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Pete Ricketts, Governor

June 19, 2018

Jim Gulliford
Regional Administrator
U.S. EPA Region 7
11201 Renner Blvd.
Lenexa, KS 66219

Re: Nebraska 2018 Ambient Air Monitoring Network Plan

Dear Mr. Gulliford,

Enclosed is the *Nebraska 2018 Ambient Air Monitoring Network Plan* (2018 Network Plan). This document is submitted pursuant to the requirements set forth in 40 CFR Part 58.10.

The 2018 Network Plan makes several recommendations for modifications to the Nebraska Air Monitoring Network:

1) Permanent relocation of an ozone site in Omaha due to redevelopment at the original site;
2) Discontinuance of TSP-Lead monitoring at the Omaha NCore site;
3) Permanent closure of the 46th & Farnam Streets Omaha $PM_{10}$ monitoring site; and
4) Permanent closure of the Weeping Water Farm $PM_{10}$ monitoring site in Cass County.

The 2018 Network Plan was made available to the public on the NDEQ website on or before May 24, 2018. The public comment period ended June 8, 2018. No comments have been received as of June 11, 2018.

Please direct questions or inquiries concerning the 2018 Network Plan to David Adams at 402-471-4159 or David.Adams@nebraska.gov.

Sincerely,

Kevin Stoner
Administrator
Air Quality Division

Enclosure:
Nebraska 2018 Ambient Air Monitoring Network Plan

Ecopies with enclosures:
Gregory Crable and Leland Grooms, U.S. EPA Region 7
Russ Hadan, DCHD
Gary R. Bergstrom and Jim Fobben, LLCHD

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# Nebraska Department of Environmental Quality

# 2018 Ambient Air Monitoring Network Plan

NDEQ Document #18-009

NEBRASKA

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This document is written to fulfill the requirements of 40 CFR Part 58.10 for an annual monitoring network plan as it pertains to the ambient monitoring conducted by the Nebraska Department of Environmental Quality (NDEQ), the Lincoln-Lancaster County Health Department (LLCHD), and the Douglas County Health Department (DCHD).

**Nebraska 2018 Ambient Air Monitoring Network Plan**

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# Acronyms, Abbreviations, and Definitions

## Agencies/Organizations

DCHD - Douglas County Health Department

EPA - United States Environmental Protection Agency

EPA R7 - United States Environmental Protection Agency Region VII

LLCHD - Lincoln/Lancaster County Health Department

NDEQ - Nebraska Department of Environmental Quality

## Regulations

CFR - Code of Federal Regulations

DRR - Data Requirements Rule or 40 CFR Part 51 Subpart BB - Data Requirements for Characterizing Air Quality for the Primary $SO_2$ NAAQS

NAAQS - National Ambient Air Quality Standards

Title 129 - Nebraska Air Quality Regulations

## Site Types

IMPROVE - Interagency Monitoring of Protected Visual Environments (monitoring performed to evaluate regional haze)

MDN - Mercury Deposition Network (a type of NADP site)

NADP - National Atmospheric Deposition Program (analysis of deposition components in precipitation. May include NTN and MDN sites)

NCore - National Core multi-pollutant monitoring stations. Monitors at these sites are required to measure particles ($PM_{2.5}$, speciated $PM_{2.5}$, $PM_{10–2.5}$), $O_3$, $SO_2$, CO, nitrogen oxides ($NO/NO_y$), Pb, and basic meteorology.

NTN - National Trends Network (a type of NADP site that analyzes for acidity, sulfate, nitrate, ammonium, chloride, and base cations (e.g., CA, Mg, K and Na))

SLAMS - State and Local Air Monitoring Stations

## Monitor Terminology

AQS - Air Quality System, the name for EPA's air monitoring data base

FRM - Federal Reference Method used for determining compliance with the NAAQS

FEM - Federal Equivalent Method used for determining compliance with the NAAQS

PWEI - Population Weighted Emissions Index (a term defined in 40 CFR Part 58 Appendix D that relates to $SO_2$ monitoring requirements)

2015 Network Plan - Nebraska's *2015 Ambient Air Monitoring Network Plan & 5-Year Assessment*

2017 Network Plan – Nebraska's *2017 Ambient Air Monitoring Network Plan*

2018 Network Plan – Nebraska's *2018 Ambient Air Monitoring Network Plan* (i.e., this document)

## Concentration Units

ppb - Parts per billion (a volume/volume concentration unit)

ppm - Parts per million (a volume/volume concentration unit)

$mg/m^3$ - Milligrams per cubic meter (a mass/volume concentration unit)

$\mu g/m^3$ - Micrograms per cubic meter (a mass/volume concentration unit)

## Acronyms, Abbreviations, and Definitions (continued)

### Pollutants

CO - Carbon Monoxide

$H_2S$ - Hydrogen sulfide (typically a major component of TRS)

NO - Nitric Oxide

$NO_2$ - Nitrogen Dioxide

NOy - Total reactive oxides of nitrogen. The parameter NOy – NO measured at NCore sites approximates the concentration of $NO_2$, but may be higher.

$O_3$ - Ozone

Pb - Lead

TSP-Pb - Lead sampled using a TSP sampler

$PM_{2.5}$ - Particulate matter with a diameter equal to or less than 2.5 micrometers or microns (reported as $\mu g/m^3$ with air volumes measures at local conditions)

$PM_{10}$ - Particulate matter with a diameter equal to or less than 10 micrometers or microns (reported as $\mu g/m^3$ with air volumes measures at standard conditions (25º C, 1 atm))

$PM_{10-2.5}$ - The difference between $PM_{10}$ and $PM_{2.5}$ (Both being calculated at local conditions)

$SO_2$ - Sulfur Dioxide

TRS - Total Reduced Sulfur ($H_2S$ + other reduced sulfur-containing compounds)

TSP - Total Suspended Particulates

### Definitions

Criteria Pollutants – The six pollutants for which National Ambient Air Quality Standards (NAAQS) have been established: carbon monoxide, nitrogen dioxide, ozone, sulfur dioxide, particulates and lead.

*in situ* - A Latin phrase meaning *in the place*. As used in this report it refers to the formation of pollutants in the atmosphere. For example, ozone is formed *in situ* from the photochemical reaction of pollutant precursors. Ozone is not emitted directly from sources. $PM_{2.5}$ and haze are also formed *in situ*, although they are also emitted by sources. $PM_{10}$ and CO, on the other hand, are largely emitted from sources; *in situ* formation being of minimal importance. NOx and SOx are emitted and then undergo transformations to $NO_2$ and $SO_2$; they also can play a role in the *in situ* formation of ozone and $PM_{2.5}$.

### Census Terms

Core-Based Statistical Area (CBSA) – a geographic area defined by the Office of Management and Budget containing an urbanized core of at least 10,000 people and adjacent areas that have a high degree of social and economic integration with the core. CBSAs are made up of whole counties or county equivalents.

Metropolitan Statistical Area (MSA) – a CBSA that has at least one urbanized area with population of 50,000 or more.

Micropolitan Statistical Area (MiSA) – a CBSA that has at least one urban cluster with population at least 10,000 but less than 50,000.

## I. Introduction and Purpose

This 2018 Ambient Air Monitoring Network Plan (hereafter referred to as the "2018 Network Plan" ) was prepared to meet the federal requirements set forth in 40 CFR Part 58.10. It serves several purposes.

- Describes the current ambient air monitoring network in Nebraska including:
  - The purpose of each monitoring site, and
  - Changes made since January 1, 2017.
- Discusses ambient air quality issues as they relate to the monitoring network.
- Reviews the ambient air monitoring network to determine that the requirements of 40 CFR Part 58 Appendixes A, C, D and E are met.
- Describes planned and possible changes to the ambient air monitoring network through 2019, as best they can be determined at the time this review was conducted.

## II. Public Participation

Federal regulations require annual network plans to be made available for public inspection. The NDEQ meets this requirement by posting it on the NDEQ web site (http://deq. ne.gov/) for 30 days. During the 30 day public inspection period, written comments regarding this Network Plan may be submitted to the Nebraska Department of Environmental Quality (NDEQ). Contact information is provided below.

Mail:

Nebraska Department of Environmental Quality
Attn: Chris Hetzler - Air Quality Compliance Section
PO Box 98922
1200 N Street, The Atrium Suite 400
Lincoln, NE 68509

Email:

NDEQ.airquality@nebraska.gov

Informal inquiries may also be directed to Chris Hetzler at 402/471-0007. Non-written comments are not necessarily included or addressed as review comments.

The deadline for written comment submittal can be found on the NDEQ web site.

## III. Overview of Current Ambient Air Monitoring Network

Nebraska's current air monitoring network is summarized in Table III-1 below, and monitor locations are shown in Figures III-1 and III-2 below. The network description tables in Attachment A provide more detailed information on the network, including site locations and monitoring objectives.

The network includes monitoring sites for ozone, carbon monoxide, nitrogen oxides, sulfur dioxide, lead, $PM_{10}$, $PM_{2.5}$, $PM_{10-2.5}$ and regional haze (i.e., IMPROVE monitor). The network is operated by the Nebraska Department of Environmental Quality and two local agencies: the Douglas County Health Department (DCHD) and the Lincoln-Lancaster County Health Department (LLCHD).

| **Table III-1. Nebraska Air Monitoring Network on March 31, 2018. (1)** | | | | | |
|---|---|---|---|---|---|
| | DCHD Omaha MSA (2)(3) | NDEQ Cass County (4) | LLCHD Lincoln MSA | NDEQ Other Areas of NE | Total |
| SLAMS Sites (includes NCore) | 9 | 1 | 3 | 3 | 16 |
| IMPROVE (5) | 0 | 0 | 0 | 1 | 1 |
| NADP (6) | 1 | 0 | 0 | 1 | 2 |
| Total Monitoring Sites | 10 | 1 | 3 | 5 | 19 |
| **Sites by Pollutant: SLAMS Sites including NCore (3)** | | | | | |
| Ozone | 3 | 0 | 1 | 0 | 4 |
| Carbon Monoxide | 2 | 0 | 0 | 0 | 2 |
| Nitrogen Oxides | 1 | 0 | 0 | 0 | 1 |
| Sulfur Dioxide | 3 | 0 | 1 | 0 | 4 |
| $PM_{10}$ | 3 | 1 | 0 | 0 | 4 |
| $PM_{2.5}$ | 4 | 0 | 1 | 2 | 7 |
| $PM_{10-2.5}$ | 1 | 0 | 0 | 0 | 1 |
| $PM_{2.5}$ Speciation | 1 | 0 | 0 | 0 | 1 |
| Lead | 0 | 0 | 0 | 1 | 1 |
| Total Pollutant Sites | 18 (3) | 1 | 3 | 3 | 25 |

Footnotes:

(1) This table summarizes the number of operating sites as of 3/31/18 in the NE SLAMS network (including NCore) as well as IMPROVE and NADP sites in Nebraska.

(2) The Omaha MSA encompasses 5 NE counties: Cass, Douglas, Sarpy, Saunders, & Washington. DCHD operates sites in Douglas, Sarpy & Washington counties. NDEQ operates sites in Cass County.

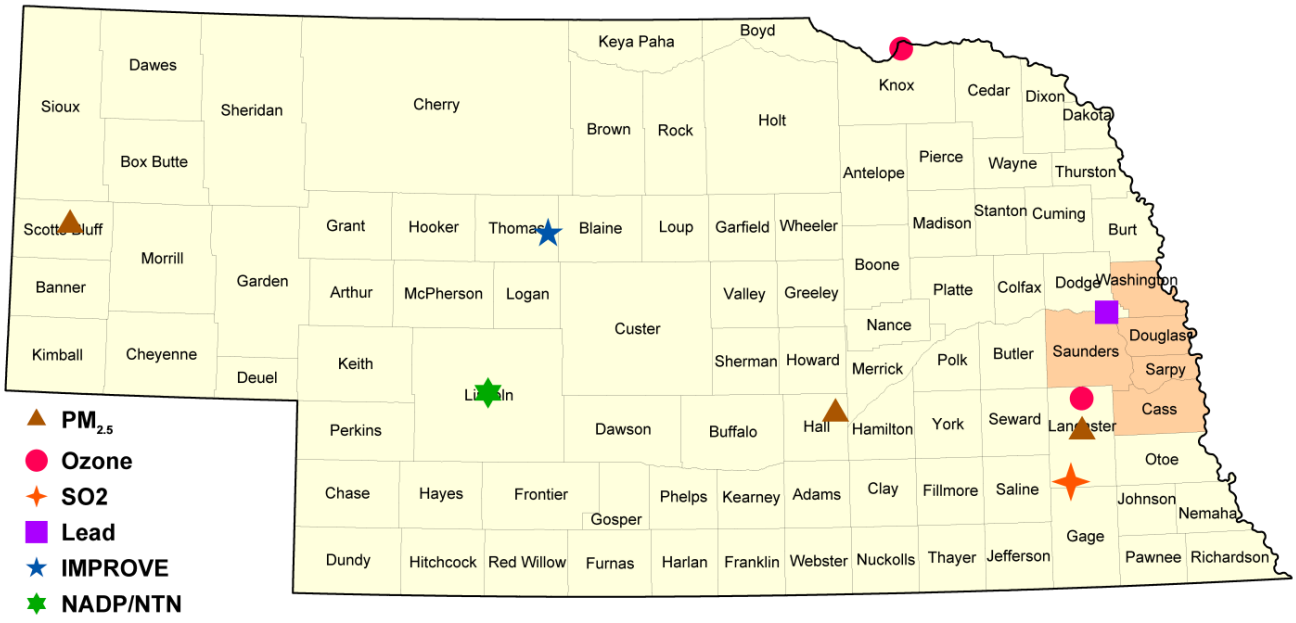
(3) There were 3 multi-pollutant monitoring sites in the Omaha MSA in 2017: 1616 Whitmore – $SO_2$ & Ozone (2 pollutants); 24$^{th}$ & O Sts (South Omaha) : Ozone and $PM_{10}$ (2 pollutants); and NCore (42$^{nd}$ & Woolworth) - CO, NO-NOy, $O_3$, $SO_2$, PM, and lead (9 pollutants). The NCore lead monitor was closed 12/31/17. The number of monitoring sites by individual pollutant is thus greater than the number of monitoring locations within the Omaha MSA and for the state as a whole.

(4) Cass County has limestone mining and processing facilities, which are subject to specific air emission rules for the county set forth in Chapter 21 of Nebraska Administrative Code Title 129 – Nebraska Air Quality Regulations.

(5) IMPROVE – Interagency Monitoring of Protected Visual Environments. These are fine particulate and particulate speciation monitors intended to provide information for studying regional haze that may impact Class I National Park and wilderness Areas. IMPROVE sites are not part of the SLAMS network. EPA is responsible for the design of the IMPROVE network. Changes to the IMPROVE Network within Nebraska do not need to be included in Nebraska's annual network plan, but the existence of the sites are recognized within the network plans. The NDEQ provides administrative support (with EPA funding) for one IMPROVE site at the Nebraska National Forest near Halsey, NE.

(6) NADP - National Atmospheric Deposition Program sites are not part of the SLAMS network. They are not subject to 40 CFR Part 58 requirements, and are not used for NAAQS attainment determinations. They are included in the Network Plan for informational purposes only.

## Figure III-1. Nebraska Air Quality Monitoring Sites Outside of the Omaha-Council Bluffs Metropolitan Statistical Area, 3/31/2018




**$PM_{2.5}$**
Lincoln (Lancaster County)
Grand Island (Hall County)
Scottsbluff (Scottsbluff County)

**Ozone**
Davey (Lancaster County)
Santee (Knox County)

**Lead**
Fremont (Dodge County)

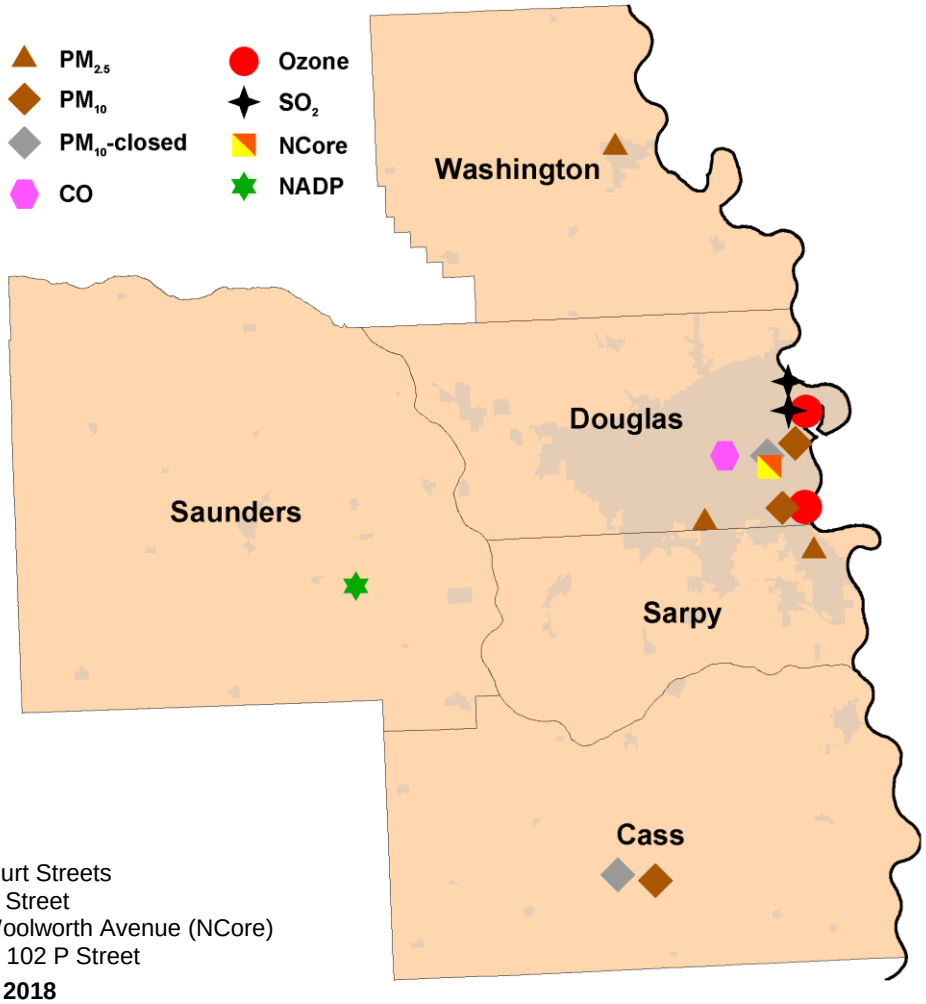
**Sulfur Dioxide ($SO_2$)**
Sheldon Station (Lancaster County)

**NADP/NTN**
Maxwell (Lincoln County)

**IMPROVE**
Nebraska National Forest (Thomas County)

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

**Figure III-2. Air Quality Monitor Locations in the Nebraska Portion of the Omaha-Council Bluffs Metropolitan Statistical Area**




**$PM_{10}$**
Omaha, 19th & Burt Streets
Omaha, 2411 O Street
Omaha, 4102 Woolworth Avenue (NCore)
Weeping Water, 102 P Street

**$PM_{10}$ Closed in 2018**
Omaha, 46th & Farnam Streets (closed 3/22/18)
Weeping Water, 5102 Highway 2 (closed 2/21/18)

**$PM_{2.5}$**
Omaha, 4102 Woolworth Avenue (NCore)
Omaha, 9225 Berry Street
Bellevue, 2912 Coffey Avenue
Blair, 2242 Wright Street

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

**NCore**
4102 Woolworth Avenue

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

**Sulfur Dioxide ($SO_2$)**
Omaha, 4102 Woolworth Avenue (NCore Trace Monitor)
Omaha, 1616 Whitmore Street
Omaha, OPPD North Omaha Station

**NADP/NTN**
Mead, Saunders County

## IV. Nebraska Ambient Air Monitoring Network: January 1, 2017 thru March 31, 2018

This section describes Nebraska's Ambient Air Monitoring Network in place from January 1, 2017 through March 31, 2018, and changes made during that time period. Detailed information on individual monitoring sites, including purpose, scale, monitor specifications, and start dates is contained in Attachment A.

For the most part, this section is organized around the Metropolitan Statistical Areas (MSAs) and Micropolitan Statistical Areas (MiSAs) in which monitoring is conducted.

### A. Omaha MSA Sites Operated by the DCHD

DCHD operates an ambient air network of 9 sites in Douglas, Sarpy, and Washington Counties. Multi-pollutant monitoring is currently conducted at three of the sites:

- The NCore site monitors for 9 pollutant parameters (CO, NOy/NO, $O_3$, $SO_2$, $PM_{2.5}$, $PM_{10}$, $PM_{10-2.5}$, $PM_{2.5}$ speciation, TSP-Pb; TSP-Pb monitoring discontinued 12/31/17), as well as meteorological parameters and atmospheric radiation (RADNET*);
- The South Omaha site has both an ozone and a $PM_{10}$ monitor; and
- The 1616 Whitmore site has both $SO_2$ and ozone monitors.

Thus the Omaha area monitoring network is more extensive than the 9 site total might indicate; if the pollutants are counted separately, there are 19 pollutant monitoring sites.

* Note: RadNet is a nationwide system that monitors the nation's air, drinking water, precipitation, and pasteurized milk to determine levels of radiation in the environment. RadNet sample analyses and monitoring results provide baseline data on background levels of radiation in the environment and can detect increased radiation from radiological incidents. The RadNet monitor is not subject to the network planning process set forth in 40 CFR Part 58.10. It is recognized above for informational purposes only.

There were several changes in the Omaha-DCHD monitoring network on or after January 1, 2017, as detailed below. See Attachment A for detailed information on the sites operated by DCHD.

#### 1. Sulfur Dioxide Monitoring at OPPD North Omaha Station

A new sulfur dioxide monitoring site was established at the Omaha Public Power District (OPPD) North Omaha Station to satisfy changes to 40 CFR Part 51 Subpart BB, §51.1200 – §51.1205 (a.k.a. the Data Requirements Rule) finalized on August 21, 2015. These changes set forth additional requirements with respect to demonstrating attainment with the 1-hour $SO_2$ NAAQS promulgated in 2010. This site began operation on January 1, 2017. The site was vandalized on February 20, 2017, resulting in damage to equipment. The monitor remained out of service until operations resumed on April 20, 2017.

#### 2. Total Suspended Particulate-Lead Monitoring Discontinued at Omaha NCore Site

As discussed in the 2017 Network Plan, modifications to 40 CFR Part 58 Appendix D effective April 27, 2016 removed the requirement to operate a lead monitor at NCore sites. The Omaha NCore lead monitor historically has found very low lead levels (less than 10% of the NAAQS). DCHD made the decision to close the NCore lead monitor as of December 31, 2017. Additional justification for this closure is presented in Section VI-B.

