CHAPTER 4:
Air Quality Division

The objectives of the Air Quality Division are to achieve and maintain the ambient air quality standards, to protect the quality of the air in areas of the state that have air cleaner than the standards, and to implement federal and state air quality rules and regulations. Each year, thousands of tons of air pollutants are emitted into the air from industrial and other man-made activities. Many of these air pollutants affect human health, reduce visibility, cause property damage and harm the environment. The air pollutants of most concern are particulate matter, carbon monoxide, nitrogen oxides, sulfur dioxide, ozone, lead, and 188 listed hazardous air pollutants.

The primary air quality programs which help assure healthy air quality are: the construction permit program, operating permit program, emission inventory program, ambient air quality monitoring program, inspection and compliance program, the air toxics program, and planning and development program.

Three local agencies -- the Lincoln/Lancaster County Health Department, the Omaha Air Quality Control, and the Douglas County Health Department -- have accepted through contract with the NDEQ and direct delegation from the U.S. Environmental Protection Agency, responsibility for various facets of the air quality program. These responsibilities include air quality monitoring, permitting and enforcement within their areas of jurisdiction.

Permitting Section

During FY11, the NDEQ adopted regulations into Title 129 regarding greenhouse gases. These regulations were patterned after the Federal “Tailoring Rule” for greenhouse gases and impacted both the construction and operating permit programs. Due to the nature of greenhouse gases and the structure of the existing regulatory programs, the EPA “tailored” the Greenhouse Gases Program so that it would not cause an unnecessary administrative burden on sources of greenhouse gases and on permitting authorities. During FY11, the NDEQ did not feel the impacts of this program, because it was not fully implemented until July 1, 2011.

The NDEQ expects that the Greenhouse Gases Program could result in up to 20 sources that were previously minor under the operating permit program becoming major. Under the existing regulations, these sources have until June 30, 2012 to submit a major source operating permit application. However, they do have the option to remain minor if their actual emissions are below the thresholds. The NDEQ included a provision in its program for such sources to accept enforceable limits to remain minor sources. At this time, the NDEQ does not know how many of the 20 sources will request and be able to comply with minor source limitations.

The impact to the construction permit program thus far has been minimal. To date, there has only been one application submitted where greenhouse gases triggered the major source construction permit criteria. However, that project would have been subject to the major source construction permit program regardless of this new regulation.

Construction Permit Program

NDEQ has maintained a construction permit program for air contaminant sources since the 1970's. Facilities are required to obtain a construction permit before they construct, reconstruct or modify any air contaminant source or emission unit where there is a net increase in the potential to emit above specified thresholds. The table below provides information relating to applications received, processed and pending:

Pending June 2010	Applications Received	Applications Processed	Pending June 2011
37	52	37	52

Nebraska also implements the federal construction permit program, Prevention of Significant Deterioration (PSD). The purpose of the PSD program is to protect areas of the state which are cleaner than the ambient air quality standards, while still allowing industrial and economic growth. The PSD program applies to sources that emit significant levels of certain types of emissions. If a source is regulated under PSD, the NDEQ conducts additional, more rigorous reviews of their construction permit application to ensure that best available control technology will be used. Best available controls are employed to minimize impacts on the environment. Before issuing a permit, the NDEQ must also assure that the source will not cause or contribute significantly to any deterioration of air quality, making the area potentially vulnerable to violations of the ambient air quality standards. The PSD program also ensures that visibility in nearby national parks and wilderness areas is protected. The NDEQ notifies federal land managers of pending PSD decisions. Lastly, the PSD program requires that permitting authorities advise nearby States and Tribes of pending PSD decisions so they may express any concerns they have with potential downwind impacts in their areas.

As a part of its state program, the NDEQ requires significant sources of hazardous air pollutants to control emissions with the best control technology available.

The Legislature passed LB449 in 2004, which provides the Department the authority to assess construction permit application fees. Fee amounts are based upon the emissions potential of the facility. The fees generated through this program are used to pay a portion of the costs associated with processing construction permit applications.

During FY06-08, NDEQ received an increasing number of applications from business and industry for air quality construction permits to build new or expand current business ventures across the state, including ethanol plants, power plants, and grain processing facilities. That trend changed during FY09 and continued through FY11.

	FY07	FY08	FY09	FY10	FY11
Number of Construction Applications Received	74	104	53	55	52

Operating Permit Program

The operating permit program is the result of the Federal Clean Air Act Amendments of 1990 and the passage of LB1257 (1992) by the Nebraska Legislature. The operating permits are reviewed and renewed every five years. Operating permits are issued for both large and small sources of air pollution.

