALITY





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# INTRODUCTION

The staff of DEQ's Air Quality Division successfully met many challenges in the past year. The Air Quality Advisory Council assisted by the Rules and Planning Unit, did a thorough housecleaning of Air Quality Rules. This simplified rule language and removed redundant definitions. The Emissions Inventory and Quality Assurance sections developed a

method for companies to submit emission inventory data electronically which saves staff and industry resources. This has streamlined the submission process and eliminated paperwork. Oklahoma can now count itself among 40 states that have completed their inventory of greenhouse gases. This information will provide a baseline for future decisions of policymakers. The Permit Section, working with the public and the regulated community, issued three general permits. General permits stream-



line the permitting process and target industry sectors which have similar facilities. The Air Quality Division's need to insure efficient use of all its technical expertise and provide swift application during a crisis led to the creation of an Engineering Section. DEQ's Air Quality Division continues to work to improve the quality of air in Oklahoma. The accomplishments are many and varied. These are just a few examples of the Division's continued teamwork. ★

# TULSA AND OKLAHOMA CITY TAKE EARLY ACTION ON OZONE

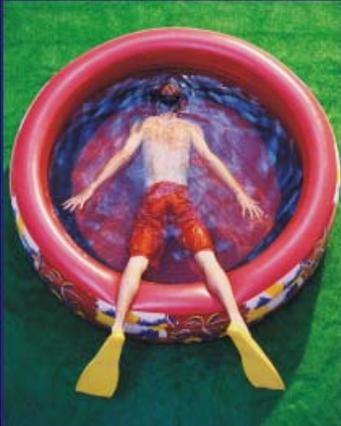
The old adage “the early bird gets the worm” is now appropriate in the area of air quality planning for achieving the 8-hour ozone standard. Early Action Compacts (EACs), developed by the Texas Commission on Environmental Quality and endorsed by the EPA, give local areas the flexibility to develop their own approach to meeting the 8-hour standard, provided the communities control emissions from local sources earlier than the Clean Air Act would otherwise require. Reductions in emissions from pollution control measures that are implemented as part of an EAC are creditable toward air quality planning goals.

Only areas that are already meeting the national 1-hour standard are eligible for this program. EAC areas have an aggressive, accelerated program of milestones to meet to be eligible for a deferral of the effective date of an 8-hour nonattainment ozone designation. Thus an area could effectively re-

main off the “dirty air” list and avoid the stigma of nonattainment and also meet health standards earlier than normally required.

Both the Oklahoma City and Tulsa areas have elected to participate in EACs. The Air Quality Division (AQD) has been working with the Indian Nation Council of Governments (INCOG) and the Association of Central Oklahoma Governments (ACOG) by performing modeling studies as well as selecting a list of potential control strategies that might be implemented as part of an early State Implementation Plan (SIP) revision.

Both technical advisory and policy committees made up of interested stakeholders have been established to oversee the plan development. Public meetings are being held on a regular basis. All information is posted on the AQD web site at <http://www.deq.state.ok.us/AQDnew/index.htm>. Click on “Ozone Early Action Compact”. ★



Snorkel now.



Mow later.

Observe Ozone Alerts. We'll all breathe easier.

The Department of Environmental Quality



After dinner, remember,



get gas.

Observe Ozone Alerts. We'll all breathe easier.

The Department of Environmental Quality



Like father.



Like son.

Observe Ozone Alerts. We'll all breathe easier.

The Department of Environmental Quality

# ENFORCEMENT SETTLEMENTS STRESS EMISSION REDUCTIONS TO PROMOTE CLEANER AIR

Ensuring compliance with state and federal air quality regulations is the primary focus of the Air Quality Division. In order to accomplish this goal, the Compliance and Enforcement Sections conduct periodic compliance evaluations on emissions sources throughout the state. When a violation is discovered an enforcement action will result. Enforcement and Compliance Section works with the Department's attorneys to develop a case and formulate a course of action. These actions and the resulting emission reductions can take several forms.

In the case of a minor violation, the facility may take a corrective action during the inspection. The resulting reduction in emissions is not as easily quantified but is equally as important. The public is often not even aware of the benefit of the agency's actions. Possible actions include applying water to a dusty parking lot, or stopping a particular procedure until the wind changes direction to alleviate a dust or odor complaint.

