

CHAPTER 4:

Air Quality Programs

The objective of the Air Quality Programs is to maintain and protect the quality of the outdoor air in Nebraska. Thousands of tons of pollutants are emitted into the air in the state each year from industrial and other human activities. These air pollutants can affect human health, cause property damage, harm the environment, and reduce visibility. The Air Programs work to maintain Nebraska's air quality by implementing state and federal air quality regulations, through permitting and compliance activities for stationary sources, and by monitoring outdoor ambient air for regulated pollutants. Nebraska's air quality rules are set forth in Nebraska Administrative Code (NAC) Title 129 – Nebraska Air Quality Regulations (Title 129).



Nebraska enjoys good ambient air quality, with all parts of the state in compliance with federal and state ambient air quality standards.

The regulated air pollutants of most concern are particulate matter, ozone, nitrogen oxides, sulfur dioxide, carbon monoxide, and lead. These pollutants are subject to National Ambient Air Quality Standards (NAAQS). All areas of the state are currently in attainment, meaning that the state has air at least as clean as the federal health-based standards for these pollutants. Maintaining compliance with these federal standards is important to protect the public health. NAAQS nonattainment could result in additional requirements and significant economic costs to regulated facilities and the state. The Department also regulates the emission of substances defined by the U.S. Environmental Protection Agency (EPA) as hazardous air pollutants (HAPs), which are toxic substances known to cause cancer or have other serious health impacts. Title 129 does not include any requirements specifically for the control of odors, however, many of the pollutants that are regulated do have an odor, so by minimizing such pollutants, odors may in turn be reduced.

The Air Quality Programs are found in several Divisions of the Department. In the Permitting and Engineering Division, air quality construction permits and operating permits are issued and air dispersion modeling is performed. The Inspection and Compliance Division compiles emission inventories and conducts inspections and other compliance and enforcement activities. The Remediation and Monitoring Division maintains an ambient air quality network and evaluates stack tests. Regulatory development, as well as state implementation plan maintenance is done within the Legal Division.

Lastly, the agreements with three local agencies — Lincoln-Lancaster County Health Department, Omaha Air Quality Control, and Douglas County Health Department are managed through the Planning and Aid Division. These local agencies have accepted responsibility for

various facets of the air quality program within the jurisdictions of those agencies including air quality monitoring, permitting, and enforcement.

Air Quality Permitting

An air quality permit sets practical enforceable limits on the amounts of pollutants that a facility may emit, ensuring that facilities are constructed and operated in a manner that protects the quality of the surrounding ambient air. The Department issues two main types of air quality permits: construction permits and operating permits. A construction permit may be required for a facility before the construction or modification of an emission unit. An operating permit may be required for an existing facility source of certain air pollutants. Currently, there are over 1,200 facilities that have received a construction permit and/or an operating permit.

Title 129 provides for two types of construction and operating permits: individual and general. Some sources are not eligible for coverage under general permits. Some sources will require a construction permit but may not require an operating permit.

Individual permits are available for all regulated sources. These permits include all requirements applicable and specific to that source and location. Because it is tailor made for the source, significant time and labor is required for each permit issued. The individual permit process includes a required public notice with a 30-day comment period, which also offers the public the opportunity to request a public hearing.

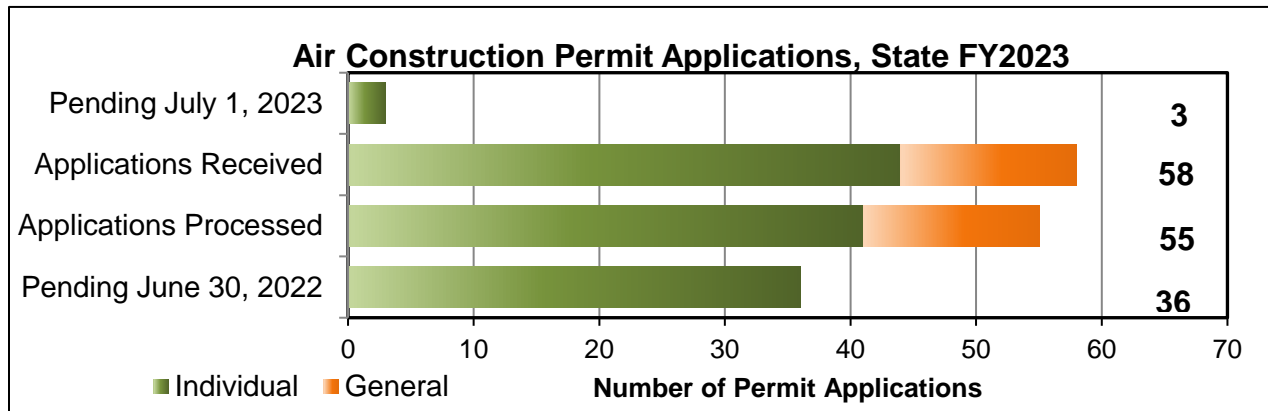
A general permit covers all sources in a particular industrial category, provided that the source meets the applicability criteria, applies for, agrees to the conditions of and obtains coverage. Requirements for a general permit are established in that general permit. Each general permit is issued only once (including the public notice period). Eligible applicants then apply for and obtain coverage without the need to develop an individual permit for that facility or to go through a public comment period each time coverage is approved for an eligible source under that general permit.

General construction permit coverage is currently available for eligible sources in nine categories (including time-sensitive construction activities), and general operating permit coverage is available for one category (small incinerators). Approval of general permit coverage takes much less time for the agency and for the facility than an individual permit. An online-only application process is used for general permit coverage, and approval may take only 5 days or less.

Construction Permit Program

The Department has maintained a construction permit program for air contaminant sources since the 1970s. The program is referred to as the New Source Review (NSR) program and has two categories; a minor source program (state) and a major source program (federal Prevention of Significant Deterioration). Both programs require facilities to obtain a 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 thresholds specified in Title 129 for particular pollutants. Only sources with potential emissions at or above these thresholds are required to obtain a construction permit. A construction permit is valid for the life of the covered emission units.

The following graph summarizes construction permit applications received, processed, and pending during the 2023 state fiscal year. (Note: The *Processed* category includes permits issued, withdrawn, denied, and determinations of no permit required.)

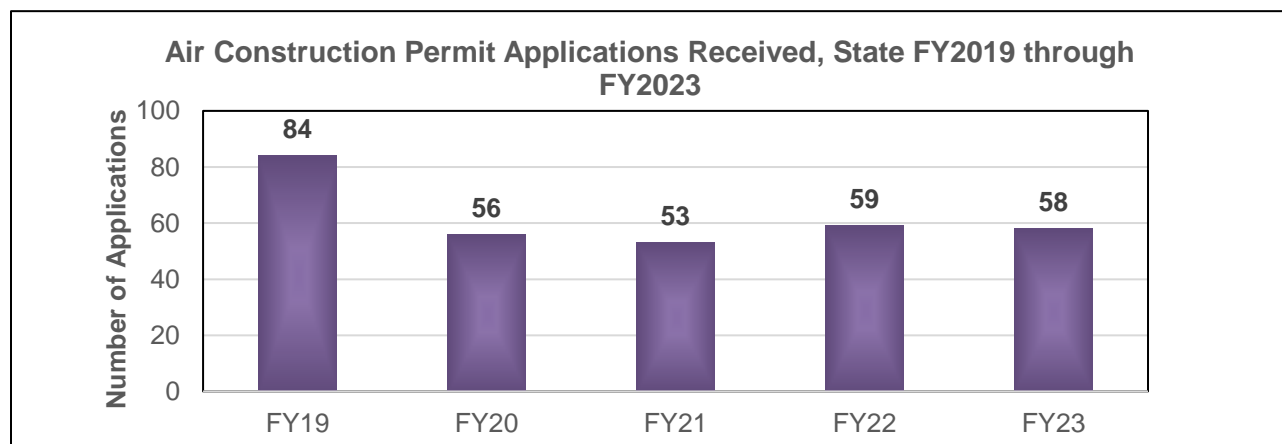


The Prevention of Significant Deterioration (PSD) program applies to construction of new major sources or modifications to existing major sources that emit significant levels of certain types of pollutants. The purpose of the PSD program is to protect air quality in areas where the air is cleaner than the ambient air quality standards while still allowing industrial and economic growth. The objective is to continue to maintain compliance with the health-based ambient air quality standards.