The Nebraska operating permit program offers an innovative alternative for sources who have taken measures to keep their emissions very low. This program is called the low emitter program. NDEQ also has general permits and permits by rule available for certain source categories. The table below provides statistics relating to all applications received, processed and pending under the operating permit program:

Pending June 2010	Operating Permit Applications Received	Operating Permit Applications Processed	Pending June 2011
88	45	39	94

From 2002 through 2004, the operating program was successful in eliminating the majority of the permitting backlog created at the onset of the program. However, this success has caused inconsistency in the amount of permits being received over a five-year time-frame. Because these permits were issued for five year terms, the operating permit program experienced a significant increase in renewal applications beginning in FY07 through FY09. Renewal applications then dropped significantly in FY10. The following table summarizes the applications received from FY06 through FY11 (applications for site specific individual permits only, does not include applications for permit revisions, general permits, permit-by-rule, etc.).

	FY06	FY07	FY08	FY09	FY10	FY11
Number of Operating Permit Applications Received	21	47	44	52	20	45

The Department has the authority to issue operating permits for a fixed term of up to five years. To prevent a reoccurrence of this large fluctuation, the program has been seeking volunteer sources to accept shorter permit terms, i.e., three or four year permit terms. By doing this, the program will be able to stabilize the receipt of future renewal applications over a five year period.

Compliance Section

Ambient Air Quality Monitoring Program

The State of Nebraska operates an ambient air-monitoring network to determine compliance with the National Ambient Air Quality Standards (NAAQS) and State Ambient Air Quality Standards (SAAQS). In addition, the Nebraska network includes two sites for monitoring regional haze impacts that are part of a national program to help protect visibility in our National Parks and Monuments.

Three agencies are involved in the day-to-day operation of the network: the Nebraska Department of Environmental Quality, Lincoln/Lancaster County Health Department, and Douglas County Health Department. The Omaha Air Quality Control (part of the Omaha Public Works Department) also provides technical support for network related activities.

National standards have been established by the Environmental Protection Agency for the following six pollutants, to protect both public health and welfare:

- Particulate Matter
  - With a diameter of 10 micrometers or less (PM_{10})
  - With a diameter of 2.5 micrometers or less ($PM_{2.5}$)
- Sulfur Dioxide (SO_2)
- Nitrogen Dioxide (NO_2)
- Carbon Monoxide (CO)
- Ozone (O_3)
- Lead (Pb)

Nebraska has an additional ambient air quality standard for Total Reduced Sulfur (TRS). The TRS standard was adopted by the Environmental Quality Council in 1997 and is a public health based standard. The Department currently monitors TRS in Dakota City/South Sioux City. The Department recently discontinued monitoring of TRS in Lexington due to the low levels being recorded. There have been significant reductions in TRS levels in both locations since 2000.

NDEQ evaluates the adequacy of its monitoring network in accordance with federal regulations each year. Changes may be made to the network due to monitoring regulation changes, updates to the ambient standards, perceived changes in pollution trends, and/or funding issues. Loss of site access is another consideration that occasionally occurs. The Nebraska monitoring network includes sites at which air quality is monitored to evaluate attainment with the standards and other health and welfare associated priorities.

Most of the sites in the monitoring network evaluate pollutants for which standards are established (i.e., PM2.5, PM10, CO, SO2, Ozone or TRS). There are two additional types of sites in the network: Interagency Monitoring of Protected Visual Environments (IMPROVE), and National Atmospheric Deposition Program/National Trends Network (NADP/NTN) sites.