### 3. Temporary Closure of $PM_{10}$ Monitor at 46th and Farnam Streets

On March 22, 2018 the $PM_{10}$ monitor at 46th and Farnam Streets suffered a major electronics failure requiring temporary closure of the site. DCHD recommends permanent closure of this $PM_{10}$ monitoring site, and NDEQ concurs with this recommendation, as discussed in Section VI-C.

## B. Omaha MSA Sites Operated by the NDEQ

The NDEQ has operated two $PM_{10}$ monitoring sites in the Weeping Water area in Cass County. One is located at the city wastewater treatment plant (abbr. WW City site) and the other (abbr. WW Farm site) is approximately 1/3 mile northwest of the intersection of Weeping Water spur (State Spur 13K) and Highway 50.

### 1. Weeping Water City Site

Beginning in 2004 the WW City site had primary and collocated R&P 2025 sequential samplers. In March of 2015 the collocated sampler suffered an electronic failure that was not readily repairable. As described in the 2015 Network Plan, the primary and collocated 2025 samplers at the WW City site were designated for replacement with a MetOne BAM continuous sampler sometime in 2016. This replacement took place on October 1, 2016.

### 2. Weeping Water Farm Site Closure

The NDEQ shut down the Weeping Water Farm $PM_{10}$ monitor site on February 21, 2018 at the request of the landowner. The NDEQ is proposing not to replace or relocate the Weeping Water Farm site as explained in Section VI-D.

## C. Lincoln MSA Sites Operated by the LLCHD

LLCHD operates three SLAMS monitoring sites:

- A $PM_{2.5}$ site at 3140 N Street in Lincoln,
- An ozone site in Davey, (northern Lancaster County) NE, and
- A source-oriented $SO_2$ monitoring site at NPPD's Sheldon Station near Hallam, NE.

The N Street $PM_{2.5}$ site has three monitors: a primary filter-based FRM sampler, a collocated filter-based FRM sampler, and a continuous MetOne BAM monitor. Data from the continuous monitor is reported to AirNow, but not to AQS.

The Sheldon Station monitor began operation on December 23, 2016 to satisfy changes to 40 CFR Part 51 Subpart BB, §51.1200 – §51.1205 (a.k.a. the Data Requirements Rule) finalized on August 21, 2015. These changes set forth additional requirements with respect to demonstrating attainment with the 1-hour $SO_2$ NAAQS promulgated in 2010.

## D. Sioux City MSA in Dakota and Dixon Counties

In accordance with the 2015 Network Plan, the TRS monitoring site at 501 Pine Street in Dakota City was closed at the end of June, 2016. Currently there are no TRS monitoring sites in Nebraska, and none are planned at this time.

There are monitoring sites in the Iowa and South Dakota portions of the Sioux City MSA:

- A $PM_{10}/PM_{2.5}$ site in Sioux City operated by the Iowa DNR,
- An $SO_2$ site in Sargent Bluff operated by the Iowa DNR, and

- A multi-pollutant site for $SO_2$, $NO_2$, $O_3$, $PM_{10}$, and $PM_{2.5}$ in Union County, South Dakota operated by the South Dakota DENR.

## E. Grand Island MSA

The NDEQ operates a $PM_{2.5}$ filter-based FRM sampler at Grand Island Senior High. There were no changes to the monitoring network in the Grand Island MSA from January 1, 2017 through March 31, 2018.

## F. Scottsbluff MiSA

The NDEQ operates a $PM_{2.5}$ filter-based FRM sampler at the Scottsbluff Senior High School. There were no changes at this site from January 1, 2017 through March 31, 2018.

## G. Fremont MiSA

The NDEQ operates a TSP-Pb (lead) monitoring site at 1255 Front Street in Fremont. This site is source-oriented with respect to Magnus-Farley, a brass/bronze foundry. There are two TSP samplers at this site: a primary sampler and a collocated sampler. There were no monitoring network changes in the Fremont MiSA from January 1, 2017 through March 31, 2018.

## H. Lexington MiSA

In accordance with the 2015 Network Plan, the $PM_{10}$ monitoring sites at Cozad and Gothenburg were closed March 7, 2016. Currently there are no ambient air monitoring sites in the Lexington MiSA.

## I. IMPROVE Site

IMPROVE is the acronym for Interagency Monitoring of Protected Visual Environments. These sites contain fine particulate and particulate speciation monitors intended to provide information for studying regional haze that may impact Class I National Park and Wilderness Areas. There are no Class I National Park and Wilderness Areas in Nebraska; the nearest sites are in Colorado and South Dakota.

NDEQ provides administrative support for one IMPROVE site at Halsey National Forest in Thomas County. Data collected at this site facilitates regional haze and pollution transport studies.

## J. National Atmospheric Deposition Program (NADP): National Trends Network (NTN) & Mercury Deposition Network (MDN)

**The National Atmospheric Deposition Program/National Trends Network** (NADP/NTN) is a federal, nationwide network of sites that monitor for deposition constituents in precipitation. The deposition parameters examined include acidity, sulfate, nitrate, ammonium, chloride, and base cations (e.g., calcium, magnesium, potassium and sodium).

There are two NADP/NTN sites in Nebraska: one near Mead that has operated since 1978 and one near North Platte that has operated since 1985. These sites are operated by the University of Nebraska with analytical and data development support from the federal NADP. There were no changes to the NADP/NTN network from January 1, 2017 thru March 31, 2018.

Mercury Deposition Network (MDN) monitoring was initiated at the Mead site on June 26, 2007, and is continuing. At the North Platte site, MDN monitoring was conducted from October 2008 thru October 2010.

The operation of NADP sites is not subject to the provisions of 40 CFR Part 58.10. Their inclusion in this Network Plan is for informational purposes only. More information on the NADP/NTN and the NADP/MDN sites can be found in Attachment A of this network plan. For NADP, NTN and MDN program information see: http://nadp.sws.uiuc.edu/ or http://nadp.sws.uiuc.edu/mdn/.

## V. Considerations for Network Planning

### A. EPA Air Monitoring and Network Design Requirements

The Nebraska Ambient Air Quality Network must comply with the applicable requirements of 40 CFR Part 58 Appendices A through E. As the review in Attachment C verifies, the Nebraska ambient air monitoring network, operated by the NDEQ, DCHD, and LLCHD, is meeting all the applicable requirements of Appendixes A, C, D & E.

Additional information is provided below concerning several potential monitoring site requirements.

#### 1. Prevention of Significant Deterioration (PSD) Monitoring

Appendix B applies to Prevention of Significant Deterioration (PSD) sites. Monitoring required for PSD is generally conducted by the source, not a state or local monitoring agency (i.e., not by NDEQ, DCHD, or LLCHD). This is the case at this time. Thus compliance with Appendix B is not directly addressed in this network plan.

In 2017 NioCorp completed PSD-required background monitoring near the planned location of their rare earth metals mining and processing facility near Elk Creek, NE. The monitoring requirements associated with this project are in compliance with Appendix B.

#### 2. Lead Monitoring Waiver for Nucor Steel in Norfolk

40 CFR Part 58 Appendix D Section 4.5 requires source-oriented lead monitoring near lead sources that emit 0.5 tons or more per year. A waiver from this monitoring requirement is allowed if it can be demonstrated that ambient lead levels will not exceed 50% of the NAAQS.

Nucor Steel in Norfolk, NE submitted a waiver request in 2011 and provided modeling that demonstrated ambient lead levels would not exceed 50% of the NAAQS. NDEQ reviewed and concurred with a revised Nucor submittal. EPA approved this waiver request in April 16, 2014. The waiver is effective for 5 years and thus will expire in April 2019.

| Table V-1. Reported Lead (Pb) Emissions at Nucor Steel 2012 through 2017 | | | | | | |
|---|---|---|---|---|---|---|
| Year | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
| Pb Emissions (tons per yr) | 0.63 | 0.81 | 0.11 | 0.91 | 0.15 | 0.19 |

Table V-1 above lists reported lead emissions at Nucor Steel from 2012 through 2017. Nucor lead emissions were above the 0.5 ton per year monitoring threshold in 2012, 2013, and 2015 and below it in 2014, 2016, and 2017. Thus a lead monitor may be required at the Nucor Steel site in 2019 unless the current monitoring waiver is renewed before April 2019.

## B. Air Quality and NAAQS Attainment

The monitoring results for 2015 thru 2017 from all monitoring sites in Nebraska and adjacent state portions of the Omaha and Sioux City MSAs are in attainment with the NAAQS. See the monitoring data tables in Attachment B for more information on the 2015 thru 2017 monitoring results.

Nebraska has never had a declared non-attainment determination. Nebraska is currently classified as "unclassified/attainment' with respect to the 1-hour $NO_2$ and $SO_2$ NAAQS established in 2010. See the Sulfur Dioxide and Nitrogen Dioxide sections below for an explanation as to how this relates to monitoring needs.

1. **Sulfur Dioxide ($SO_2$)**: The NAAQS for $SO_2$ was revised in 2010 to establish a 1-hour average standard of 75 ppb (99$^{th}$ percentile of daily maximum 1-hour concentrations). All of Nebraska has been designated "Attainment/Unclassifiable" with respect to this standard except for Lancaster County, which has been designated "Unclassifiable", and Douglas County, which will be designated by December 31, 2020. In accordance with 40 CFR Part 51 Subpart BB (known as the Data Requirements Rule), source-oriented ambient air monitoring is being conducted at two coal-fired electricity generating stations in these counties: North Omaha Station (Douglas County) and Sheldon Station (Lancaster County).

   There are three $SO_2$ monitors in Omaha, two in portions of the Sioux City MSA in adjacent states (one in Sargent Bluff, IA and one in Union County, SD), and one in the Lincoln MSA (Lancaster County). The 1-hour $SO_2$ levels being found at these sites are in attainment with the NAAQS. See Attachment B Table B-3.

   In Omaha the 1-hour $SO_2$ Design Value for 2015-2017 at the neighborhood-scale NCore site was 48% of the NAAQS. The first year of data at the North Omaha Station monitor shows maximum $SO_2$ concentrations at 48% of the NAAQS, while the 2015-2017 Design value at the nearby Whitmore site was 79% of the NAAQS.

   In the Sioux City MSA, $SO_2$ Design Values at Sergeant Bluff (source-oriented to a coal-fired generating station) and in Union County, SD were 11% and 5% of the NAAQS, respectively.

   The first year of data at the Sheldon Station monitor in the Lincoln MSA shows maximum $SO_2$ concentrations at 59% of the NAAQS.

2. **Nitrogen Dioxide ($NO_2$)**: The NAAQS for $NO_2$ was revised in 2010 to establish a 1-hour maximum standard of 100 ppb (98$^{th}$ percentile of the daily maximum 1-hour values). The annual mean standard of 53 ppb was retained at that time. An "unclassifiable/attainment" classification currently applies to all counties in Nebraska with respect to these standards. In

April 2018 EPA announced the results of a review of the 2010 $NO_2$ NAAQS, which concluded that the current standards protect the public health with an adequate margin of safety and would be retained.

There is one $NO_2$ monitoring site in Union County, SD within the Sioux City MSA. This is an area background site and is finding 1-hour $NO_2$ levels at 18% of the NAAQS.

There is an NOy/NO monitor at the Omaha NCore site. The NOy-NO parameter generally approximates $NO_2$, with NOy-NO being equal to or possibly higher than $NO_2$. The 1-hour NOy-NO levels at the Omaha NCore site were at 36% of the 1-hour $NO_2$ NAAQS in the 2015 through 2017 time frame.

See Attachment B Tables B-4a and B-4b for $NO_2$ and NOy-NO concentration data.

3. **Carbon Monoxide (CO):** There are 2 CO monitors in Nebraska. The 78$^{th}$ & Dodge Streets site is a near-road, highest concentration site, while the Omaha NCore CO monitor is a neighborhood-scale site. Both monitors are finding CO levels less than 20% of the 8-hour NAAQS and less than 10% of the 1-hour NAAQS. See Attachment B Table B-2. Vehicle emissions are the primary source of ambient CO, which has been reduced by stricter federal vehicle emission standards. The current CO NAAQS were established in 1984 and last reviewed by EPA in 2011, when it was determined that the NAAQS were protective and did not need to be changed.

4. **Ozone:** On October 1, 2015, EPA strengthened (lowered) the ozone NAAQS from 0.075 ppm to 0.070 ppm. As shown in Attachment B Table B-1, the 2015-2017 Design Values (DVs) at monitoring sites in Nebraska and adjacent state areas in the Omaha and Sioux City MSAs are in attainment with this standard. Ozone DVs ranged from 84% to 91% of the NAAQS in the 2015-2017 time-frame. The highest ozone levels are found in the Omaha MSA and near Santee, NE (an EPA CASTNET site).

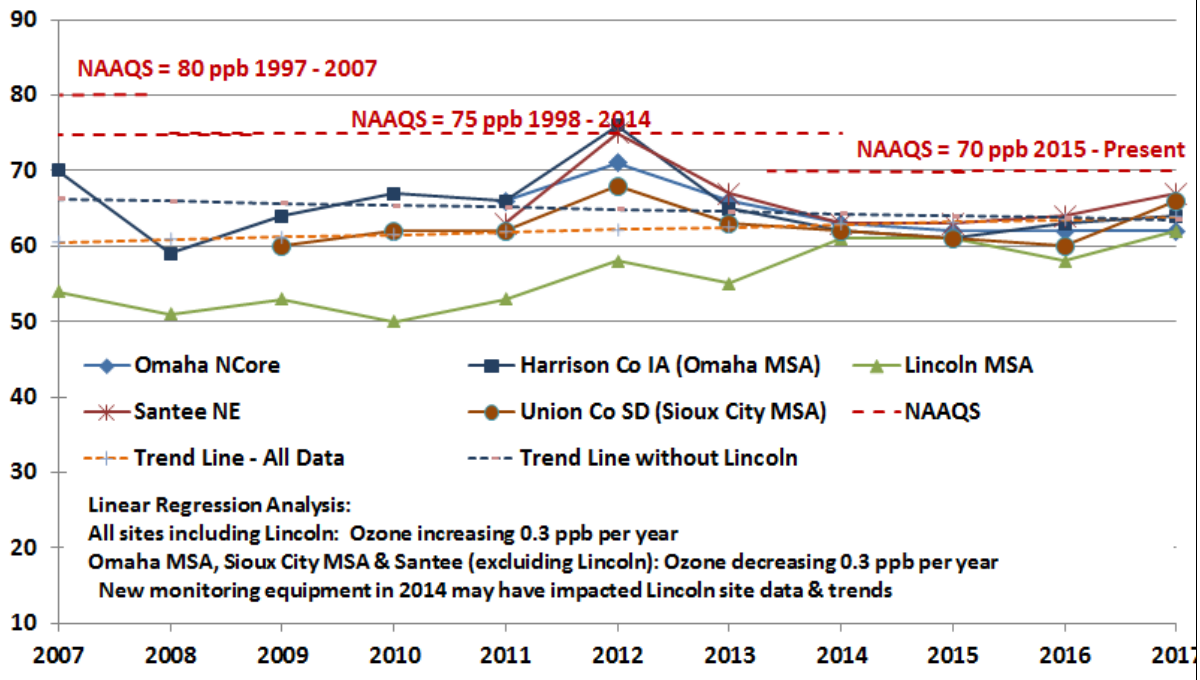
   As shown in Figure V-1 on the next page, ozone levels in Nebraska have generally declined over the last 10 years with 2 exceptions:

   - All sites recorded increased ozone levels in 2012; and
   - At Davey, NE (Lincoln MSA site) ozone levels increased from 2010 to 2017.

   The Davey site was upgraded with new monitoring equipment starting in 2014 and ozone levels increased to be closer to those being found in Omaha. There have been small annual fluctuations in annual 4$^{th}$-high ozone levels at the site since then.

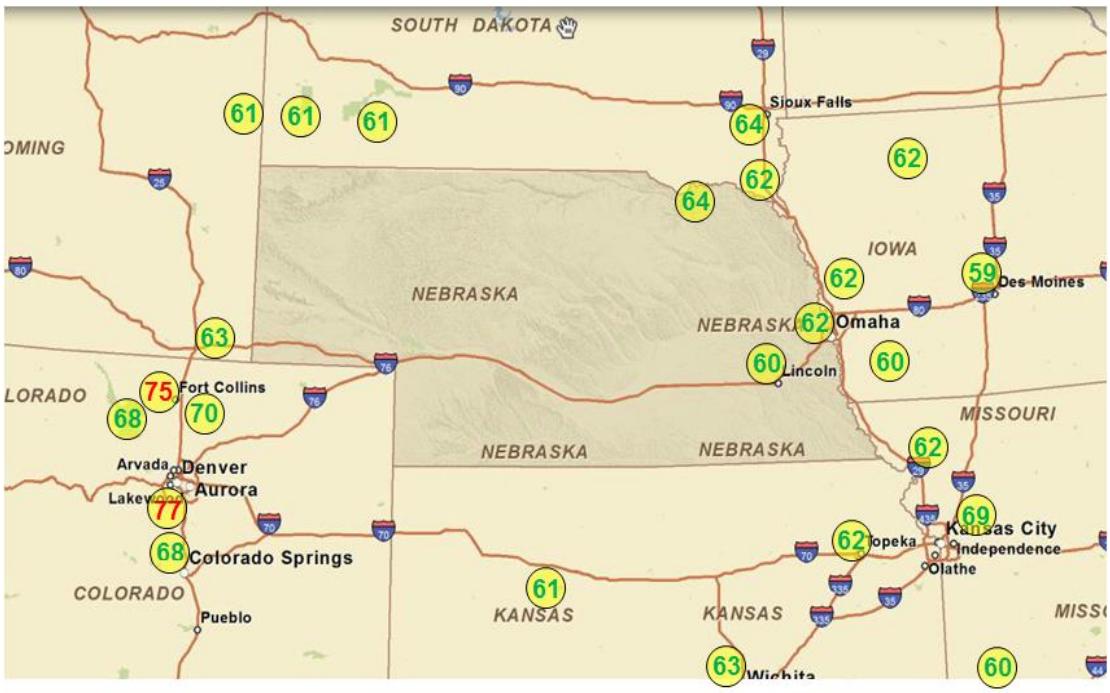
   The ozone levels at Santee are somewhat surprising given its rural setting far from metropolitan areas. However, ozone data from Nebraska and near-by states (Figure V-2 on the next page) show that rural sites define a "regional background" design value ranging from 58 to 61 ppm; ozone levels in Omaha and Santee are only slightly higher, while the Denver and Kansas City metropolitan areas show considerably higher 2017 ozone design values.

**Figure V-1. Annual 4th High 8-Hour Ozone Levels: 2007 through 2017**




Ozone levels over the last 11 years were highest in 2012. The sites with the highest ozone levels were the Harrison County IA site in the Omaha MSA (76 ppb in 2012) and the Santee NE site (75 ppb in 2012). The NAAQS was not violated as it is evalauted using the 3 year average of the annual 4th high values.

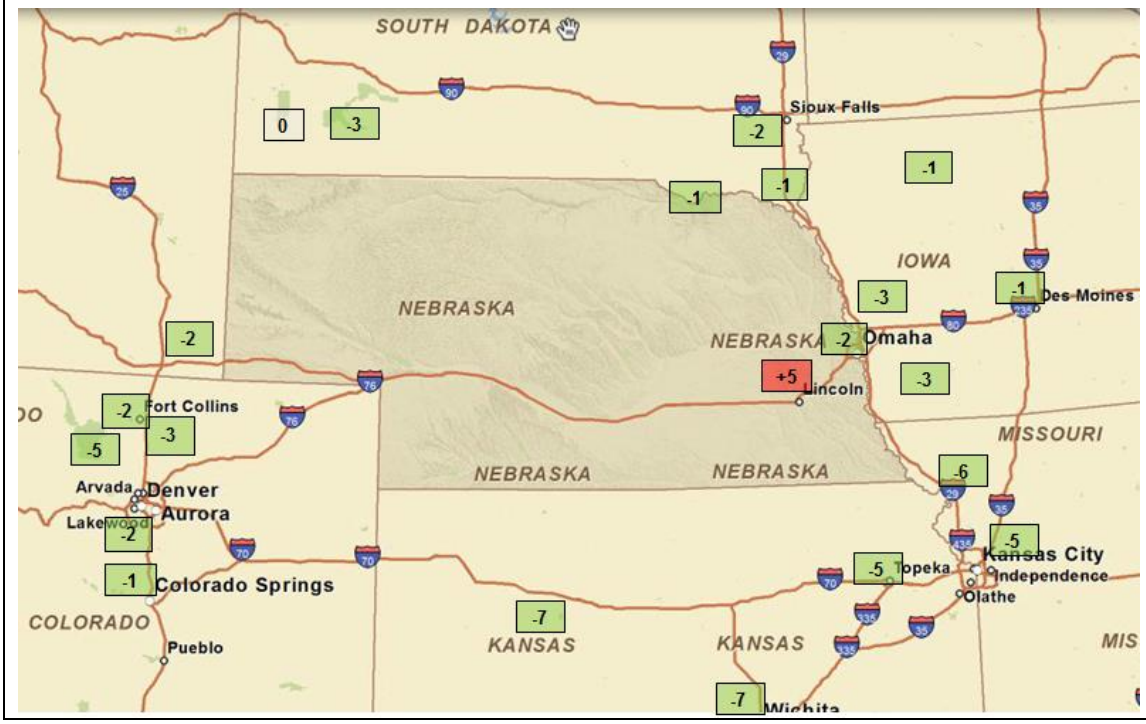
**Figure V-2. Three-Year (2015 -- 2017) Ozone Design Values (DVs, in ppb) for Locations In and Around Nebraska(1)**




Footnotes:
(1) Where there is more than one monitoring site in a locale, the highest ozone DV is shown. DVs in green are in attainment with the NAAQS (70 ppb), while red values exceed the NAAQS.

Figure V-3 below shows the difference between 2017 ozone design values and the long-term average for the last 5 to 10 years for stations in and around Nebraska. Nearly all stations show 2017 design values lower than the long-term average. The station at Davey in Lancaster County, NE is an exception. As noted above, a change in monitors at this site in 2014 may partially account for this increase.

**Figure V-3. Change in 2017 Ozone Design Values (ppb) Relative to 5 to 10-year Average in and Around Nebraska**




5. **$PM_{2.5}$:** EPA last revised the $PM_{2.5}$ NAAQS in 2012, setting the annual average NAAQS at 12 µg/m$^3$ (changed from 15 µg/m$^3$) and retaining the 24-hour NAAQS at 35 µg/m$^3$. As shown in Table V-1 below and in more detail in Attachment B Tables B-6a and B-6b, all $PM_{2.5}$ sites in Nebraska are in attainment with the NAAQS.