For facilities regulated under the construction permit program that emit pollutants at levels sufficient to trigger PSD requirements, air engineering staff conduct additional, more rigorous reviews to ensure that best available control technology will be employed to minimize impacts on the environment. The NDEE must also assure that the source will not cause or contribute significantly to any deterioration of air quality or violations or exceedances of the ambient air quality standards.

The PSD program helps to protect visibility in nearby national parks and wilderness areas. The Department notifies federal land managers and nearby States and Tribes of pending PSD decisions so those authorities can share relevant concerns for potential impacts.

The economy and business activity in the state impact the number of air quality construction permit applications received each year. The following graph shows the number of construction permits received annually from state FY2019 through FY2023.



Air Dispersion Modeling

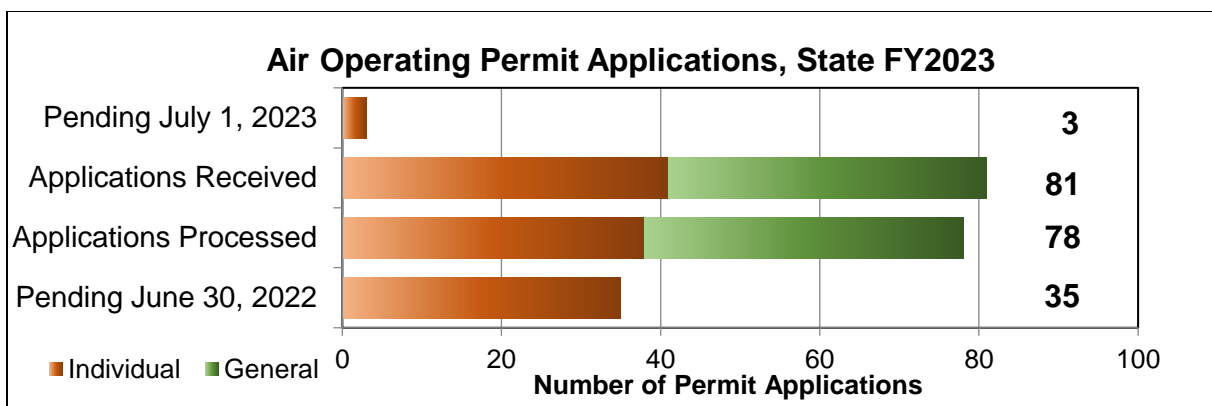
Air dispersion computer models predict how air pollutants emitted by a facility spread and disperse. These regulatory models use expected emissions, meteorological and geographical data, and other factors to estimate ground level concentrations of air pollutants at a large array of locations outside of the facility fence line. In a relatively short amount of time, a model can predict the maximum potential ground-level impact of facility emissions in a standardized and cost-effective manner.

Modeling is required with most air quality construction permit applications as part of the Department's review. An air dispersion model is the primary tool used to determine if, as permitted, the emissions from a new or modified facility or modification will comply with current health-based ambient air quality standards. Models are also used as a design tool to analyze the effects of different pollution control strategies. The air dispersion modeler reviews the inputs and outputs of the models that facilities provide as part of their construction permit applications. These reviews include facility emissions and meteorological data, background concentrations, existing nearby facilities, the modeling protocol, and the final modeling results.

Operating Permit Program

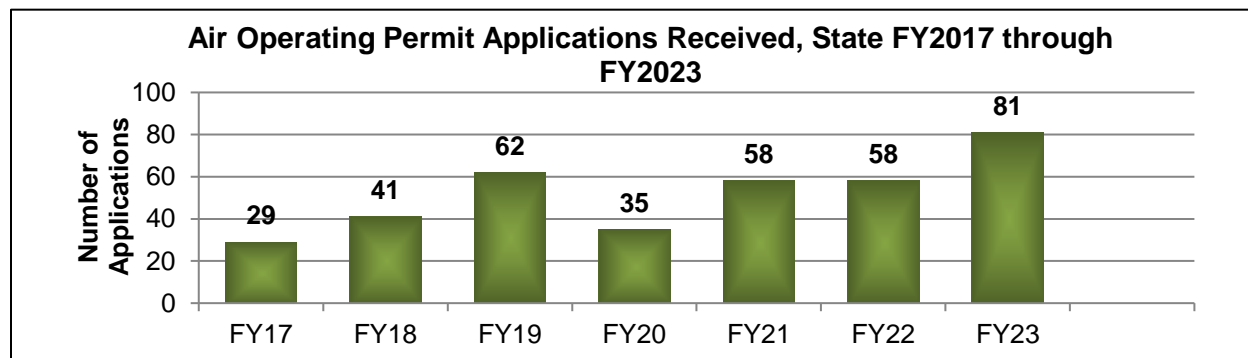
As required by Title V of the Federal Clean Air Act Amendments of 1990, Nebraska issues operating permits for Class I (major) sources of certain air pollutants. The Department also regulates minor sources using Class II operating permits as required under Nebraska law. Application for an operating permit is required by Title 129 within 12 months of startup of a regulated air contaminant source. Until recently, Title 129 provided for operating permit terms up to five years, after which the permit must be renewed. When Title 129 was revised in September 2022, changes to the operating permit program were made which allow the Department to issue Class II operating permits for a term longer than five years. An operating permit contains all applicable requirements for emission points at a facility. For a large, complicated, growing facility, an operating permit incorporates requirements from all construction permits issued for the facility, providing the source with one permit document to help compliance with all associated air permitting requirements.

The chart on the following page provides statistics on the number of operating permit applications received, processed, and pending during the 2023 state fiscal year. These statistics include general permit coverage approvals. The current general operating permit for small incinerators was issued in SFY2018, replacing the previous five-year general operating permit that expired that year. The general operating permit coverages issued in SFY2022 were for new applicants requesting coverage for small incinerators. The current general operating permit for small incinerators is available through an efficient online process, whereas the previous general permit required a paper application.



The Nebraska operating permit program also offers an innovative alternative for major sources that have taken measures to keep their emissions very low, called the Low Emitter Rule. To be eligible, a Class I (Title V) source must document five years of actual emissions at or below the minor source (Class II) threshold levels, meet other requirements established in the regulations, and not otherwise be required to obtain an operating permit. Since its inception in 1997, the Low Emitter Rule has allowed 101 active sources to opt out of their Class I (Title V) operating permits, with no identifiable degradation of air quality in Nebraska.

The five-year renewal cycle, past delays in issuing renewals, and other factors have resulted in wide variations over time in the numbers of operating permits up for renewal each year. The chart below summarizes air quality operating permit applications received from State FY2017 through FY2023 (applications for all application types, including permit revisions, general operating permits, low emitters, etc.).



Permit Program Process Improvements

Individual construction and operating permits are complex, highly technical documents that must address all emission points for various pollutants at a facility in a manner that is enforceable as a practical matter. Processing a permit application includes complex analysis with multiple steps and personnel. In FY2020, the Operating Permits Team undertook a process improvement project on operating permit renewals and applications. The project resulted in a significant reduction in the time needed to prepare and process an operating permit renewal application. One applicant estimated an 80% reduction in their application preparation time. The Air Programs have documented similar savings in staff time to process the renewal.

Each construction and operating permit include a fact sheet, which provides a technical description of the facility, applicable regulatory requirements, and a statement of basis for each permit condition. Air Program staff made significant fact sheet process improvements in FY2018 and will revisit permit fact sheets each year to pinpoint opportunities for streamlining. Additional improvements were made in FY2022 that continue to make these fact sheets more uniform and easier to understand, making compliance easier for facility staff, which also assists the efforts of agency compliance inspectors.

With the process improvement event that started in 2016, fact sheet project initiated in 2018, and other ongoing efforts, the average time required to reach a decision on a construction permit application improved significantly from 188 days to approximately 112 days (including online-only general construction permit coverage) at the end of FY2023. The operating permit application backlog was also significantly improved down from approximately 120 applications a few years ago to 3 applications pending at the end of FY2023, even with a steady influx of applications. Although some impacts of improvements may not be realized in the immediate future, sources with permits being issued now should see processing times significantly improved at permit renewal time. Most significantly, during FY2023, the oldest operating permit application was issued.

