

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 the state, including areas that have air cleaner than the standards, and to implement federal and state air quality rules and regulations. Thousands of tons of air pollutants are emitted into the air in Nebraska each year from industrial and other man-made activities. Air pollutants can affect human health, reduce visibility, cause property damage, and harm the environment. The regulated air pollutants of most concern are particulate matter, carbon monoxide, nitrogen oxides, sulfur dioxide, ozone, lead, and 187 listed hazardous air pollutants.



This solar-powered monitor near Weeping Water, is one of two NDEQ air monitoring sites that are powered totally through renewable energy sources. See page 24 for more information.

The primary air quality programs that 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, air toxics program, and planning and development program.

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

Permitting Section

During FY2016, NDEQ proposed revisions to Title 129 to clarify limits applicable to nitric acid plants and eliminate overlapping and conflicting requirements, streamlining compliance for Nebraska's one nitric acid facility. Revisions to Title 129 in FY2015 provided for general construction permits, and seven new air general construction permits were issued in FY2016. The NDEQ has continued its permitting of Title V and Prevention of Significant Deterioration (PSD) sources in accordance with EPA's July 24, 2014, memorandum in response to the June 23, 2014 U.S. Supreme Court decision (*Utility Air Regulatory Group v. Environmental Protection Agency*). This memorandum states that greenhouse gases should only be

regulated under Title V and PSD if the facility triggers permitting due to emissions of other pollutants (e.g., sulfur dioxide, nitrogen oxides, particulate matter).

Construction Permit Program

The Department has maintained a construction permit program for air contaminant sources since the 1970s. 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 construction permit applications received, processed and pending:

Pending July 1, 2015	Applications Received	Applications Processed	Pending June 30, 2016
54	86	79	61

Nebraska also implements the federal construction permit program, Prevention of Significant Deterioration (PSD). The purpose of the program is to protect areas of the state that are cleaner than the ambient air quality standards, while still allowing industrial and economic growth. The PSD program applies to sources of air pollution that emit significant levels of certain types of pollutants. If a source is regulated under the program, 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, NDEQ must also assure that the source will not cause or contribute significantly to any deterioration of air quality that could make 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. NDEQ notifies federal land managers of pending PSD decisions. Lastly, the 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 available control technology (Toxics BACT).

NDEQ received large numbers of air quality construction permit applications in FY06-08 associated with new or expanded business ventures across the state, including ethanol plants, power plants, and grain processing facilities. However, applications declined during the slower economy of FY09 through FY12, then increased during FY13 through FY16.

	FY10	FY11	FY12	FY13	FY14	FY15	FY16
Construction Permit Applications Received	55	52	54	61	64	59	86

In FY2016, the Department launched an online application process for air quality general construction permits (including certain emergency engines and certain aggregate processing, asphalt, and concrete plants). This shortened the permitting timeframe to a few days for eligible sources for covered construction-related activities, providing affected industries an avenue to more rapidly respond to a growing economy.

Operating Permit Program

The air quality 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. Operating permits authorized by this legislation are issued for both large and small sources of air pollution. These permits have a five-year renewable term.

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

Pending as of June 2015	Operating Permit Applications Received	Operating Permit Applications Processed	Pending as of June 2016
108	42	36	114

Air quality operating permits are issued for five-year terms. Correspondingly, there have been wide variations in the numbers of operating permits up for renewal each year. The following table summarizes air quality operating permit applications received from FY10 through FY16 (applications for all application types, including applications for permit revisions, general operating permits, permit-by-rule, etc.).

	FY10	FY11	FY12	FY13	FY14	FY15	FY16
Number of Operating Permit Applications Received	61	32	43	60	71	32	42

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 a site for

monitoring regional haze impacts that is 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: NDEQ, Lincoln-Lancaster County Health Department, and Douglas County Health Department. 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 (PM₁₀)
 - With a diameter of 2.5 micrometers or less (PM_{2.5})
- Sulfur Dioxide (SO₂)
- Nitrogen Dioxide (NO₂)
- Carbon Monoxide (CO)
- Ozone (O₃)
- 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. A TRS monitor previously operated by NDEQ in Dakota City was decommissioned in July 2016.

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. NDEQ evaluates the adequacy of its monitoring network in accordance with federal regulations each year. Changes may be made to the network due to changes in monitoring regulations, updates to the ambient standards, perceived changes in pollution trends, and/or funding issues. Loss of site access is another consideration that occasionally affects the network.

