Wisconsin Department of Natural Resources 2027 Air Monitoring Network Plan

June 2026

Signature Page

By the signature below, the Wisconsin Department of Natural Resources, Air Monitoring section certifies that the information contained in this network document for 2027 is complete and accurate at the time of submittal to US EPA Region 5. However, due to circumstances that may arise during the year, some network information may change. A notification of change and a request for approval will be submitted to US EPA Region 5 at that time.

Signature Ben Wolf Date 5/12/2026

Ben Wolf
Manager, Air Monitoring Section

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Public Notification and Comment Period

The annual monitoring network plan details the operation and locations of ambient air monitors operated by the Wisconsin Department of Natural Resources (DNR) Air Monitoring Section. Pursuant to federal requirements (40 C.F.R. 58.10(a)(1)), the DNR will provide a 30-day public comment period for review of this ambient air quality monitoring network plan. Written comments on this monitoring network plan document may be submitted no later than, June 12, 2026, electronically via email to Benjamin.Wolf@Wisconsin.gov or mailed, contact information is as follows:

Ben Wolf
c/o Air Monitoring Section, Air Management Program
P.O. Box 7921
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Written comments will have the same weight and effect as oral comments presented at the meeting. A copy of the proposed revision to the Monitoring Plan is available for public inspection on the DNR website or by mail (at no charge) from Ben Wolf at the address noted above.

Disclaimer

The network design proposed in this document represents a balance between the desired number of monitors and monitoring frequency; and expected funding levels. The network configuration considers monitoring history, population distribution, federal monitoring requirements under the Clean Air Act (CAA), 40 Code of Federal Regulations (CFR) Part 58 and expected funding levels.

Recommended changes to this network will be implemented during May 2026 through December 2027, contingent upon adequate funding levels.

Network operations may change during the years without public notice based on unexpected circumstances. Examples of unexpected circumstances include catastrophic equipment failure, construction or demolition activities, loss of site access, or monitor obstructions.

Table 1: Summary of Network Changes Implemented from the 2026 Annual Network Plan

May 1, 2024 – December 31, 2025

Monitoring Site	AQS Site ID	Site	Ozone	$PM_{2.5}$	PM_{10}	$PM_{10-2.5}$	SO_2	NO_2	CO	NOy	Meteorological	Metals (PM_{10})	VOC / Carbonyl	Hg	NADP	CSN
AMI Silica-Hixton	55-053-1003	T	-	-	T3	-	-	-	-	-	-	-	-	-	-	-
Bad River Tribal School-Odanah	55-003-0010	-	-	-	-	-	-	-	-	-	-	-	-	-	T1	-
Chiwaukee Prairie Stateline	55-059-0019	M4	-	-	-	-	-	-	T	-	-	-	-	-	-	-
Grafton	55-089-0008	M4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lake Dubay	55-073-0012	M4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potosi	55-043-0009	M4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waukesha - Cleveland Ave.	55-133-0027	-	-	-	-	-	-	-	-	-	T2	-	-	-	-	-

A = Addition
M = Modification
T = Termination

1 = Ammonia Monitoring
2 = Barometric Pressure
3 = Industrial Sand Mine Monitor
4 = Shelter replaced