**Table V-2. $PM_{2.5}$ Levels (2015 thru 2017 DVs) as a Percent of the NAAQS** (1)

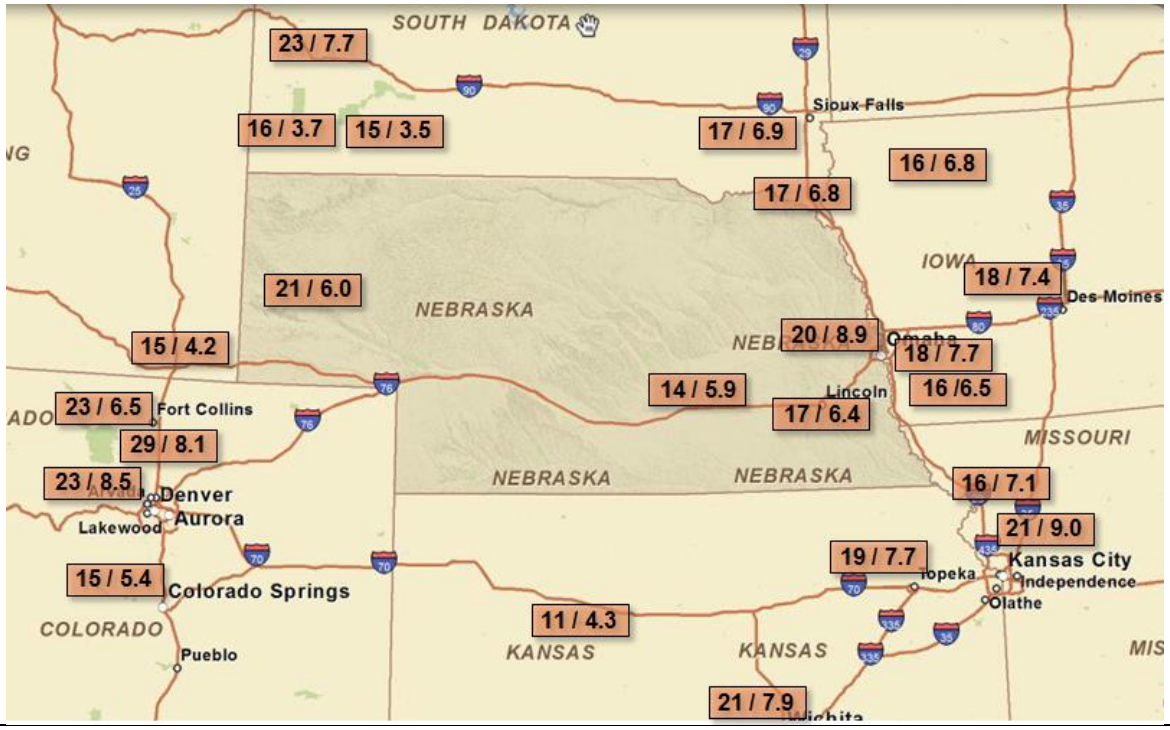
| Location | 24-Hour Average DV | Annual Average DV |
|---|---|---|
| Omaha MSA | 58% | 74% |
| Lincoln MSA | 48% | 53% |
| Sioux City MSA | 54% | 63% |
| Grand Island MSA | 40% | 49% |
| Scottsbluff MiSA | 61% | 50% |

Footnote (1): Where there is more than one monitoring site in a locale, the highest DV was used to calculate the % NAAQS value shown above.

The highest $PM_{2.5}$ concentrations were found in the Omaha MSA and the second highest in the Sioux City MSA.

Figure V-4 below shows the DVs for $PM_{2.5}$ sites in and around Nebraska. Unlike ozone, $PM_{2.5}$ concentrations do not appear to be uniformly distributed over large areas of Nebraska. $PM_{2.5}$ levels are generally lower in Grand Island and Scottsbluff than in the larger metropolitan areas in eastern Nebraska. The relatively high 24-hour DV at Scottsbluff (21 $\mu g/m^3$) appears to be an exception. Higher 98th percentile values in 2015 (24.9 $\mu g/m^3$) and 2017 (24.1 $\mu g/m^3$) are likely to have been caused by smoke impacts from wildfires. The highest daily values in 2017 coincided with a widespread smoke plume from wildfires in the western states and a cluster of fires in southeastern Montana and northern Wyoming.

**Figure V-4. $PM_{2.5}$ 2015-2017 Design Values (DVs) for Sites In and Around Nebraska** (1)(2)




Footnotes:
(1) The first number is the 24 hour average DV and the second number is the annual average DV.
(2) When there was more than one site in a metropolitan area, the highest DVs are shown.

Wildfires as well as prescribed fires also can impact air quality in eastern Nebraska. Smoke from prescribed fires typically impacts eastern Nebraska in the spring of the year. In 2017 the greatest impact occurred from April 7th through April 14th with Lincoln experiencing *Unhealthy for Sensitive Group* air quality (Orange AQI) on 2 days, April 8th and 12th and *Moderate* air quality (Yellow AQI) on 3 days, April 3rd, 7th and 13th. Omaha experienced *Moderate* air quality on 5 days, April 8th, 9th, 12th, 13th and 14th.

Prescribed burns are used in Nebraska and near-by states for prairie conservation and maintenance of grazing lands. The Flint Hills of Kansas and Oklahoma, and areas near the Flint Hills in Kansas, are areas of concentrated use of prescribed fires, primarily in the spring months.

Smoke from the prescribed fires in the Flint Hills and near-by areas was a major source of the elevated $PM_{2.5}$ levels experienced in Lincoln and Omaha from April 7th through 14th of 2017.

NDEQ is working with Kansas Department of Health and Environment (KDHE) and EPA Region 7 on strategies to improve air quality in Nebraska during the spring prescribed burn season. In February 2018, representatives of NDEQ, EPA Region 7, Kansas Department of Health and Environment, Douglas County Health Department, Omaha Air Quality Control, and Lincoln-Lancaster County Health Department met in Lincoln to discuss issues surrounding prescribed burning and the forecast for the 2018 spring burn season.

To provide additional data on potential smoke impacts during the spring 2018 prescribed burn season, the NDEQ established a temporary investigative monitoring site at the Beatrice, NE Wastewater Treatment Plant (1301 Beaver Avenue; latitude 40.250135° N, longitude 96.734866° W). This site is located south of Lincoln and north of the Flint Hills. A Met One BAM continuous $PM_{2.5}$ monitor began operating at this site on March 26, 2018. Data from this monitor are reported to AirNow for review by agency staff and the public. An R&P 2025 sequential (filter-based) $PM_{2.5}$ monitor has been collocated at the site to provide a check on the data from the BAM, with daily sampling frequency during startup and weekly sampling thereafter. These monitors will operate for several months through the 2018 prescribed burn season, with an ending date that will be determined by the monitoring results. Because of the short duration of this investigative monitoring, there will be insufficient data capture for comparison with the $PM_{2.5}$ NAAQS. Data from these monitors therefore will not be used for regulatory purposes and will not become part of the official AQS data set.

To provide up-to-date information to the public regarding prescribed burning, NDEQ created a smoke awareness web page in March 2017. During the burn season, current smoke forecast information is provided, along with links to the Kansas Smoke Management Plan, AirNow, and other related information. NDEQ has also collaborated with the Nebraska Department of Health and Human Services (DHHS), LLCHD, and DCHD to develop a public smoke advisory system which was announced on April 10, 2018. Smoke advisories are issued by DHHS for impacted counties based on forecasts provided by KDHE.

6. **$PM_{10}$:** EPA last modified the $PM_{10}$ NAAQS in 2006 when the 50 $\mu g/m^3$ annual average standard was dropped and the 150 $\mu g/m^3$ 24-hour standard was retained. $PM_{10}$ is more source-oriented and remains more localized to its point of origin than $PM_{2.5}$. As shown by the data in Attachment B Table B-5a and B-5b, all the monitors in Nebraska are demonstrating attainment with the $PM_{10}$ NAAQS over the 2015 thru 2017 time-frame.

   The $PM_{10}$ NAAQS states that the 24-hour standard of 150 $\mu$ $g/m^3$ is not to be exceeded more once per year on average over the latest 3-year time frame, where an exceedance is a 24-hour average value of 155 $\mu g/m^3$ or more. This means the 4th high value over the most recent 3 years needs to be below 155 $\mu g/m^3$. For the 2015-2017 time frame, most PM10 monitors in Nebraska had 4th-high 24-hour average values that were 40% or less of the NAAQS (see Attachment B, Table B-5b).

   Two areas where there have been high $PM_{10}$ levels in the past, Weeping Water and 46th & Farnam Streets in Omaha, have improved. These are discussed below.

   a) **Weeping Water:** The Weeping Water area has several limestone mining and processing facilities. There are two $PM_{10}$ monitoring sites in the Weeping Water area. One is at the city wastewater treatment facility (Weeping Water City site) and one is approximately 2

miles west of the city (Weeping Water Farm site). As discussed in Section IV-B-2, the Weeping Water Farm site was closed on February 21, 2018 at the request of the landowner.

The Weeping Water City site has detected relatively low $PM_{10}$ levels (i.e., maximum 24-hour $PM_{10}$ levels 30 to 40% of the NAAQS) since Martin Marietta closed down their limestone processing facility on the west edge of Weeping Water in 2008. Martin Marietta developed a new site approximately 2 miles southwest of the city.

Higher $PM_{10}$ levels have been detected at the Weeping Water Farm site near the Kerford Limestone and Iowa Limestone processing facilities (located ~ ¼ mile west of this monitoring site). These facilities are aware of their air quality responsibilities and challenges. Their environmental contact will call to check on $PM_{10}$ levels being detected by the continuous monitor at this site when he suspects additional controls may be needed. In the 2015 thru 2017 time frame, one 24-hour $PM_{10}$ value met or exceeded 155 $\mu g/m^3$, a 166 $\mu g/m^3$ value on 3/11/15. The 4th highest value for the 2015 thru 2017 time frame was 120 $\mu g/m^3$ or 80% of the NAAQS.

b) **46th & Farnam Streets, Omaha:** The $PM_{10}$ site at 46th and Farnam Streets was source-oriented with respect to Omaha Steel, a $PM_{10}$ emission source. The Omaha Steel facility was closed in 2014, and demolition and re-development activities followed in 2015 through 2016. As can be seen in Attachment B Table B-5b, the highest 24-hour average value in the 2015-2017 time period was 153 $\mu g/m^3$ in 2015 and the 4th highest value was 77 $\mu g/m^3$ or 51% of the NAAQS.

7. **Lead:** The lead NAAQS was last changed in 2008, when it was tightened from 1.5 $\mu g/m^3$ to 0.15 $\mu g/m^3$. At the beginning of 2016 there were 3 lead monitoring sites in Nebraska: Fremont, Auburn, and Omaha NCore. All three demonstrated attainment with the NAAQS (see Attachment B Table B-7).

   a) Omaha NCore Site: The 2015-2017 Design Value (DV) for this site was 2% of the NAAQS. The Part 58 revisions effective April 27, 2016 no longer require lead monitoring at NCore sites. As discussed in Section IV-A, DCHD discontinued lead monitoring at the Omaha NCore site on December 31, 2017.

   b) Auburn Site: This site is source-oriented with respect to Magnolia Metals, a bronze foundry. In 2012 and 2013, Magnolia Metals implemented a series of pollution-control upgrades that significantly lowered ambient lead levels and dropped their lead emissions to 0.1 tpy, below the 0.5 tpy threshold for requiring lead monitoring. The 2013 to 2015 DV was 20% of the NAAQS, and 2014 and 2015 levels were at or below 5% of the NAAQS. This site was closed in June 2016 in accordance with the 2015 Network Plan.

   c) Fremont Site: This site is source-oriented with respect to Magnus-Farley, a bronze and brass casting facility. In 2012 the maximum 3-month average ambient lead level was 0.14 $\mu g/m^3$ or 93% of the NAAQS. In 2015 thru 2017 the maximum 3-month average lead concentrations were lower at 51%, 41%, and 28% of the NAAQS, respectively. Facility awareness and diligence, coupled with NDEQ feedback on ambient air lead concentrations, appear to have facilitated the air quality improvements. See Attachment B Table B-7 for the 2015 thru 2017 ambient air quality summary data.

## C. Population Trends and Network Design

Population data is reviewed as part of the network planning process because:

- Population growth may be associated with pollution source growth;
- High population density generally correlates with high air pollution potential; and
- Some 40 CFR Part 58 requirements are based on population and/or federally defined metropolitan statistical definitions.

Overall growth trends in Nebraska appear basically unchanged from those described in previous annual Network Plans. Most of the population growth is occurring in Nebraska's three most populous and densely populated counties: Douglas, Lancaster, and Sarpy (i.e., the Omaha and Lincoln MSAs).

The basic design of the Nebraska ambient air monitoring network is consistent with these population trends: 83% of the monitoring sites and 89% of the pollutant monitors are located within the Omaha and Lincoln MSAs. The Omaha MSA network contains 67% of the monitoring sites in Nebraska and 79% of the monitors.

## D. Funding

Air monitoring is supported by a combination of federal, cash, state, and local funding sources. Table V-2 on the next page provides a summary of the primary funding sources used for air monitoring.

Federal CAA §103 funding is used to operate $PM_{2.5}$ and IMPROVE monitors. Funding for April 2016 through March 2017 was maintained at the same level as the previous year.

Current funding levels are adequate to continue the operation of the existing Nebraska air monitoring network, provided major new equipment purchases are not required.

| Table V-3: Primary Funding Sources Used to Support Air Monitoring in Nebraska | |
|---|---|
| **Nebraska Department of Environmental Quality (NDEQ)** | |
| **Funding Source** | **Comments** |
| State General Funds | At a minimum must be sufficient to meet minimum federal match requirements |
| State Title V Funds | Fees paid by major sources based on the quantity of air pollutants they emit. NDEQ collects Title V fees for sources throughout Nebraska, except those regulated by LLCHD and Omaha Air Quality Control. Title V funds cannot be used for state/local match. |
| CAA §105 Funds | Federal grant funds used for air monitoring activities set forth in a bi-annually negotiated EPQA-NDEQ work plan. Requires a 40% state/local match. A portion of this grant funding is passed on to DCHD and LLCHD. |
| CAA §103 Funds | Federal grant funds used for air monitoring activities set forth in a bi-annually negotiated EPA-NDEQ work plan. This money is currently limited to funding $PM_{2.5}$ and IMPROVE monitoring, and sometimes for specified equipment purchases and/or special monitoring studies. Requires no state/local match. A portion of this grant funding is passed on to DCHD and LLCHD. |
| **Douglas County Health Department (DCHD)** | |
| Local County Funds | At a minimum must be sufficient to meet minimum federal match requirements |
| City of Omaha Title V funds | See *State Title V Funds* comments above. Omaha Air Quality Control regulates air emission sources in the City of Omaha, including the collection of Title V fees from major sources. A portion of the Omaha Title V funds are directed to DCHD to support air monitoring. Title V funds cannot be used for state/local match. |
| CAA §105 Funds | NDEQ passes-through a portion of the Federal §105 funds to DCHD for activities described in an NDEQ/DCHD work plan. DCHD is required to meet the 40% state/local match requirement. |
| CAA §103 | NDEQ passes-through a portion of the federal §103 funds to DCHD for activities described in an NDEQ/DCHD work plan, primarily $PM_{2.5}$ related monitoring activities. There is no state/local match requirement. |
| Metropolitan Area Planning Assoc. (MAPA) Funds | Typically federal grant funds obtained by MAPA are for specific purposes such as transportation or homeland security. Historically they have been used for equipment purchases and site set-up, not network operating costs. |
| **Lincoln Lancaster County Health Department (LLCHD)** | |
| Local County Funds | At a minimum must be sufficient to meet minimum federal match requirements |
| Lancaster County Title V funds | See *State Title V Funds* comments above. LLCHD regulates air emission sources in Lancaster County, including the collection of Title V fees from major sources. A portion of the Title V funds are used to support air monitoring activities performed by LLCHD. Title V funds cannot be used for state/local match. |
| CAA §105 Funds | NDEQ passes-through a portion of the Federal §105 funds to LLCHD for activities described in an NDEQ/LLCHD work plan. LLCHD is required to meet the 40% state/local match requirement. |
| CAA §103 | NDEQ passes-through a portion of the federal §103 funds to LLCHD for activities described in an NDEQ/LLCHD work plan, primarily $PM_{2.5}$ related monitoring activities. There is no state/local match requirement. |

## VI. Anticipated Nebraska Air Monitoring Network Modifications

NDEQ is recommending one permanent site relocation, permanent closure of two sites, and permanent monitor closure at one site, as explained below.

### A. Omaha Ozone: Permanent Relocation of 30th & Fort Ozone Site to 1616 Whitmore Street

The 30th and Fort Streets monitoring site had to be relocated starting in 2015 due to demolition and redevelopment at the site. The site was moved to 1616 Whitmore Street beginning in 2015 and continuing through 2017.

Permanent relocation is proposed based upon 4 factors:

1) The availability of the 30th & Fort location after redevelopment is completed remains an unknown;
2) The 1616 Whitmore site is in an economically depressed area;
3) The use of the Whitmore site for both ozone and $SO_2$ monitoring provides operational and efficiency advantages; and
4) Most importantly the evidence indicates that ozone levels at 1616 Whitmore are higher than those at 30th & Fort, as discussed in detail below.

Table VI-1 compares annual 4th high ozone levels at the 30th & Fort and Whitmore sites to the Omaha NCore and nearby Harrison County IA sites from 2008 through 2017. The annual 4th high levels at the 30th and Fort site were consistently lower than those at the NCore or Harrison County sites, except in 2012, whereas levels at the Whitmore site have been equal to or higher than these reference sites.

**Table VI-1. Annual 4th High Ozone Levels: Comparing Ozone Levels at the 30th & Fort and Whitmore sites to those at the Harrison County IA and Omaha NCore Sites[1]**

| Site/Stats | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|---|---|
| Harrison Co, IA | 59 | 64 | 67 | 66 | 76 | 65 | 62 | 61 | 63 | 64 |
| Omaha NCore | nd | nd | nd | 66 | 71 | 66 | 63 | 62 | 62 | 62 |
| 30th & Fort | 58 | 61 | 64 | 59 | 77 | 61 | 60 | nd | nd | nd |
| 1616 Whitmore | nd | nd | nd | nd | nd | nd | nd | 64 | 63 | 64 |
| 30th & Fort/Whitmore as % of Harrison Co | 98% | 95% | 96% | 89% | 101% | 94% | 97% | 105% | 100% | 100% |
| 30th & Fort/Whitmore as % of Omaha NCore | na | na | na | 89% | 108% | 92% | 95% | 103% | 102% | 103% |

(1) Annual 4th highest daily 8-hour maximum concentrations in ppb.
Abbreviations: nd = no data collected na = no data for statistical analysis

There is reason to suspect that the 2012 data from 30th & Fort Streets was subject to positive bias. As ambient temperatures rose in June and July 2012, the 30th & Fort Streets site demonstrated atypically high ozone levels as compared to other Omaha sites. There was discussion that volatile emissions from electrician's tape used to attach an inverted funnel to the inlet as a rain-guard were causing the positive bias. The tape was removed and replaced with a different product. Subsequently, ozone levels dropped to more typical levels in comparison to the other sites. It was

felt that this was not sufficient evidence to discount the data acquired prior to the tape replacement, so these data were retained.

Table VI-1 also compares 2015 through 1017 data from the Whitmore, NCore and Harrison County sites. The 4th high ozone levels at the Whitmore site were higher than the NCore site in all three years. The 4th high Whitmore ozone levels were also higher than at the Harrison County site in 2015 and equal to the Harrison County levels in 2016 and 2017. See Attachment B Table B-1 for more detail as verification.

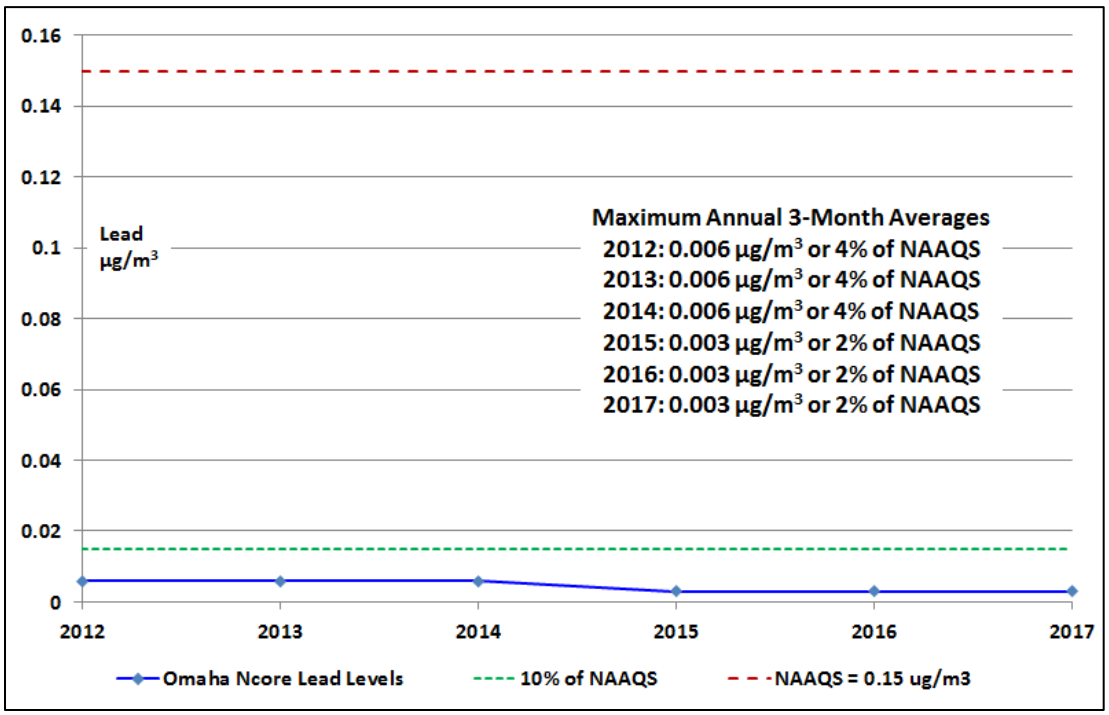
This evidence demonstrates that the current 1616 Whitmore Street site is a better location to measure maximum ozone levels than the former 30th and Fort Streets site, justifying a recommendation to permanently relocate this ozone monitor to 1616 Whitmore Street.

## B. Discontinuance of TSP-Lead Monitoring at the Omaha NCore Site

As discussed in Section IV.A.2. above, 40 CFR Part 58 no longer requires lead monitoring at NCore sites where attainment has been demonstrated. DCHD opted to continue operating the NCore lead monitor through 2017, in part to address any potential concerns about lead emissions from ongoing residential yard cleanups within the Omaha Lead Superfund Site. The 2017 Network Plan proposed that discontinuance of lead monitoring prior to the finalization of the 2018 Network Plan (i.e., this plan) be up to the discretion of the DCHD. DCHD subsequently made the decision to close the NCore lead monitor as of December 31, 2017.