Most of the sites in the monitoring network evaluate pollutants for which standards are established (i.e., PM_{2.5}, PM₁₀, CO, SO₂, Lead, or Ozone). 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. (See maps on pages 22 and 23 for locations.)

IMPROVE monitors provide information for studying regional haze that may impact the visibility in listed federal Class I National Park and Wilderness Areas. There is one IMPROVE monitoring site at Nebraska National Forest at Halsey, Nebraska. This site provides 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 pollutants deposited by 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

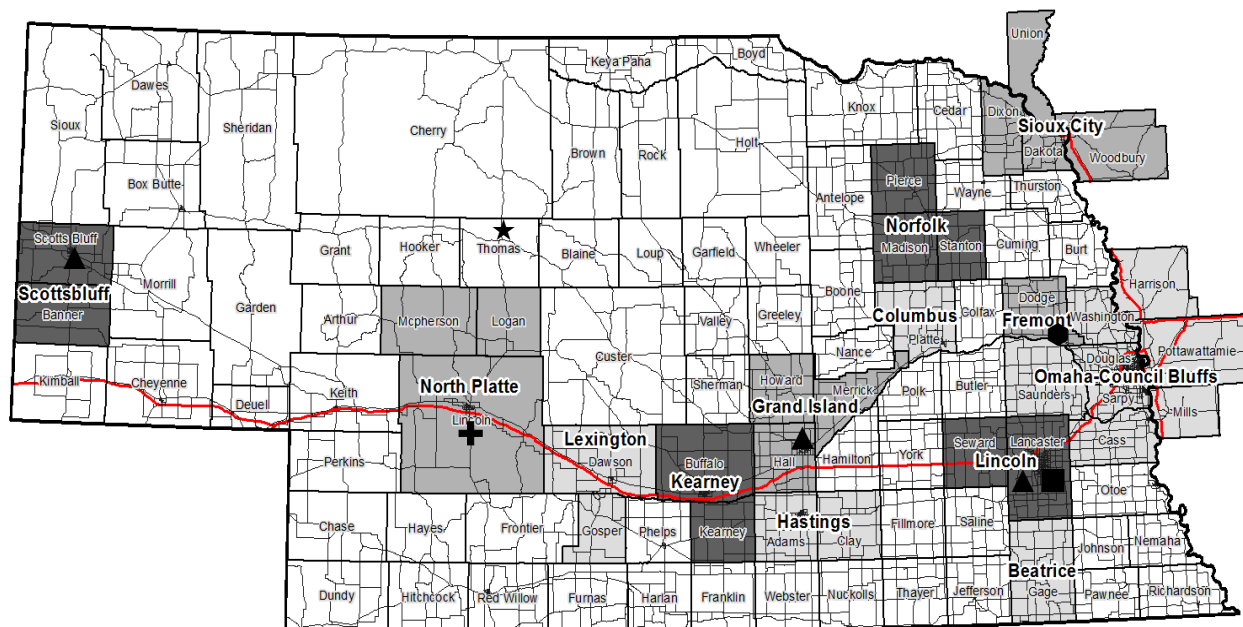
operational for over 20 years. These sites are operated by the University of Nebraska, with analytical and data development support from the NADP. The Mead site was upgraded to include mercury (Hg) deposition monitoring and is part of the NADP/Mercury Deposition Network (MDN). Both sites maintain the NADP monitoring. Additional information about the NADP/NTN can be found at: <http://nadp.sws.uiuc.edu/NADP/>

Monitoring Information On-Line

Ozone and continuous PM_{2.5} data from Lincoln and Omaha is reported hourly to the EPA AirNow system, which makes contemporaneous air quality information available to the public on the 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.

The Douglas County Health Department also reports daily Air Quality Index (AQI) evaluations on the City of Omaha website. The AQI is a numeric rating of the current air quality and provides the public with a quick and simple means to evaluate current air quality in each metro area.

