

National Ambient Air Quality Standards & Title 129 Updates

2012 Overview

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My name is Brian Kozisek and I am with the Grants, Planning, and Outreach Unit of the Nebraska Department of Environmental Quality. My presentation today is an overview of the National Ambient Air Quality Standards, or NAAQS, and Nebraska's Title 129 air quality regulations. These are two different topics and they are being presented together, but I ask that you hold all questions until the end.

What are NAAQS?

- ◉ NAAQS = National Ambient Air Quality Standards
- ◉ AKA “Criteria Pollutants”
 - Carbon Monoxide (CO)
 - Lead (Pb)
 - Nitrogen Dioxide (NO₂)
 - Particulate Matter (PM₁₀ & PM_{2.5})
 - Ozone (O₃)
 - Sulfur Dioxide (SO₂)

“NAAQS” are the National Ambient Air Quality Standards for Hazardous Air Pollutants. They are also known as “criteria pollutants”. NAAQS are pollutants that are considered harmful to public health and the environment. They consist of 6 pollutants: carbon monoxide, lead, nitrogen dioxide, particulate matter which is separated into 2 standards: particles with an aerodynamic diameter of 10 microns or less and particles with an aerodynamic diameter of 2.5 microns or less, ground-level ozone, and sulfur dioxide.

What are NAAQS?

- ◉ In 40 CFR Part 50
 - <http://www.epa.gov/air/criteria.html>
- ◉ “Primary” & “secondary” standard
 - Primary = Protect public health
 - Secondary = Protect public welfare
- ◉ Review every 5 years
 - Ensure they are still effective
 - Clean Air Scientific Advisory Committee (CASAC)

NAAQS are required to be set by the EPA under the Clean Air Act. They are specified in Part 50 of Title 40 of the Code of Federal Regulations. This link will take you to the EPA's NAAQS website. Most criteria pollutants have a “primary” and “secondary” standard. The primary standard is designed to protect public health and the secondary standard is designed to protect the public welfare. “Public welfare” includes visibility, animal welfare, crops, vegetation, and buildings. The Clean Air Act specifies that the NAAQS are to be reviewed every 5 years to ensure that they are still effective and meeting the goals of the Clean Air Act. The review of the NAAQS are completed by the Clean Air Scientific Advisory Committee or CASAC and CASAC advises the EPA on the technical basis of revising the NAAQS.

Current NAAQS Table

Pollutant	Primary or Secondary	Averaging Time	Level	Form
Carbon Monoxide	Primary	8-hour	9 ppm	Not to be exceeded more than once per year
		1-hour	35 ppm	
Lead	Primary & Secondary	Rolling 3-month average	0.15 $\mu\text{g}/\text{m}^3$	Not to be exceeded
Nitrogen Dioxide	Primary	1-hour	100 ppb	98th percentile avg over 3 years
	Primary & Secondary	Annual	53 ppb	Annual mean
Particulate Matter (PM ₁₀)	Primary & Secondary	24-hour	150 $\mu\text{g}/\text{m}^3$	Not to be exceeded > once per year avg over 3 years
Particulate Matter (PM _{2.5})	Primary & Secondary	Annual	15 $\mu\text{g}/\text{m}^3$	Annual mean avg over 3 years
		24-hour	35 $\mu\text{g}/\text{m}^3$	98th percentile avg over 3 years
Ozone	Primary & Secondary	8-hour	0.075 ppm	Annual 4th-highest daily max. 8-hr. concentration, avg over 3 years
Sulfur Dioxide	Primary	1-hour	75 ppb	99th percentile of 1-hr max concentrations, avg over 3 years
	Secondary	3-hour	0.5 ppm	Not to be exceeded > one per year

This is a listing of the current NAAQS. The list shows the pollutant, whether the standard is a primary or secondary standard, the averaging time that is used in determining compliance with the standard, the current NAAQS level, and the form of the standard. As you can see, some of the pollutants have a distinct primary and secondary standard, some have a combined primary and secondary standard, and carbon monoxide only has a primary standard.

Attainment of NAAQS

- ◉ Entire state = “In attainment” or “unclassifiable”
- ◉ Ensure attainment through State Implementation Plan (SIP)
 - SIP = Implementation, maintenance, & enforcement
 - Nonattainment = revised SIP & additional measures
- ◉ Nebraska = “attainment” or “unclassifiable” for all NAAQS
 - Some concern, but more on that later...