The next step up in the significance of a violation may

result in a facility receiving a Notice of Violation or NOV. In most cases, the response to the NOV includes the corrective action that has been or will be taken to come back into compliance. These actions can result in substantial reductions in pollutants that reach the air. Most companies willingly comply once they are made aware of a violation.

If a violation is particularly severe, resulting in potentially great harm to human health or the environment, the Air Quality Division will typically

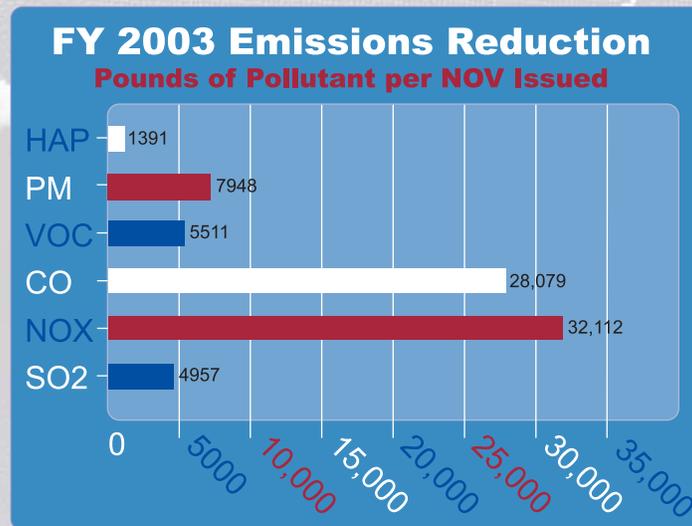
meet with the facility owners to enter into a consent order and to collect a monetary penalty as a deterrent to future violations. These penalties are in addition to the facility rectifying the violation.

In many cases the offending company wishes to reduce the cash portion of the penalty. In order to allow these cash reductions, the Department has a policy allowing "supplemental environmental projects" or SEPs. To receive a SEP credit, a company typically submits a proposal outlining the projects it

will complete and the cost of the projects. The Department gives the company credit for part or all of the cost of the projects (i.e. SEP cost of \$10,000 equals a credit of \$5,000). In this way, a company is paying a cost for non-compliance and the public is benefiting from cleaner air.

SEPs can take many forms. Past SEPs have included planting trees and shrubs, which have an indirect impact on air quality while adding to the aesthetic beauty of an area. Still other SEPs can include money or time given to promoting environmental education programs for schools or clubs. Most often the SEP includes additional control equipment above and beyond what is required. This type of SEP results in the reduction of emissions to the air and has a direct impact on air quality. This SEP is more quantifiable and is shown in the chart.

By engaging in the inspection process and addressing violations, the Compliance and Enforcement Sections continue to have a direct part in improving the quality of the air resources of the State of Oklahoma. ★



The total number in pounds of each pollutant reduced was divided by a total of 115 Notices of Violation issued in FY 2003.

# AIR MONITORING UPDATE ... USED TO **ENHANCE** THE OZONE MAPPING PROGRAM AND STUDY INTERSTATE OZONE TRANSPORT.

During 2002 the Air Quality Monitoring Section gathered and analyzed ozone data from the seventeen ozone monitoring sites. Eight of these sites are considered permanent and have collected data for several years. These are used to establish trends data and determine compliance with the National Ambient Air Quality Standards (NAAQS). The remainder of the sites are designated as Special Purpose Monitors and are used to enhance the ozone mapping program and study interstate ozone transport. The locations of the ozone monitoring sites during 2002 can be seen on the map on the next page.

The data indicate that the ozone levels decreased from previous years. The ozone monitors recorded eight hour average ozone concentrations greater than or equal to .085 parts per million on 27 different days in 2000, on 15 days in 2001 and on only 13 days in 2002. Hopefully, this trend will continue. Skiatook is the only site that has exceeded the .085 ppm fourth

high three year average for the past three years (2000-2002). If the 2003 fourth high at Skiatook is .087 ppm or less, then it will not show a violation for the 2001 to 2003 period. The 2002 DEQ eight-hour average ozone concentrations for all sites can be seen on the chart on page 30.