Nebraska Monitoring Sites Outside the Omaha Metropolitan Statistical Area



- ▲ **PM_{2.5}**
- ▼ **PM₁₀**
- **Ozone**
- × **TRS**
- **Lead**
- ★ **IMPROVE**
- ⊕ **NADP/NTN**

- PM_{2.5}**
Lincoln, 3140 N Street
- PM₁₀**
Grand Island, 2124 North Lafayette Avenue
- Ozone**
Scottsbluff, Highway 26 & 5th Avenue
- Ozone**
1st & Maple Street (Davey)
- Lead**
Fremont

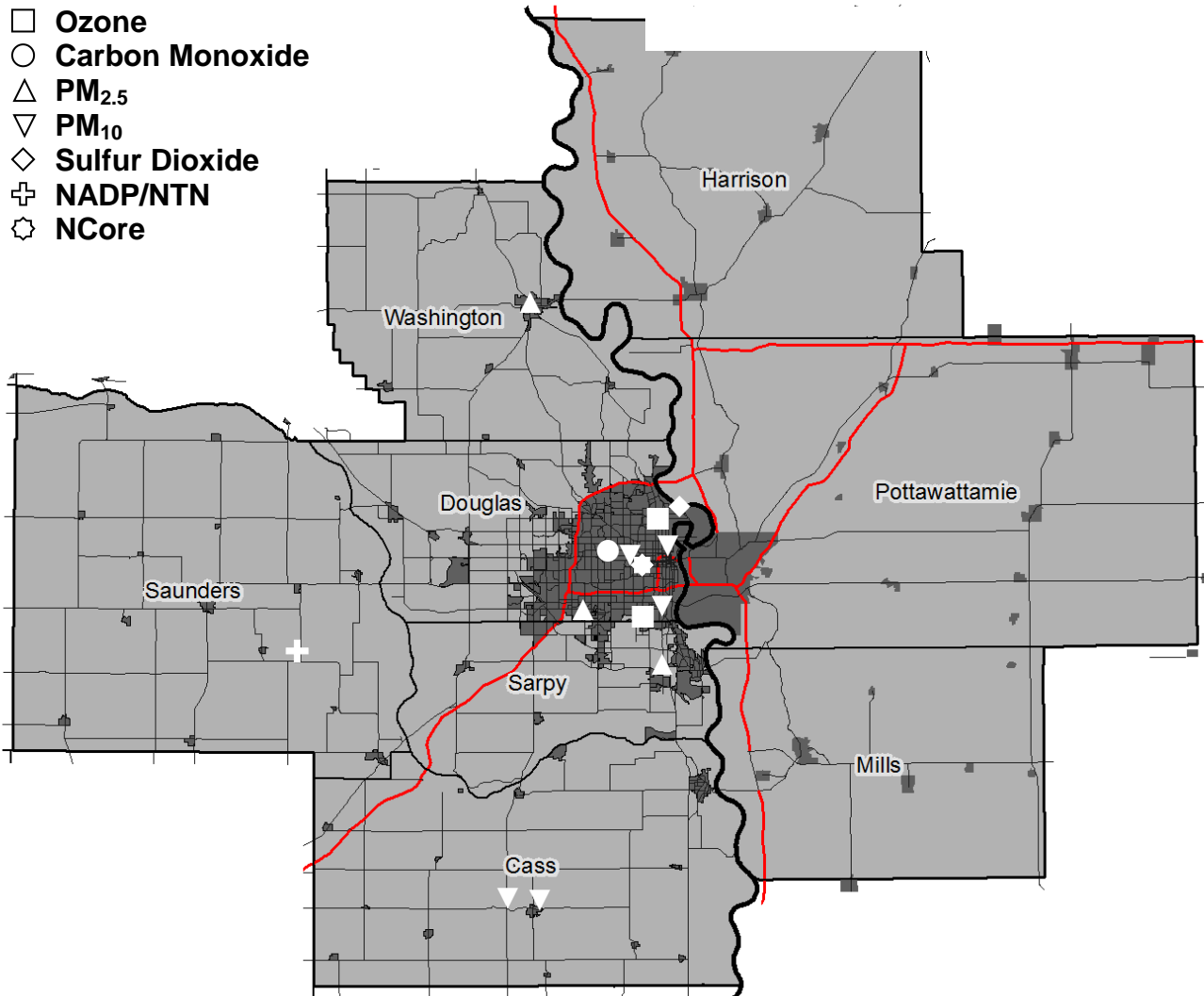
- NADP/NTN**
Maxwell, North Platte Agricultural Experiment Station
- IMPROVE**
Garden County, Crescent Lake Wildlife Refuge
Thomas County, Nebraska National Forest

Multi-county Metropolitan Statistical Areas are indicated by gray shading and bold labels.

The state map above shows the seven monitoring sites located outside of the Omaha Metropolitan Statistical Area. Five of these sites are operated by NDEQ, either directly or under contract. The two sites in Lancaster County are operated by the Lincoln-Lancaster County Health Department with NDEQ oversight. The National Atmospheric Deposition Program site near North Platte is operated by the University of Nebraska.