The NAAQS are applicable to each state and the entire state must be in compliance or unclassifiable for each of the NAAQS. The method for each state to establish current and continued compliance with each NAAQS is through a State Implementation Plan or SIP. The SIP provides the methods of implementation, maintenance, and enforcement of each of the ambient air standards. If any part of a state is out of compliance with a standard, the state is required to revise their SIP and require additional measures to bring the state back into compliance. Nebraska is currently classified as in attainment or unclassifiable for all NAAQS. The classification of “unclassifiable” or “attainment/unclassifiable” is used when a state does not have ample monitors to verify that no part of the state exceeds the NAAQS, but based upon other available information, including sources in the area, population, and the any nearby monitors, there is no indication that the area would exceed the NAAQS.

Carbon Monoxide & Ozone

- ◎ **CO: August 2011**
 - Maintained current standard
 - Revised monitoring requirements
- ◎ **O₃: September 2011**
 - Withdrew reconsideration of standard
 - New proposal = Spring 2013

The following slides provide an overview of some recent actions that the EPA has taken with regards to the NAAQS. In August, 2011, the EPA completed the evaluation of the carbon monoxide standard and issued the final rule. The EPA maintained the 1-hour and 8-hour primary standards at the same levels. However they revised the monitoring requirements for states. Urban areas with more than 1 million people must have a carbon monoxide monitor co-located with a nitrogen dioxide monitor.

The last revision to the ozone standard was in 2008. Although the next review was not scheduled until 2013, in 2010 the EPA initiated a reconsideration of the ozone standard with the intent of lowering the standard. In September, 2011 the EPA ended the reconsideration process without issuing a proposed standard. The 2013 review is in process and the EPA anticipates the issuance of a proposed primary and secondary ozone standard in spring, 2013. It is unknown what the proposal will be, but it is assumed that it will be in the range of 65-70 parts per billion.

Particulate Matter

- ◉ **Proposed revision: June 2012**
 - Retain existing PM₁₀ standard
 - Lower annual PM_{2.5} standard
 - 12-13 µg/m³
- ◉ **Visibility protection secondary standard**
- ◉ **PSD grandfathering**
- ◉ **Comments: August 31, 2012**
 - Final: December 14, 2012

In June, 2012, the EPA issued a proposal to retain the existing primary and secondary PM₁₀ standard at 150 micrograms/meter³ averaged over 24 hours. The EPA also proposed to lower the annual primary and secondary PM_{2.5} standard to a range of 12 to 13 micrograms/meter³. The proposal also included a new visibility protection standard which is proposed at 30 or 28 deciviews. Finally, the proposal accounts for the grandfathering of prevention of significant deterioration (PSD), or preconstruction permitting applications. The grandfathering clause would allow permit applications to be accepted under the previous version of the PM_{2.5} standard if the draft permit has been issued for public comment by the date that the revised PM_{2.5} standard becomes effective.

The comment period is still open on the proposal and the EPA is accepting comments on the revised PM standard through August 31, 2012. The EPA expects that the final standard will be issued on December 14, 2012.

SO₂ Attainment Designations

- SO₂: 1-hour standard revised June 2010
 - Modeling/monitoring data for attainment demonstration
 - Stakeholder discussions May/June 2012
 - State/local/tribal, industry, & environmental organization feedback
 - Final guidance available...?

The sulfur dioxide primary standard was revised in June, 2010. The EPA revoked the annual and 24-hour standards and replaced them with a 1-hour standard. In September, 2011, the EPA proposed guidance on implementing the revised standard. The guidance required dispersion modeling to be conducted at sources that had the potential to violate the NAAQS. State attainment designations would be determined by a combination of available monitoring data and required dispersion modeling data. Based upon concern over this proposed implementation method, the EPA held stakeholder discussions in May and June, 2012 with state, local, and tribal air regulatory agencies, affected industries, and environmental organizations. The EPA will be using feedback from these meetings to issue the final guidance for implementing the standard. It is unknown when the guidance will be available.