DEQ Particulate Matter (PM-2.5) network also had some major changes during the year. After gathering data from the network for three years, the decision was made to downsize the network due to the low concentrations of PM-2.5 observed, due to the redundancy of the data observed from some of the urban sites and due to the size and manpower intensive nature of the existing Federal Reference Method (FRM) network. The network will be downsized by closing the Clinton, Stillwater, Lawton, Tulsa and Oklahoma City sites. The 2002 PM-2.5 network can be seen on the following chart.

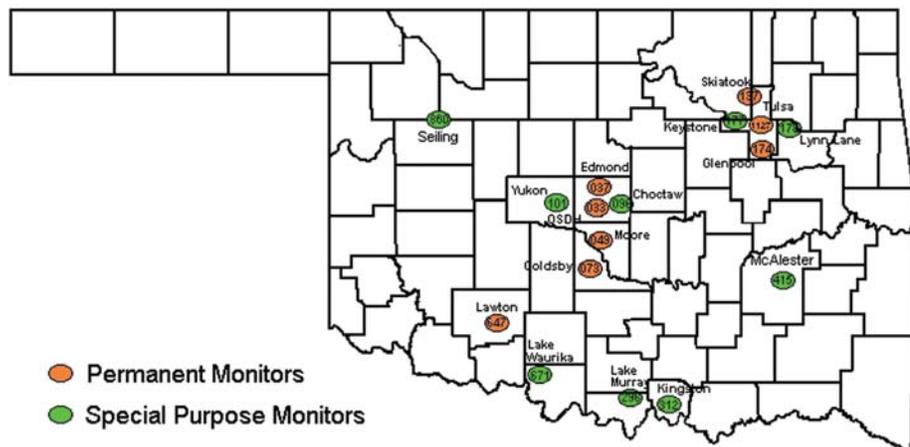
All sites are in compliance with the PM-2.5 National Ambient Air Quality Standard.



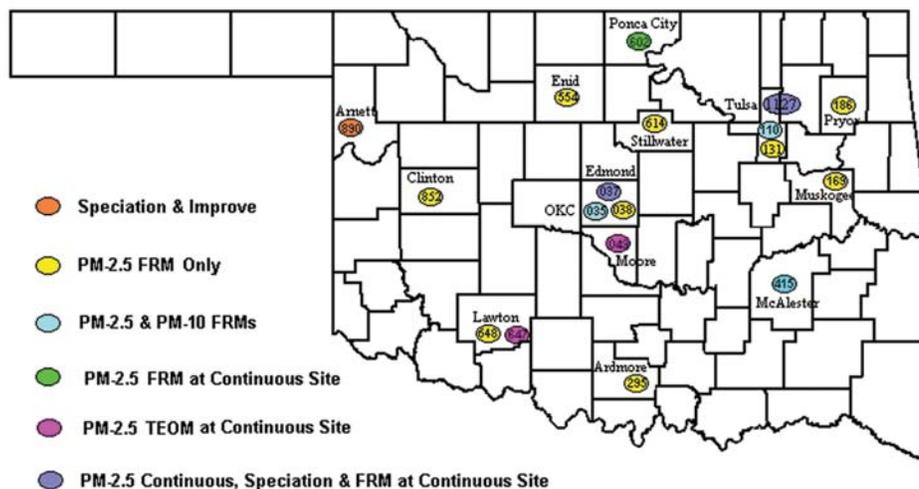
*Pictured above is a beautiful clear day in rural Oklahoma.*

The Pryor and Muskogee monitoring sites have recorded the highest concentrations of PM-2.5. Currently, four sites have continuous monitors. They are located in Lawton, Oklahoma City and Tulsa and are used to determine the Air Quality Index. Several more of the continuous monitors will come on line in the near future. They will give the network better statewide coverage and provide data to the public in a more timely fashion. These data are available in near real-time while data collected using the manual methods may not be analyzed or available for several weeks. Plus, the continuous methods are much less labor intensive. The data will be submitted to EPA's AIR NOW system which will provide PM-2.5 maps similar to the ozone maps currently available. The data will also be submitted to the EPA's Air Quality System (AQS) database where it can be accessed by the public for their review and use. ★