The Air Quality Permitting Programs have consistently had a significant amount of staff turnover, leading to recurring discussions about permit decisions, regulations, and other challenges. The Air Program staff established an electronic Air Quality Permitting Compendium that allows important information about existing permits — such as permit decisions, regulatory determinations, and internal procedures — to be archived, easily searched, and readily accessible to Air Program Staff. In addition, the Air Program revamped new employee onboarding procedures. These are two examples of the significant efforts to help improve staff training and permitting consistency. This tool allows Air Program staff to research past permitting actions and associated publications and documents to help facilitate more rapid permit and uniform permit decisions.

Air Compliance

Ambient Air Quality Monitoring Program

The Clean Air Act requires the EPA to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment, which are called criteria pollutants. The Act established two types of national air quality standards: primary standards, which are intended to protect public health, and secondary standards, intended to protect the environment. National standards have been established for the following six pollutants:

- Particulate Matter (PM)
 - 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.

Nebraska Ambient Air Monitoring Network

The State of Nebraska operates an ambient air-monitoring network to determine compliance with the NAAQS and with state air quality standards. The Nebraska network also 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: NDEE, 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.

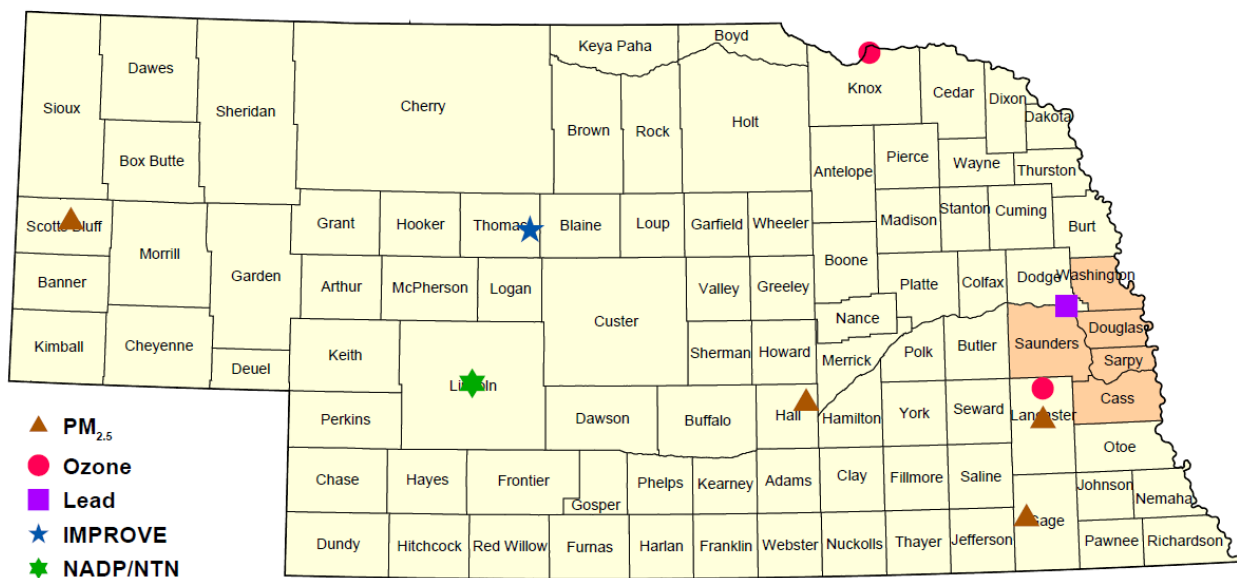
The Nebraska monitoring network includes sites at which air quality is monitored to evaluate attainment with the standards and other health and welfare-associated priorities. The Department evaluates the adequacy of its monitoring network in accordance with federal regulations each year. Changes may 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). Some sites monitor for more than one pollutant. The NCore site in Omaha is part of a National Core Network that monitors for nine pollutant parameters. 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 the following maps 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, which have both 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.slh.wisc.edu>.

Nebraska Monitoring Sites Outside of the Omaha Metropolitan Statistical Area



PM_{2.5}
 Lincoln (Lancaster County)
 Grand Island (Hall County)
 Scottsbluff (Scotts Bluff County)
 Beatrice (Gage County)

Ozone
 Davey (Lancaster County)
 Santee (Knox County)

Lead
 Fremont (Dodge County)

IMPROVE
 Nebraska National Forest (Thomas County)

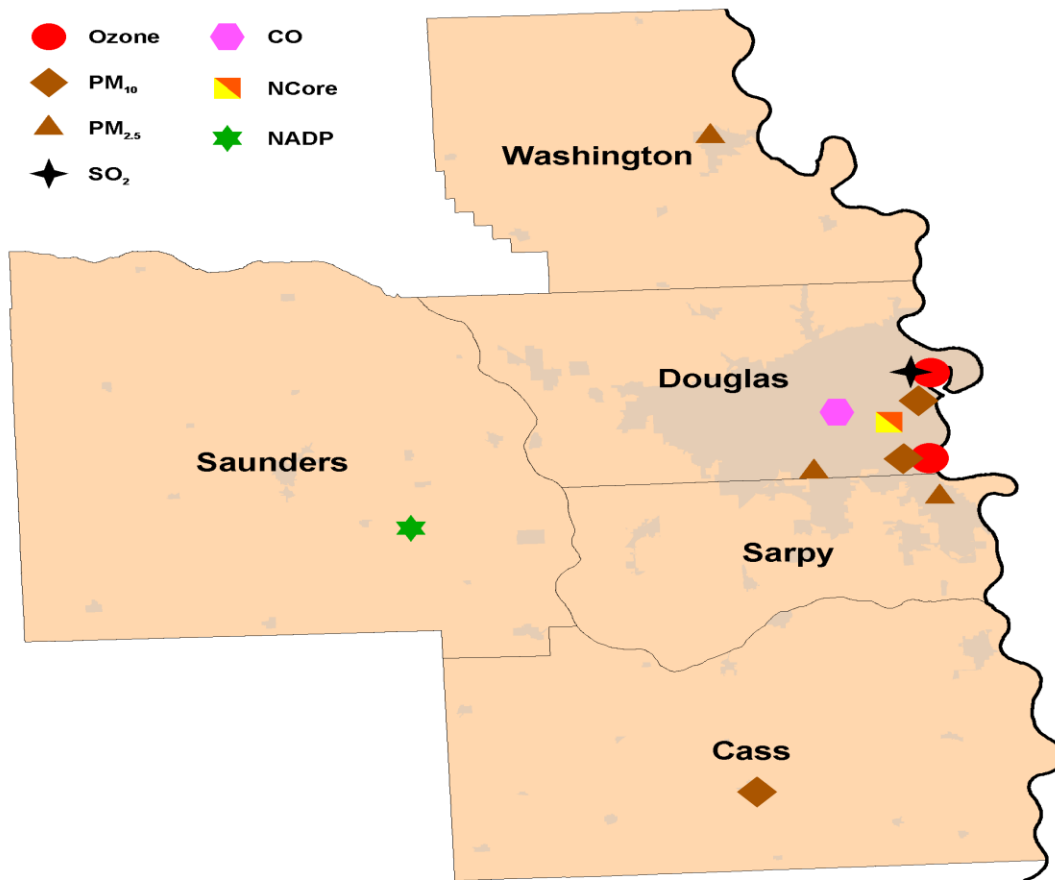
NADP/NTN
 Maxwell (Lincoln County)

The Nebraska counties in the Omaha-Council Bluffs Metropolitan Statistical Area are indicated by orange shading.

The state map above shows the nine monitoring sites that are located outside of the Omaha-Council Bluffs Metropolitan Statistical Area (counties shown in orange). Four of these sites are operated by the Department, either directly or under contract. The two sites in Lancaster County are operated by the Lincoln-Lancaster County Health Department with NDEE oversight. The National Atmospheric Deposition Program site near North Platte is operated by the University of Nebraska. An additional ozone site near Santee in northeast Nebraska is operated by the U.S. EPA.