Figure VI-1 and Table VI-2 below show that lead levels at the Omaha NCore site have always been less than 5% of the NAAQS and are dropping. The maximum 24-hour value ever detected was only 14% of the 3-month average NAAQS.

**Figure VI-1. Ambient TSP-Lead Levels at the Omaha NCore Site: Maximum Annual 3-Month Averages, 2012 through 2017.**



| Table VI-2. Lead Levels at the Omaha NCore Site and Comparison to the 3-Month Average NAAQS of 0.15 µg/m$^3$ | | | | | | |
|---|---|---|---|---|---|---|
| | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
| Max Annual 3-Month Avg (µg/m$^3$) | 0.006 | 0.006 | 0.006 | 0.003 | 0.003 | 0.003 |
| Max Annual 3-Month Avg (% NAAQS) | 4% | 4% | 4% | 2% | 2% | 2% |
| Max 24-Hour Average µg/m$^3$) | 0.021 | 0.013 | 0.016 | 0.009 | 0.008 | 0.007 |

Based on the data collected to date, there is ample evidence to support DCHD's decision to discontinue lead monitoring at the Omaha NCore site.

## C. Temporary Closure of the $PM_{10}$ Site at 46$^{th}$ & Farnam, Omaha and Recommendation for Permanent Closure

On March 22, 2018 the $PM_{10}$ monitor at 46th and Farnam Streets in Omaha suffered a major electronics failure requiring temporary closure of the site. The 2017 Network Plan proposed that DCHD be allowed to use their discretion in determining whether to close this $PM_{10}$ site during or at the conclusion of the 2017 calendar year. DCHD now recommends permanent closure of this $PM_{10}$ monitoring site, and NDEQ concurs with this recommendation, as discussed below.

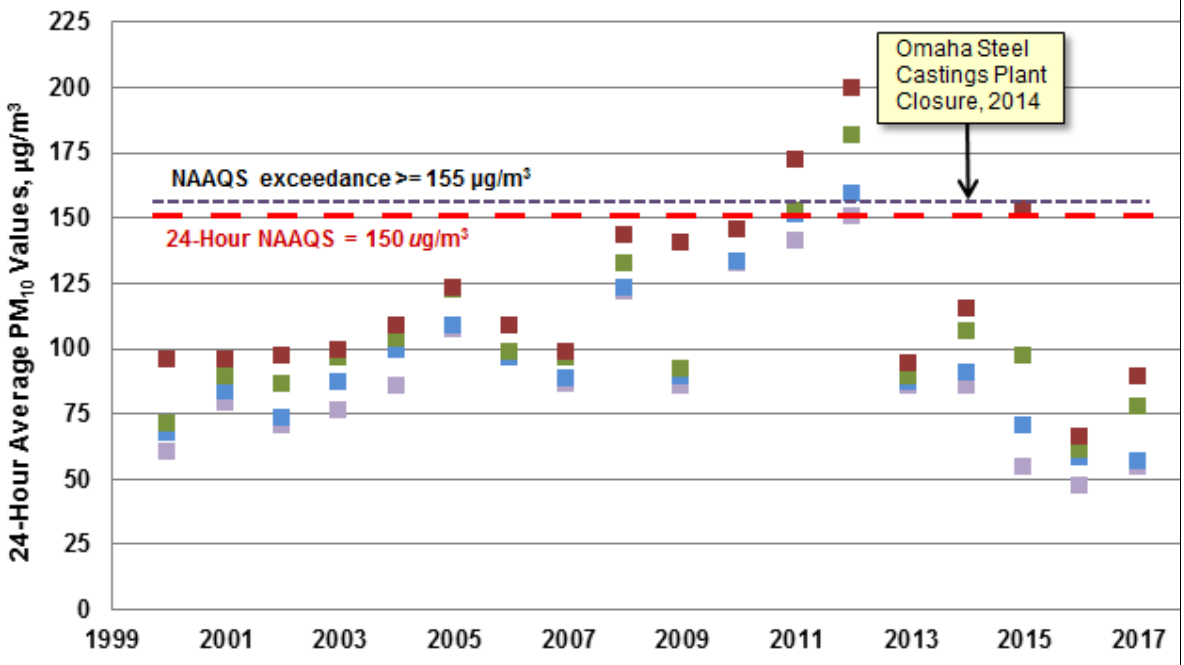
### 1. Background and History

The $PM_{10}$ site at 46th and Farnam Streets was established in 1993 as a source-oriented monitor to Omaha Steel Castings Company. Initially a hi-vol sampler that sampled once every 6 days was used at this site. In 2008 a continuous Thermo FH 62 C14 sampler was installed.

Figure VI-2 on the next page shows the four highest 24-hour average $PM_{10}$ values detected at this site annually from 2000 through 2017. Up until 2011, maximum $PM_{10}$ values remained below the NAAQS level of 150 µg/m$^3$. From September 2011 through June 2012 the monitor recorded four 24-hour average $PM_{10}$ values greater than the NAAQS. Omaha Air Quality Control staff met with Omaha Steel Castings representatives to discuss potential $PM_{10}$ sources and controls. Process-handling and housekeeping changes were recommended to reduce $PM_{10}$ emissions. These changes appear to have been effective, as maximum levels in 2013 and 2014 were well below the NAAQS.

In 2013 Omaha Steel Castings began the process of relocating their plant to Wahoo, NE. Relocation was carried out in a phased manner, with production ceasing in Omaha in summer of 2014. Demolition of structures on the Omaha site began in the second half of 2015. DCHD elected to maintain $PM_{10}$ monitoring at the 46$^{th}$ and Farnam Streets site through the demolition process. As shown in Figure VI-2 and Attachment B Table B-5a, monitoring has demonstrated compliance/attainment with the NAAQS during the demolition process through 2017. The former site of the plant has been purchased by the adjacent University of Nebraska Medical Center for future redevelopment, which is expected to establish housing, retail stores, and businesses compatible with the adjacent medical and research campus. Once re-development is completed, this area will not contain significant $PM_{10}$ sources that would require a source-oriented monitoring site.

**Figure VI-2. Maximum 24-Hour Average $PM_{10}$ Values (1), 2000 through 2017, at 46th and Farnam Streets, Omaha**




(1) The four highest 24-hour average values are shown for each year.

### 2. Recommendation for Non-replacement

Because the source that originally necessitated placement of the $PM_{10}$ monitor at 46th and Farnam Streets has closed and demolition is complete, DCHD had planned to close this monitoring site at the end of 2018. Therefore DCHD has no plans to repair or replace the failed monitor and recommends permanent closure of this $PM_{10}$ monitoring site. With the closure of this site and the Weeping Water Farm site (see below), minimum $PM_{10}$ monitoring requirements for the Omaha-Council Bluffs MSA as set forth in 40 CFR Part 58 Appendix D will still be met with four monitors (see Attachment C). NDEQ concurs with the recommendation to close the 46th and Farnam Streets $PM_{10}$ monitoring site.

## D. Closure of Weeping Water Farm $PM_{10}$ Site

The NDEQ shut down the Weeping Water Farm $PM_{10}$ monitor site on February 21, 2018 at the request of the landowner. The farm where the site was located was being prepared for sale. The owners were uncomfortable with the impact of the site and its associated access lane on the property valuation and sale. They requested a large increase in rent to $12,000 per year, or removal of the site, and expressed a preference for removal. These rental costs were prohibitively high and there was no assurance that the new owner would allow the site. Thus shutting down the site was the only reasonable alternative. The NDEQ is proposing not to replace or relocate the Weeping Water Farm site as explained below.

## 1. Background and History

The Weeping Water area has numerous limestone mining and processing facilities that are $PM_{10}$ emission sources. Currently there are four major limestone mining and processing facilities in the Weeping water area:

- Potash Corp located on the east edge of Weeping Water,
- Martin Marietta located approximately 2 miles southwest of Weeping Water outside of the Weeping Water Creek valley, and
- Iowa Limestone and Kerford Limestone, both located approximately 2 miles west of Weeping Water.

$PM_{10}$ monitoring in Weeping Water was initiated in 1985 at the wastewater treatment plant (WW City site). Initially the site used hi-vol filter-based samplers and sampled daily. In 2004 the hi-vol samplers were replaced with sequential lo-vol filter-based samplers that sampled once every 3rd day. In October 2016 the site was upgraded to utilize a continuous MetOne BAM sampler.

In 1999 and 2000, the Weeping Water City site detected $PM_{10}$ levels that nearly triggered non-attainment. The nearby sources voluntarily accepted emission controls that reduced emissions, and $PM_{10}$ levels at the Weeping Water City dropped. From 2008 thru 2017, the latest 10 years of monitoring, there have been no exceedances of the $PM_{10}$ NAAQS.

However, there remained questions as to whether the single WW City site was adequate to identify the highest concentrations in Weeping Water. Thus, in 2003, an additional site was established in the City Park (WW Park) approximately 1/3 mile northwest of the WW City site. The largest potential source in the area, the Martin Marietta mining and processing site, was located 1/3 to 1/2 mile west of the WW Park site. From 2004 through 2008 the WW Park monitor detected only one exceedance of the 24-hour average NAAQS standard, a value of 155 $\mu g/m^3$ on October 23, 2007. In 2008, Martin Marietta shut down their facility immediately west of Weeping Water and opened a new facility approximately 2 miles southwest of the town. $PM_{10}$ levels at the WW Park and City sites dropped after the closure of the initial Martin Marietta facility. The Weeping Water Park site was destroyed in June 2010 by flooding. It was determined that a second site in the City of Weeping Water was no longer needed and the WW Park site was permanently closed.

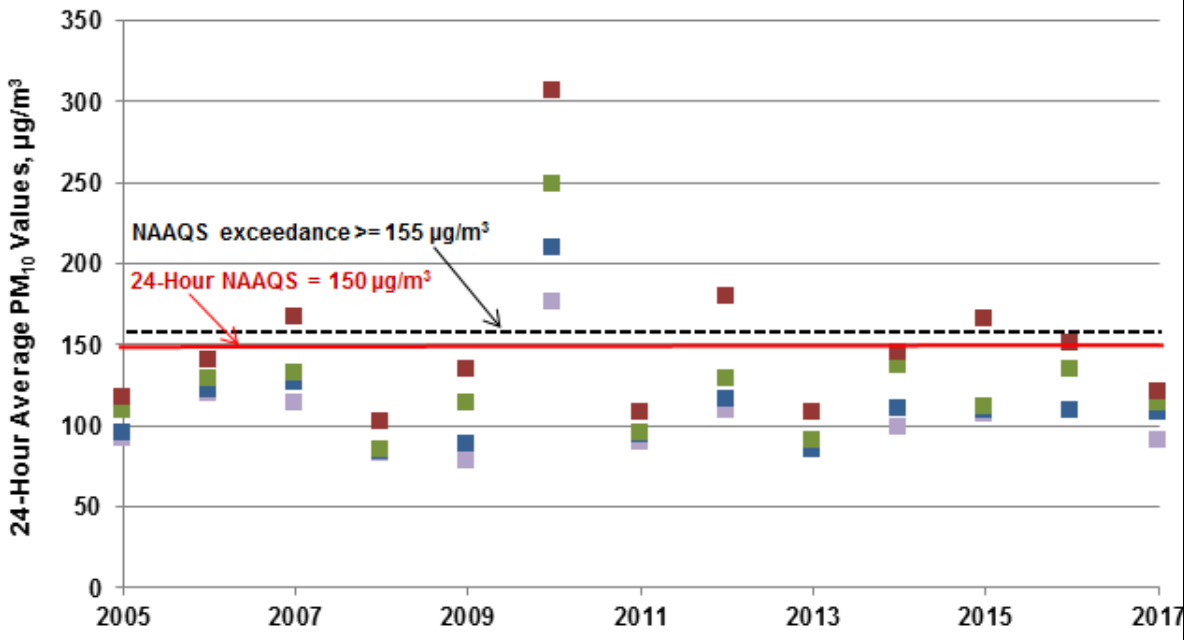
After the WW Park site was established there still remained questions concerning $PM_{10}$ levels in the Weeping Water Creek valley west of Weeping Water near the intersection of Highway 50 and Weeping Water Spur. At that time, the Martin Marietta facility immediately west of Weeping Water and other facilities adjacent to the spur were operating; and Kerford Limestone and Iowa Limestone had facilities approximately ½ mile west of the intersection. Thus, the WW Farm site was established.

The WW Farm site was a highest concentration site located approximately ¼ mile east of the Iowa Limestone facility. It was in a rural location within a row-crop agricultural field. There is one residence within one mile of this site, a farmstead approximately 0.2 miles to the east. The nearest residences in Weeping Water are approximately 1.8 miles east of the WW Farm site, while the WW City site is approximately 2.4 miles to the east.

Figure VI-3 on the next page shows the annual 1st through 4th highest maximum 24-hour average values for the Weeping Water Farm monitor from 2005 through 2017. In 2010, several

values exceeding the NAAQS level (exceedance = 155 µg/m$^3$ or more) at the site nearly triggered non-attainment. The Iowa Limestone and Kerford Limestone facilities were notified and $PM_{10}$ levels dropped. Since that time there have been only two 24-hour average exceedances of the $PM_{10}$ NAAQS level, and design values (3-year average of annual exceedances) have been well below the NAAQS.

**Figure VI-3. Maximum 24-Hour Average $PM_{10}$ Values (1), 2005 through 2017, at Weeping Water Farm Site, Cass County**




(1) The four highest 24-hour average values are shown for each year.

## 2. Recommendation for Non-replacement

The WW City monitoring site is well-located from a population-oriented perspective and is also source-oriented with respect to the Potash Corp facility. The other major sources in the area are within 2 to 2.5 miles of the WW City site. The WW Farm monitor has not recorded excessive levels of $PM_{10}$ in recent years. At this time, there is not a need to establish a source-oriented site with respect to the Martin Marietta, Kerford Limestone, and Iowa Limestone facilities to replace the WW Farm monitoring site.

The NDEQ will continue to operate the continuous $PM_{10}$ monitoring site within the City of Weeping Water at the wastewater treatment plant. Facility inspections are a better way to address the facilities west of Weeping Water than installation of a new permanent monitoring site. With the closure of the Weeping Water Farm site and the 46th & Farnam Street site in Omaha (see above), minimum $PM_{10}$ monitoring requirements for the Omaha-Council Bluffs MSA as set forth in 40 CFR Part 58 Appendix D will still be met with four monitors (see Attachment C).

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# Attachment A: Ambient Air Monitoring Sites in Nebraska

See Attachment C for a compliance review with respect to 40 CFR Part 58 Appendixes A through E.

## Omaha NCore Site Operated by DCHD

| | |
|---|---|
| **Site Name: Omaha NCore** [1] | AIRS ID: 31-055-0019 [1] |
| **Location: 4102 Woolworth St., Omaha** | Latitude: 41.246792º Longitude: -95.973964º |
| Operating Agency: Douglas County Health Department | |
| Purpose: NCore | Scale: Neighborhood |
| **Monitor/Pollutant: Carbon Monoxide (CO)** - Trace Level | |
| Type/POC: Primary / POC 01 | Monitoring Frequency: Continuous |
| Analyzer/Sampler: Thermo 48i-TLE | EPA Method: RFCA-0981-054 (AQS 554) |
| Start-Up Date: 1/20/11 | Closure Date: Currently operating |
| Data used for NAAQS comparison: Yes | |
| Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable | |
| **Monitor/Pollutant: Ozone ($O_3$)** | |
| Type/POC: Primary / POC 01 | Monitoring Frequency: Continuous |
| Analyzer/Sampler: Thermo 49i | EPA Method: EQOA-0880-047 |
| Start-Up Date: 4/1/11 | Closure Date: Currently operating |
| Data used for NAAQS comparison: Yes | |
| Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable | |
| **Monitor/Pollutant: Nitrogen Oxides ($NO/NO_y$)** | |
| Type/POC: Primary / POC 01 | Monitoring Frequency: Continuous |
| Analyzer/Sampler: Thermo 42i $NO/NO_2/NOx$ | EPA Method: RFNA-1289-074 |
| Start-Up Date: 1/20/11 | Closure Date: Currently operating |
| Data used for NAAQS comparison: Not Applicable. Monitors for NO & NOy, but not $NO_2$ | |
| Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable | |
| **Monitor/Pollutant: Sulfur Dioxide ($SO_2$)** – Trace Level | |
| Type/POC: Primary / POC 01 | Monitoring Frequency: Continuous |
| Analyzer/Sampler: Thermo 43i-TLE | EPA Method: EQSA-0486-060 (AQS 560) |
| Start-Up Date: 1/20/11 | Closure Date: Currently operating |
| Data used for NAAQS comparison: Yes | |
| Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable | |
| **Monitor/Pollutant: $PM_{2.5}$** [2] | |
| Type/POC: Primary Continuous / POC 01 | Monitoring Frequency: Continuous |
| Analyzer/Sampler: Met One BAM-1020 [2] [3] | EPA Method: EQPM-0308-170 |
| Start-Up Date: 2/1/04 [2] | Closure Date: Currently operating |
| Data used for NAAQS comparison: Yes | |
| Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable | |
| **Monitor/Pollutant: $PM_{2.5}$** [2] | |
| Type/POC: POC 02 | Monitoring Frequency: Once every 6 days |
| Analyzer/Sampler: 2025 Sequential [2] | EPA Method: RFPS-0498-118 |
| Start-Up Date: 1/1/99 [2] | Closure Date: Currently operating |
| Data used for NAAQS comparison: Only when POC 1 data is not available. | |
| Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable | |
| **Monitor/Pollutant: $PM_{2.5}$ Speciation** | |
| Type/POC: Speciation / POC 05 | Monitoring Frequency: Once every 3 days |
| Analyzer/Sampler: $PM_{2.5}$ Speciation | Sampler Type: SASS and a 3000 URG [3] |
| Start-Up Date: 5/25/01 | Closure Date: Currently operating |
| Data used for NAAQS comparison: Not applicable | |
| Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable | |
| Continued on next page | |

# Attachment A: Ambient Air Monitoring Sites in Nebraska

## Omaha NCore Site Operated by DCHD - continued

**Site Name: Omaha NCore** AIRS ID: 31-055-0019 (See Comment 1)
**Location: 4102 Woolworth St., Omaha** Latitude: 41.246792º Longitude: -95.973964º
Operating Agency: Douglas County Health Department (continued from previous page)

**Monitor/Pollutant: $PM_{10}$** – STP & Local Conditions
Type/POC: Continuous / POC 01 Monitoring Frequency: Continuous
Analyzer/Sampler: Met One BAM-1020 [3)] EPA Method: EQPM-0798-122
Start-Up Date: 1/1/11 [(3)] Closure Date: Currently operating
Data used for NAAQS comparison: Local conditions data only
Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable

**Monitor/Pollutant: $PM_{10-2.5}$** – Local Conditions
Type/POC: Continuous / POC 01 Monitoring Frequency: Continuous
Analyzer/Sampler: Met One BAM-1020 [(3)] EPA Method: EQPM-0709-185
Start-Up Date: 1/1/11 [(3)] Closure Date: Currently operating
Data used for NAAQS comparison: Yes
Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable

**Monitor/Pollutant: Lead (Pb)** – Non-source oriented
Type/POC: Primary / POC 01 Monitoring Frequency: Once every 6 days
Analyzer/Sampler: Hi-Vol TSP-Pb (ICP-MS) EPA Method: EQL-0310-189
Start-Up Date: 12/1/12 Closure Date: 12/31/17
Data used for NAAQS comparison: NA (not operating)
Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable

**Meteorological Parameters** – Manufacturer & Model – Start Date
Wind Direction & Velocity – MetOne 50.5 Sonic - 5/13/11
Temperature - MetOne Model 083D – 4/12/11 Barometric Pressure – MetOne Model 090D – 4/12/11
Relative Humidity – MetOne 083D – 4/12/11 Solar Radiation – MetOne Model 096-1 – 4/12/11
Closure Date: Currently operating

**Atmospheric Radiation – RadNet Air Monitor**
RadNet is a nationwide system that monitors the nation's air, drinking water, precipitation, and pasteurized milk to determine levels of radiation in the environment. RadNet sample analyses and monitoring results provide baseline data on background levels of radiation in the environment and can detect increased radiation from radiological incidents. The RadNet monitor is not subject 40 CFR Part 58 requirements. It is recognized in this Network Plan for informational purposes only. The RadNet monitor began operating at the Woolworth site in June 2006.

Comments:

1. Site History: Site 31-055-0019 was referred to as the "Woolworth site" through 12/31/10. The Woolworth site was a PM monitoring site with $PM_{2.5}$ filter-based, continuous and speciation monitors located on the roof of Douglas County Hospital. To accommodate NCore monitoring, more space was required and the site was moved approximately 550 ft north to the roof of an adjacent/attached building. The move was initiated in December 2010 with the moving of the $PM_{2.5}$ monitors. Gaseous and meteorological monitors began operation in 2011 and lead in 2012. Lead monitoring was discontinued at the end of 2017 in accordance with the 2017 Network Plan.
2. On 1/1/99 $PM_{2.5}$ sampling was initiated using primary and collocated R&P 2025 filter-based FRM samplers. A continuous monitor was first operated at this site 2/1/04. The initial continuous monitor was an R&P TEOM, which was not an FRM/FEM. It was used for AirNow reporting, but was not used for NAAQS comparison. It was replaced by a MetOne BAM FEM monitor on 1/6/09. The MetOne BAM was operated as an auxiliary monitor to the primary and collocated R&P 2025 FRM samplers through September 2009. Beginning 10/1/09, the MetOne BAM was designated the primary sampler and an R&P 2025 FRM sampler was retained as the collocated sampler.
3. Between 10/28/10 and 1/3/11, the $PM_{2.5}$ Met One BAM-1020 was temporarily removed from service while being reconfigured to operate as the $PM_{2.5}$ portion of a paired $PM_{10-2.5}$ monitoring system. The other part of the paired system is a $PM_{10}$ Met One BAM-1020, which is configured to report data in local and STP conditions. The paired units comprising the $PM_{10-2.5}$ monitoring system were put on-line on 1/1/11.