### Oklahoma DEQ Ozone Monitoring Network



### 2002 Oklahoma DEQ PM-2.5 Monitoring Network



# 2002 OKLAHOMA OZONE

## HIGHEST 8 HOUR AVERAGES AS 12/26/02 (PPM)

Site	1st	2nd	3rd	4th	99-01 Avg*	00-02 Avg*
99 4th 00 4th 01 4th (date) (date) (date) (date)	4th Highs	4th Highs				
<b>Lake Waurika (671)</b> (new)	0.082 21-May	0.082 18-Jun	0.079 24-Jun	0.078 20-May		
<b>Lake Murray (296)</b> (new)	0.081 13-Sep	0.082 15-May	0.086 28-Sep	0.084 29-Sep		
<b>Kingston (312)</b> (new)	0.085 13-Sep	0.083 30-Sep	0.079 22-Jun	0.079 28-Sep		
<b>Keystone (177)</b> (new)	0.092 8-Aug	0.091 10-Sep	0.088 6-Aug	0.082 23-Jul		
<b>Lynn Lane (178)</b> (new)	0.095 10-Sep	0.086 10-Jul	0.084 9-Aug	0.080 8-Aug		
<b>Talihina (441)</b> 0.066	0.061	0.059	Site	Removed		
<b>Tulsa (1127)</b> (new)	0.094 9-Aug	0.087 8-Aug	0.082 10-Sep	0.080 27-Jun		0.081
<b>Tulsa (0127) **</b> 0.093	site	removed				
<b>Skiatook (137)</b> 0.091	0.099 0.084	0.086 9-Aug	0.084 8-Aug	0.083 27-Jun	0.090	0.087
<b>Glenpool (174)</b> 0.084	0.096 0.081	0.084 10-Sep	0.088 23-Jul	0.082 24-Jul	0.080	0.080
<b>Edmond (037)</b> 0.074	0.081 0.086	0.077 23-Jun	0.080 8-Jul	0.079 13-Sep	0.080	0.082
<b>OKC (033)</b> 0.084	0.082 0.080	0.082 10-Aug	0.082 15-May	0.080 23-Jun	0.080	0.079
<b>Moore (049)</b> 0.081	0.085 0.079	0.080 15-May	0.079 10-Aug	0.075 23-Jun	0.079	0.077
<b>Goldsby (073)</b> 0.083	0.079 0.081	0.080 10-Aug	0.079 15-May	0.078 23-Jun	0.081	0.079
<b>Choctaw (096)</b> (new)	0.080 0.063	0.079 13-Mar	0.079 23-Jun	0.078 10-Aug		
<b>Yukon (101)</b> (new)	(new)	0.063	13-Mar	23-Jun	10-Aug	15-May
<b>Lawton (647)</b> 0.082	0.086 0.085	0.086 0.078	0.081 7-Aug	0.081 24-Jun	0.079	
<b>McAlester (415)</b> (new)	0.058 (new)	30-May	10-Aug	15-May	23-Jul	
<b>Seiling (860)</b> (new)	0.082 (new)	0.080 (new)	0.079 (new)	0.076 (new)	0.081	0.079
	0.072	0.072	0.070	0.069		
	30-Aug	6-Sep	31-Aug	12-Sep		

*The four highest observed ozone concentrations at each DEQ ozone monitoring site in 2002 were the lowest in three years.*

# GREENHOUSE GAS EMISSION INVENTORY

An emission inventory is an accounting of the amount of air pollutants discharged into the atmosphere. Greenhouse gases refer to a group of chemicals thought to contribute to global warming. Some greenhouse gases (GHG) occur naturally in the atmosphere, while others result from human activities. A statewide GHG emission inventory was prepared for years 1990 and 1999. The gases inventoried were carbon dioxide, methane, nitrous oxide, sulfur hexafluoride and perfluorocarbons. The inventory identified the major sources of GHG emissions and presented annual emissions of 14 sectors (e.g., fossil fuels, waste disposal, industrial processes), by source (e.g., transportation emissions, manure management) and by gas (e.g., carbon dioxide, methane).