NO₂/SO₂ Secondary NAAQS

- ◉ **Combined NO₂/SO₂ secondary standard**
 - Based upon “aquatic acidification index (AAI)”
 - Acid deposition in lakes
- ◉ **Final Rule = April, 2012**
 - No AAI
 - Retained current NO₂ & SO₂ secondary standards
- ◉ **Continuing AAI research**
 - Possible future rulemaking

The EPA intended on releasing a combined nitrogen dioxide/sulfur dioxide secondary NAAQS in 2012. The combined NAAQS would be based on the “aquatic acidification index” or AAI. The AAI was a measurement of acid deposition in lakes. However, the EPA did not implement the new AAI standard. The final rule for the secondary sulfur dioxide and nitrogen dioxide NAAQS were issued in April, 2012 and the EPA retained the current nitrogen dioxide and sulfur dioxide secondary standards. They plan to conduct more research on AAI with the intention of using AAI as a part of future rule-making.

Cross-State Air Pollution Rule

- ◎ Cross-State Air Pollution Rule (CSAPR)
 - Assist downwind states to attain O₃ & PM_{2.5} NAAQS
 - CSAPR = 28 eastern states, including NE
 - Power plants
 - Reduce SO₂ & NO_x emissions
 - Cap-and-trade program
 - Implementation date delayed
 - Final decision on legality coming...?

In July, 2011 the EPA issued the Cross-State Air Pollution Rule, or CSAPR, which replaced the Clean Air Interstate Rule or CAIR. The intent of the rule is to assist downwind states in attaining and maintaining the ozone and PM_{2.5} NAAQS. The rule required power plants in 28 states, including Nebraska, to reduce sulfur dioxide and nitrogen oxide emissions. Each state in CSAPR received a budget for sulfur dioxide and nitrogen dioxide and individual sulfur dioxide and nitrogen dioxide allowances were issued to each power plant. CSAPR utilizes a cap-and-trade program. To meet the emissions reductions required under CSAPR, the power plants would either have to reduce their emissions or utilize the cap-and-trade program to purchase allowances from other plants within the state or from plants in other states on a limited basis. CSAPR was to become effective on January 1, 2012. In late December, 2011 the US Court of Appeals stopped the implementation of CSAPR based upon legal challenges. The Court of Appeals has heard the case and the final decision on the legality of CSAPR is expected soon.

Regional Haze Program

- ◉ **Improve visibility in National Parks**
 - Sources affecting visibility
 - Control SO₂ & NO_x
 - Utilize Best Available Retrofit Technology (BART)
- ◉ **Nebraska SO₂ BART determination**
 - Gerald Gentlemen Station denied
 - Implemented Federal Implementation Plan (FIP)
 - FIP utilizes CSAPR > BART

The Regional Haze Program final rule was issued in 1999. The intent of the program is to improve visibility in National Parks in the United States. The program requires large sources of sulfur dioxide and nitrogen dioxide that have been shown to affect visibility in National Parks to install the Best Available Retrofit Technology, or BART. The BART determinations for sources were to be made by each state in coordination with any other affected states. Nebraska had two sources that were subject to the Regional Haze Rule, the OPPD power plant in Nebraska City and the NPPD Gerald Gentleman Station power plant in Sutherland. However, the EPA denied the Nebraska BART determination for the Gerald Gentleman Station for sulfur dioxide and issued a Federal Implementation Plan, or FIP. The FIP utilizes a separate EPA rulemaking that CSAPR is as effective or more effective than BART. The FIP specifies that as Gerald Gentleman is subject to CSAPR, it has met the BART requirements.

Ozone in Omaha MSA

- ◉ In attainment, but design value (DV) rising
- ◉ Pisgah, IA
 - 2010 level/DV: 67/63 ppb
 - 2012* level/DV: 75/69 ppb
- ◉ 30th & Fort, Omaha, NE
 - 2010 level/DV: 64/61 ppb
 - 2012* level/DV: 77/66 ppb

*Data through July 30, 2012 and not quality checked

The Omaha Metropolitan Statistical Area, or MSA, includes 7 counties in Nebraska and Iowa. The MSA is currently in attainment with the 2008 ground-level ozone NAAQS, but the levels have been rising. This can be caused by many different factors, including increased emission sources, temperature, increased traffic, or local and national events. In Pisgah, Iowa, part of the MSA, the annual ozone level has risen from 67 to 75 parts per billion since 2010 and the design value, or three year average used to demonstrate attainment, has risen from 63 to 69 parts per billion. At 30th & Fort Street in Omaha, the annual level has risen from 64 to 77 parts per billion since 2010 and the design value has increased from 61 to 66 parts per billion.