# Attachment A: Ambient Air Monitoring Sites in Nebraska

## Carbon Monoxide Sites in the Omaha MSA Operated by DCHD

| | |
|---|---|
| **Site Name: 78th & Dodge – Omaha** | AIRS ID: 31-055-0056 |
| **Location: 78th St and W Dodge Rd, Omaha** | Latitude: 41.259175º Longitude: -96.028628º |
| Operating Agency: Douglas County Health Department | |
| **Monitor Information** | **Pollutant: Carbon Monoxide (CO)** |
| Type/POC: Primary / POC 01 | Monitoring Frequency: Continuous |
| Analyzer/Sampler: Thermo 48c | EPA Method: |
| Purpose: Highest Concentration | Scale: Microscale |
| Start-Up Date: 10/01/07 | Closure Date: Currently operating |
| Data used for NAAQS comparison: Yes | |
| Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable | |
| Comments: None | |

## Combined Sulfur Dioxide & Ozone Site in the Omaha MSA Operated by DCHD

| | |
|---|---|
| **Site Name: Whitmore – Omaha** | AIRS ID: 31-055-0053 |
| **Location: 1616 Whitmore St, Omaha (1)** | Latitude: 41.297778º Longitude: -95.937500º |
| Operating Agency: Douglas County Health Department | |
| **Monitor Information** | **Pollutant: Sulfur Dioxide ($SO_2$)** |
| Type/POC: Primary / POC 01 | Monitoring Frequency: Continuous |
| Analyzer/Sampler: Thermo 43c-tle | EPA Method: EQSA-0486-060 |
| Purpose: High Conc. & Population Oriented (1) | Scale: Neighborhood (1) |
| Start-Up Date: 7/1/99 | Closure Date: Currently operating* |
| Data used for NAAQS comparison: Yes | |
| Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable | |
| **Monitor Information** | **Pollutant: Ozone ($O_3$) (2)** |
| Type/POC: Primary / POC 01 | Monitoring Frequency: Continuous |
| Analyzer/Sampler: Thermo 49C | EPA Method: EQOA-0880-047 |
| Purpose: Population Oriented (1) | Scale: Neighborhood (1) |
| Start-Up Date: 4/1/15 | Closure Date: Currently operating |
| Data used for NAAQS comparison: Yes | |
| Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable | |
| Comments: | |
| (1) This site is in a socioeconomically disadvantaged area. | |
| (2) The ozone monitor from the 30th & Fort Street site was re-located to this site in 2015 & 2016 due to demolition/construction activities. | |

## Temporarily Closed(1) Ozone Site in the Omaha MSA Operated by DCHD

| | |
|---|---|
| **Site Name: 30th & Fort - Omaha** | AIRS ID: 31-055-0035 |
| **Location: 30th & Fort Sts., Omaha** | Latitude: 41.306111º Longitude: -95.960278º |
| Operating Agency: Douglas County Health Department | |
| **Monitor Information** | **Pollutant: Ozone ($O_3$)** |
| Type/POC: Primary / POC 01 | Monitoring Frequency: Continuous |
| Analyzer/Sampler: Thermo 49C | EPA Method: EQOA-0880-047 |
| Purpose: Population Oriented | Scale: Neighborhood |
| Start-Up Date: 5/1/81 | Closure Date: 11/1/14 |
| Data used for NAAQS comparison: NA (not operating) | |
| Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: NA (site temporarily closed) (1) | |
| Comment: | |
| (1) This site was closed due to demolition/construction activity. The monitor was re-located to 1616 Whitmore St for the 2015 and later monitoring seasons. Data indicate that the 1616 Whitmore site may have higher ozone levels than 30th & Fort. DCHD and NDEQ have recommended that the relocation be made permanent. | |

# Attachment A: Ambient Air Monitoring Sites in Nebraska

## Combined Ozone & $PM_{10}$ Site in the Omaha MSA Operated by DCHD

| | |
|---|---|
| **Site Name: South Omaha – Ozone** | AIRS ID: 31-055-0028 |
| **Location: 2411 O Street, Omaha** | Latitude: 41.207500º Longitude: -95.947500º |
| Operating Agency: Douglas County Health Department | |
| **Monitor Information** | **Pollutant: Ozone ($O_3$)** |
| Type/POC: Primary / POC 01 | Monitoring Frequency: Continuous |
| Analyzer/Sampler: Thermo 49C | EPA Method: EQOA-0880-047 |
| Purpose: Population Oriented | Scale: Neighborhood |
| Start-Up Date: 7/1/78 | Closure Date: Currently operating |
| Data used for NAAQS comparison: Yes | |
| Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable | |
| **Monitor Information** | **Pollutant: $PM_{10}$** |
| Type/POC: Primary / POC 01 | Monitoring Frequency: Once every 6 days |
| Analyzer/Sampler: Hi-Vol Filter | EPA Method: RFPS 1287-063 |
| Purpose: Population & Source Oriented | Scale: Neighborhood |
| Start-Up Date: 6/1/06 (1) | Closure Date: Currently operating |
| Data used for NAAQS comparison: Only when there is no primary data | |
| Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable | |
| Comment: | |
| The $PM_{10}$ sampler was initially set-up as a SPAM at 25th & L Sts and then moved to 2411 O St on 8/22/07. | |

## $PM_{10}$ Sites in the Omaha MSA Operated by DCHD

| | |
|---|---|
| **Site Name: 19th & Burt, Omaha** | AIRS ID: 31-055-0054 |
| **Location: 19th & Burt Sts., Omaha** | Latitude: 41.267770º Longitude: -95.940830º |
| Operating Agency: Douglas County Health Department | |
| **Monitor Information** | **Pollutant: $PM_{10}$** |
| Type/POC: Primary / POC 01 | Monitoring Frequency: Once every 6 days |
| Analyzer/Sampler: Hi-Vol Filter | EPA Method: RFPS 1287-063 |
| Purpose: Population & Source Oriented | Scale: Middle |
| Start-Up Date: 6/1/01 | Closure Date: Currently operating |
| Data used for NAAQS comparison: Yes | |
| Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable | |
| **Monitor Information** | **Pollutant: $PM_{10}$** |
| Type/POC: Collocated / POC 02 | Monitoring Frequency: Once every 6 days (1) |
| Analyzer/Sampler: Hi-Vol Filter | EPA Method: RFPS 1287-063 |
| Purpose: Population & Source Oriented | Scale: Middle |
| Start-Up Date: 6/1/01 | Closure Date: Currently operating |
| Data used for NAAQS comparison: Only when there is no primary data | |
| Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable | |
| Comments: None | |

$PM_{10}$ sites continued on next page

# Attachment A: Ambient Air Monitoring Sites in Nebraska

## Temporarily Closed[(1)] $PM_{10}$ Site in the Omaha MSA Operated by DCHD

| | |
|---|---|
| **Site Name: 46th & Farnam, Omaha** | AIRS ID: 31-055-0045 |
| **Location: 46th & Farnam Sts, Omaha** | Latitude: 41.257500º Longitude: -95.976111º |
| Operating Agency: Douglas County Health Department | |
| **Monitor Information** | **Pollutant: $PM_{10}$** |
| Type/POC: Primary Continuous / POC 01 | Monitoring Frequency: Continuous |
| Analyzer/Sampler: Thermo FH 62 C14 | EPA Method: EQPM-1102-150 |
| Purpose: Source Oriented | Scale: Middle |
| Start-Up Date: 1/1/93 [(1)] | Closure Date: 3/22/18 |
| Data used for NAAQS comparison: NA (not operating) | |
| Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable | |
| Comments: | |
| (1) This site utilized a Hi-Vol sampler on a once every 6 day sampling schedule until 1/1/08, when a continuous sampler was installed. This site was source-oriented to Omaha Steel Castings, which relocated to Wahoo, NE and closed the Omaha facility in 2014. DCHD continued monitoring during site closure and redevelopment. This monitor suffered an equipment malfunction on 3/22/18, and DCHD recommends permanent closure, with concurrence from NDEQ. | |

## $PM_{2.5}$ Sites in the Omaha MSA Operated by DCHD

| | |
|---|---|
| **Site Name: Berry Street Omaha** | AIRS ID: 31-055-0052 |
| **Location: 9225 Berry Street, Omaha** | Latitude: 41.333056º Longitude: -96.099722º |
| Operating Agency: Douglas County Health Department | |
| **Monitor Information** | **Pollutant: $PM_{2.5}$** |
| Type/POC: Primary / POC 01 | Monitoring Frequency: Once every 3 days |
| Analyzer/Sampler: 2025 Sequential | EPA Method: RFPS-0498-118 |
| Purpose: Population & Source Oriented | Scale: Neighborhood |
| Start-Up Date: 1/1/99 | Closure Date: Currently operating |
| Data used for NAAQS comparison: Yes | |
| Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable | |
| **Monitor Information** | **Pollutant: $PM_{2.5}$** |
| Type/POC: Collocated / POC 02 | Monitoring Frequency: Once every 6 days |
| Analyzer/Sampler: 2025 Sequential | EPA Method: RFPS-0498-118 |
| Purpose: Population & Source Oriented | Scale: Neighborhood |
| Start-Up Date: 10/1/14 | Closure Date: Currently operating |
| Data used for NAAQS comparison: Only when there is no primary data | |
| Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable | |
| Comments: None | |

## $PM_{2.5}$ Sites in the Omaha MSA Operated by DCHD - continued

| | |
|---|---|
| **Site Name: Bellevue** | AIRS ID: 31-153-0007 |
| **Location: 2912 Coffey Ave., Bellevue** | Latitude: 41.166944º Longitude: -95.923889º |
| Operating Agency: Douglas County Health Department | |
| **Monitor Information** | **Pollutant: $PM_{2.5}$** |
| Type/POC: Primary Continuous / POC 01 | Monitoring Frequency: Continuous |
| Analyzer/Sampler: Met One BAM-1020 (1) | EPA Method: EQPM-0308-170 |
| Purpose: Population & Source Oriented | Scale: Neighborhood |
| Start-Up Date: 3/1/99 | Closure Date: Currently operating |
| Data used for NAAQS comparison: Yes<br>Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable | |
| Comments: (1) This site was operated with a 2025 sequential sampler from 3/1/99 thru 6/30/10 (RFPS-0498-118). On 7/1/10 a Met One BAM monitor began operating. | |

| | |
|---|---|
| **Site Name: Blair** | AIRS ID: 31-177-0002 |
| **Location: 2242 Wright St., Blair** | Latitude: 41.551136º Longitude: -96.146753 |
| Operating Agency: Douglas County Health Department | |
| **Monitor Information** | **Pollutant: $PM_{2.5}$** |
| Type/POC: Primary / POC 01 | Monitoring Frequency: Once every 3 days |
| Analyzer/Sampler: 2025 Sequential | EPA Method: RFPS-0498-118 |
| Purpose: Population & Source Oriented | Scale: Neighborhood |
| Start-Up Date: 4/6/09 | Closure Date: Currently operating |
| Data used for NAAQS comparison: Yes<br>Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable | |
| Comments: None | |

## Sulfur Dioxide Site in the Omaha MSA Operated by DCHD

| | |
|---|---|
| **Site Name: OPPD North Omaha Station** | AIRS ID: 31-055-0057 |
| **Location: 7288 John Pershing Drive** | Latitude: 41.325579º Longitude: -95.946297º |
| Operating Agency: Douglas County Health Department | |
| **Monitor Information** | **Pollutant: Sulfur Dioxide ($SO_2$)** |
| Type/POC: Primary / POC 01 | Monitoring Frequency: Continuous |
| Analyzer/Sampler: Thermo 43i | EPA Method: EQSA-0486-060 |
| Purpose: Population & Source Oriented | Scale: Microscale |
| Start-Up Date: 01/01/17 | Closure Date: Currently operating |
| Data used for NAAQS comparison: Yes<br>Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, Appendix B not applicable | |
| Comments: This site was established to satisfy requirements of the Data Requirements Rule (DRR) in 40 CFR Part 51 | |

## $PM_{10}$ Site in the Weeping Water Area* Operated by NDEQ

* The Weeping Water Area is in Cass County, which is part of the Omaha MSA. This is a relatively non-urbanized area of the county with limestone mining and processing activities. The $PM_{10}$ monitoring conducted here is for evaluation of air quality in the vicinity of Weeping Water, and not the Omaha MSA as a whole.

| | |
|---|---|
| **Site Name: Weeping Water City** (1) | AIRS ID: 31-025-0002 |
| **Location: 102 P Street, Weeping Water** | Latitude: 40.866228 Longitude: -96.137678 |
| Operating Agency: Nebraska Department of Environmental Quality | |
| **Monitor Information** | **Pollutant: $PM_{10}$** |
| Type/POC: Primary / POC 01 | Monitoring Frequency: Continuous |
| Analyzer/Sampler: Met One BAM (2) | EPA Method: EQPM-0798-122 |
| Purpose: Population & Source Oriented | Scale: Neighborhood |
| Start-Up Date: 01/01/85 | Closure Date: Currently operating |
| Data used for NAAQS comparison: Yes<br>Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes. See Section V.A.1.a. App B not applicable | |

Comments:

(1) Site is located at the city waste water treatment facility.

(2) This site was operated with a primary 2025 sequential monitor from 8/12/2004 to 9/30/2016. A MetOne BAM continuous monitor began operating on 10/1/2016. A collocated 2025 sequential monitor at the site suffered a major electronic breakdown and last sampled on 3/25/15. With the installation of the continuous monitor, collocation is no longer required. See Section V.A.1.a for more detail.

## Temporarily Closed(1) $PM_{10}$ Site in the Omaha MSA Operated by NDEQ

| | |
|---|---|
| **Site Name: Weeping Water Farm** | AIRS ID: 31-025-0009 |
| **Location: 5102 Hwy 50, Cass Co.** | Latitude: 40.873309º Longitude: -96.183359º |
| Operating Agency: Nebraska Department of Environmental Quality | |
| **Monitor Information** | **Pollutant: $PM_{10}$** |
| Type/POC: Primary Continuous / POC 01 | Monitoring Frequency: Continuous |
| Analyzer/Sampler: R&P TEOM | EPA Method: RFPS 1090-079 |
| Purpose: Source Oriented | Scale: Neighborhood |
| Start-Up Date: 4/8/05 | Closure Date: 2/21/18 |
| Data used for NAAQS comparison: NA (not operating)<br>Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, Appendix B not applicable | |

Comments:

(1) Site closed at the request of the landowner. NDEQ is recommending permanent closure.

## Sites in the Lincoln MSA Operated by LLCHD

| | |
|---|---|
| **Site Name: Davey** | AIRS ID: 31-109-0016 |
| **Location: 1st & Maple Sts., Davey** | Latitude: 40.984722º Longitude: -96.677222º |
| Operating Agency: Lincoln Lancaster County Health Department | |
| **Monitor Information** | **Pollutant: Ozone** |
| Type/POC: Primary / POC 01 | Monitoring Frequency: Continuous |
| Analyzer/Sampler: Teledyne API 400E | EPA Method: EQOA-0992-087 |
| Purpose: Population Oriented | Scale: Urban |
| Start-Up Date: 1/1/85 | Closure Date: Currently operating |
| Data used for NAAQS comparison: Yes | |
| Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable | |
| Comments: This site was upgraded at the beginning of the 2014 ozone season with the Teledyne API 400E analyzer replacing the Dasibi 1003 AH analyzer. | |

| | |
|---|---|
| **Site Name: LLCHD Building** | AIRS ID: 31-109-0022 |
| **Location: 3140 N St., Lincoln** | Latitude: 40.812590º Longitude: -96.683020º |
| Operating Agency: Lincoln Lancaster County Health Department | |
| **Monitor Information** | **Pollutant: $PM_{2.5}$** |
| Type/POC: Primary / POC 01 | Monitoring Frequency: Once every 3 days |
| Analyzer/Sampler: R&P 2025 Seq. Filter | EPA Method: RFPS 0498-118 |
| Purpose: Population Oriented | Scale: Neighborhood |
| Start-Up Date: 1/1/99 | Closure Date: Currently operating |
| Data used for NAAQS comparison: Yes | |
| Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable | |
| **Monitor Information** | **Pollutant: $PM_{2.5}$** |
| Type/POC: Collocated / POC 02 | Monitoring Frequency: Once every 6 days |
| Analyzer/Sampler: R&P 2025 Seq. Filter | EPA Method: RFPS 0498-118 |
| Purpose: Population Oriented | Scale: Neighborhood |
| Start-Up Date: 1/1/99 | Closure Date: Currently operating |
| Data used for NAAQS comparison: Only when primary data is not available. | |
| Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable | |
| **Monitor Information** | **Pollutant: $PM_{2.5}$** |
| Type/POC: Continuous / POC 03(1) | Monitoring Frequency: Continuous |
| Analyzer/Sampler: Met One BAM-1020 | EPA Method: EQPM-0308-170 |
| Purpose: Population Oriented | Scale: Neighborhood |
| Start-Up Date: 7/1/06 | Closure Date: Currently operating |
| Data used for NAAQS comparison: No. Reports to AirNow, but not AQS (1) | |
| Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable | |

Comment:

(1) The MetOne BAM monitor reported data to AirNow , but not AQS. Data from the MetOne BAM is not used for NAAQS comparison. The MetOne BAM data typically demonstrates a positive bias when compared to same day FRM data. In 2015, there was a 39% bias on same-day annual average data, and a 17% positive bias for the same-day 98th percentile.

## Sites in the Lincoln MSA Operated by LLCHD - continued

| | |
|---|---|
| **Site Name: Sheldon Station** | AIRS ID: 31-109-0025 |
| **Location: SW 42nd St ~0.2 mi N of W Pella Rd** | Latitude: 40.554722º Longitude: -96.780278º |
| Operating Agency: Lincoln-Lancaster County Health Department | |
| **Monitor Information** | **Pollutant: Sulfur Dioxide ($SO_2$)** |
| Type/POC: Primary / POC 01 | Monitoring Frequency: Continuous |
| Analyzer/Sampler: Teledyne API T100 | EPA Method: EQSA-0495-100 |
| Purpose: Highest Concentration | Scale: Microscale |
| Start-Up Date: 12/23/16 | Closure Date: Currently operating |
| Data used for NAAQS comparison: Yes | |
| Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable | |
| Comments: This site was established to satisfy requirements of the Data Requirements Rule (DRR) in 40 CFR Part 51 | |

## $PM_{2.5}$ Sites Operated by NDEQ

| | |
|---|---|
| **Site Name: Grand Island Senior High** | AIRS ID: 31-079-0004 |
| **Location: 2124 N Lafayette Ave, Grand Island** | Latitude: 40.942099º Longitude: -98.364967º |
| Operating Agency: Nebraska Department of Environmental Quality | |
| **Monitor Information** | **Pollutant: $PM_{2.5}$** |
| Type/POC: Primary FRM/ POC 01 | Monitoring Frequency: Once every 3 days |
| Analyzer/Sampler: R&P 2025 Sequential | EPA Method: RFPS-0498-118 |
| Purpose: Transport & Population Oriented | Scale: Regional & Neighborhood |
| Start-Up Date: 5/7/04 | Closure Date: Currently operating |
| Data used for NAAQS comparison: Yes | |
| Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable | |
| Comments: None | |

| | |
|---|---|
| **Site Name: Scottsbluff Senior High School** | AIRS ID: 31-157-0004 |
| **Location: Hwy 26 & 5th Ave, Scottsbluff (1)** | Latitude: 41.87609º Longitude: -103.6587º |
| Operating Agency: Nebraska Department of Environmental Quality | |
| **Monitor Information** | **Pollutant: $PM_{2.5}$** |
| Type/POC: Primary FRM/ POC 01 | Monitoring Frequency: Once every 3 days |
| Analyzer/Sampler: Thermo 2025i Sequential | EPA Method: RFPS-0498-118 |
| Purpose: Background & Population Oriented | Scale: Regional & Neighborhood |
| Start-Up Date: 5/13/09 | Closure Date: Currently operating |
| Data used for NAAQS comparison: Yes | |
| Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable | |
| Comments:<br>(1) The sampler was moved ~170 m W-SW on 4/15/16 (1st sample date at new location). The move was necessitated by re-construction of athletic fields and at the request of the school. The site ID # was retained. The new site uses standard 110 v AC line power, as the solar and wind power supply used at the old location was not retained. | |

# Attachment A: Ambient Air Monitoring Sites in Nebraska

## Source-Oriented Lead (Pb) Sites Operated by NDEQ

| | |
|---|---|
| **Site Name: Fremont** | AIRS ID: 31-053-0005 |
| **Location: 1255 Front St., Fremont, NE** | Latitude: 41.90583º Longitude: -97.31583º |
| Operating Agency: Nebraska Department of Environmental Quality | |
| **Monitor Information** | **Pollutant: Lead (Pb)** |
| Type/POC: Primary / POC 01 | Monitoring Frequency: Once every 6 days |
| Analyzer/Sampler: Hi-Vol TSP-Pb (ICP-MS) | EPA Method: EQL-0310-189 |
| Purpose: Source-Oriented (1) | Scale: Micro-scale |
| Start-Up Date: 3/9/10 | Closure Date: Currently operating |
| Data used for NAAQS comparison: Yes | |
| Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable | |
| **Monitor Information** | **Pollutant: Lead (Pb)** |
| Type/POC: Collocated / POC 02 | Monitoring Frequency: Once every 6 days |
| Analyzer/Sampler: Hi-Vol TSP-Pb (ICP-MS) | EPA Method: EQL-0310-189 |
| Purpose: Source Oriented | Scale: Micro-scale |
| Start-Up Date: 3/9/10 | Closure Date: Currently operating |
| Data used for NAAQS comparison: Only if primary sampler data is not available | |
| Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable | |
| Comments: | |
| (1) Source-oriented with respect to Magnus Farley. | |

| | |
|---|---|
| **Site Name: Auburn** | AIRS ID: 31-127-0002 |
| **Location: RR2, Auburn, NE** | Latitude: 40.40254º Longitude: -95.84164º |
| Operating Agency: Nebraska Department of Environmental Quality | |
| **Monitor Information** | **Pollutant: Lead (Pb)** |
| Type/POC: Primary / POC 01 | Monitoring Frequency: Once every 6 days |
| Analyzer/Sampler: Hi-Vol TSP-Pb (ICP-MS) | EPA Method: EQL-0310-189 |
| Purpose: Source Oriented (1) | Scale: Micro-scale |
| Start-Up Date: 5/8/10 | Closure Date: 6/5/2016 (2) |
| Data used for NAAQS comparison: Yes | |
| Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable | |
| Comments: | |
| (1) Source-oriented with respect to Magnolia Metals. | |
| (2) This site was closed June 5, 2016 in accordance with the 2015 Network Plan. Magnolia Metals has installed pollution control equipment that dropped their Pb emissions below the 0.5 tpy threshold for requiring monitoring. | |

**Source-Oriented Lead Monitoring Waivers pursuant to 40 CFR Part 58 Section 4.5(ii)**

**(1) Nucor Steel in Norfolk, NE:** Waiver approved by the EPA R7 Administrator in April 2014 and is effective through April 2019, unless revoked or extended.