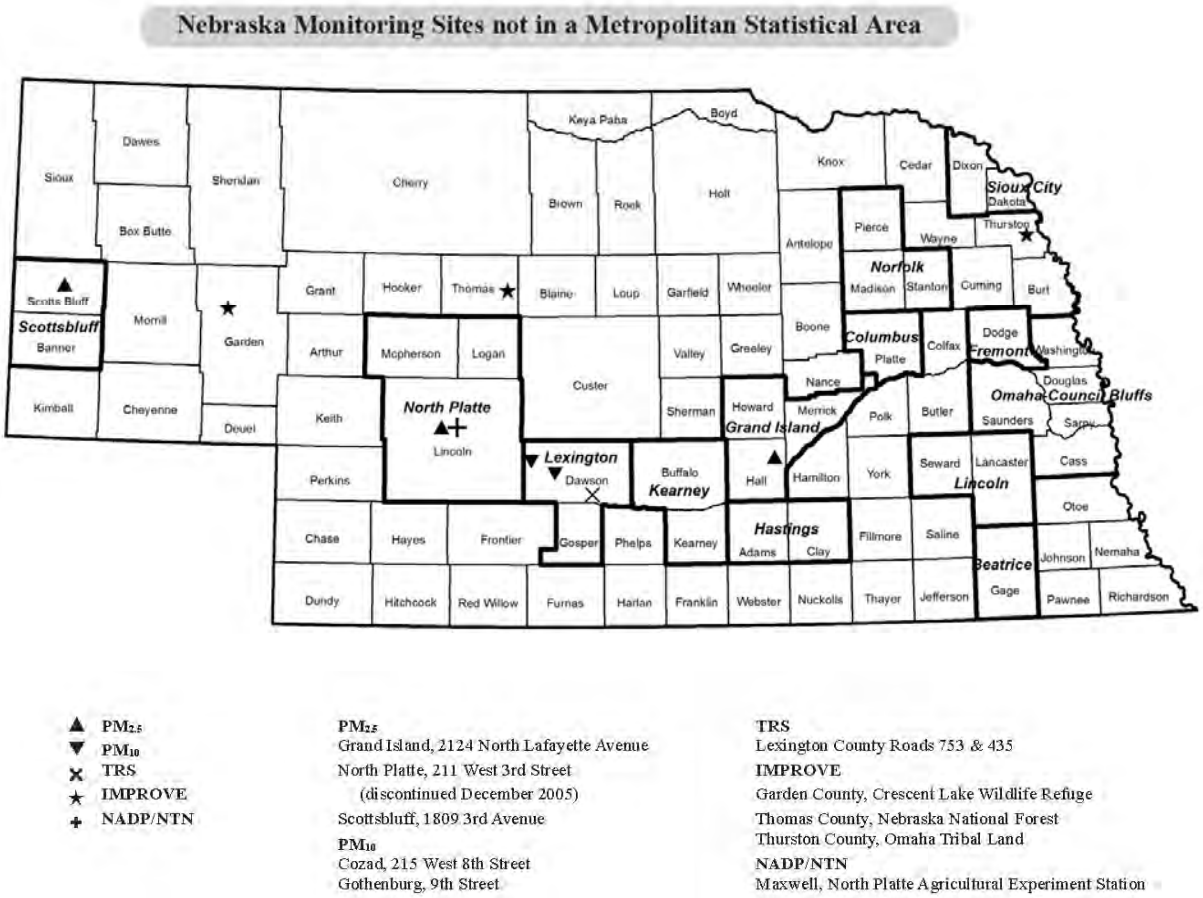
IMPROVE monitors provide information for studying regional haze that may impact the visibility in listed federal Class I National Park and Wilderness Areas. There are two IMPROVE monitoring sites in Nebraska at Halsey National Forest and Crescent Lake National Wildlife Refuge. These sites provide data on pollution trends and transport.

The National Trends Network (NTN) of the National Atmospheric Deposition Program (NADP) is a nationwide network of sites that monitor for deposition constituents in precipitation. The deposition constituents examined include acidity, sulfates, nitrates, ammonium chloride, and base-cations (e.g., calcium, magnesium, potassium and sodium). There are two NADP/NTN sites in Nebraska: one near Mead and one near North Platte. Both have been operational for over 20 years. These sites are operated by the University of Nebraska, with analytical and data development support from the NADP. Both sites had been upgraded to include mercury (Hg) deposition monitoring and were part of the NADP/Mercury Deposition Network (MDN). The North Platte mercury monitoring was discontinued in 2010 upon completion of the Nebraska Environmental Trust Grant. Both sites maintain the NADP monitoring. The monitoring in Mead is made possible through cooperative efforts of the NDEQ and the University of Nebraska. Additional information about the NADP/NTN can be found at: http://nadp.sws.uiuc.edu/nadpoverview.asp.