State and Territorial Air Pollution Program Administrators/ Association of Local Air Pollution Control Officials (STAPPA/ALAPCO) and EPA sponsored the guidance document used to prepare this inventory. This study will provide a baseline for comparison of future inventories and progress. The tables on this page summarize the results by source and by gas. ★

by Source		
Source	1990	1999
	MTCE	MTCE
Fossil Fuels	23,810,194	26,562,101
Industrial Processes	783,862	1,063,577
Natural Gas and Oil Systems	2,892,016	2,384,406
Coal Mining	1,401	22,418
Municipal Waste Disposal	14,987	451,067
Domesticated Animals	1,629,273	1,681,154
Manure Management	1,631,133	3,376,214
Flooded Rice Fields	4,392	1,538
Agricultural Soils	2,350,633	2,571,838
Forest Management and Land-Use Change	-10,208,332	-10,208,332
Burning Agricultural Crop Wastes	3,095	2,375
Municipal Wastewater	45,617	49,845
Mobile Combustion	215,939	281,632
Stationary Combustion	73,561	78,507
<b>TOTAL Net</b>	<b>23,247,771</b>	<b>28,318,340</b>

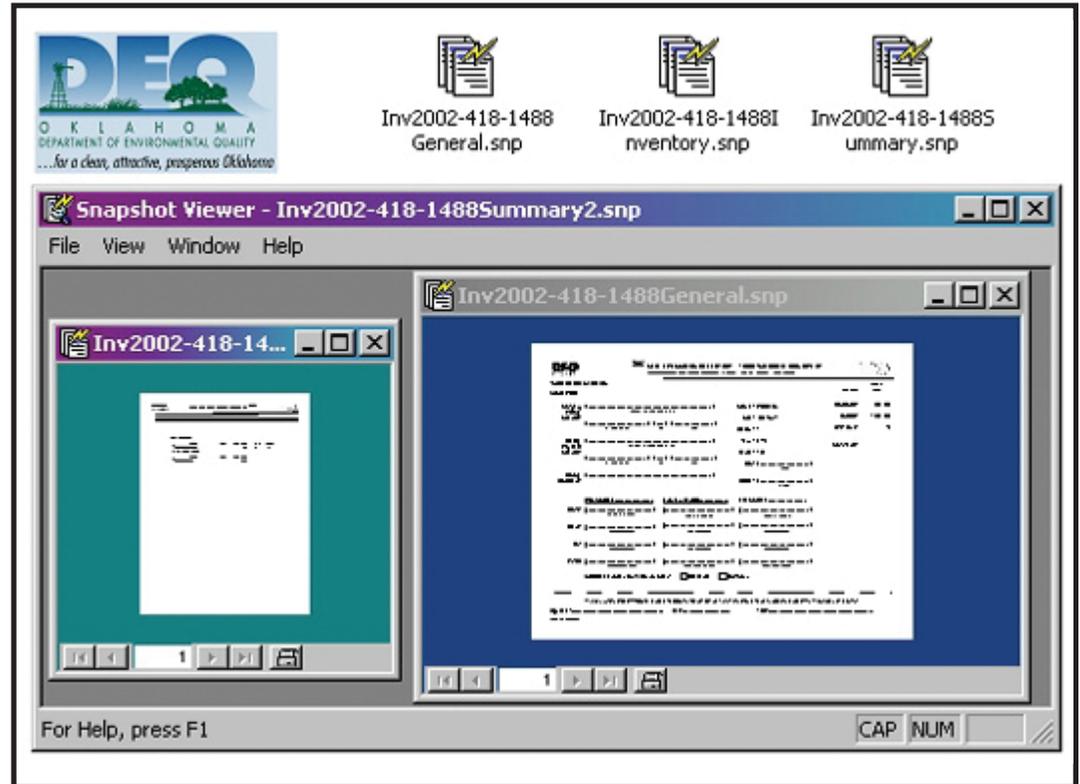
**Table E.1 Oklahoma Greenhouse Gas Emissions by Gas**