# Attachment A: Ambient Air Monitoring Sites in Nebraska

## Interagency Monitoring of Protected Visual Environments (IMPROVE) Sites *

* Interagency Monitoring of Protected Visual Environments (IMPROVE) monitors are operated to evaluate regional haze that may impact Federal Class I areas in National Parks and Wilderness Areas. Fine particulate and particulate speciation monitoring is conducted at these sites. They do not have an AIRS ID, are not subject to 40 CFR Part 58 requirements, and are not used for NAAQS attainment determinations.

| | |
|---|---|
| **Site Name: NE National Forest IMPROVE**<br>**Location: Nebraska National Forest, Thomas Co.** | AIRS ID: Not applicable, See Comments<br>Latitude: 41.8888º Longitude: -100.3387º |
| Operating Agency: Nebraska Department of Environmental Quality / US Forest Service | |
| **Monitor Information**<br>Type/POC: IMPROVE<br>Method Description: : IMPROVE<br>Purpose: Background & Transport<br>Start-Up Date: 2002 | **Pollutant: IMPROVE** (See Comments)<br>Monitoring Frequency: Continuous<br>EPA Method: Not applicable<br>Scale: Regional<br>Closure Date: Currently operating |
| Data used for NAAQS comparison: Not applicable.<br>Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Not applicable | |
| Comments: None | |

## National Atmospheric Deposition Program (NADP) Sites**

** The NADP site information below is included in the Network Plan for informational purposes only. They are not subject to 40 CFR Part 58 requirements, nor used for NAAQS attainment determinations.

| | |
|---|---|
| **Site Name: Mead NADP**<br>**Location: U of NE Field Lab, Saunders Co.**<br>Operating Agency: University of Nebraska | AIRS ID: Not applicable, See Comments<br>Latitude: 41.1528º Longitude: -96.4912 |
| **Monitor Information**<br>Type/POC: NTN/MDN<br>Method Description: NTN/MDN<br>Purpose: Background & Transport<br>Start-Up Date: 7/25/78 | **Pollutant: TNT/MDN**<br>Monitoring Frequency: Continuous<br>EPA Method: Not applicable<br>Scale: Regional<br>Closure Date: Currently operating |
| Comments: The Mead and North Platte National Atmospheric Deposition Program (NADP) sites are operated by the University of Nebraska with analytical and data processing support from the NADP. NADP sites are not subject to review under the provisions of 40 CFR Part 58.10, and thus are not subject to review under this Network Plan. They are included herein for informational purposes only.<br>• Monitoring methods are specific to this program and are not Federal Reference or Equivalent Methods (FRM/FEM).<br>• The National Trends Network (NTN) sites collect deposition data on acidity, sulfate, nitrate, ammonium, chloride, and base cations (e.g., calcium, magnesium, potassium and sodium).<br>• Mercury Deposition Network (MDN) sites collect mercury deposition data.<br>• The NADP oversees both NTN and MDN sites, and provides analytical and data processing support.<br>• The Mead site initiated operation as an NTN site in 1978 and began MDN operations in June 2007. NDEQ provides financial support for MDN operations at this site through Title V fees. | |

# Attachment A: Ambient Air Monitoring Sites in Nebraska

## National Atmospheric Deposition Program (NADP) Sites (continued)

| | |
|---|---|
| **Site Name: North Platte NADP**<br>**Location: U of Ne Ag Station, Lincoln, Co.**<br>Operating Agency: University of Nebraska | AIRS ID: Not applicable, See Comments<br>Latitude: 41.0592º Longitude: -100.7464º |
| **Monitor Information**<br>Type/POC: NTN<br>Method Description: NTN<br>Purpose: Background & Transport<br>Start-Up Date: 9/24/85 | **Pollutant:** NTN<br>Monitoring Frequency: Continuous<br>EPA Method: Not applicable<br>Scale: Regional<br>Closure Date: Currently operating |

Comments: The Mead and North Platte National Atmospheric Deposition Program (NADP) sites are operated by the University of Nebraska with analytical and data processing support from the NADP. NADP sites are not subject to review under the provisions of 40 CFR Part 58.10, and thus are not subject to review under this Network Plan. . They are included herein for informational purposes only.

- Monitoring methods are specific to this program and are not Federal Reference or Equivalent Methods (FRM/FEM).
- The National Trends Network (NTN) sites collect deposition data on acidity, sulfate, nitrate, ammonium, chloride, and base cations (e.g., calcium, magnesium, potassium and sodium).
- Mercury Deposition Network (MDN) data was collected at this site from October 2009 thru October 2011 using Nebraska Environmental Trust funding.
- The NADP oversees both NTN and MDN sites, and provides analytical and data processing support.

# Attachment B: Comparison of Ambient Air Monitoring Data to NAAQS

This attachment compares ambient air quality data from 2015 through 2017 to the NAAQS. The annual data and estimated Design Values (DVs) presented below were retrieved from the EPA AQS database. The 2017 data were not yet certified and could be subject to change.

## Table B-1. Ozone Data

| Comparison of 3-Year Design Values for 8-hour Ozone to NAAQS (1) | | | | | | |
|---|---|---|---|---|---|---|
| **Site** | **Operator** | **2015** | **2016** | **2017** | **~ DV** | **% NAAQS** |
| **Omaha MSA and Near-By Montgomery Co., IA (4)** | | | | | | |
| **Omaha NCore** | DCHD | 0.062 | 0.062 | 0.062 | 0.062 | 89% |
| **2411 O St., Omaha** | DCHD | 0.055 | 0.063 | 0.061 | 0.059 | 84% |
| **1616 Whitmore St, Omaha** | DCHD | 0.064 | 0.063 | 0.064 | 0.063 | 90% |
| **Pisgah, Harrison Co., IA** | IA DNR | 0.061 | 0.063 | 0.064 | 0.062 | 91% |
| **Montgomery County, IA (2)** | IA DNR | 0.060 | 0.062 | 0.059 | 0.060 | 86% |
| **Lincoln MSA** | | | | | | |
| **First & Maple, Davey** | LLCHD | 0.061 | 0.058 | 0.062 | 0.060 | 86% |
| **Sioux City MSA** | | | | | | |
| **31986 475th Ave, Union Co, SD** | SD DEP | 0.061 | 0.060 | 0.066 | 0.062 | 89% |
| **Nebraska Non-MSA** | | | | | | |
| **Santee Indian Reservation** | US EPA | 0.063 | 0.064 | 0.067 | 0.064 | 91% |
| **Sites in Surrounding States** | | | | | | |
| **Emmetsburg, IA** | IA DNR | 0.064 | 0.062 | 0.061 | 0.062 | 89% |
| **Des Moines, IA** | IA DMR | 0.064 | 0.064 | 0.065 | 0.064 | 91% |
| **Savanah, MO** | MO DNR | 0.064 | 0.062 | 0.062 | 0.062 | 89% |
| **Kansas City Metro (Max DV site)** | MO DNR | 0.068 | 0.069 | 0.070 | 0.069 | 99% |
| **Topeka KS** | KS DHE | 0.062 | 0.063 | 0.062 | 0.062 | 89% |
| **Cedar Bluff Reservoir, KS** | KS DHE | 0.063 | 0.058 | 0.062 | 0.061 | 87% |
| **Denver, CO Metro (Max DV site)** | CO DPHE | 0.081 | 0.078 | 0.074 | 0.077 | 110% |
| **Greeley, CO** | CO DPHE | 0.073 | 0.067 | 0.072 | 0.070 | 100% |
| **Cheyenne, WY (Max DV site)** | WY DEQ | 0.063 | 0.061 | 0.065 | 0.063 | 90% |
| **Newcastle, WY** | WY BLM | 0.061 | 0.060 | 0.062 | 0.061 | 87% |
| **Sioux Falls, SD** | SD DEP | 0.061 | 0.066 | 0.066 | 0.064 | 91% |
| **Wind Cave NP, Custer Co., SD** | SD DEP | 0.059 | 0.060 | 0.065 | 0.061 | 87% |
| **Badlands NP, Jackson Co., SD** | SD DEP | 0.057 | 0.060 | 0.067 | 0.061 | 87% |

Notes and Explanations: EPA AQS data retrieval 3/5/17

(1) Concentrations are in units of ppm. Annual values are the 4th highest daily maximum 8-hour concentrations (ppm). The Design Value (DV) is the truncated 3-year average of the 4th highest max for each year. The NAAQS = 0.070 ppm (promulgated 10/1/2015).

(2) The Montgomery County, IA site is located outside the Omaha MSA at Viking Lake State Park;~18 miles east of the Mills-Montgomery County line and ~ 45 miles SE of the I-29/I-80 intersection.

# Attachment B: Comparison of Ambient Air Monitoring Data to NAAQS

## Table B-2. Carbon Monoxide Data

| **Comparison of 3-Year Maximum Value for 1-Hour Carbon Monoxide to NAAQS** (1) (2) | | | | | |
|---|---|---|---|---|---|
| **Site** | **2015** | **2016** | **2017** | **Design Value** (2) | **% NAAQS** |
| **Omaha MSA** | | | | | |
| **78th & Dodge Sts, Omaha** | 2.2 | 1.8 | 2.0 | 2.2 | 6% |
| **Omaha NCore** (4) | 0.97 | 0.74 | 1.31 | 1.31 | 4% |
| | | | | | |
| **Comparison of 3-Year Maximum Value for 8-Hour Carbon Monoxide to NAAQS** (1) (3) | | | | | |
| **Site** | **2015** | **2016** | **2017** | **Design Value** (3) | **% NAAQS** |
| **Omaha MSA** | | | | | |
| **78th & Dodge Sts., Omaha** | 1.7 | 1.5 | 1.5 | 1.7 | 19% |
| **Omaha NCore** (4) | 0.7 | 0.5 | 1.0 | 1.0 | 11% |

Notes and Explanations:

(1) The CO NAAQS were last revised in 1984. The latest review was concluded in August 2011 when EPA determined no changes in the CO NAAQS were warranted.

(2) The 1-hour NAAQS = 35 ppm. The Design Value is the highest annual 2nd highest maximum value over the last 3 years. The annual values shown are the annual 2nd highest maximum values. Concentrations are in units of ppm.

(3) The 8-hour NAAQS = 9 ppm. The Design Value is the highest annual 2nd highest maximum value over the last 3 years. The annual values shown are the 2nd highest 8-hour maximum values. Concentrations are in units of ppm.

(4) Omaha NCore is a multi-pollutant monitoring site located at 4102 Woolworth Street.

# Attachment B: Comparison of Ambient Air Monitoring Data to NAAQS

## Table B-3. Sulfur Dioxide Data

| Comparison of Daily Maximum 1-Hour Sulfur Dioxide Levels to the Primary NAAQS (1) | | | | | |
|---|---|---|---|---|---|
| **Site** | **2015** | **2016** | **2017** | **Design Value (1)** | **% NAAQS** |
| **Omaha MSA** | | | | | |
| **1616 Whitmore St., Omaha** | 0.057 | 0.065 | 0.055 | 0.059 | 79% |
| **Omaha NCore (2)** | 0.038 | 0.024 | 0.046 | 0.036 | 48% |
| **7288 John Pershing Dr., Omaha(3)** | nd | nd | 0.036 | 0.036 | 48% |
| **Lincoln MSA** | | | | | |
| **SW 42nd St., Lancaster Co.(4)** | nd | nd | 0.044 | 0.044 | 59% |
| **Sioux City MSA Sites** | | | | | |
| **1221 260th St. Sergeant Bluff, IA (5)** | 0.010 | 0.006 | 0.010 | 0.009 | 11% |
| **31986 475th Ave, Union Co, SD (6)** | 0.005 | 0.003 | 0.004 | 0.004 | 5% |

Notes and Explanations: (EPA AQS data retrieval 4/10/17)

(1) The 1-hour NAAQS is 75 ppb or 0.075 ppm. The annual values shown are the 99th percentile of the daily maximum values in ppm units. The Design Value is the three-year average of the annual 99th percentile daily maximum values. This NAAQS was promulgated on June 22, 2010. Values from monitors with less than 3 years of data are shown in red.

(2) Omaha NCore is a multi-pollutant monitoring site located at 4102 Woolworth Street.

(3) The 7288 John Pershing Dr. site began operation on 01/01/17 and is operated by DCHD. This site adjacent to the OPPD North Omaha Generating Station was established to satisfy the requirements of the Data Requirements Rule (DRR) in 40 CFR Part 51.

(4) The SW 42nd St., Lancaster County site began operation on 12/23/16 and is operated by LLCHD. This site adjacent to the NPPD Sheldon Generating Station was established to satisfy the requirements of the Data Requirements Rule (DRR) in 40 CFR Part 51.

(5) The Sergeant Bluff IA site began operation 7/1/12 and is operated by the IA DNR.

(6) The Union Co., SD sites are operated by the South Dakota Department of Environment & Natural Resources.

# Attachment B: Comparison of Ambient Air Monitoring Data to NAAQS

## Table B-4a. Nitrogen Dioxide Data

| Comparison of 1-Hour Maximum Levels of Nitrogen Dioxide to NAAQS (1)(2) | | | | | |
|---|---|---|---|---|---|
| **Site** | **2015** | **2016** | **2017** | **Design Value (2)** | **% NAAQS** |
| **Sioux City MSA** | | | | | |
| **31986 475th Ave, Union Co, SD (4)** | 0.021 | 0.016 | 0.017 | 0.018 | 18% |
| | | | | | |
| **Comparison of 3-Year Maximum Annual Average Value for Nitrogen Dioxide to NAAQS(3)** | | | | | |
| **Site** | **2015** | **2016** | **2017** | **Design Value (3)** | **% NAAQS** |
| **Sioux City MSA** | | | | | |
| **31986 475th Ave, Union Co, SD (4)** | 0.003 | 0.002 | 0.002 | 0.003 | 6% |

Notes and Explanations:

(1) All concentrations expressed in ppm units.

(2) The 1-hour $NO_2$ NAAQS is 0.100 ppm (promulgated Feb. 2010). NAAQS attainment is achieved if the 3-year average of the annual 98th percentile of the daily maximum 1-hour values does not exceed 0.100 ppm.

(3) The Annual Average $NO_2$ NAAQS is 0.053 ppm not to be exceeded in a calendar year. It was promulgated 1971, and retained in the 1996 and 2010 reviews. The Design Value is the highest annual average over the 3-year comparison period.

(4) The Union Co., SD sites are operated by the South Dakota Department of Environment & Natural Resources

## Table B-4b: Nitrogen Oxide Data from the Omaha NCore Site (1)(2)

| **Parameter** | **2015** | **2016** | **2017** | **Approx. DV (3)** | **Max % NAAQS** |
|---|---|---|---|---|---|
| **1-Hour Data: 98th Percentile** | | | | | |
| **NOy-NO (3)(4)(5)** | 0.037 | 0.0336 | 0.037 | 0.036 | 36% |
| | | | | | |
| **Annual Average Data** | | | | | |
| **NOy-NO** | 0.007 | 0.0058 | 0.0059 | 0.0069 | 13% |

Footnotes:

(1) All concentrations expressed in ppm units.

(2) Omaha NCore is a multi-pollutant monitoring site located at 4102 Woolworth Street.

(3) NOy – Reactive oxides of nitrogen, which includes NO, $NO_2$ and other nitrogen oxides, including organic nitrogen oxide compounds.

(4) NO – Nitrogen oxide

(5) NOy-NO provides an approximation of nitrogen dioxide ($NO_2$), with some possibility of over-estimating the true $NO_2$ concentration. For this reason, the NOy-NO parameter can be used to demonstrate attainment, but not non-attainment.

# Attachment B: Comparison of Ambient Air Monitoring Data to NAAQS

## Table B-5a. $PM_{10}$ – Annual Number of Exceedances (1) (2)

| Site | 2015 | 2016 | 2017 | Design Value (1) |
|---|---|---|---|---|
| **Omaha MSA & Montgomery Co., IA (6)** | | | | |
| **Omaha NCore, 4102 Woolworth St.** (3) | 0.0 | 0.0 | 0.0 | 0.0 |
| **2411 O St, Omaha** | 0.0 | 0.0 | 0.0 | 0.0 |
| **46th & Farnam Sts, Omaha** (4) | 0.0 | 0.0 | 0.0 | 0.0 |
| **19th & Burt Sts, Omaha** | 0.0 | 0.0 | 0.0 | 0.0 |
| **3130 C Ave, Council Bluffs, IA** (5) | 0.0 | 0.0 | 0.0 | 0.0 |
| **Montgomery Co., IA** (outside Omaha MSA) (5) (6) | 0.0 | 0.0 | 0.0 | 0.0 |
| **Weeping Water City** (7) | 0.0 | 0.0 | 0.0 | 0.0 |
| **Weeping Water Farm** (7) | 1.0 | 0.0 | 0.0 | 0.3 |
| **Sioux City MSA Sites** | | | | |
| **821 30th St, Sioux City, IA** (5) | 0.0 | nd | nd | 0.0 |
| **901 Floyd Blvd, Sioux City, IA** (4) | nd | 0.0 | 0.0 | 0.0 |
| **31986 475th Ave, Union Co, SD** (8) | 0.0 | 0.0 | 0.0 | 0.0 |

Notes and Explanations:

(1) The PM10 NAAQS is an exceedance-based standard with a 24-hour averaging time and 150 µg/m$^3$ level, not to be exceeded more than once per year on average over 3 years, where exceedance is defined as a value of 155 µg/m$^3$ or more. Sites with 3-year average of exceedances of 1.0 or less are in attainment with the NAAQS. Concentrations are in units of µg/m$^3$at standard temperature (25º C) and pressure (760 mm Hg) conditions. Values from monitors with less than 3 years of data are shown in red.

(2) NAAQS History: The primary 24-hour NAAQS was initially set at 150 µg/m$^3$ in 1987, and was retained at this level in the 1997, 2006 and 2012 PM NAAQS reviews.

(3) Omaha NCore is a multi-pollutant monitoring site located at 4102 Woolworth Street.

(4) The 46th & Farnam site recorded three $PM_{10}$ values above 150 in 2012: 199 µg/m$^3$ on 5/14/12, 181 µg/m$^3$ on 6/5/12, and 159 µg/m$^3$ on 1/5/12. The primary PM source in the area relocated and ceased operations in the area in 2014.

(5) The Council Bluffs, Montgomery Co., and Sioux City IA sites are operated by the IA DNR

(6) The Montgomery County, IA site is located outside the Omaha MSA at Viking Lake State Park;~18 miles east of the Mills-Montgomery County line and ~ 45 miles SE of the I-29/I-80 intersection.

(7) Weeping Water is a limestone mining and processing area in Cass County, which is located 15 to 20 miles south of the main urbanized area within the Omaha MSA.

(8) The Union Co., SD site is operated by the South Dakota Department of Environment & Natural Resources

# Attachment B: Comparison of Ambient Air Monitoring Data to NAAQS

## Table B-5b. $PM_{10}$ – Annual Maximum 24-Hour Data (1) (2)

| Site | 2015 | 2016 | 2017 | 4th Highest Value(1) | % NAAQS |
|---|---|---|---|---|---|
| **Omaha MSA & Montgomery Co., IA (6)** | | | | | |
| **Omaha NCore, 4102 Woolworth St.** (3) | 60 | 81 | 63 | 60 | 40% |
| **2411 O St, Omaha** | 56 | 50 | 47 | 49 | 33% |
| **46th & Farnam Sts, Omaha** (4) | 153 | 66 | 89 | 77 | 51% |
| **19th & Burt Sts, Omaha** | 52 | 43 | 51 | 45 | 30% |
| **3130 C Ave, Council Bluffs, IA** (5) | 50 | 53 | 64 | 51 | 34% |
| **Montgomery Co., IA** (outside Omaha MSA) (5) (6) | 42 | 41 | 33 | 38 | 25% |
| **Weeping Water City** (7) | 45 | 51 | 67 | 59 | 39% |
| **Weeping Water Farm** (7) | 166 | 151 | 120 | 120 | 80% |
| **Sioux City MSA Sites** | | | | | |
| **821 30th St, Sioux City, IA** (5) | 49 | nd | nd | 33 | 22% |
| **901 Floyd Blvd, Sioux City, IA** (4) | nd | 86 | 52 | 49 | 33% |
| **31986 475th Ave, Union Co, SD** (8) | 91 | 61 | 52 | 71 | 47% |

Notes and Explanations:

(1) Year columns show annual maximum 24-hour average values of $PM_{10}$. NAAQS = 150 µg/m$^3$, not to be exceeded more than once per year on average over 3 years, where exceedance is defined as a value of 155 µg/m$^3$ or more. The 4th-highest 24-hour average value in the three-year period is shown for informal comparison to the NAAQS. Values from monitors with less than 3 years of data are shown in red.

(2) NAAQS History: The primary 24-hour NAAQS was initially set at 150 µg/m$^3$ in 1987, and was retained at this level in the 1997, 2006 and 2012 PM NAAQS reviews.

(3) Omaha NCore is a multi-pollutant monitoring site located at 4102 Woolworth Street.

(4) The 46th & Farnam site recorded three $PM_{10}$ values above 150 in 2012: 199 µg/m$^3$ on 5/14/12, 181 µg/m$^3$ on 6/5/12, and 159 µg/m$^3$ on 1/5/12. The primary PM source in the area relocated and ceased operations in the area in 2014.

(5) The Council Bluffs, Montgomery Co., and Sioux City IA sites are operated by the IA DNR

(6) The Montgomery County, IA site is located outside the Omaha MSA at Viking Lake State Park;~18 miles east of the Mills-Montgomery County line and ~ 45 miles SE of the I-29/I-80 intersection.

(7) Weeping Water is a limestone mining and processing area in Cass County, which is located 15 to 20 miles south of the main urbanized area within the Omaha MSA.

(8) The Union Co., SD site is operated by the South Dakota Department of Environment & Natural Resources

# Attachment B: Comparison of Ambient Air Monitoring Data to NAAQS

## Table B-5c. $PM_{10}$ - Annual Average Data [1]

| Site | 2015 | 2016 | 2017 | 3-Year Average | % Old Std |
|---|---|---|---|---|---|
| **Omaha MSA and Montgomery Co., IA [4]** | | | | | |
| **Omaha NCore, 4102 Woolworth St.** [2] | 20.9 | 21.2 | 21.8 | 21.3 | 43% |
| **2411 O St, Omaha** | 22.9 | 24.1 | 22.6 | 23.2 | 46% |
| **46th & Farnam Sts, Omaha** | 18.6 | 16.5 | 20.4 | 18.5 | 37% |
| **19th & Burt Sts, Omaha** | 19.4 | 20.3 | 20.4 | 20.0 | 40% |
| **3130 C Ave, Council Bluffs, IA** [3] | 20.5 | 20.0 | 21.1 | 20.5 | 41% |
| **Montgomery Co., IA** (outside Omaha MSA) [3][4] | 15.9 | 16.0 | 13.3 | 15.1 | 30% |
| **Weeping Water City** [5] | 18.6 | 18.5 | 21.1 | 19.4 | 39% |
| **Weeping Water Farm** [5] | 30.9 | 28.8 | 27.5 | 29.1 | 58% |
| **Sioux City MSA** | | | | | |
| **Sioux City, IA** [3][6] | 16.7 | nd | nd | 16.7 | 33% |
| **901 Floyd Blvd, Sioux City, IA** [4] | nd | 20.2 | 18.7 | 19.5 | 39% |
| **31986 475th Ave, Union Co, SD** [7] | 17.9 | 16.3 | 15.2 | 16.5 | 33% |

Notes and Explanations:

(1) There is currently no NAAQS for the annual average $PM_{10}$ concentration. An annual average NAAQS of 50 $\mu g/m^3$ was established in 1987, and then rescinded on December 18, 2006. Comparison to the rescinded NAAQS is provided for informational purposes only. Concentrations are in units of $\mu g/m^3$. Values from monitors with less than 3 years of data are shown in red.