The map on the following page shows the location of the monitoring sites in the Nebraska portion of the Omaha-Council Bluffs Metropolitan Statistical Area (two sites monitor two pollutants and are represented by overlapping pairs of symbols). Nine of these sites, located in Douglas, Sarpy, and Washington Counties, are operated by the Douglas County Health Department with oversight by the Department. A PM₁₀ site in Weeping Water in Cass County is operated by NDEE. The National Atmospheric Deposition Program site at Mead is operated by the University of Nebraska.

Monitor Locations in the Nebraska Portion of the Omaha-Council Bluffs Metropolitan Area



Carbon Monoxide

Omaha, 4102 Woolworth Avenue (NCore Trace Monitor)
 Omaha, 7747 Dodge Street

NCore

4102 Woolworth Avenue

NADP/NTN

Mead, Saunders County

Ozone

Omaha, 4102 Woolworth Avenue (NCore)
 Omaha, 1616 Whitmore Street
 Omaha, 2411 O Street

PM_{2.5}

Omaha, 4102 Woolworth Avenue (NCore)
 Omaha, 9225 Berry Street
 Bellevue, 2912 Coffey Avenue
 Blair, 2242 Wright Street

Sulfur Dioxide (SO₂)

Omaha, 4102 Woolworth Avenue (NCore Trace Monitor)
 Omaha, 1616 Whitmore Street

PM₁₀

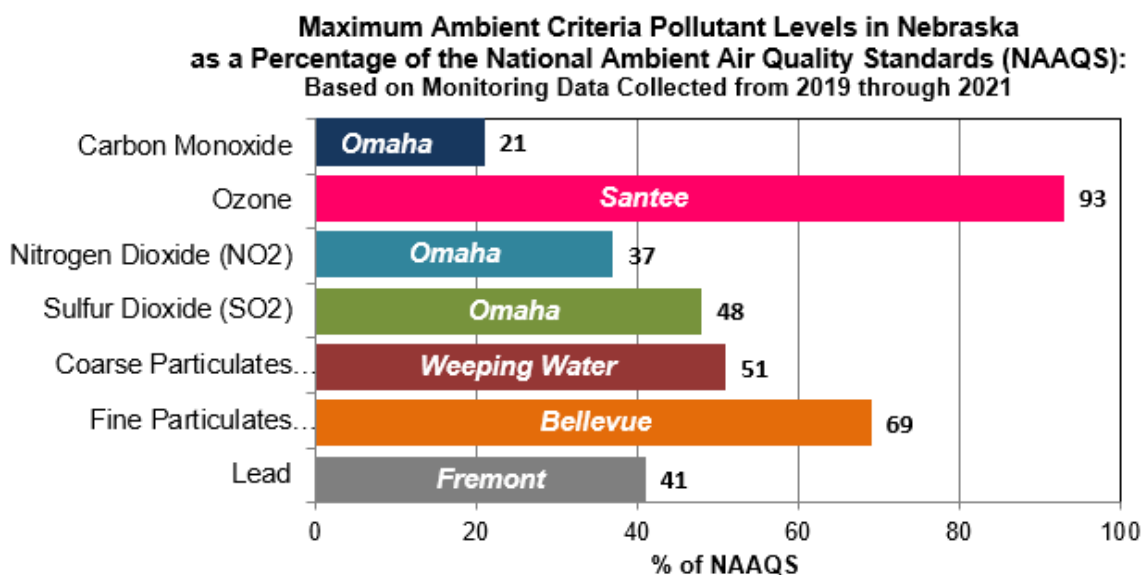
Omaha, 19th & Burt Streets
 Omaha, 2411 O Street
 Omaha, 4102 Woolworth Avenue (NCore)
 Weeping Water, 102 P Street

Monitoring Information Online

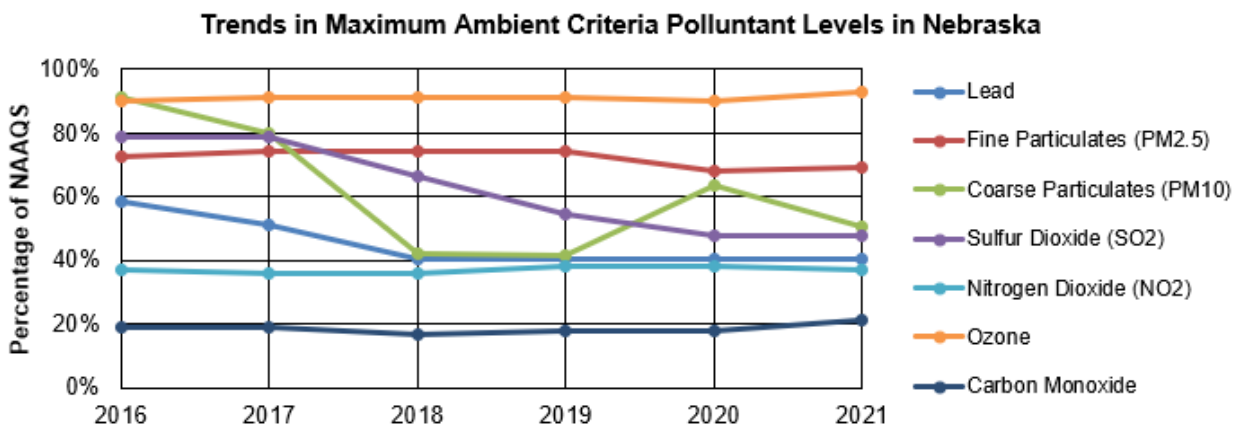
Data from continuous ozone and PM_{2.5} monitors in Lincoln, Omaha, Grand Island, Homestead National Historical Park, and Scottsbluff are reported hourly to the EPA AirNow system, which makes current air quality information available to the public on the web at <http://www.airnow.gov>. EPA uses the data to calculate an hourly Air Quality Index (AQI) for each monitor location. The AQI is a numeric rating of the current air quality that provides the public with a quick and simple means to evaluate current air quality in each metro area. The Douglas County Health Department and Lincoln-Lancaster County Health Department websites provide links to current AQI values for their cities. 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.

Compliance with National Ambient Air Standards (NAAQS)

Current air quality monitoring data shows that all areas of Nebraska are in attainment (in compliance) with the NAAQS. The chart below shows where the highest air pollutant levels are being detected in Nebraska for each criteria pollutant and how their levels compare to the NAAQS. A reading of greater than 100% would mean that the NAAQS standard was exceeded, but the highest readings for all criteria pollutants are well below 100%.



EPA issued final designations of “Attainment/Unclassifiable” with respect to the NAAQS for sulfur dioxide for two Nebraska counties in 2021: Douglas County in April and Lancaster County in August. These counties include coal-fired power plants in North Omaha and near Hallam, respectively. Designations for these areas are based on data from two source-specific sulfur dioxide monitoring sites operational from 2017-2020, which demonstrate that sulfur dioxide levels at these locations are in attainment/compliance with the NAAQS. EPA had previously designated all other Nebraska counties as “Attainment/Unclassifiable” with respect to the SO₂ NAAQS.



The chart above shows trends in the maximum measured levels of criteria pollutants in Nebraska from 2016 through 2021. The value for each pollutant and year is the maximum measured at any monitoring site in the state (as a percentage of the NAAQS for that pollutant). Ozone is the criteria pollutant of most concern, as maximum levels have remained above 90% of the NAAQS at a number of urban and rural monitor sites in Nebraska as well as in the adjacent states. Levels for ozone, NO₂, CO, and PM_{2.5} have remained fairly constant or have declined slightly since 2016, while the maximum SO₂ level has decreased significantly since 2017. The level and location of the maximum PM₁₀ readings have fluctuated widely during this period.

The Department compiles an annual Ambient Air Monitoring Network Plan that provides a more detailed analysis of ambient air monitoring data, pollutant trends through time, and NAAQS compliance. These reports are available on the Department website: http://dee.ne.gov/Publica.nsf/Pubs_Air_Amb.xsp.