Acronyms, Abbreviations, and Definitions

Terms	Definition
AirMoN	Atmospheric Integrated Research Monitoring Network
AIRNow	Air quality forecasting website run by EPA
Air Toxics	Suite of parameters that includes VOCs, carbonyls and metals
AMoN	Ammonia Monitoring Network
AQI	Air Quality Index
AQS	Air Quality System; EPA's repository of ambient air quality data
BioWatch	Biological agents network operated by the Department of Homeland Security
CAA	Clean Air Act
CAS	Chemical Abstracts Service
CASTNET	Clean Air Status and Trends Network
CBSA	Core Base Statistical Area
CFR	Code of Federal Regulations
CO	Carbon monoxide
Criteria Pollutants	The six pollutants regulated by the 1970 Clean Air Act (particulate matter, ozone, nitrogen dioxide, sulfur dioxide, carbon monoxide, and lead)
CSN	Chemical Speciation Network
DNR	Wisconsin Department of Natural Resources
DRR	Data Requirements Rule
EOM	Enhanced ozone monitoring
EPA	United States Environmental Protection Agency
ERG	Eastern Research Group, Inc. laboratory
FCPC	Forest County Potawatomi Community
FEM	Federal Equivalent Method
FRM	Federal Reference Method
GC/MS	Gas Chromatography/Mass Spectrometry
HAP	Hazardous Air Pollutant
Hg	Mercury
ICP-MS	Inductively coupled plasma mass spectrometry
LADCO	Lake Michigan Air Directors Consortium
LC	Local Conditions
MDN	Mercury Deposition Network
$\mu g/m^3$	Microgram per cubic meter, unit of measurement
MOA	Memorandum of Agreement
MSA	Metropolitan Statistical Area
NAAQS	National Ambient Air Quality Standard
NADP	National Atmospheric Deposition Program
NASA	National Aeronautics and Space Administration
NATTS	National Air Toxics Trends Stations
NCore	National Core Monitoring Network
NH_3	Ammonia
NOAA	National Oceanic and Atmospheric Administration
NO	Nitric oxide
NO_2	Nitrogen dioxide
NO_X	Oxides of nitrogen
NO_Y	Reactive oxides of nitrogen

Terms	Definition
NPAP	National Performance Audit Program
NTN	National Trends Network
O_3	Ozone
PAMS	Photochemical Assessment Monitoring Stations
Pb	Lead
PEP	Performance Evaluation Program
PFAS	Perfluoroalkyl and polyfluoroalkyl substances
PM	Particulate matter
$PM_{2.5}$	Particulate matter which has an aerodynamic diameter less than 2.5 microns (fine particulate matter)
PM_{10}	Particulate matter which has an aerodynamic diameter less than 10 microns
$PM_{10\text{-}2.5}$	Particulate matter which has an aerodynamic diameter between 2.5 and 10 (coarse particulate matter)
ppb	Parts Per Billion
ppm	Parts Per Million
PQAO	Primary Quality Assurance Organization
PUF	Polyurethane foam
QAPP	Quality Assurance Project Plans
QA/QC	Quality Assurance/Quality Control
QMP	Quality Management Plan
SIP	State Implementation Plan
SLAMS	State and Local Air Monitoring Stations
SO_2	Sulfur dioxide
SPM	Special Purpose Monitoring
STAQS	Synergistic TEMPO Air Quality Science
STN	Speciation Trends Network
STP	Standard temperature and pressure
T640	$PM_{2.5}$ FEM using light scatter spectroscopy
T640X	$PM_{2.5}/PM_{10}$ FEM using light scatter spectroscopy
TIP	Tribal Implementation Plan
TO-11A	EPA method for analyzing carbonyls using high performance liquid chromatography
TO-15A	EPA method for analyzing VOCs using GC/MS
tpy	Tons Per Year
TSP	Total Suspended Particulate matter
TTP	Through the Probe
UATM	Urban Air Toxics Monitoring
UATS	Urban Air Toxics Strategy
USFS	United State Forest Service
VOC	Volatile Organic Compound
WSLH	Wisconsin State Lab of Hygiene

Introduction

The Wisconsin Air Monitoring Network Plan is an annual report required under the 40 CFR 58 § 58.10(a)(1). Effective July 1, 2007, state and local agencies are required to submit an Annual Network Plan (ANP) of State and Local Air Monitoring Stations (SLAMS), National Core Monitoring Network (NCore), Speciation Trends Network (STN) sites, Chemical Speciation Network (CSN) sites, Special Purpose Monitoring (SPM) sites and Photochemical Assessment Monitoring Stations (PAMS) sites, if they exist. The plan must include a statement of the purposes for each monitor and evidence that siting and operation of each monitor meets the requirements of 40 CFR Part 58 Appendices A, C, D, and E. In addition, the plan is due annually by July 1 and must be made available to the public for at least 30 days prior to its submission to EPA. Any modifications outlined in the plan are subject to approval of the EPA Regional Administrator, who shall approve or disapprove the plan within 120 days of submission.