Sources	1990 MTCE	1999 MTCE
<b>CO<sub>2</sub></b>		
Agricultural Soil Management	29,095	26,602
Fossil Fuels	23,810,194	26,562,101
Industrial	302,470	385,832
Municipal Waste Disposal	-232,318	-294,471
Forest Management and Land-Use Change	-10,208,332	-10,208,332
<b>CO<sub>2</sub> Total</b>	<b>13,701,109</b>	<b>16,471,732</b>
<b>CH<sub>4</sub></b>		
Natural Gas and Oil Systems	2,892,016	2,384,406
Coal Mining	1,401	22,418
Municipal Waste Disposal	244,279	742,777
Domesticated Animals	1,629,273	1,681,154
Manure Management	1,578,904	3,308,353
Flooded Rice Fields	4,392	1,538
Burning Agricultural Crop Wastes	2,714	2,059
Municipal Wastewater	19,011	20,773
Mobile Combustion	21,922	19,211
Stationary Combustion	29,742	24,865
<b>CH<sub>4</sub> Total</b>	<b>6,423,654</b>	<b>8,207,554</b>
<b>N<sub>2</sub>O</b>		
Industrial Processes	343,964	442,019
Municipal Waste Disposal	3,026	2,761
Agricultural Soil Management	2,321,538	2,545,236
Manure Management	52,229	67,861
Burning Agricultural Crop Wastes	381	316
Municipal Wastewater	26,606	29,072
Mobile Combustion	194,017	262,421
Stationary Combustion	43,819	53,642
<b>N<sub>2</sub>O Total</b>	<b>2,985,580</b>	<b>3,403,328</b>
<b>CF<sub>4</sub>, C<sub>2</sub>F<sub>6</sub></b>		
Industrial Processes	0	0
<b>HFC23</b>		
Industrial Processes	0	0
<b>HFC, PFC</b>		
Industrial Processes	3,103	171,339
<b>SF<sub>6</sub></b>		
Industrial Processes	134,325	64,387
<b>TOTAL Net</b>	<b>23,247,771</b>	<b>28,318,340</b>

# ACQUIRING EMISSION INVENTORY DOCUMENTS NOW EASIER THAN EVER

In the past, the Emission Inventory Section spent a great deal of time preparing hardcopies of Emission Inventory Turn-Around documents. This was a paper intensive process that involved a huge mail-out. Now, with the advent of electronic submittal through the Air Emissions Inventory (AEI), a new user-friendly tool known as a Microsoft Snapshot File makes creating an inventory for mail-out as easy as sending an e-mail with an attachment.

While the AEI is an electronic inventory that is obtained, manipulated and returned electronically, a snapshot is simply a file created by DEQ and sent electronically for the user to view and print off, thus obtaining a hardcopy to manipulate in a matter of minutes. The snapshots created are exact duplicates of hardcopies and contain three files: one for the company's general information, such as address and contact personnel; one for the company's plant summary, where points, processes, stacks and emissions are summarized; and one for the



actual points, where each point is broken down and analyzed.

While not yet fully implemented for an electronic mail-out, anyone who currently submits inventories to DEQ can contact the Emission Inventory Section and at

any time request a Turn-Around document in Snapshot format. A valid e-mail address and Microsoft's free snapshot viewer is all that is needed to obtain the company's forms.

The Emission Inventory and Quality Assurance Sec-

tions have worked hard to streamline the inventory process into a user-friendly environment and with the AEI and Snapshot formats, that goal has been reached. Acquiring Emission Inventory Turn-Around Documents is now easier than ever! ★

# LEAD-BASED PAINT COMPLIANCE EFFORTS

The Lead-Based Paint Program is making great strides in compliance efforts. Certified Inspectors and Risk Assessors reported 1,137 activities. The activities are broken down as follows: 676 inspections, 234 risk assessments, 181 clearance examinations and 46 other activities that don't fall into the previous categories. Certified Supervisors notified the LBP staff of 43 abatement activities. LBP staff visited every abatement activity conducted.