Omaha remains in attainment for ground-level ozone, but additional high annual levels or a revision to the ozone standard in 2013 could cause the area to go into nonattainment for the ozone NAAQS.

PM Nonattainment Concerns

- ◉ **PM₁₀ compliance: <3 exceedances in 3 years**
 - Weeping Water: 5 exceedances since October, 2010
 - 46th & Farnham, Omaha: 4 PM₁₀ exceedances since September, 2011
 - Discussions with sources & EPA on-going
- ◉ **PM_{2.5} in Omaha**
 - In compliance but upward trend
 - Proposed annual standard revision

The entire state of Nebraska is currently classified as in attainment for the PM NAAQS. However there have been recent causes for concern. For PM₁₀, a monitored location cannot average more than one exceedance per year over a 3 year period, or 3 exceedances in 3 years. The PM₁₀ monitor by Weeping Water has recorded 5 exceedances since October, 2010. The PM₁₀ monitor at 46th & Farnham in Omaha has recorded 4 exceedances since September, 2011. The NDEQ is working with sources in the area and is continuing to have discussions with the EPA on how to proceed.

For PM_{2.5}, Nebraska is in attainment but we are seeing an upward trend in PM_{2.5} in Omaha. The upward trend combined with the proposed lowering of the annual standard is a point of concern that we are continuing to monitor.

Lead in Fremont

- ◎ **2 source-oriented monitors in Nebraska**
 - Magnus Farley in Fremont
- ◎ **NAAQS exceedance**
 - September – November, 2011
- ◎ **Issue resolved**
 - Monitor malfunction
 - Source implemented further controls
- ◎ **Current NAAQS compliance**
 - Significant drop in values

Under the last lead NAAQS revision, Nebraska was required to install 2 source-oriented monitors for lead, one in Auburn and one in Fremont. The Fremont monitor was installed for Magnus Farley Metals. From September through November, 2011, there was a recorded exceedance of the 3-month rolling average lead NAAQS. NDEQ contacted Magnus Farley and the EPA. It was identified that the lead monitor was malfunctioning and may be recording higher readings. The EPA agreed with the assessment. Additionally Magnus Farley Metals has implemented equipment modifications and best management practices at the facility. The lead monitors have seen a significant drop in the values and the site is currently attaining the NAAQS.

Title 129



The next part of my presentation is over Nebraska's air quality regulations, also known as Title 129, how they came to be, the process of amending Title 129, and recent and future planned amendments to the regulations.

What Is “Title 129”?

- ◉ Title 129 = Nebraska Air Quality Regulations
- ◉ Contained in Nebraska Administrative Code
 - All codified regulations of Nebraska
- ◉ Regulations enabled by state statutes
 - Nebraska Environmental Protection Act

“Title 129” is the Nebraska Air Quality Regulations. The air quality regulations are contained in the Nebraska Administrative Code, which is all codified regulations of Nebraska. These air quality regulations are enabled by state statutes. The Nebraska Environmental Protection Act was established in 1971 and is the section of the Nebraska statutes that enables the implementation of the air quality regulations and established the Department of Environmental Control, now called the Department of Environmental Quality.

Clean Air Act

- ◉ **Clean Air Act (CAA) United States Code (USC)**
 - Title 42, Chapter 85 of USC
 - EPA → carry out CAA
- ◉ **CAA of 1970**
 - Federal & state regulations
 - NAAQS, SIPS, NSPS, & NESHAPS
 - 1977 Amendments = NSR
- ◉ **CAA Amendments of 1990**
 - Acid rain, operating permits, expanded NESHAP & NAAQS programs

The Clean Air Act is contained in Chapter 85 of Title 42 of the United States Code, the federal laws of the United States. Congress created the Environmental Protection Agency in 1970 to carry out the provisions of the Clean Air Act.