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 Program 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 Department when compliance issues are serious, chronic or cannot otherwise be resolved. This table lists the compliance activities conducted by the Department during the year.

FY2023 Air Compliance Activity	NDEE
On-site Inspections	341
Facility Stack Tests Conducted	78
On-Site Observations Conducted	41
Continuous Emission Monitoring Audits Conducted	35
On-site Observations Conducted	11
Complaints Received	69
Burn Permits Issued	105
Burn Permits Denied	36
Burn Permits Withdrawn	0

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. Emission inventories are due on March 31 each year for the previous calendar year. Every three years, the Department assists the EPA in preparing a comprehensive national inventory of emissions. The next national inventory compiled will include emissions reported by our sources for 2021, 2022, and 2023. The emissions inventory is used to support the planning efforts for national rulemaking and to assess trends in emissions through time.

The Department also uses the emission inventories to determine the assessment of annual emission fees. Facilities that emit major sources of air pollution are required to pay emission fees for each ton of pollutant emitted during the previous calendar year. The maximum emission for which a fee is assessed is 4,000 tons per pollutant. For electrical generating facilities with a capacity between 75 and 115 megawatts, the maximum emission for which a fee is assessed is 400 tons per pollutant. 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. The rate for emissions generated in 2022 was \$51 per ton.

The Department transitioned to a new online reporting system called State and Local Emissions Inventory System (SLEIS) for the 2019 calendar year. During the 2020 reporting period there were still many lower emitting sources reporting to the new system for the first time. Training sessions for those new to the system were conducted throughout 2020, 2021, and have continued into the current year.

Planning for Air Quality Issues in Nebraska

National Ambient Air Quality Standards (NAAQS) are established by EPA for six pollutants: carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter (PM_{2.5} and PM₁₀), and sulfur dioxide. EPA periodically reviews the NAAQS using the most current scientific information available and revises or retains the standards as appropriate. When a new or revised standard is issued, states must determine if they are in compliance (attainment) with the standard and, if not, take the necessary corrective action. States must also submit to EPA their recommendations for attainment or nonattainment designations for areas within the state as well as State Implementation Plans (SIPs) for each new or revised standard. A SIP describes how the Department will implement, maintain, and enforce a standard.

At the present time, Nebraska is in attainment with each of the NAAQS. Planning activities are currently underway to address state Air Quality regulations (Title 129), Regional Haze and the Municipal Solid Waste Landfill Rule. At the federal level, EPA is finalizing its review of the particulate matter standard, conducting its review of the lead standard, and just recently announced a new review of the ozone standard. EPA is also finalizing its review of Nebraska's SIP revision for Title 129 submitted in late 2022.

Sulfur dioxide (SO₂)

The 2010 sulfur dioxide (SO₂) standard requires states to demonstrate attainment in the areas surrounding large sources of the pollutant. EPA finalized the Data Requirements Rule (DRR) in 2015 to assist in implementation of the 2010 standard, requiring characterization of the

air quality near sources that emit 2,000 tons per year or more of SO₂. Nebraska chose to comply with this requirement using both air quality monitoring and pollutant dispersion modeling. Sources in Nebraska subject to this rule include coal-fired power plants, specifically Whelan Energy Center (Adams County), Sheldon Station (Lancaster County), North Omaha Station (Douglas County), Gerald Gentleman Station (Lincoln County), and Nebraska City Station (Otoe County).

EPA issued its designations of attainment for Nebraska areas in 2016, 2018, and 2021; all areas continue to comply with this standard.

The DRR requires annual reporting (termed “ongoing requirements”) for areas characterized by modeling, and this year’s report was submitted as part of the Nebraska’s annual Ambient Air Monitoring Network Plan in July 2023. Two facilities are subject to these ongoing requirements: Whelan Energy Center and Gerald Gentleman Station, though another facility (Nebraska City Station) was addressed in this year’s report due to an increase in emissions. Facility emissions data indicate that all areas in Nebraska continue to demonstrate attainment with the federal standard.

Ozone

EPA issued revised ozone standards in 2015, lowering the standard from 0.075 parts per million (ppm) to 0.070 ppm. In November 2017 EPA designated the entire state of Nebraska as in attainment and approved Nebraska’s SIP revision for ozone in April 2020. In December 2020, following a review of the standard, EPA retained the current NAAQS; in October 2021 EPA announced that it would reconsider the previous administration’s retention decision. EPA recently announce a new review of the standard which will integrate the reconsideration as well as information from newer studies and updated analyses.

Particulate Matter

EPA is finalizing its current review of the particulate matter (PM) standards, initiated based on its concern that the standards retained in 2020 are not adequate. A final rule with a revised annual PM_{2.5} standard is expected in late 2023. Nebraska was designated in attainment with the NAAQS by EPA in 2015 and the state’s SIP revision was approved that same year.

Lead

EPA’s review of the lead standard is underway and no conclusions regarding revision of the standard have yet been presented. Nebraska was designated in attainment with the NAAQS by EPA in 2011 and the state’s SIP revision was approved in 2015.

Regional Haze

Regional Haze refers to impaired visibility at national parks and wilderness areas caused by particulates in the atmosphere. EPA issued the Regional Haze Rule in 1999 to improve visibility in these areas, requiring state and federal agencies work together to achieve this goal. Numerous amendments to the Rule have been issued addressing the Cross-State Air Pollution Rule (CSAPR) as an alternative to Best Available Retrofit Technology (BART) for particular pollutant sources, and regulatory requirements for SIPs. In addition, guidance and technical support documents were provided to assist states in preparing SIPs for the second implementation period (2018-2028).

Nebraska submitted its Regional Haze SIP for the first implementation period (2008-2018) in July 2011; in 2012, EPA issued a partial approval/partial disapproval of the SIP. The disapproved portions include the BART determination for sulfur dioxide for NPPD's Gerald Gentleman Station (GGS) and the state's long-term strategy for regional haze insofar as it relied on the BART determination. EPA issued a Federal Implementation Plan (FIP) that relies on the Cross-State Air Pollution Rule (CSAPR) to satisfy BART for sulfur dioxide at GGS. This source participates in the CSAPR trading program, which allots each source an emissions budget for SO₂ and permits trading of allotments. The remaining disapproved portion (long-term strategy) will be addressed in the SIP revision currently in development. To date, no additional control measures have been required.

The Department submitted its Regional Haze Five-Year Progress Report in April 2017. At present, the program is developing its SIP revision for the second implementation period, which was due to EPA in July 2021. This revision will address portions of the initial SIP and progress report, as well as state obligations for the current implementation period that ends in 2028.

Municipal Solid Waste Landfill Plan

On May 21, 2021, EPA finalized the federal implementation plan for municipal solid waste landfills (MSWL). The plan supports the following federal rule located at 40 CFR Part 60 Subpart Cf: Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills. The emission guidelines apply to landfills constructed prior to July 17, 2014 which accepted waste after November 8, 1987. This new emission guideline lowers the threshold for which facilities must install gas collection and control equipment from 50 Mg/yr to 34 Mg/yr of nonmethane organic compounds (NMOCs). NDEE is working with EPA on implementation of the federal plan; an initial draft of the Municipal Solid Waste Landfill Plan is pending state review.

Air Toxics Program

EPA currently lists 188 substances as hazardous air pollutants, or air toxics, which are air pollutants known to cause cancer and other serious health impacts. The Department developed the Air Toxics Notebook on the Department website as a reference tool for the air toxics program and developed a set of web pages for the New Sources Performance Standards (NSPS), which are federal rules that apply largely to new stationary sources. Both sets of rules have been issued by EPA. The Notebooks are intended to help the regulated community and the public understand the air toxics and NSPS regulations. For each standard the Notebook contains a page that provides applicability information, regulatory citations, amendment dates, guidance documents, and forms.