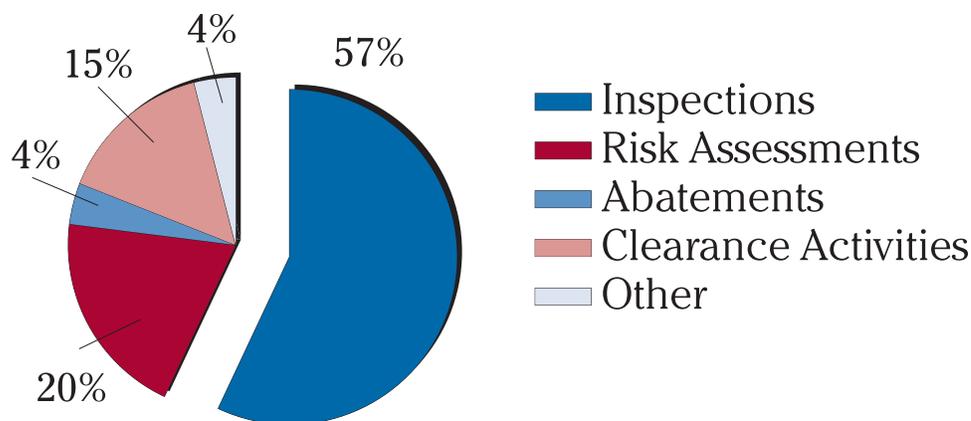
Every year the LBP Program requests LBP service reports from certified inspectors. The reports are reviewed upon receipt and the LBP staff issues letters notifying them of any deficiencies in their reports. The LBP Program does this to

ensure that the citizens of Oklahoma receive consistent LBP services.

The LBP staff has also received 5 citizen complaints. One of the complaints resulted in enforcement action against a non-certified individual performing LBP testing in residential property built before 1978. ★



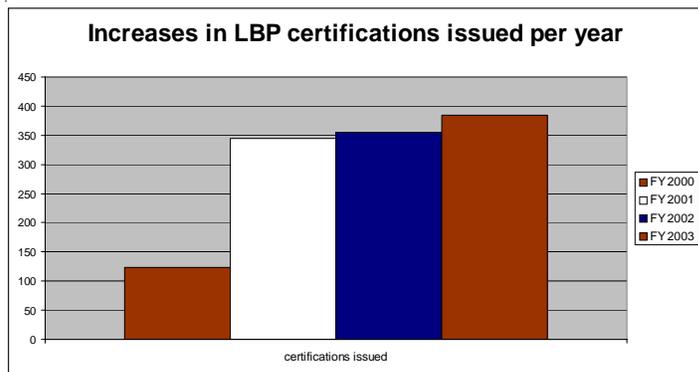
## Lead-Based Paint Activities



# THE PATTERN CONTINUES: LEAD-BASED PAINT PROGRAM ISSUES GROWING NUMBER OF CERTIFICATIONS

The Lead-Based Paint (LBP) Program issues 384 LBP certifications in FY 2003. The number of certifications this year accounts for a 9% increase in certifications issued during FY 2002. This pattern is consistent with increases in certifications in previous years. See chart to the right:

Increased certifications are helping local housing authorities comply with LBP evaluation and hazard reduction requirements published by the U.S. Department of Housing and Urban Development. This is evident in the number of LBP activities that have been reported to the LBP staff. ★



## LEAD-BASED PAINT PROGRAM PERFORMS MORE OUTREACH

Lead-Based Paint (LBP) Program representatives spoke at three continuing education classes for realtors this year. At these training sessions, LBP staff provided information on LBP disclosure and LBP hazard reduction requirements for federally assisted housing to more than 400 realtors. Disclosure basically consists of telling the buyer or renter whether or not

any LBP testing has been done on a property and providing an educational pamphlet published by the EPA. Realtors and landlords must use certified LBP inspectors and risk assessors to perform any LBP testing for disclosure purposes. Landlords, sellers and realtors share equal responsibility to perform LBP disclosure to renters and homebuyers. ★

## LEAD-BASED PAINT PROGRAM NOW HAS TWO TRAINING PROVIDERS

The Lead-Based Paint (LBP) Program has more Lead-training providers available to meet the demand of the certification renewals. In the beginning of the LBP Program, one training provider was available with one or two instructors. Now the LBP Program has two training providers available with a total of seven instructors. This increase in training providers

and available instructors is meeting the growing demand for certifications in Oklahoma and providing more variety in training techniques. ★



# NEW ENGINEERING SECTION TAKES ON CHALLENGE

The complexity of state and federal Air Quality rules and regulations combined with the many different types of air pollution control equipment necessary to address the large number of air pollutant categories make administration of the Air Quality program a scientifically challenging task. Therefore, the division's need to insure efficient use of its technical expertise and to swiftly apply that expertise during crises, led to the establishment of the Engineering Section this past year.