(2) Omaha NCore is a multi-pollutant monitoring site located at 4102 Woolworth Street.

(3) The Council Bluffs, Montgomery Co., Emmetsburg and Sioux City IA sites are operated by the IA DNR

(4) The Montgomery County, IA site is located outside the Omaha MSA at Viking Lake State Park; ~18 miles east of the Mills-Montgomery County line and ~ 45 miles SE of the I-29/I-80 intersection. This site was closed on 7/1/2017.

(5) Weeping Water is a limestone mining and processing area in Cass County, which is located 15 to 20 miles south of the main urbanized area within the Omaha MSA.

(6) A site at 821 30th Street, Sioux City was closed at the end of 2015 (due to demolition of the host school) and was moved to 901 Floyd Blvd, Sioux City beginning 1/1/2016. The latter site was closed 7/1/2017.

(7) The Union Co., SD site is operated by the South Dakota Department of Environment & Natural Resources.

# Attachment B: Comparison of Ambient Air Monitoring Data to NAAQS

## Table B-6a. $PM_{2.5}$ - 98th Percentile 24-Hour Data (1) (2)

| Site | 2015 | 2016 | 2017 | Design Value (1) | % NAAQS |
|---|---|---|---|---|---|
| **Omaha MSA & Montgomery Co., IA (5)** | | | | | |
| **Omaha NCore (3)** | 22.0 | 18.1 | 21.0 | 20 | 58% |
| **9225 Berry St.; Omaha** | 17.1 | 15.0 | 16.5 | 16 | 46% |
| **2912 Coffey Ave., Bellevue** | 21.7 | 16.2 | 19.2 | 19 | 54% |
| **2242 Wright St., Blair** | 16.0 | 14.0 | 15.9 | 16 | 44% |
| **3130 C Ave., Council Bluffs, IA (4)** | 18.8 | 17.0 | 18.8 | 18 | 52% |
| **Montgomery Co., IA** (outside Omaha MSA) **(4) (5)** | 18.5 | 15.5 | 14.3 | 16 | 46% |
| **Lincoln MSA** | | | | | |
| **3140 N Street, Lincoln** | 14.7 | 16.0 | 19.2 | 17 | 48% |
| **Sioux City MSA** | | | | | |
| **821 30th St, Sioux City, IA (4)** | 19.1 | nd | nd | 19 | 54% |
| **901 Floyd Blvd, Sioux City, IA (4)** | nd | 15.4 | 18.7 | 17 | 49% |
| **31986 475th Ave, Union Co, SD (6)** | 19.9 | 17.3 | 14.5 | 17 | 49% |
| **Other Nebraska Sites** | | | | | |
| **Grand Island Senior High** | 14.8 | 12.2 | 14.7 | 14 | 40% |
| **Scottsbluff (7)** | 24.9 | 14.6 | 24.1 | 21 | 61% |

Notes and Explanations:

(1) The Design Values are the 3-year average of the annual 98th percentile values. To determine attainment status, the Design Values are compared to the 35 µg/m$^3$ NAAQS. Concentrations are in units of µg/m$^3$. Values from monitors with less than 3 years of data are shown in red.

(2) NAAQS History: The 24-hour $PM_{2.5}$ NAAQS was initially established at 65$\mu$g/m$^3$ in 1997. It was lowered to 35 mg/m$^3$ in 2006 and retained at the 35 µg/m$^3$ level in 2012.

(3) Omaha NCore is a multi-pollutant monitoring site located at 4102 Woolworth Street.

(4) The Council Bluffs, Montgomery Co., and Sioux City IA sites are operated by the IA DNR

(5) The Montgomery County, IA site is located outside the Omaha MSA at Viking Lake State Park;~18 miles east of the Mills-Montgomery County line and ~ 45 miles SE of the I-29/I-80 intersection.

(6) The Union Co., SD site is operated by the South Dakota Department of Environment & Natural Resources

(7) Scottsbluff Design Value Not Valid due to Incomplete Data:
Q1-2015 = 74%, Q4-2015 = 60%, CY2015 =81%. Q1-2016 = 32%, Q2-2016 = 73%, CY2016 = 71%.
Data loss issues were associated with power losses and monitor malfunctions.

# Attachment B: Comparison of Ambient Air Monitoring Data to NAAQS

## Table B-6b: $PM_{2.5}$ - Annual Average Data (1) (2)

| Site | 2015 | 2016 | 2017 | Design Value (1) | % NAAQS |
|---|---|---|---|---|---|
| **Omaha MSA & Montgomery Co., IA (4)** | | | | | |
| **Omaha NCore (3)** | 9.2 | 8.0 | 9.6 | 8.9 | 74% |
| **9225 Berry St.; Omaha** | 7.0 | 6.4 | 7.0 | 6.8 | 57% |
| **2912 Coffey Ave., Bellevue** | 8.4 | 7.9 | 9.7 | 8.7 | 72% |
| **2242 Wright St., Blair** | 6.7 | 6.4 | 6.7 | 6.6 | 55% |
| **3130 C Ave., Council Bluffs, IA** (4) | 8.3 | 7.2 | 7.7 | 7.7 | 64% |
| **Montgomery Co., IA** (outside Omaha MSA) (4) (5) | 6.9 | 6.1 | 6.4 | 6.5 | 54% |
| **Lincoln MSA** | | | | | |
| **3140 N Street, Lincoln** | 6.4 | 6.1 | 6.7 | 6.4 | 53% |
| **Sioux City MSA** | | | | | |
| **821 30th St, Sioux City, IA** (4) | 7.5 | nd | nd | 7.5 | 63% |
| **901 Floyd Blvd, Sioux City, IA** (4) | nd | 7.3 | 7.6 | 7.5 | 63% |
| **31986 475th Ave, Union Co, SD** (6) | 8.2 | 5.8 | 6.4 | 6.8 | 57% |
| **Other Nebraska Sites** | | | | | |
| **Grand Island Senior High** | 6.2 | 5.4 | 6.0 | 5.9 | 49% |
| **Scottsbluff** (7) | 5.5 | 4.9 | 7.6 | 6.0 | 50% |

Notes and Explanations:

(1) The Design Values are the 3 year average of the annual average values. To determine attainment status, the Design Values compared to the 12 µg/m$^3$ NAAQS. Concentrations are in units of µg/m$^3$. Values from monitors with less than 3 years of data are shown in red.

(2) NAAQS History: The annual average $PM_{2.5}$ NAAQS was initially established in 1997 at15µg/m$^3$. It was retained at this level in the 2006 review and then lowered to 12 µg/m$^3$ in December 2012.

(3) Omaha NCore is a multi-pollutant monitoring site located at 4102 Woolworth Street.

(4) The Council Bluffs, Montgomery Co., and Sioux City IA sites are operated by the IA DNR

(5) The Montgomery County, IA site is located outside the Omaha MSA at Viking Lake State Park;~18 miles east of the Mills-Montgomery County line and ~ 45 miles SE of the I-29/I-80 intersection.

(6) The Union Co., SD site is operated by the South Dakota Department of Environment & Natural Resources

(7) Scottsbluff Design Value Not Valid due to Incomplete Data:
Q1-2015 = 74%, Q4-2015 = 60%, CY2015 =81%. Q1-2016 = 32%, Q2-2016 = 73%, CY2016 = 71%.
Data loss issues were associated with power losses and monitor malfunctions.

# Attachment B: Comparison of Ambient Air Monitoring Data to NAAQS

## Table B-7. Lead in Total Suspended Particulate (TSP-Pb)

| Annual Maximum Rolling 3-Month Average Values (1) (2) | | | | | |
|---|---|---|---|---|---|
| **Site** | **2015** | **2016** | **2017** | **DV (1)** | **% NAAQS** |
| **Auburn (3)** | 0.004 | 0.003 | nd | 0.04 | 5% |
| **Fremont** | 0.077 | 0.061 | 0.042 | 0.077 | 51% |
| **Omaha NCore** | 0.003 | 0.003 | 0.003 | 0.003 | 2% |

Notes and Explanations:

(1) Concentrations are in units of μg/m$^3$. The 3-month average NAAQS = 0.15 μg/m$^3$. The DV or Design Value is the highest 3 month average in the last 3 years. Values from monitors with less than 3 years of data are shown in red.

(2) NAAQS History: The initial NAAQS was promulgated in 1978 and was set at 1.5 μg/m$^3$ calendar quarter average. In 2008, it was modified to 0.15 μg/m$^3$ 3-month running average.

(3) The Auburn lead monitor was closed in June 2016.

# Attachment C: Compliance Verification with 40 CFR Part 58

This attachment reviews compliance with applicable requirements in 40 CFR Part 58 Appendices A through E, including revisions effective 4/27/16. Nebraska Ambient Monitoring activities and network are in compliance with these requirements.

## I. Appendix A Review

40 CFR Part 58 Appendix A sets forth quality assurance requirements for the collection, calculation, and reporting of air monitoring data. The *Quality Assurance Project Plan (QAPP) for the Nebraska Ambient Air Monitoring Program for Criteria Pollutants, NCore Parameters, PM2.5 Speciation, and Total Reduced Sulfur* (EPA approved November 2014) was developed to comply with Part 58 requirements and the provisions of the EPA *Quality Assurance Handbook for Air Pollution Measurement Systems Volume II* (May 2013). The DCHD, LLCHD and NDEQ all use this QAPP. Actual procedures for operating monitors, as well as for collecting, reviewing and submitting data, are set forth in Standard Operating Procedures (SOPs) that comply with the QAPP.

40 CFR Part 58 Appendix A also sets forth requirements specifying the number of collocated monitors required for $PM_{2.5,}$ $PM_{10,}$ $PM_{10\text{-}2.5}$ and Lead (Pb) monitors. Table C-1 summarizes the collocated sites in Nebraska. All PM and Pb sub-networks operated by DCHD, LLCHD and NDEQ currently meet collocation requirements.

In March 2015, the collocated $PM_{10}$ monitor at the Weeping Water City site in the Omaha MSA suffered an electronic failure that was not readily repairable. This site was re-equipped with a continuous MetOne BAM sampler in June 2016, for which collocation is not required. In addition, $PM_{10}$ sites at Cozad and Gothenburg with filter-based sequential monitors were closed in March 2016. Thus there are no remaining 2025 filter-based samplers in Nebraska requiring collocation.

## II. Appendix C Review

Appendix C contains requirements for approved ambient air monitoring methodologies. Any monitor that is used to evaluate NAAQS compliance must be a Federal Reference Method (FRM) or a Federal Equivalent Method (FEM) or an alternatively approved method as defined in Appendix C. The network description tables in Attachment A of the network plan identify the monitoring method used by each monitor in the Nebraska ambient air monitoring network. All monitors used to evaluate compliance with the NAAQS are FRM or FEM certified. The only monitors that are not FRM/FEM certified are those not subject to 40 CFR Part 58 requirements; i.e., TRS, NADP, IMPROVE, RadNet, etc.

# Attachment C: Compliance Verification with 40 CFR Part 58

**Table C-1. Compliance Summary: Collocation Requirements of Appendix A(1)**

| Parameter | Method | Percent Collocation Required | NDEQ/LLCHD (2) | | | DCHD (2) | | |
|---|---|---|---|---|---|---|---|---|
| | | | # of Sites | # Collocated | % Collocated | # of Sites | # Collocated | % Collocated |
| $PM_{10}$ | Hi-Vol Sampler | 15% | 0 | 0 | na | 2 | 1 | 50% |
| $PM_{10}$ | Sequential 2025 Sampler | 15% | 0 | 0 | na (3) | 0 | 0 | na |
| $PM_{10}$ | Continuous Monitor | None | 1 | 0 | (4) | 2 | 0 | (4) |
| $PM_{2.5}$ | Sequential 2025 Sampler | 15% | 3 | 1 | 33% | 2 | 1 | 50% |
| $PM_{2.5}$ | Met One BAM Method (5) | 15% | 1 | 1 | 100% (5) | 2 | 1 | 50% |
| $PM_{10-2.5}$ | Met One BAM Method | None | 0 | 0 | na | 1 | 0 | (6) |
| TSP-Lead | Hi-Vol Sampler | 15% except NCore | 1 | 1 | 100% | 1 | 0 | (7) |

Footnotes:

(1) Collocation Requirements: Appendix A requires 15% of the sites in each parameter/method category to have collocated monitors with certain exceptions and additional requirements.

(2) Collocation requirements apply to each Primary Quality Assurance Organization (PQAO) separately. There are two PQAO's in Nebraska: DCHD and NDEQ/LLCHD.

(3) The Cozad and Gothenburg $PM_{10}$ sites were closed in March 2016 and the Weeping Water primary monitor was replaced with a MetOne BAM continuous monitor in June 2016, for which no collocation is required.

(4) Collocated monitors are not required for continuous $PM_{10}$ monitors.

(5) LLCHD operates a MetOne BAM $PM_{2.5}$ sampler for AirNow and AQI reporting. It is collocated with the primary and collocated sequential samplers at the site.

(6) DCHD operates 2 MetOne BAM samplers at the NCore site. One is set-up to sample $PM_{2.5}$ and the other samples $PM_{10}$. $PM_{10-2.5}$ is calculated using the results from these 2 samplers. There is a sequential $PM_{2.5}$ collocated sampler at the NCore site, but not a collocated $PM_{10}$ sampler. Collocated $PM_{10}$ samplers are not required in Appendix A for continuous $PM_{10}$ samplers. EPA has designated some NCore sites to have collocated samplers for $PM_{10-2.5}$; the Omaha NCore site is not one of them.

(7) Collocated TSP-Lead monitoring is not required at NCore sites unless specifically required by EPA; and EPA has not designated the Omaha NCore site to have a collocated TSP-Lead sampler. TSP-Lead monitoring at the Omaha NCore site was discontinued 12/31/2017.

**Network Descriptions**:

NDEQ Continuous $PM_{10}$: Weeping Water City (collocation not required)

NDEQ TSP-Lead: Fremont (collocated)

NDEQ & LLCHD Sequential 2025 $PM_{2.5}$: Lincoln (collocated), Grand island & Scottsbluff

DCHD Hi-Vol $PM_{10}$: 19& Burt (collocated) and South Omaha

DCHD Continuous $PM_{10}$: 46th & Farnam (collocation not required)

DCHD Sequential 2025 $PM_{2.5}$: Berry St (collocated) & Blair

DCHD MetOne BAM $PM_{2.5}$: NCore (collocated) & Bellevue

DCHD MetOne BAM $PM_{10-2.5}$: NCore (collocation not required)

DCHD TSP-Lead: NCore (collocation not required)

## III. Appendix D Review

Appendix D sets forth monitoring objectives and minimum monitoring site requirements that must be met. The review that follows demonstrates that the Nebraska ambient air monitoring network meets the Appendix D requirements in effect on February 28, 2013.

EPA periodically re-evaluates the NAAQS and monitoring requirements. Regulatory modifications may impact the minimum monitoring requirements in one of two ways:

- Appendix D minimum monitoring requirements may be changed (i.e., more or less monitoring could be required); or
- Monitoring needs may change as a result of a NAAQS modification (e.g., when the annual average $PM_{2.5}$ NAAQS was lowered from 15 *u*g/$m^3$ to 12 *u*g/$m^3$, the 85% of NAAQS threshold set forth in 40 CFR Part 58 Appendix D Sec. 4.7 Table D.5 was crossed, and the minimum number of $PM_{2.5}$ monitoring sites for the Omaha MSA increased from 1 to 2).

## III.A: Appendix D - Objectives Review

Appendix D Section 1.1 sets forth 3 objectives that ambient air monitoring networks must be designed to meet:

- Provide air pollution data to the general public in a timely manner.
- Support compliance with ambient air quality standards and emissions strategy development.
- Support for air pollution research studies.

Each of these objectives is discussed below.

### 1. Timely Dissemination of Data - Met

Air monitoring data is made available to the public and other parties in several ways.

a. Ambient air monitoring data is reviewed quarterly and entered into the national EPA-operated AQS database. The AQS database is available to federal, state, and local monitoring agency personnel, as well as some other public agencies and researchers. AQS data cannot be directly accessed by the general public, but the NDEQ does respond to data requests.

b. Air Quality Index reporting is performed by DCHD and LLCHD for their respective jurisdictions. The AQI information is made available on their respective city websites.

c. Monitoring data from continuous particulate, ozone, and CO monitors in the Omaha and Lincoln MSAs report directly to the EPA AirNow system. The general public can access air quality index information on-line at www.airnow.gov.

d. The NDEQ publishes an annual Air Quality Report. This report is available on-line and upon request. Similarly the annual Network Plan reports are also available to the public on-line or upon request.

**2. Support compliance with ambient air quality standards and emissions strategy development – Met**

The NDEQ reviews all of the data collected by DCHD, LLCHD, and NDEQ during the previous year as part of the annual data certification process, which is submitted to EPA by May 1st. At this time design values are calculated and compared with the NAAQS. This design value information is then incorporated into the annual Network Plan. The annual Network Plans discuss attainment/non-attainment status and monitoring strategies that may be related.

The NDEQ, DCHD, and LLCHD also perform data validation reviews at least once each quarter and in many instances monthly. Any potential non-attainment or near non-attainment circumstances will be recognized during these reviews. If such conditions are identified, efforts are made to ascertain the cause and to the extent possible bring about corrective action through regulatory and/or voluntary mechanisms.

An Air Now summary report for ozone & $PM_{2.5}$ is emailed daily to an NDEQ member. When elevated ozone or $PM_{2.5}$ levels are reported, this information is passed on to air quality managers at DCHD, LLCHD, and NDEQ.

The examples below illustrate how state and local air quality programs have recognized air quality issues and reacted to them.

a. In the fall of 2011, the 3-month average lead concentration at the Fremont site exceeded the NAAQS. EPA and Magnus Farley, the one known source, were notified. The data were discussed and presented to EPA for review. NDEQ and the source conducted an on-site review of the facility and potential emission sources.

   In 2012, NDEQ continued to calculate daily and 3-month average lead monitoring data as the data became available and disseminated this information to Magnus Farley. High daily lead levels in May thru early July brought the 3-month average within 93% of the NAAQS, and these lead levels were discussed with Magnus Farley. Lower lead levels were seen beginning in July and continuing thereafter. The impact of this information exchange with the source is difficult to evaluate, but it may have played an important role in facilitating the source in remaining diligent with their control efforts.

   The NDEQ continues to inform Magnus Farley of lead levels as the data become available. Lead levels have remained in attainment with the current DV at 51% of the NAAQS. See Attachment B Table B-7 for 2015-2017 maximum 3-month average data.

b. From September 2011 thru June 2012, the 46th & Farnam site recorded four (4) 24-hour average $PM_{10}$ values greater than the 150 $ug/m^3$ standard. The 46th & Farnam site is source-oriented with respect to Omaha Steel Castings Company, and the company had initiated a move to a new location in Wahoo, NE.

   Douglas County Health Department notified Omaha Air Quality Control and Omaha Steel of the high values in a timely manner. Omaha Air Quality Control staff met with Omaha Steel to discuss potential $PM_{10}$ sources and controls. Omaha Steel proceeded with process-handling and housekeeping changes intended to reduce $PM_{10}$ emissions. These efforts were effective in reducing $PM_{10}$ levels. Omaha Steel completed their move to their new facility in 2014 and closed the 46th & Farnam facility.

**c.** In the summer of 2012, Nebraska monitoring sites began reporting ozone levels above those seen in recent years. The NDEQ began using Air Now data to track the current 4th highest values for sites in and around Nebraska as the ozone season progressed. Although the 4th high values at 2 sites in the Omaha MSA exceeded 0.075 ppm 8-hour ozone NAAQS, the 3-year average design values did not exceed the NAAQS (i.e., the maximum unofficial 2010-2012 DVs = 0.069 ppm).

**d.** In the spring of 2014, 2016, and 2017, smoke from controlled grassland fires in the Flint Hills area of Kansas impacted Nebraska. AirNow data was used to track the degree and extent of the impact on ambient ozone and $PM_{2.5}$. At times, the impact from these controlled burns raised ozone and $PM_{2.5}$ levels in Nebraska. Both DCHD and LLCHD issued air quality alerts related to these burns.

**3. Support for air pollution research studies – Met**

The NDEQ, DCHD, and LLCHD operate the Nebraska SLAMS network in accordance with the monitor specifications, site placement, and QA requirements set forth in 40 CFR Part 50 and 58. EPA R7 provides oversight to ensure that regulatory requirements are met with respect to methodology and QA.

Data is reviewed quarterly before being submitted to EPA's AQS database. Once in AQS, the data is available for pollution research studies.

Near real-time data is also reported to the EPA AirNow data from the continuous PM, CO, and ozone monitors operating in the Omaha and Lincoln MSA. This data is also available for research purposes.

## III.B: Appendix D – Minimum Monitoring Site Requirements

Nebraska has the minimum number of monitoring sites required by Appendix D. The minimum monitoring site requirements are set by Core Based Statistical Areas (CBSAs), which include Metropolitan Statistical Areas (MSAs) and Micropolitan Statistical Areas (MiSAs). The minimum monitoring site requirements for each of the four MSAs in Nebraska are examined separately and documented in Tables C-2.a through C-2.d below.

The review for non-MSA areas of the state was performed on a pollutant specific basis. This review is documented in narrative form in Section III.C below.

It should be noted that the number of monitoring sites required in a network generally needs to be greater than the minimum number required by Appendix D. This is stated in Appendix D Section 1.1.2: "… total number of monitoring sites that will serve the variety of data needs will be substantially higher than these minimum requirements provide…"

## III.C: Appendix D Minimum Monitoring Requirements for non-MSAs

**NCore** – (40 CFR Part 58 App. D Sec. 3) No sites required or operated.

At this time there is no requirement or plan to develop an NCore site in Nebraska, other than the current site in Omaha.

## Attachment C: Compliance Verification with 40 CFR Part 58

**Ozone ($O_3$)** – (40 CFR Part 58 App. D Sec. 4.1) No sites required or operated.

At this time there is no requirement or plan to deploy ozone monitoring sites outside of the MSAs.

**Carbon Monoxide (CO)** – (40 CFR Part 58 App. D Sec. 4.2) No sites required or operated.

At this time there is no requirement or plan to conduct CO monitoring outside the MSAs. Elevated CO levels are primarily associated with vehicle emissions and congested traffic areas. Highest levels would be anticipated in the Omaha and Lincoln MSAs. Highest concentration site monitoring in Lincoln and Omaha has consistently found CO levels well below the NAAQS. Thus, there is not a need for additional monitoring sites in less populated communities.