The Clean Air Act was created in 1963, but the 1970 version was the foundation for the air pollution control program. The 1970 revision of the Clean Air Act authorized the development of federal and state regulations. This included the implementation of NAAQS, State Implementation Plans, New Source Performance Standards, and National Emission Standards for Hazardous Air Pollutants. In 1977 there was another amendment that implemented the new source review, or preconstruction permitting program.

The last major revision to the Clean Air Act was the amendments of 1990. These amendments created the acid rain program, operating permit programs, and expanded the NESHAP & NAAQS programs.

State Implementation Plans

- ◉ Title 40 of the CFR
 - “Protection of Environment”
 - Codified regulations of EPA
- ◉ “State Implementation Plan” (SIP)
 - CAA Section 109 & 40 CFR 50.4-50.12
 - Attain & maintain NAAQS
 - Title 129 = Nebraska’s SIP
 - Must be > or = federal regulations
 - May contain state-specific regulations

The Code of Federal Regulations are the rules and regulations of the federal government. Title 40 of the Code of Federal Regulations is entitled the “Protection of Environment” and is the codified regulations of the EPA.

Section 109 of the Clean Air Act and Parts 50.4 through 50.12 of Title 40 of the Code of Federal Regulations stipulate that states are required to create a “state implementation plan” or SIP. The SIP is to contain the methods that each state will use to attain and maintain the NAAQS. Title 129 is Nebraska’s SIP. The rules in the state SIP must be equal to or more stringent than the federal regulations included in Title 40 of the Code of Federal Regulations. However, they may contain additional state-specific regulations, such as Nebraska’s total reduced sulfur standards.

Environmental Quality Council (EQC)

- ◉ **EQC = 17 members**
 - **Governor-appointed**
 - **Represent different sectors**

- ◉ **Adopts amendments to Title 129**

- ◉ **3-4 meetings per year**

The Nebraska Environmental Quality Council, or EQC, is a governor-appointed body of 17 members. The members of the EQC represent many different sectors of Nebraska, including food manufacturing, conservation, agriculture, automobiles or petroleum, power generation, labor, county and municipal governments, minority interests, and a doctor with knowledge about the health aspects of air, water and land pollution.

The EQC is the body that adopts amendments to state regulations authorized by the Nebraska Environmental Protection Act, including Title 129. The EQC meets 3 to 4 times each year, depending on the number and timing of regulatory changes.

Title 129 Amendment Process

- ◎ **NDEQ proposes revisions**
 - New/revised 40 CFR regulations; or
 - Correct outdated/ineffective Title 129 regulations
- ◎ **Proposed revisions public noticed**
 - >30 days
 - “Public Notices” on NDEQ website
 - <http://www.deq.state.ne.us/Proposed.nsf/Pages/Proposed>
 - Nebraska Secretary of State website

The process for amending Title 129 involves the NDEQ proposing revisions to the regulations. Revisions are generally proposed to address new or revised rules in Title 40 of the Code of Federal Regulations. Revisions are also proposed to correct outdated or ineffective regulations that are currently included in Title 129. Once the proposals are created and deemed legally acceptable, they are submitted for public notice at least 30 days prior to the EQC meeting at which they will be presented. The public notice can be found on the NDEQ website under “Public Notices” on the homepage. The proposed regulations can also be found under the “Draft and Proposed Rules and Regulations” section of the NDEQ website at this address or on the Nebraska Secretary of State website under “Rules and Regulations”.

Amending Title 129 Continued

- ◉ **Testimony at EQC meeting**
 - Provided by NDEQ
 - Public participation
 - Oral/written testimony
- ◉ **EQC votes on amendments**
 - If adopted → Attorney General & Governor
- ◉ **If approved → Secretary of State**
 - Amends Title 129
 - Effective = 5 days after filing

During the EQC meeting, the NDEQ will provide testimony on the proposed amendments, including what the proposal is, its intent, any additional financial or regulatory burdens caused by the proposal, and any other pertinent information. After the testimony the public has an opportunity to participate and provide comments on the proposal. Comments at the hearing can be either oral or written or written comments can be submitted to the NDEQ during the 30-day comment period for reading at the EQC hearing.