The Omaha Metropolitan Statistical Area map on the next page shows the location of the 14 monitoring sites located in the Nebraska portion of the Omaha Metropolitan Statistical Area. Eleven of these sites, located in Douglas, Sarpy and Washington Counties, are operated by the Douglas County Health Department with NDEQ oversight. The two PM₁₀ sites near Weeping Water in Cass County are operated by NDEQ. The National Atmospheric Deposition Program site at Mead is operated by the University of Nebraska.

Omaha-Council Bluffs Metropolitan Area Monitor Locations



- | | | |
|--|--|--|
| <ul style="list-style-type: none"> ○ Carbon Monoxide
4102 Woolworth Avenue (NCore Trace Monitor)
7747 Dodge Street, Omaha ◇ Sulfur Dioxide
4102 Woolworth Avenue (NCore Trace Monitor)
1616 Whitmore Street ⊕ NADP/NTN
Mead, Saunders County | <ul style="list-style-type: none"> △ PM_{2.5}
4102 Woolworth Avenue (NCore)
9225 Berry Street
2912 Coffey Avenue (Bellevue)
2242 Wright Street (Blair) □ Ozone
4102 Woolworth Avenue (NCore)
1616 Whitmore
2411 O Street | <ul style="list-style-type: none"> ▽ PM₁₀
4102 Woolworth Avenue (NCore)
19th & Burt Streets
46th & Farnam Streets
2411 O Street
102 P Street (Weeping Water)
5102 Highway 2 (Weeping Water) ☆ NCore
4102 Woolworth Avenue |
|--|--|--|

Renewable Powered Monitoring Sites

The NDEQ operates one monitoring site that is powered totally through renewable energy sources: a solar-powered site near Weeping Water. A site at Scottsbluff High School that formerly was powered by solar and wind turbine was switched to grid power in April 2016. Both sites have successfully operated on renewable energy and are examples of energy conservation. The Scottsbluff site also provides an opportunity for NDEQ to partner with the local 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 Quality 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.

2016 Compliance Activity Summary

Compliance Activity	NDEQ	LLCHD*	OAQC*
On-site Inspections	184	84	14
Facility Stack Tests Conducted	105	10	4
On-site Observations Conducted	48	0	0
Continuous Emission Monitoring Audits Conducted	51	9	0
On-site Observations Conducted	10	1	0
Complaints Received	64	63**	38
Burn Permits Issued	144	85	46
Burn Permits Denied	0	1	0
Burn Permits Withdrawn	0	2	0

*LLCHD – Lincoln Lancaster County Health Department; OAQC – Omaha Air Quality Control

**Includes LLCHD complaints re: open burning, fugitive dust, and odors

Grants, Planning, and Outreach Unit

The Air Quality Division's Grants, Planning, and Outreach Section provides support and training resources to permitting and compliance staff, outreach and training to the regulated community and general public, and information and analyses to the Department and other policy makers. The Section includes the air dispersion modeling and emissions inventory functions for the Air Division, along with the maintenance of state air quality regulations, updating the state implementation plans, and providing expert information on National Emissions Standards for Hazardous Air Pollutants (NESHAPS), New Source Performance Standards (NSPS), and National Ambient Air Quality Standards (NAAQS). The Section coordinates local agency activities, as well as negotiates work plans with the EPA. The Section also administers the Nebraska Clean Diesel Rebate Program and the local agreements with Lincoln-Lancaster County Health Department, the City of Omaha Air Quality Control division, and the Douglas County Health Department for their delegated functions in air quality permitting, compliance, and planning.

The Air Toxics Notebook and the NSPS Notebook continue to be valuable online resources for staff and regulated sources. The Grants, Planning, and Outreach Section has also maintained the AirNews listserv, which provides brief information and links to more information about important happenings in the air quality regulatory world.

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. NDEQ also uses the emission inventories 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 for which a fee is assessed is 400 tons per pollutant. The fees generated are used to support the administration of the air programs.

The Department attempts to set the fee rate at the minimum 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 website. The rate for 2015 emissions was \$71 per ton; the rate for 2014 emissions was \$70 per ton.

Air Quality Issues for Nebraska

Under the federal Clean Air Act, the EPA issues National Ambient Air Quality Standards (NAAQS) for "criteria pollutants". The primary standards are intended to protect public health and secondary standards are intended to protect 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 considered in attainment with all of the National Ambient Air Quality Standards.