**Nitrogen Dioxide ($NO_2$)** – (40 CFR Part 58 App. D Sec. 4.3) No sites required or operated.

At this time there is no requirement or plan to conduct $NO_2$ monitoring outside the MSAs.

**Sulfur Dioxide ($SO_2$)** – (40 CFR Part 58 App. D Sec. 4.4) No sites required or operated .

There are no Part 58 requirements to operate $SO_2$ monitoring sites in non-MSA areas. However, pursuant to Part 51, Subpart BB, monitoring may be used to demonstrate attainment with the 1-hour $SO_2$ NAAQS. NDEQ has no current plans for $SO_2$ monitoring in non-MSA areas. In December 2016, LLCHD began operating a source-oriented $SO_2$ monitor adjacent to Nebraska Public Power District's Sheldon Station near Hallam, NE in the Lincoln MSA. In January 2017, DCHD began operating a source-oriented $SO_2$ monitor adjacent to Omaha Public Power District's North Omaha Station in the Omaha MSA.

**Lead (Pb)** – (40 CFR Part 58 App. D Sec. 4.5)

Two source-oriented sites required; 1 operating and 1 waived.

40 CFR Part 58 Appendix D requires source-oriented monitoring near sources with lead emissions of 0.5 tpy or more. Three sources initially met this threshold: Magnus Farley in Fremont, Magnolia Metals in Auburn, and Nucor Steel in Norfolk.

Monitoring near Magnus Farley in Fremont and Magnolia Metals in Auburn was initiated in 2010. A waiver pursuant to Part 58 Appendix D Section 4.5 was sought from and granted by EPA R7 for Nucor Steel in Norfolk in April 2014. This waiver expires in April 2019.

In 2012 and 2013 Magnolia Metals installed pollution-control equipment that reduced their lead emissions to 0.1 tpy. Ambient lead levels dropped to below 5% of the NAAQS in 2015. The 2015 Network Plan included a proposal for no longer requiring lead monitoring near Magnolia Metals. The Auburn lead site was shut down in June 2016 in accordance with the 2015 Network Plan.

Thus only one source-oriented lead monitor, the one in Fremont, is currently operating.

**$PM_{10}$ Particulate Matter** (40 CFR Part 58 App. D Sec. 4.6) No sites required. No sites operated.

There are no minimum $PM_{10}$ monitoring requirements for areas outside of MSAs.

NDEQ operated $PM_{10}$ sites in Cozad and Gothenburg that were shut-down on March 8, 2016 in accordance with the 2015 Network Plan.

**Fine Particulate Matter: $PM_{2.5}$** (40 CFR Part 58 Appendix D Section 4.7 & 4.7.3) Two (2) sites required and 2 operated.

States are required to operate a background site and a transport site for $PM_{2.5}$. Nebraska's background site is in Scottsbluff, and the transport site is in Grand Island.

**Coarse Particulate Matter: $PM_{10-2.5}$** (40 CFR Part 58 App D Sec 4.8) No sites required or operated.

**Photochemical Assessment Monitoring Stations (PAMS)** (40 CFR Part 58 Appendix D Section 5) No sites required or deployed.

PAMS are only required in areas classified as serious, severe, or extreme non-attainment for $O_3$. No such areas exist in Nebraska at this time.

### IV: Appendix E Review

This appendix sets forth requirements for probe and monitoring path placement, including: horizontal and vertical placement, spacing from minor sources, spacing from obstructions, spacing from trees, spacing from roadways, cumulative interferences on a monitoring path, maximum monitoring path length, and probe material and sample residence time. Compliance with these criteria is verified when the site is set up and periodically thereafter. Compliance is evaluated using review sheets developed for that purpose.

# Attachment C: Compliance Verification with 40 CFR Part 58

**Tables C-2a thru C-2c. Minimum Monitoring Reviews for Each Nebraska MSA***

**Table C-2a. 40 CFR Part 58 Appendix D Review: Omaha-Council Bluffs MSA (MSA Population ~ 933,300)**

| Pollutant | App. D Citation | Review Criteria & *Comments* | Sites Required | Sites Operated | Criteria Met? |
|---|---|---|---|---|---|
| **Ozone** | Sec. 4.1 Table D-2 | The Omaha MSA population is between 350K to 4M and $O_3$ levels are ≥ 85% of NAAQS (*See Design Values in Attachment B).* | 2 | 3 Includes NCore | Y |
| **CO** | Sec. 4.2 | The population threshold for requiring a near-road CO monitoring site in a CBSA is 1 million. The population of the Omaha MSA is below this threshold. | 0 | 2 Includes NCore | Y |
| **$NO_2$** | Sec. 4.3.2 | The Omaha MSA has a population between 500K and 1M and is thus not currently required to have a near-road NOx monitoring site. | 0 | 0 | Y |
| | Sec.4.3.3 | Area-Wide monitoring only required if CBSA ≥ 1M (Omaha MSA population < 1 M) | 0 | 1 @ NCore | Y |
| | Sec. 4.3.4 | Regional Administrator required monitoring: None at this time. | 0 | 0 | Y |
| **$SO_2$** | Sec. 4.4 | The need for $SO_2$ sites is based on the *Population Weighted Emissions Index* (PWEI). Omaha's PWEI = 25,028, which falls within the 5,000 to 100,000 range requiring 1 site (see Table C-3 below for PWEI calculation data). The current network of two highest concentration sites and one NCore site exceeds the minimum requirements. | 1 | 3 Includes NCore | Y |
| | | Regional Administrator required monitoring: None at this time. | 0 | 0 | Y |
| **Lead** | Sec. 4.5 (a) | There are no sources emitting ≥ 0.5 tpy of lead in the Nebraska portion of the Omaha MSA. | 0 | 0 | Y |
| | Sec. 4.5 (b) | Revised regulations effective 4/27/16 eliminated the requirement for one community-based lead monitor at each NCore site. DCHD discontinued lead monitoring at the Omaha NCore site at the end of 2017 in accordance with this regulation change and the 2017 Network Plan. | 0 | 0 | Y |
| | Sec. 4.5 (c) | Regional Administrator required monitoring: None at this time. | 0 | 0 | Y |
| **$PM_{10}$** | Sec. 4.6 Table D-4 | The Omaha MSA has a population between 500K – 1M and a high $PM_{10}$ concentration range with 1 max value > 120% of NAAQS at 46th & Farnam St Site in 2012. With the closing of the Omaha Steel facility at 46th & Farnam, the only sites with $PM_{10}$ exceeding 80% of NAAQS may be in the Weeping Water area (sites operated by NDEQ). See Attachment B for $PM_{10}$ data. | 4-8 | 4 Includes NCore & 1 site @ Weeping Water | Y |
| **$PM_{2.5}$** | Sec 4.7 Table D-5 | The Omaha MSA has a population between 500K – 1M and $PM_{2.5}$ levels < 85% of NAAQS range (*See Design Values in Attachment B).* | 1 | 4 Includes NCore | Y |
| | Sec 4.7.2 | Continuous monitor required. | 1 | 1 @ NCore | Y |
| | Sec. 4.7.4 | $PM_{2.5}$ Speciation Trends Network monitoring required (included SASS and URG samplers as one) | 1 | 1 @ NCore | Y |
| **PAMS** | Sec. 5 | Only required for areas classified as serious, severe, or extreme non-attainment for $O_3$. | 0 | 0 | NA |
| **NCore** | Sec. 3 | Omaha has been designated to operate an NCore site with NO/NOy monitoring. | 1 | 1 | Y |

* Unless noted otherwise, this analysis does not count monitors located in Iowa toward meeting the minimum monitoring requirements. It does consider pollutant levels measured at Iowa sites when determining minimum monitoring needs for ozone and $PM_{2.5}$.

| **Table C-2b. 40 CFR Part 58 Appendix D Review: Lincoln MSA (Population ~ 331,500)** | | | | | |
|---|---|---|---|---|---|
| **Pollutant** | App. D Citation | **Review Criteria & *Comments*** | Sites Required | Sites Operated | Criteria Met? |
| **Ozone** | Sec. 4.1 Table D-2 | The Lincoln MSA population is between 50K to 350K and $O_3$ levels < 85% of NAAQS (*See Design Values in Attachment B).* | 0 | 1 | Y |
| **CO** | Sec. 4.2 | No minimum requirement | 0 | 0 | Y |
| **$NO_2$** | Sec. 4.3.2 | Near-road monitoring: No requirement for CBSA < 500K. | 0 | 0 | Y |
| | Sec.4.3.3 | Area-Wide monitoring only required if CBSA $\geq$ 1M (Lincoln MSA population < 1 M). | 0 | 0 | Y |
| | Sec. 4.3.4 | Regional Administrator required monitoring: none. | 0 | 0 | Y |
| **$SO_2$** | Sec. 4.4 | The number of $SO_2$ sites required is based on the *Population Weighted Emissions Index* (PWEI). Lincoln's PWEI = 1,156, which falls below 5,000 (see Table C-3 below for PWEI calculation data). Thus no sites are required. However, LLCHD began operating a source-oriented $SO_2$ monitor near Hallam, NE in December 2016. | 0 | 1 | Y |
| | | Regional Administrator required monitoring: none. | 0 | 0 | Y |
| **Lead** | Sec. 4.5 (a) | There are no sources emitting $\geq$ 0.5 tpy of lead. | 0 | 0 | Y |
| | Sec. 4.5 (b) | Community-based monitoring not required. | 0 | 0 | Y |
| | Sec. 4.5 (c) | Regional Administrator required monitoring: none. | 0 | 0 | Y |
| **$PM_{10}$** | Sec. 4.6 Table D-4 | The Lincoln MSA population is between 250K and 500K. Monitoring is only required if current monitoring indicates $PM_{10} \geq$ 85% of NAAQS. *The highest 24-hr value found during monitoring in Lincoln from 1988-98 was 102 $\mu g/m^3$ or 68% of the NAAQS, and $PM_{10}$ concentrations have been declining in Nebraska since that time.* | 0-1 | 0 | Y |
| **$PM_{2.5}$** | Sec 4.7 Table D-5 | The Lincoln MSA population is between 50K – 500K and $PM_{2.5}$ levels < 85% of NAAQS (*See Design Values in Attachment B).* | 0 | 1 | Y |
| | Sec 4.7.2 | Continuous monitor not required. | 0 | 1 | Y |
| | Sec. 4.7.4 | $PM_{2.5}$ Speciation Trends Network monitoring not required. | 0 | 0 | Y |
| **PAMS** | Sec. 5 | Only required for areas classified as serious, severe, or extreme non-attainment for $O_3$. | 0 | 0 | Y |
| **NCore** | Sec. 3 | Lincoln has not been designated to operate an NCore site. | 0 | 0 | Y |

* Unless noted otherwise, this analysis does not count monitors located in Iowa toward meeting the minimum monitoring requirements. It does consider pollutant levels measured at Iowa sites when determining minimum monitoring needs for ozone and $PM_{2.5}$.

# Attachment C: Compliance Verification with 40 CFR Part 58

| **Table C-2c. 40 CFR Part 58 Appendix D Review: Sioux City MSA (Population ~ 168,600) *** | | | | | |
|---|---|---|---|---|---|
| **Pollutant** | App. D Citation | **Review Criteria & *Comments*** | Sites Required | Sites Operated | Criteria Met? |
| **Ozone** | Sec. 4.1 Table D-2 | The Sioux City MSA population is between 50K and 350K. Appendix D Sec. 4.1, Table D-2 says that for MSAs of this size 1 ozone site is required if the DV ≥ 85% of the NAAQS. There is one ozone monitor in the MSA located in a rural area of Union County, SD. The 3-year Design Value from this Union County site is 62 ppb or 89% of the NAAQS. *Nebraska has no current plans to install a second ozone monitor in the Sioux City MSA.* | 1 | 0 | Y See comment |
| **CO** | Sec. 4.2 | No minimum requirement. | 0 | 0 | Y |
| **$NO_2$** | Sec. 4.3.2 | Near-road monitoring: No requirement for CBSA < 500K. | 0 | 0 | Y |
| | Sec.4.3.3 | Area-Wide monitoring only required if CBSA ≥ 1M (Sioux City MSA population < 1 M) | 0 | 0 | Y |
| | Sec. 4.3.4 | Regional Administrator required monitoring; none. | 0 | 0 | Y |
| **$SO_2$** | Sec. 4.4 | The number of $SO_2$ sites required is based on the *Population Weighted Emissions Index* (PWEI). Sioux City MSA's PWEI = 2,285, which falls within the 5,000 to 100,000 range requiring 1 site (see Table C-3 below for PWEI calculation data). *Two sites exist in the MSA: one in Union County, SD & one near Sergeant Bluff, IA.* | 1 | 0 | Y See comment |
| | | Regional Administrator required monitoring: none | 0 | 0 | Y |
| **Lead** | Sec. 4.5 (a) | There are no sources emitting ≥ 0.5 tpy of lead in the Nebraska portion of the Sioux City MSA. | 0 | 0 | Y |
| | Sec. 4.5 (b) | Community-based lead monitoring not required. | 0 | 0 | Y |
| | Sec. 4.5 (c) | Regional Administrator required monitoring: none. | 0 | 0 | Y |
| **$PM_{10}$** | Sec. 4.6 Table D-4 | The Sioux City MSA population is between 100K – 250K and $PM_{10}$ levels are < 80% of NAAQS (*See Design Values in Attachment B).* | 0 | 0 | Y |
| **$PM_{2.5}$** | Sec 4.7 Table D-5 | The Sioux City MSA population is between 50K and 500K and $PM_{2.5}$ levels are < 85% of NAAQS, thus no monitor is required. (*See Design Values in Attachment B).* | 0 | 0 | Y |
| | Sec 4.7.2 | Continuous monitor not required | 0 | 0 | Y |
| | Sec. 4.7.4 | $PM_{2.5}$ Speciation Trends Network monitoring not required | 0 | 0 | Y |
| **PAMS** | Sec. 5 | Only required for areas classified as serious, severe, or extreme non-attainment for $O_3$ | 0 | 0 | Y |
| **NCore** | Sec. 3 | The Nebraska portion of the Sioux City MSA has not been designated to operate an NCore site. | 0 | 0 | Y |

* Unless noted otherwise, this analysis does not count monitors located in Iowa and South Dakota toward meeting the minimum monitoring requirements. It does use pollutant levels measured at IA and SD monitoring sites, when determining minimum monitoring needs for ozone and PM.

# Attachment C: Compliance Verification with 40 CFR Part 58

| Table C-2d. 40 CFR Part 58 Appendix D Review: Grand Island MSA (Population ~ 85,000) | | | | | |
|---|---|---|---|---|---|
| **Pollutant** | App. D Citation | **Review Criteria & *Comments*** | Sites Required | Sites Operated | Criteria Met? |
| **Ozone** | Sec. 4.1 Table D-2 | Grand Island MSA population is between 50K -350K. Monitoring is only required if current monitoring finds $O_3$ > 85% of NAAQS as set forth in Part 58 Appendix D Table D-2. | 0 | 0 | Y |
| **CO** | Sec. 4.2 | No minimum requirement. | 0 | 0 | Y |
| **$NO_2$** | Sec. 4.3.2 | Near-road monitoring: No requirement for CBSA < 500K. | 0 | 0 | Y |
| | Sec.4.3.3 | Area-Wide monitoring only required if CBSA ≥ 1M (Grand Island MSA population < 1 M) | 0 | 0 | Y |
| | Sec. 4.3.4 | Regional Administrator required monitoring: none | 0 | 0 | Y |
| **$SO_2$** | Sec. 4.4 | *Population Weighted Emissions Index* (PWEI) = 141, which falls below 5,000 (see Table C-3 below for PWEI calculation data). No minimum number of sites required. | 0 | 0 | Y |
| | | Regional Administrator required monitoring: none | 0 | 0 | Y |
| **Lead** | Sec. 4.5 (a) | There are no sources emitting ≥ 0.5 tpy of lead | 0 | 0 | Y |
| | Sec. 4.5 (b) | Community-based lead monitoring not required. | 0 | 0 | Y |
| | Sec. 4.5 (c) | Regional Administrator required monitoring: none | 0 | 0 | Y |
| **$PM_{10}$** | Sec. 4.6 Table D-4 | $PM_{10}$ monitoring is not required if MSA population < 100,000 | 0 | 0 | Y |
| **$PM_{2.5}$** | Sec 4.7 Table D-5 | Grand Islands's CBSA population is between 50K – 500K and $PM_{2.5}$ levels are < 85% of NAAQS (*See Design Values in Attachment B)* | 0 | 1(1) | Y |
| | Sec 4.7.2 | Continuous monitoring is not required | 0 | 0 | Y |
| | Sec. 4.7.4 | $PM_{2.5}$ Speciation Trends Network monitoring is not required | 0 | 0 | Y |
| **PAMS** | Sec. 5 | Only required for areas classified as serious, severe, or extreme non-attainment for $O_3$ | 0 | 0 | Y |
| **NCore** | Sec. 3 | The Grand Island MSA has not been designated to operate a NCore site | 0 | 0 | Y |

Footnote:
(1) The $PM_{2.5}$ site operated in Grand Island is Nebraska's transport site.

## Attachment C: Compliance Verification with 40 CFR Part 58

**Table C-3. Population Weighted Emissions Index (PWEI) Data for Nebraska Core Based Statistical Areas (CBSAs ) [(a) (b) (c)]** Page 1 of 2

| CBSA | County | Population 7/1/17 [(c)] | $SO_2$ Emissions (tons/year) | | $SO_2$ Emissions (% Change) | PWEI [(a) (b)] | |
|---|---|---|---|---|---|---|---|
| | | | 2011 EI | 2014 EI | | 2011 EI | 2014 EI |
| Omaha MSA | Douglas | 561,620 | 14,311 | 11,514 | -20% | 28,634 | **24,028** |
| | Sarpy | 181,439 | 29 | 60 | 107% | | |
| | Cass | 25,889 | 1,094 | 1,279 | 17% | | |
| | Saunders | 21,057 | 20 | 37 | 85% | | |
| | Washington | 20,721 | 60 | 32 | -47% | | |
| | Pottawattamie, IA | 93,386 | 15,101 | 13,808 | -9% | | |
| | Mills, IA | 15,068 | 22 | 22 | 0% | | |
| | Harrison, IA | 14,136 | 43 | 64 | 49% | | |
| | **Totals** | **933,316** | **30,680** | **26,816** | **-13%** | | |
| Lincoln MSA | Lancaster | 314,358 | 4,254 | 3,446 | -19% | 1,425 | **1,156** |
| | Seward | 17,161 | 43 | 41 | -5% | | |
| | **Totals** | **331,519** | **4,297** | **3,487** | **-19%** | | |
| Sioux City MSA | Woodbury, IA | 102,429 | 29,693 | 13,473 | -55% | 5,027 | **2,285** |
| | Plymouth, IA | 25,220 | 18 | 27 | 50% | | |
| | Dakota | 20,186 | 14 | 25 | 79% | | |
| | Dixon | 5,754 | 13 | 12 | -8% | | |
| | Union, SD | 15,029 | 74 | 12 | -84% | | |
| | **Totals** | **168,618** | **29,812** | **13,549** | **-55%** | | |
| Grand Island MSA | Hall | 61,519 | 2,378 | 1,552 | -35% | 211 | **141** |
| | Hamilton | 9,207 | 29 | 24 | -17% | | |
| | Howard | 6,437 | 40 | 29 | -28% | | |
| | Merrick | 7,782 | 33 | 50 | 52% | | |
| | **Totals** | **85,045** | **2,480** | **1,655** | **-33%** | | |

Observation: The EPA's emission inventory data indicates that $SO_2$ emissions from all 4 of Nebraska's MSAs decreased 13% to 55% from 2011 to 2014.

Footnotes at bottom of page 2 of this table.

**Table C-3. Population Weighted Emissions Index (PWEI) Data for Nebraska Core Based Statistical Areas (CBSAs ) [(a) (b) (c)]** Page 2 of 2

| CBSA | County | Population 7/1/17 [(c)] | $SO_2$ Emissions (tons/year) | | $SO_2$ Emissions (% Change) | PWEI [(a) (b)] | |
|---|---|---|---|---|---|---|---|
| | | | 2011 EI | 2014 EI | | 2011 EI | 2014 EI |
| Kearney MiSA | Buffalo | 49,732 | 89 | 75 | -16% | 6 | **5** |
| | Kearney | 6,530 | 15 | 5 | -67% | | |
| | **Totals** | **56,262** | **104** | **80** | **-23%** | | |
| Norfolk MiSA | Madison | 35,144 | 24 | 16 | -33% | 13 | **8** |
| | Pierce | 7,138 | 30 | 29 | -3% | | |
| | Stanton | 5,988 | 206 | 126 | -39% | | |
| | **Totals** | **48,270** | **260** | **171** | **-34%** | | |
| Hastings MiSA | Adams | **31,678** | **3,324** | **3,186** | -4% | 105 | **101** |
| Scottsbluff MiSA | Banner | 742 | 1 | 1 | 0% | 8 | **9** |
| | Scotts Bluff | 36,363 | 203 | 201 | -1% | | |
| | Sioux | 1,203 | 15 | 22 | 47% | | |
| | **Totals** | **38,308** | **219** | **224** | **2%** | | |
| North Platte MiSA | Lincoln | 35,280 | 29,246 | 24,594 | -16% | 1,070 | **899** |
| | Logan | 768 | 37 | 1 | -97% | | |
| | McPherson | 499 | 2 | 2 | 50% | | |
| | **Totals** | **36,547** | **29,285** | **24,598** | **-16%** | | |
| Fremont MiSA | Dodge | **36,707** | **1,426** | **2,262** | **59%** | 52 | **83** |
| Columbus MiSA | Platte | **33,175** | **330** | **405** | **23%** | 11 | **13** |
| Lexington MiSA | Dawson | 23,709 | 64 | 68 | 6% | 2 | **2** |
| | Gosper | 2,028 | 14 | 6 | -57% | | |
| | **Totals** | **25,737** | **78** | **74** | **-5%** | | |
| Beatrice MiSA | Gage | **21,601** | **87** | **34** | **-61%** | 2 | **1** |

Footnotes:
(a) Population Weighted Emission Index (PWEI) = (CBSA Population) x ($SO_2$ Emissions (tpy))/1,000,000.
(b) $SO_2$ Emission data were obtained from the EPA Emission Inventory database for 2011 and 2014. The 2014 EI data is the most recent data available from EPA at the time this table was created (March 2018).
(c) U.S. Census population estimate data for 7/1/2017 were used in this table and the PWEI calculations.
The PWEI calculated with 2014 Emission Inventory data is currently applicable. The PWEI was also calculated with 2011 EI data to document any change that might have occurred.