After the testimony and public comments, the EQC will vote to approve or reject the amendments. If the amendments are approved, they are then submitted to the Nebraska Attorney General and Governor for their approval. If the Attorney General and Governor approve, the amendments are finally submitted to the Secretary of State for inclusion in Nebraska's Title 129. The amendments become effective 5 days after they are filed by the Secretary of State.

June 2011 Hearing

- ◎ “Condensable” gaseous emissions
 - Withdrawn
- ◎ PM_{2.5} implementation
 - Regulated New Source Review (NSR) pollutant
 - “Significant” for PSD
- ◎ Attorney General rejected package
 - Amendments at hearing = substantive changes

The following slides cover some of the recent proposals of note that were presented at EQC meetings and the current status of the proposals. At the June, 2011 meeting, the NDEQ proposed a revision that categorized condensable gaseous emissions as particulate matter emissions. However the proposal was withdrawn during the hearing based upon public objections and so that the amendment could be reworded and repropose at a later date. The NDEQ also presented a package that implemented several amendments to the PM_{2.5} program, including regulating PM_{2.5} as a New Source Review pollutant and classifying it as “significant” for purposes of the prevention of significant deterioration program. During the testimony, further amendments were made to the proposed revisions. Although the amendments were accepted by the EQC, they final package was not approved by the Attorney General as the changes to the proposals that were made during the hearing were considered substantive changes from the version that was public noticed. Therefore the proposals must be resubmitted through the public notice process.

December 2011 Hearing

- ◉ **Reproposed PM_{2.5} package:**
 - Permitting thresholds for:
 - Direct PM_{2.5} emissions
 - Precursor pollutants of PM_{2.5}
 - Allowable increment increases
 - Modeling & monitoring screening levels

- ◉ **Amendments effective: April 1, 2012**

At the December, 2011 EQC hearing, the NDEQ reproposed the PM_{2.5} implementation package that had previously been rejected by the Attorney General. The package contained permitting thresholds for direct emissions and precursor pollutants of PM_{2.5}, identifying the allowable increment increases for pre-construction permitting, and identifying screening levels for modeling and monitoring of PM_{2.5}. The amendments were approved by the EQC, Attorney General, and Governor and became effective on April 1, 2012.

2012 EQC Hearings

● March 2012

- NO_x = precursor to O₃
- Updated Pb NAAQS
- Approved by AG
- Pending Governor approval

● June 2012

- Incorporated 6 NESHAPs
- Chapter 28 effective date = July 1, 2011
- Pending AG & Governor approval

At the March, 2012 hearing, proposals were made and approved by the EQC that identified nitrogen oxides as a precursor to ozone and updated the lead NAAQS in Title 129 to match the most recent EPA rules. The proposals were approved by the Attorney General and are pending approval by the Governor.

At the June, 2012 hearing, the EQC approved amendments to Title 129 that incorporated 6 NESHAPs by reference that had been implemented by the EPA and updated the effective date in Chapter 28 to July 1, 2011. Chapter 28 contains all of the incorporated NESHAPs and updating the effective date ensures that all NESHAPs included in 40 CFR Part 63 are regulated by the NDEQ. The amendments are currently pending Attorney General and Governor approval.

Upcoming Proposals

- September 2012
 - Emission inventory hierarchy
 - VOC definition
 - Appendix II & III
- 2013
 - Condensable gaseous emissions
 - EPA-amended regulations
- Ongoing
 - Title 129 reformatting & clean-up

The last portion of my presentation will cover some upcoming amendments that will be presented to the EQC. At the September, 2012 hearing, the NDEQ intends to present amendments to Title 129 that will implement a hierarchy for submitting emission inventories, updating the definition of a volatile organic compound, or VOC, to remove the list of excluded compounds and reference the listing in the code of federal regulations, and to remove the identification of VOC's from the listing of hazardous air pollutants in Appendix II and III.

In 2013, the NDEQ will be revising and reproposing the condensable gaseous emissions package and continue to incorporate federal regulations amended by the EPA. The NDEQ will also continue to reformat and clean-up Title 129 to address any typographical errors and to make the document more accessible.

Please continue to check the NDEQ or Secretary of State's websites to find public notices of proposed amendments to Title 129.

Contact Information

• NAAQS & Title 129 Questions:

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Thank you for your time today. Here is my contact information if you would like to get in touch with me.

Questions?



Are there any questions?

Thank you.