Smoke Awareness Program

The impact of prescribed fires and wildfires on Nebraska's air quality continues to receive attention statewide. In early to mid-spring, ranchers and land managers burn an average of 2 million acres of tallgrass prairie in the Flint Hills of Kansas to control invasive plant species and to encourage growth of pasture grasses. Unpredictable spring weather conditions may provide only a few days of optimal weather for burning, which can result in widespread burning and large amounts of smoke on those days. Wind from the south is typical during the spring and Nebraska may experience air quality impacts (elevated fine particulates, known as PM_{2.5}, and ozone) for 24-

48 hours following these events. Rangeland prescribed burning and wildfires also occur in Nebraska, with the number of incidents and acres burned due to human-caused fires increasing dramatically in 2022, making it the second worst year for wildfires in state history. Wildfire season started in the spring of 2023 with three major fires burning more than 100,000 acres, likely facilitated by drought conditions.

Impacts on air quality in Nebraska from wildfires continue to draw more interest due to recent drought conditions in the state and recurring wildfires in Canada that are becoming an annual occurrence. Air quality impacts that persist over several days due to heavy smoke from these fires are becoming more common and often impact large areas of the United States, typically in the form of fine particulate matter (PM_{2.5}). In June 2023, portions of the state were impacted by elevated ozone levels – a pollutant that forms when nitrogen oxides (NO_x) and volatile organic compounds (VOCs) react in the presence of sunlight. Elevated ozone levels are uncommon in Nebraska and these occurrences were attributed to Canadian wildfire smoke impacting the area.

The Department continued its collaborative efforts with key stakeholder agencies in state FY2023, which included a pre-season meeting in February 2023. Participants included NDEE, local health Departments, EPA, the Nebraska Game and Parks Commission, University of Nebraska Agronomy-Horticulture program researchers, National Weather Service, state air agencies from a four-state region (Iowa DNR, Missouri DNR, Kansas Department of Health and Environment, and Oklahoma DEQ), and land managers who rely on prescribed fire as a management practice. Other activities included outreach and notification of potential smoke and air quality impacts, consultation regarding the scope and extent of smoke advisories, collaboration with the National Weather Service (NWS) to implement a state air quality alert product, and planning for future burn seasons.

Tasks performed by NDEE staff during the 2023 burn season:

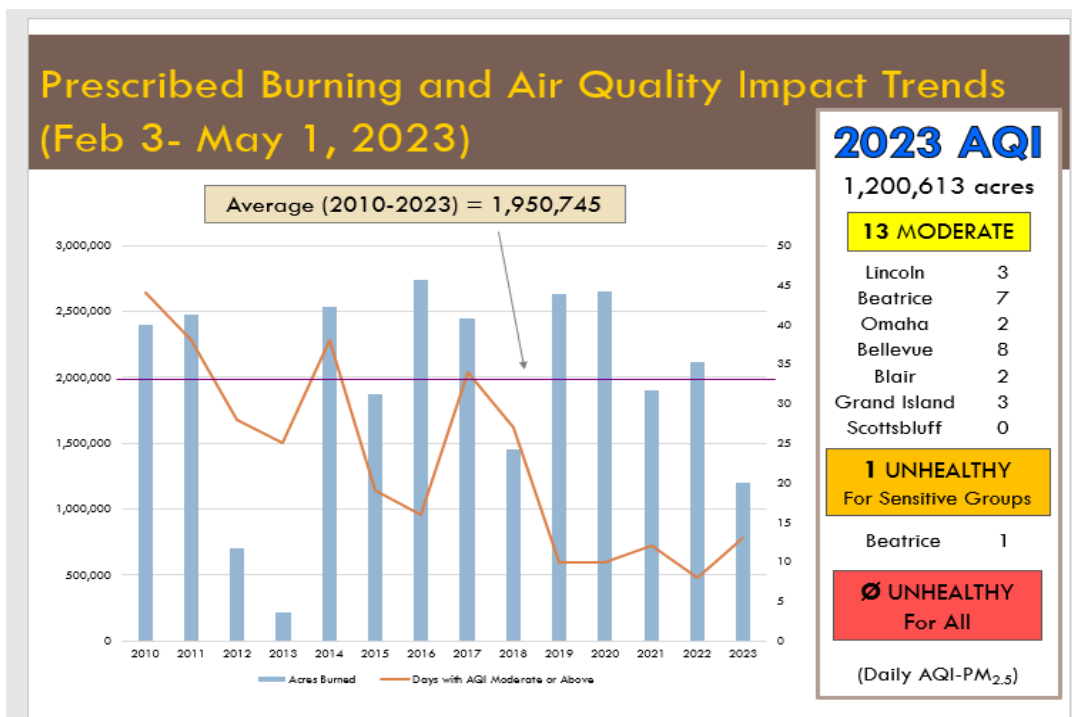
- Monitoring air quality (PM_{2.5} and ozone levels)
- Generating maps showing fire locations and smoke plumes
- Reviewing weather and smoke forecasts, prescribed fire and smoke updates from Kansas and smoke prediction models
- Updating the NDEE Smoke Awareness webpage with current information on smoke impacts and pollutant monitoring
- Discussions with stakeholders to determine the likelihood for smoke impacts and to generate advisories/alerts for the public
- Coordinating Air Quality Advisories with the Nebraska Department of Health and Human Services (DHHS) and Air Quality Alerts with NWS
- Implementing and coordinating Air Quality Alerts with the National Weather Service
- Providing email updates to stakeholders on air quality conditions and wildfire conditions
- Interpreting and deploying National Weather Service software technologies.

Agency staff coordinate and consult with other stakeholder agencies on days when heavy burning and smoke impacts are predicted. If a health advisory is warranted, NDEE staff coordinate with the Nebraska DHHS to issue a Smoke Advisory, and with NWS to issue an Air Quality Alert to the public. Advisories and alerts were issued for April 7-10, May 18, June 15, July 14, July 17, and August 17, 2023. The advisory issued for June 15 and an additional alert issued for June 8 addressed elevated ozone levels associated with smoke impacts.

EPA uses the Air Quality Index (AQI) for reporting air quality conditions to the public through its webpage at <https://www.airnow.gov/>. The AQI is similar to a yardstick that runs from 0 to 500 – the higher the value, the greater the level of air pollution and greater the health concern. AQI values from 0 to 50 (*Good AQI*) and those from 51-100 (*Moderate AQI*) are indicative of pollutant concentrations in compliance with the NAAQS. At concentrations within the *Moderate AQI* category those who are unusually sensitive to air pollution may experience health effects such as coughing or shortness of breath.

Higher AQI values (101-150) fall within the *Unhealthy for Sensitive Groups* AQI category; those in sensitive groups may experience health effects such as coughing or shortness of breath at this AQI level. Sensitive groups include people with heart or lung disease, older adults, children and teenagers, minority populations, and outdoor workers. At the *Unhealthy* AQI level (151-200), it's possible that everyone may experience health effects.

During the 2023 prescribed burn season, Nebraska experienced a total of 13 days with an Air Quality Index (AQI) for fine particulates (PM_{2.5}) in the *Moderate* range (17% of days) and one day (1%) in the *Unhealthy for Sensitive Groups* range, as noted in the chart below. There were 12 days (15%) with *Moderate AQI* for ozone, six of which were concurrent with *Moderate AQI* days for PM_{2.5}. Prescribed burn seasons in previous years (2010-2022) have averaged about one day per year in the *Unhealthy for Sensitive Groups* category and less than one day for the *Unhealthy* category.



In the 2023 wildfire season, the state experienced 70 days with an AQI of *Moderate* or higher; of these days, 21 were in the *Unhealthy for Sensitive Groups* AQI range and two were in the *Unhealthy* AQI range. These occurrences were up significantly from 2022 (*Moderate* AQI on six days, and no days at AQI levels above *Moderate*).