Sulfur dioxide (SO₂)

The sulfur dioxide (SO₂) standard was changed from a 24-hour and annual primary standard to a one-hour standard in 2010. To determine attainment with the new standard, the EPA developed an attainment demonstration that includes monitoring and modeling exercises around large SO₂ emitters, and which requires modeling around major emitters in Nebraska. In 2015, NDEQ made its recommendations to EPA concerning attainment designations in the areas of three major emitters; the only one of these not recommended for attainment – Sheldon Station in Lancaster County – was recommended as unclassifiable. In early 2016, EPA confirmed NDEQ's recommended classifications.

Along with the updated 2010 SO₂ standard, in 2015 EPA also finalized the Data Requirements Rule (DRR) to help implement the standard. This standard requires air quality agencies to characterize air quality around sources emitting 2,000 tons per year or more of SO₂ by either pollutant dispersion modeling or air quality monitoring (alternatively, agencies may adopt enforceable emission limits at 2,000 tons per year or less for these sources). The affected sources in Nebraska include Whelan Energy Center near Hastings, Sheldon Station near Hallam, and North Omaha Station. While the Whelan Energy Center area will be characterized through modeling submitted in 2017, NDEQ has proposed monitoring for the areas surrounding Sheldon and North Omaha Stations beginning in 2017 through 2020.

Ozone

On October 1, 2015, EPA issued its final ozone primary and secondary standards; both standards were set at 70 parts per billion. Based upon the most recent data available, it appears that all areas of Nebraska meet these standards at this time. In fall 2016, NDEQ submitted recommendations to EPA to classify the entire state as unclassifiable/attainment based on these data.

Clean Power Plan

EPA released the final rule for its Clean Power Plan on August 3, 2015. The regulation is designed to reduce carbon pollution from power plants. Each state may either develop its own plan to reduce carbon pollution, join with other states to develop multi-state plans, or defer the plan to EPA. A state plan may either directly adopt emission standards for natural gas combined-cycle and coal power plants or be designed to meet a rate- or mass-based statewide goal. NDEQ began meeting with interested stakeholders in 2015 and early 2016 to discuss how to approach the development of a state carbon mitigation strategy in response to the Clean Power Plan.

Nebraska was one of 24 states to join a suit against the Clean Power Plan. In February 2016, the U.S. Supreme Court stayed implementation of the Clean Power Plan. The stay remains in effect until the case is decided in the U.S. Court of Appeals in Washington, D.C. or until the Supreme Court decides the case on appeal. Because the stay currently negates the September 2016 deadline for states' initial submittals on the Clean Power Plan and any other plan submittal deadlines until the case is decided and the stay is lifted, NDEQ has halted work on the planning process in the interim.

Regional Haze

EPA's Regional Haze Rule calls for state and federal agencies to work together to improve visibility in national parks and wilderness areas. EPA has issued several amendments to the rule, the most recent concerning Best Available Retrofit Technology (BART) determinations for particular pollutant sources. In July 2011, NDEQ submitted Nebraska's regional haze state implementation plan (SIP) and approximately a year later, EPA issued a partial approval/partial disapproval of the SIP. Specifically, EPA disapproved NDEQ's SO₂ BART determination for Gerald Gentleman Station and the state's long-term strategy for regional haze insofar as it relied on this determination. EPA promulgated a federal implementation plan (FIP) instead. The EPA plan relied on the Cross State Air Pollution Rule (CSAPR), which allots an SO₂ emission budget for participating sources, to sufficiently address reasonable progress toward regional haze goals. Because emissions from Gentleman Station are below the allotted SO₂ budget under CSAPR, no additional measures were required.

EPA has faced challenges nationally on the issue of "CSAPR sufficient for reasonable progress/better than BART", which it had applied in many states. This, along with Nebraska's petition for review of EPA's partial disapproval (which was denied by the 8th Circuit Court of Appeals in February 2016), has prevented the Nebraska SIP/FIP from being finalized. In early 2016, EPA was granted a voluntary remand from the court on Nebraska's specific "CSAPR sufficient for reasonable progress" issue, which allows EPA to further consider the issue. NDEQ expects that EPA will be finalizing a new FIP in late 2016/early 2017.

In summer 2016, NDEQ prepared and took public comment on a five-year progress report on the Regional Haze SIP. NDEQ anticipates that this report will be revised and possibly open for public comment again following issuance of EPA's new FIP.

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 <http://deq.ne.gov/> under "Air."