The goals of this plan are to demonstrate that the DNR air monitoring network meets current federal monitoring requirements, to detail any changes proposed for the 18 months following publication, to provide specific information on each of the DNR's existing and proposed monitoring sites, and to provide the opportunity for the public to comment on air monitoring activities conducted by the DNR. The plan also includes information on known industrial monitoring activities and information on air toxics monitoring in the state.

The DNR's air quality monitoring data are used to determine compliance with National Ambient Air Quality Standards (NAAQS). In 1970, the CAA established NAAQS for six pollutants known to cause harm to human health and the environment. The CAA requires the DNR to monitor these pollutants, called criteria pollutants, and report the data to the EPA. The criteria pollutants are particulate matter, lead (Pb), ozone (O_3), nitrogen dioxide (NO_2), sulfur dioxide (SO_2) and carbon monoxide (CO). The DNR monitors criteria pollutants to meet federal requirements.

Network Overview

The DNR along with its Tribal partners in the DNR Primary Quality Assurance Organization (PQAO) operate 38 fixed ambient air monitoring sites throughout Wisconsin. One or more criteria pollutants are measured at each of these sites. Sites are categorized into three networks that include 32 SLAMS, two SPM sites and four Tribal sites. Monitoring sites often serve a purpose beyond the criteria pollutants network. Table 2 and Figure 1 show the sites operated by DNR and DNR’s PQAO partners and the networks in which they are included. Table 3 outlines the monitored parameters at each site. Table 4 shows the methods and equipment used in the DNR monitoring network. Network changes implemented since the publishing of 2026 Annual Network Plan are summarized in Table 1. Proposed network changes expected to occur between May 1, 2026 and December 31, 2027 are found in summary format in Table 14.