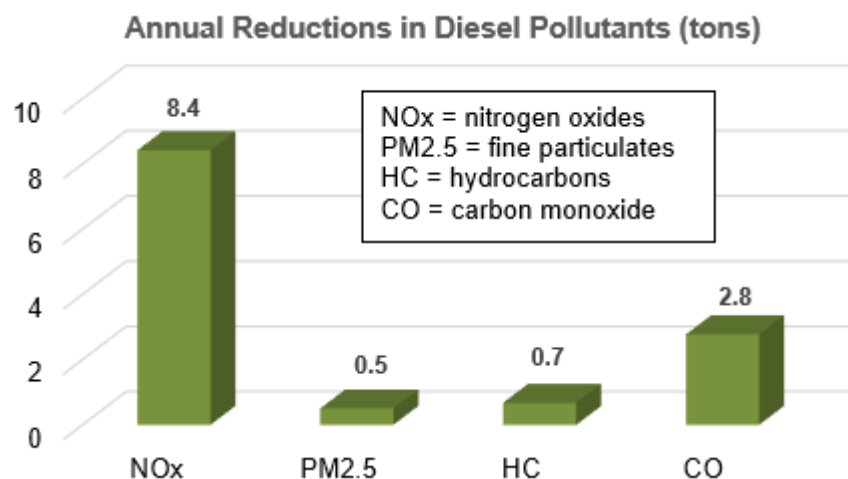
Department activities conducted with other agencies in 2023 resulted in timely health advisories/alerts and notification to the public of potential air quality impacts from prescribed burning and wildfires. Predictions of potential impacts, while cautious, were mostly accurate. The flow of information between stakeholders and agencies continues to improve, and a standardized process for dissemination of advisories and alerts is in place.

It should be noted that while both prescribed burning and wildfires affect local air quality, Nebraska remains one of the few states to comply with all of the NAAQS.

Nebraska Clean Diesel Rebate Program

The Department established the Nebraska Clean Diesel Program in 2008 to distribute federal funding received from the EPA to reduce diesel emissions, as authorized by Congress in the Diesel Emissions Reduction Act (DERA). The DERA program provides annual funding to states for the establishment of grant, rebate, and loan programs for the early replacement of diesel engines and vehicles and the installation of diesel emission controls. Starting in 2017, NDEE has elected to supplement the federal grant with funds from Nebraska's portion of the *Volkswagen Diesel Emissions Environmental Mitigation Trust (VW Trust)*, see next section), which earns bonus EPA funding.

For the Clean Diesel Rebate Program annual funding cycle that opened in October 2022, NDEE has awarded or expects to award \$325,042 in rebates to 17 irrigation engine projects. The irrigation engine rebates are for replacement of a diesel irrigation engine with an electric motor (to power a surface pump) or for connecting an existing submersible pump directly to the electric grid. The rebate reimburses up to 60% of the cost of the electric equipment, installation, and required extension of electric service lines, up to a maximum reimbursement of \$20,000. All replaced diesel engines must be scrapped in order to eliminate their emissions. Estimated annual reductions in diesel pollutants expected from these replacement projects are shown below.



2022-2023 Irrigation Engine Replacement Rebates: \$325,042

Name	County	Replacement	Rebate Amount
Bartels Corporation	Franklin	Electric Motor	\$20,000
Brandes, Evan	Merrick	Electric Motor	\$20,000
Cockerill's Pork Chop Valley Inc.	Keith	Electric Motor	\$14,881
Creutzberg, Mark	Merrick	Electric Motor	\$16,147
French Farms Inc.	Holt	Electric Motor	\$19,426
Greenamyre, Rodney	Antelope	Electric Motor	\$16,107
H and P Land Co	Hall	Electric Motor	\$20,000
Janak Farms	Butler	Electric Motor	\$20,000
Kallhoff, Dorothy J Trust	Lincoln	Electric Motor	\$20,000
Klabenes Trucking Inc	Rock	Electric Motor	\$19,803
Nielsen, Tim	Knox	Electric Motor	\$16,917
O'Brien, Dale	Hayes	Electric Motor	\$20,000
Panowicz, John	Hall	Electric Motor	\$14,364
Sabata, Greg	Butler	Electric Motor	\$20,000
Smith, Joann D.	Perkins	Electric Motor	\$20,000
Thies Farms North LLC	Holt	Electric Motor	\$16,762
Yindrick Farms, LLC	Butler	Electric Motor	\$20,000



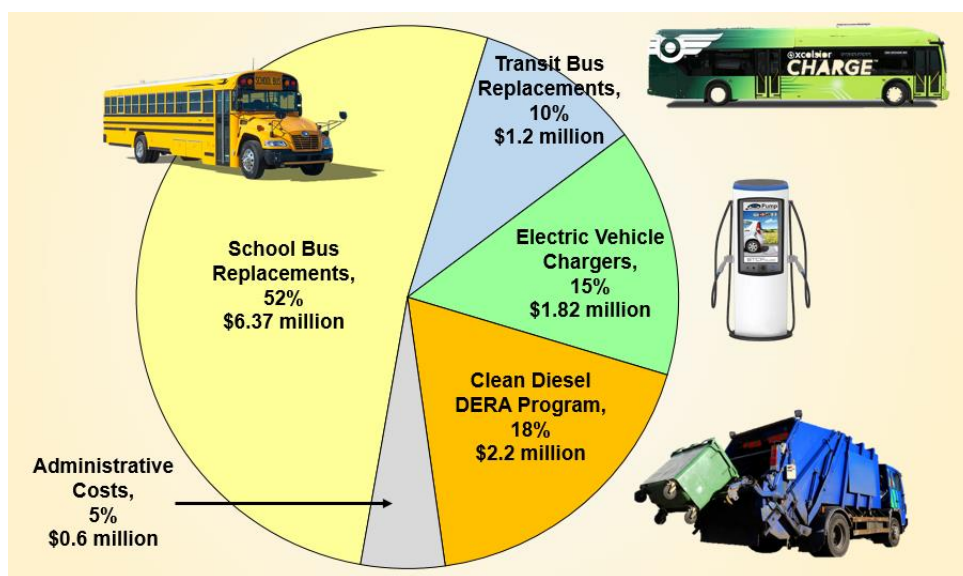
New electric motor and related equipment replacing a diesel engine at an irrigation well in Lincoln County, partially funded by the 2022 Nebraska Clean Diesel Rebate Program. Photo courtesy of the owner.

Volkswagen State Trust Activities

NDEE is the lead agency administering funds allocated to Nebraska from the *Volkswagen Environmental Mitigation Trust for State Beneficiaries, Puerto Rico, and the District of Columbia* (VW State Trust). The VW State Trust was established in 2017 as part of court settlements with Volkswagen AG and its subsidiaries to resolve charges that their diesel passenger vehicles were equipped with devices to circumvent emissions testing and allow them to emit excess nitrogen oxide gases in normal operation, in violation of the Clean Air Act. The initial allocation to Nebraska from the VW State Trust is approximately \$12.25 million, which has been supplemented by approximately \$238,000 in investment income. As directed by the Trust Agreement, these funds are to be used to undertake authorized actions to reduce nitrogen oxide (NOx) emissions in Nebraska.

Beneficiary Mitigation Plan

In April 2020, NDEE submitted a revised Beneficiary Mitigation Plan that summarizes how Nebraska intends to use the funds allocated to it under the Trust. The following table and figure present the project types selected for funding in Nebraska and the percentage of funds expected to be allocated to each type.



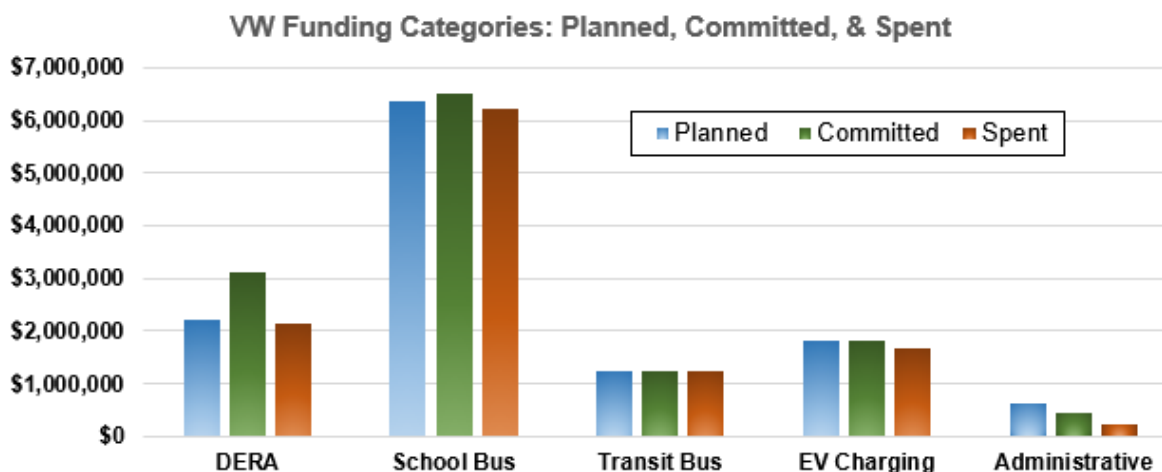
Planned Allocations of VW State Trust Funds by Mitigation Action		
Action	Percent	Dollars
Transit Bus Alternative Fuel Replacements (completed)	10%	\$1,224,835
School Bus Diesel & Propane Replacements (completed)	52%	\$6,369,141
Electric Vehicle Charging Infrastructure (completed)	15%	\$1,818,224
DERA: Diesel Irrigation Engine, School Bus, & Truck Replacements	18%	\$2,223,729
Administrative Costs*	5%	\$612,417
TOTAL	100%	\$12,248,347.48

* The Trust agreement allows reimbursement of administrative costs up to 15% of each funded project.