Monitoring Information On-Line

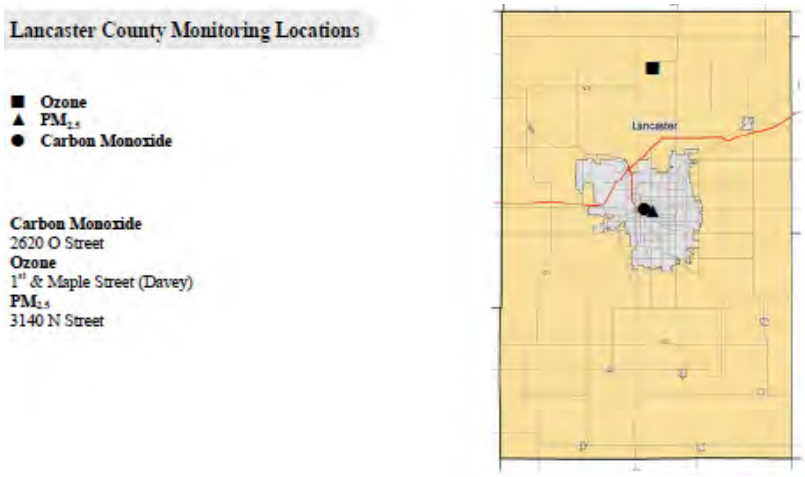
Ozone and continuous PM2.5 data from Lincoln and Omaha is reported hourly to the EPA AirNOW system, which makes contemporaneous air quality information available to the public on web at http://www.airnow.gov/. The Douglas County Health Department also participates in the ENVIROFLASH program that allows members of the public to sign-up to receive air quality alerts via email.

Both the Douglas County Health Department and the Lincoln/Lancaster County Health Department also report daily Air Quality Index (AQI) evaluations on the Omaha and Lincoln web sites. The AQI is a numeric rating of the current air quality in each city, and provides the public with a quick and simple means to evaluate current air quality in each metro area.



The map above shows monitoring sites that are in non-metropolitan areas. Maps below and on the next two pages show monitoring sites in the metropolitan areas of Lancaster County, Omaha-Council Bluffs, and South Sioux City. (The Omaha and South Sioux City maps also include adjoining counties in Iowa that are part of the region.)

Nebraska Monitoring Sites in Metropolitan Areas



Omaha-Council Bluffs Metropolitan Statistical Area Monitor Locations

$PM_{2.5}$
4102 Woolworth Avenue
9225 Berry Street
2912 Coffey Avenue (Bellevue, NE)
2242 Wright Street (Blair, NE)
3130 C Avenue (Council Bluffs, IA)
2115 Navajo Road (Council Bluffs, IA)

Ozone
30th & Fort Streets
11414 North 72nd Street
2411 O Street
1575 Highway 183 (Harrison County, IA)

Carbon Monoxide
30th & Fort Streets
(discontinued in December of 2007)
7747 Dodge Street, Omaha

PM_{10}
19th & Burt Streets
7717 Dodge Street
132nd & Q Streets
46th & Farnam Streets
2411 O Street
102 P Street (Weeping Water, NE)
112 Randolph Street (Weeping Water, NE)
5102 Highway 2 (Weeping Water, NE)
3130 C Avenue (Council Bluffs, IA)

Sulfur Dioxide
11300 North Post Road
1616 Whitmore Street
2115 Navajo Road (Council Bluffs, IA)

NADP/NTN
Mead, Saunders County

Renewable Power Projects

The NDEQ operates two sites that are powered totally through renewable energy sources: a solar powered site near Weeping Water, and a solar/wind turbine powered site at the Scottsbluff High School. Both sites have successfully operated on renewable energy and are examples of energy conservation. The Scottsbluff site was designed to be portable such that it could be easily set up in any location of the state where sufficient solar and/or wind resources exist. The Scottsbluff site also allows an opportunity for NDEQ to partner with the high school to educate the students about air quality and renewable energy.

Inspections and Facility Compliance

The Compliance Program is responsible for conducting compliance inspections of air pollution sources, responding to citizen complaints, observing and evaluating emission tests, and the acid rain program.

Consistent with the Nebraska Environmental Protection Act, the Air Division attempts to obtain compliance with environmental regulations first through voluntary efforts. Voluntary compliance has helped bring about a better working relationship with the regulated community without sacrificing environmental quality. However, enforcement actions are pursued by the Agency when compliance issues are serious, chronic, or cannot otherwise be resolved. To further the Department's goals to protect and enhance public health and the environment, in certain instances, environmentally beneficial projects, or Supplemental Environmental Projects, may be part of an enforcement settlement.