The staff includes eight engineers and one engineering manager. They have a com-



*AQD Engineering Section: L-R Dami Koleowo, Phillip Fielder P.E. (manager), Judy Cupples, Lee Warden P.E., Eric Milligan P.E., Jian Yue Ph.D. P.E., Brooks Kirlin P.E. Not Present-Jerry Goochey and Joyce Sheedy Ph.D.*

The section's responsibilities include providing engineering expertise for:

1. Emission, mobile, biogenic and photochemical computer modeling
2. Early Action Compact proposals for Tulsa and Oklahoma City
3. Point source modeling for applicable New Source Review (NSR) facilities
4. Air pollution control rules changes
5. Stack test observations
6. Best Available Control Technology (BACT) studies
7. Compliance and enforcement studies
8. National proposals such as the Clear Skies Initiative and NSR reform
9. Emergency studies assigned by the Director of Air Quality
10. Any other technical project of the division, as the need arises

bined Air Quality Division experience of over sixty years. There are five registered professional engineers, two PhDs, six chemical engineers, one environmental engineer, one geological engineer and one biosystems engineer. Each engineer has experience as a permit writer and several continue to assist the permit staff issue permits as their time allows.

The section made an immediate impact on the division and continues to provide much needed help in the areas listed above. Future projects by this section will continue to improve the efficiency and effectiveness of the division in its environmental service to the citizens of Oklahoma. ★

# WE WENT TO THE ZOO ON EARTH DAY

Nearly 5,000 fourth and fifth grade students from across the state were at the Oklahoma City Zoo on Earth Day, April 22, 2003 to learn about protecting our natural resources and the benefits of alternative fuels. DEQ was a major sponsor of ScienceFest along with OGE Energy Corporation, Association of Central Oklahoma Governments through a U.S. Dept. of Energy grant, Oklahoma Department of Commerce State Energy Program and the Office of Secretary of Environment. Other contributors were Oklahoma City Zoological Park and Botanical Garden, Tinker Air Force Base, Oklahoma City Public Schools and C.H. Guernsey Company.

Students participated in a variety of activities during the 2<sup>nd</sup> Annual ScienceFest Oklahoma. ScienceFest provided hands-on workshops and ac-



*Andy Young, Oklahoma Assistant Superintendent of Schools (left) and Miles Tolbert, Secretary of Environment (right) with representatives from Hydro-Early School District, the first prize winner of the ScienceFest Flag Competition*



tivities designed to teach students about alternative fuels, energy conservation and production from renewable sources and ways to protect the environment. Students also learned about advanced transportation technologies. Some of the activities included Air Pollution and Plants, Oklahoma Biodiversity,

Harnessing the Wind, and Solar Cars. Regular Zoo activities that day emphasized environmental facts. Several alternative-fuel vehicles were present too. DEQ had three activity stations, two on Air Quality and one on Use Less Stuff. DEQ also designed and conducted a large workshop titled, "Air Quality Survivor" to

teach about air quality. This workshop was done in the format of team challenge competitions and was a huge success. DEQ employees rose to the occasion; nearly 50 employees volunteered to assist with the event.

The Grand Finale for the event included an awards presentation of gift certificates for science equipment to winning classes of the ScienceFest flag contest. Following the presentation, Billy B., a nationally recognized sci-

ence educator and entertainer, had the students singing and dancing while they learned about protecting the environment.

ScienceFest was an example of how Oklahomans take the lead in addressing

issues about energy and environmental education. Our private industry and state and national agencies work together with the local community to create a great environmental learning opportunity for Oklahoma students. ★



*Students at a DEQ Activity Station testing their Air Quality IQ.*