Nebraska’s Beneficiary Mitigation Plan is intended to provide the public with insight into the Department’s intentions for the use of the mitigation funds and information about the specific uses for which funding is expected to be requested. Nebraska may adjust its goals and specific spending plans at its discretion by providing an updated Beneficiary Mitigation Plan to the Trustee. Each state beneficiary must expend at least 80% of its initial allocation by October 2, 2027; otherwise, the unexpended funds will be reallocated to other beneficiaries that have complied with that guideline. As of June 2022, the Department has expended 84% of the VW funds, meeting that threshold, and has set a goal of expending Nebraska’s share of the funds by the end of 2024.

Nebraska Diesel Emission Mitigation Program

NDEE established the Nebraska Diesel Emission Mitigation Program to use VW State Trust funds for projects to mitigate NOx emissions in Nebraska. The program has carried out projects in all of the categories laid out in the Beneficiary Mitigation Plan. As of the end of June 2023, NDEE has requested Trust funds for ten projects and expended \$11,509,163 of those funds. The distribution of spending in the different project categories is shown in the following chart. The transit bus, school bus, and electric vehicle charging rebate programs have been completed. Remaining funds are dedicated to DERA projects.



NDEE’s Beneficiary Mitigation Plan set a goal to limit administrative costs to no more than 5% of Trust funds spent. To date only 2.1% of Trust funds spent have been for administrative costs.

Electric Vehicle Charging Rebates

The Nebraska Electric Vehicle Charging Rebate Program begun in 2019 provided financial incentives to municipalities and businesses to encourage installation of electric vehicle charging stations to serve light-duty electric vehicles in Nebraska. The program awarded rebates for 28 projects for the installation and maintenance of Level 2 and Direct Current (DC) Fast Charging equipment at public and workplace locations.

During the past year charging equipment has been installed at 5 new locations in Nebraska, including the first fast chargers in Hebron, Hastings, and Potter. The Department reimbursed \$380,830 (up to 80% of the cost) for these projects, which resulted in 6 new fast charging ports

and 10 new Level 2 charging ports. The 5 projects listed below complete the Electric Vehicle Charging Rebate Program, which awarded \$1,761,163 in rebates for 25 project locations overall. As a result of these projects, Nebraska’s charger inventory grew by 22 fast chargers, 9 single-port Level 2 chargers, and 26 dual-port Level 2 chargers.

Electric Vehicle Charging Projects Completed 2022-2023

Recipient	City	Rebate	# Charging Ports	
			DC	L2
81 Express	Hebron	\$91,048	2	2
B & R Stores – Russ’s Market	Hastings	\$68,048	1	2
B & R Stores - Super Saver	Columbus	\$77,314	1	2
B & R Stores - Super Saver	Grand Island	\$68,653	1	2
High West Energy	Potter	\$75,381	1	2
TOTAL		\$380,830	6	10



Level 2 (left) and DC fast charger installed at the High West Energy Service Center in Potter (2 miles from Interstate 80 in western Nebraska) and partially funded through the Nebraska Electric Vehicle Charging Rebate Program. Photo courtesy of High West Energy.

Small Business and Public Assistance Program

The Small Business and Public Assistance program and associated Small Business Compliance Advisory Panel (SBCAP) were created to comply with the Clean Air Act Amendments of 1990 to assist businesses in complying with air quality regulations. However, the Department now provides the same compliance assistance services and support to the Water Quality, Land Management, and Energy Programs.

Key activities of this program include developing guidance and outreach materials; responding to outside requests for information; hosting training and informational workshops, webinars, and one-stop meetings to help new businesses determine their permit applicability; expanding partnerships; helping the regulated community understand their obligations under state and federal law; and promoting compliance and permit assistance visits to small businesses and municipalities.

NDEE's internal Grow Nebraska Team (GNT), provides outreach to new businesses proposing operations in Nebraska within 10-days of a request for information, in addition to the services outlined below.

The following summarizes the primary compliance assistance activities offered by the agency.

- **Compliance Assistance Visit (CAV):** An on-site service offered by NDEE in response to a request by a business or regulated party to receive support for one or multiple environmental program areas to which they are currently subject or considering under proposed operations. Compliance assistance activities (see individual Site Assistance/Training below) may be provided during an inspection; however, a CAV cannot be requested after an inspection that may result in enforcement until that issue is resolved. A CAV focuses on supporting the efforts of an entity to achieve voluntary compliance; however, it does not absolve it from receiving an enforcement action if egregious violations are found during the visit.
- **Permit Assistance Visit (PAV):** An on-site service (or meeting) offered by NDEE in response to a request by a business or regulated party to receive support under a new, modified, or existing permit to address permit related questions.
- **One-Stop Meeting:** A One-Stop Meeting allows for a newly proposed or expanding business and their selected representatives to engage with applicable NDEE permitting programs and other regulatory agencies. The goal of each meeting is to provide the permittee an opportunity to ask questions and receive direction toward attainment of the necessary permits to achieve environmental regulatory compliance.
- **Scoping Meeting:** A meeting within or outside of NDEE to introduce a new or proposed business to involved staff, programs, and agencies. The meeting may include a review of processes or technologies, tools, resources, and strategic partnerships to assist the business in making the appropriate contacts for applicable regulatory requirements or business needs.
- **Individual Site Assistance/Training:** An on-site service offered by NDEE in response to a request or during or after a Compliance Inspection.

Key accomplishments for the agency team during the 2023 FY included:

- Hosting and providing support to the Small Business Compliance Advisory Panel's annual meeting
- Delivering webinars on the voluntary cleanup program, municipal solid waste landfill air quality regulations, and litter and water grants applications
- Programs providing nearly 80 outreach/training events/presentations to the public and regulated community. The events provided information, trainings and updates on agency programs.
- Conducting 10 Permit Assistance Visits to municipal and industry permittees and coordinating 11 additional permit assistance meetings
- Conducting three multi program-based Compliance Assistance Visits
- Programs processing approximately 1,500 compliance assistance and permit assistance phone calls from businesses and communities with compliance questions
- Conducting 19 One-Stop meetings where a firm can talk with NDEE experts from multiple fields regarding permitting questions
- Holding three Scoping Meetings with firms to begin to determine what permits might be applicable prior to application.
- Maintaining regular engagement with the Nebraska Industrial Council on the Environment (NICE)
- Developing two new guidance documents and revising nearly 75 others to assist the public and regulated community with information or direction regarding the general application of state statutes or regulations.
- Maintaining Permit Matrix information and resources. The Matrix assists small businesses with compliance-related topics by sharing links to guidance documents, program overviews, regulations, supporting NDEE web pages, and additional resources.
- Maintaining agency's video events page on the NDEE website with webinar recordings, presentation slide decks, and compilations of answers to webinar participant questions
- Engaging in social media outreach via Twitter, Facebook, and LinkedIn and monitoring of metrics in conjunction with the Public Information Office

The Department continues to work on improvements to its outreach and assistance processes; develop standard operating procedures to support remote and in-person outreach events and to maintain the goal to provide necessary support for stakeholders in an effort to make compliance easy.