Compliance Activity Summary

Compliance Activity	NDEQ	LLCHD	OAQC
On-site Inspections	**148**	**111**	**35**
Facility Stack Tests Reviewed On site observations conducted	**61** **38**	**2** **2**	**0** **0**
Continuous Emission Monitoring Audits Reviewed On-site observations conducted	**31** **9**	**2** **2**	**1** **1**
Complaints Received	**67**	**3**	**91**
Burn Permits Issued Burn Permits Denied	**143** **3**	**47** **1**	**65** **1**

Program Planning and Development Unit

The Air Quality Division's Program Planning and Development Unit provides support and training to permitting and compliance staff, provides outreach and training to the regulated and general public, and provides information and analyses to Department and other policy makers. The Unit includes the air dispersion modeling, emissions inventory and compliance assistance functions for the Air Division. It is also responsible for maintaining state air quality regulations, updating the state implementation plan, providing expert information on National Emissions Standards for Hazardous Air Pollutants (NESHAPS, also known as air toxics), New Source Performance Standards (NSPS) and National Ambient Air Quality Standards (NAAQS). The Unit coordinates local agency activities, as well as negotiates work plans with the EPA. The Unit also administers the Nebraska Clean Diesel Grant Program.

During 2010 and 2011, the Unit administered the special Clean Diesel Grant Program under the American Recovery and Reinvestment Act of 2009, providing grants for clean diesel technology to more than 50 public and private entities. The Unit also organized and participated in voluntary efforts to reduce ground-level ozone pollution in the Omaha-Council Bluffs area. The Air Toxics Notebook continued to be maintained as a valuable online resource for staff and regulated sources, and the similar New Source Performance Standards (NSPS) Notebook was recently brought online. The annual Air Updates Workshops were conducted in Lincoln and Grand Island in August of 2011.

A major state implementation plan revision was submitted to EPA on June 30, 2011, to address Nebraska's obligations under the Regional Haze and Best Available Retrofit Technology Program. The plan may be found on our website: http://www.deq.state.ne.us/AirDivis.nsf/Pages/Haze. This revision is currently under review by EPA.

The Greenhouse Gas program was also a state implementation plan revision and was submitted to EPA in early January 2011. The revision included long awaited updates to the new source review program. This revision has been approved by EPA.

Emission Inventory and Emission Fees

Each year, the Department conducts an inventory of emissions from major industrial sources and a representative sample of lower-emitting, minor industrial sources. Every three years, the Department assists the EPA to prepare a comprehensive national inventory of emissions. The emissions inventory is used to support the planning efforts for national rulemaking and to assess trends in emissions. Emission inventories are due on March 31st each year. The NDEQ also uses emission inventory to support the assessment of annual emission fees. Major sources of air pollution are required to pay emission fees for each ton of pollutant actually emitted during the calendar year. The maximum emission for which a fee is assessed is 4,000 tons per pollutant. For electrical generating facilities with a capacity of between 75 and 115 megawatts, the maximum emission is 400 tons per pollutant. The fees generated are used to support the administration of the permitting program.

The Department makes every attempt to set the fee rate at the minimal level needed to pay reasonable direct and indirect costs of developing and administering the air quality permit program. An analysis detailing how the Department arrived at the fee rate is made available to fee payers and is on the NDEQ's website. The fee rate is determined in May of each year. The rate for 2010 emissions was $66 per ton, down 5.7% from the 2009 emissions fee of $70 per ton.

Future Air Issues for Nebraska

Under the federal Clean Air Act, the EPA issues National Ambient Air Quality Standards (NAAQS) for "criteria pollutants." These standards are intended to protect public health and the environment. States must determine whether they are in attainment of these standards and take corrective action if needed. The standards are reviewed and revised periodically, based on the most recent scientific information available.

Nebraska is currently in attainment of all the NAAQS. There is concern, however, that the Omaha-Council Bluffs area may not remain in compliance with the ozone and particulate matter NAAQS when these standards are expected to be revised in the future. During the past two years, the Air Division has participated in a community-based effort to educate the community about air quality issues and ways to voluntarily reduce pollution. The objective is to avoid nonattainment designation if at all possible. The Department is also taking steps to remain in compliance with revised SO_2, NO_x and lead standards.

In addition to maintaining the NAAQS, the Air Division has complied with new federal rules to reduce the emission of greenhouse gases. It is currently reviewing and responding to new requirements on the state and regulated industry related to interstate transport of air pollutants under the Cross-State Air Pollution Rule (CSAPR) issued in 2011. The Air Division continues to assist industry in complying with new and revised air toxics and New Source Performance standards.

For more information about the Nebraska air quality program, please refer to the annual Air Quality Reports and the Ambient Air Monitoring Network Plan, both of which are available on the agency's website at www.deq.state.ne.us under "Focus on Air."