Table 2: Site Information – Wisconsin Sites Active in May 2025

Site name	AQS Site ID	County	Address	City	Latitude	Longitude	Year Established
Appleton	55-087-0009	Outagamie	4579 N. Meade Street	Appleton	44.30738	-88.39509	1995
Bad River Tribal School – Odanah	55-003-0010	Ashland	53751 Pine Street	Odanah	46.60234	-90.65615	2002
Bayside	55-079-0085	Milwaukee	601 E. Ellsworth Ln	Bayside	43.18100	-87.90100	1984
Beloit - Converse	55-105-0030	Rock	1501 Ritsher St	Beloit	42.51831	-89.06360	2013
Chiwaukee Prairie Stateline[3]	55-059-0019	Kenosha	11838 First Ct	Pleasant Prairie	42.50472	-87.80930	1987
Columbus	55-021-0015	Columbia	N 1045 Wendt Rd	Columbus	43.31551	-89.10889	1988
Devils Lake Park[5]	55-111-0007	Sauk	East 12886 Tower Rd	NA	43.43510	-89.67979	1995
Eau Claire - DOT Sign Shop	55-035-0014	Eau Claire	5509 Highway 53 South	Eau Claire	44.76249	-91.41445	2011
Elkhorn	55-127-0006	Walworth	Near W3905 County Road NN	Elkhorn	42.66218	-88.48703	2019
Fond Du Lac	55-039-0006	Fond Du Lac	N4010 Kelly Rd	Fond Du Lac	43.68740	-88.42205	1994
Grafton	55-089-0008	Ozaukee	1866 N. Port Washington Rd.	Grafton	43.34317	-87.92087	1991
Green Bay East High[4]	55-009-0005	Brown	1415 East Walnut	Green Bay	44.50729	-87.99344	1971
Green Bay UW	55-009-0026	Brown	UW Green Bay Grounds, E Circle Drive	Green Bay	44.53098	-87.90799	1994
Harrington Beach Park	55-089-0009	Ozaukee	531 Hwy D	Belgium	43.49830	-87.81020	1994
Ho-Chunk Nation-Black River Falls	55-053-2002	Jackson	N7289 Five Horned Ave	Black River Falls	44.33466	-90.78680	2020
Ho-Chunk Nation-Tomah	55-081-2001	Monroe	10750 County Hwy N	Tomah	44.02086	-90.40161	2020
Horicon Wildlife Area[1,4]	55-027-0001	Dodge	1298 N. Palmatory St	Horicon	43.46611	-88.62111	1982
Jefferson – Laatsch	55-055-0009	Jefferson	N4440 Laatsch Ln	Jefferson	43.00340	-88.82830	2013
Kaukauna	55-087-0015	Outagamie	601 Plank Rd	Kaukauna	44.28930	-88.25219	2017
Kenosha - Water Tower[3]	55-059-0025	Kenosha	4504 64th Ave	Kenosha	42.59560	-87.88576	2013
Kewaunee	55-061-0002	Kewaunee	1630 Milwaukee St.	Kewaunee	44.44312	-87.50525	1994
La Crosse - DOT Building	55-063-0012	La Crosse	3550 Mormon Coulee Rd	La Crosse	43.77750	-91.22690	2005
Lake DuBay	55-073-0012	Marathon	1804 Bergen Rd	Mosinee	44.70735	-89.77192	1991
Madison University Ave Well #6	55-025-0047	Dane	2757 University Ave	Madison	43.07378	-89.43595	1992
Madison – East[4]	55-025-0041	Dane	2302 Hoard St	Madison	43.10101	-89.35768	1999
Manitowoc Wdlnd Dunes[3]	55-071-0007	Manitowoc	2193E Goodwin Rd	Two Rivers	44.13862	-87.61612	1994
Milwaukee - College Ave. NR[6]	55-079-0056	Milwaukee	1400 W. College Ave	Milwaukee	42.93257	-87.93434	2013
Milwaukee Sixteenth St. Health Center[2,3,4]	55-079-0010	Milwaukee	1337 S. 16th St	Milwaukee	43.01724	-87.93369	1997
Milwaukee UWM UPark[3]	55-079-0068	Milwaukee	4372 N. Humboldt Blvd	Milwaukee	43.09456	-87.90144	2021
Newport Park[3]	55-029-0004	Door	475 Newport Park Rd.	Ellison Bay	45.23840	-86.99400	1989

Site name	AQS Site ID	County	Address	City	Latitude	Longitude	Year Established
Potawatomi	55-041-0007	Forest	7474 Air Site Rd.	Crandon	45.56498	-88.80859	2002
Potosi	55-043-0009	Grant	128 Hwy 61, Potosi Township	Potosi	42.69302	-90.69813	1999
Racine – Payne & Dolan	55-101-0020	Racine	4500 Charles St	Racine	42.77719	-87.79675	2015
Rhinelander Tower	55-085-0996	Oneida	434 High St	Rhinelander	45.64510	-89.41848	1981
Sheboygan – Haven[3]	55-117-0009	Sheboygan	N7563 Hwy 42	Sheboygan	43.81560	-87.79223	2014
Sheboygan Kohler Andre	55-117-0006	Sheboygan	1020 Beach Park Rd	Sheboygan	43.66737	-87.71631	1997
Trout Lake[5]	55-125-0001	Vilas	Trout Lake State Forestry HQ, 4125 Forest Headquarters Rd	Boulder Junction	46.05200	-89.65405	1973
Waukesha - Cleveland Ave.	55-133-0027	Waukesha	1310 Cleveland Ave	Waukesha	43.02012	-88.21505	1989

Monitoring networks

[1] NCore
[2] UATM
[3] EOM
[4] CSN
[5] NADP – operated by DNR
[6] Near Road

Figure 1: 2026 Air Monitoring Sites in Wisconsin

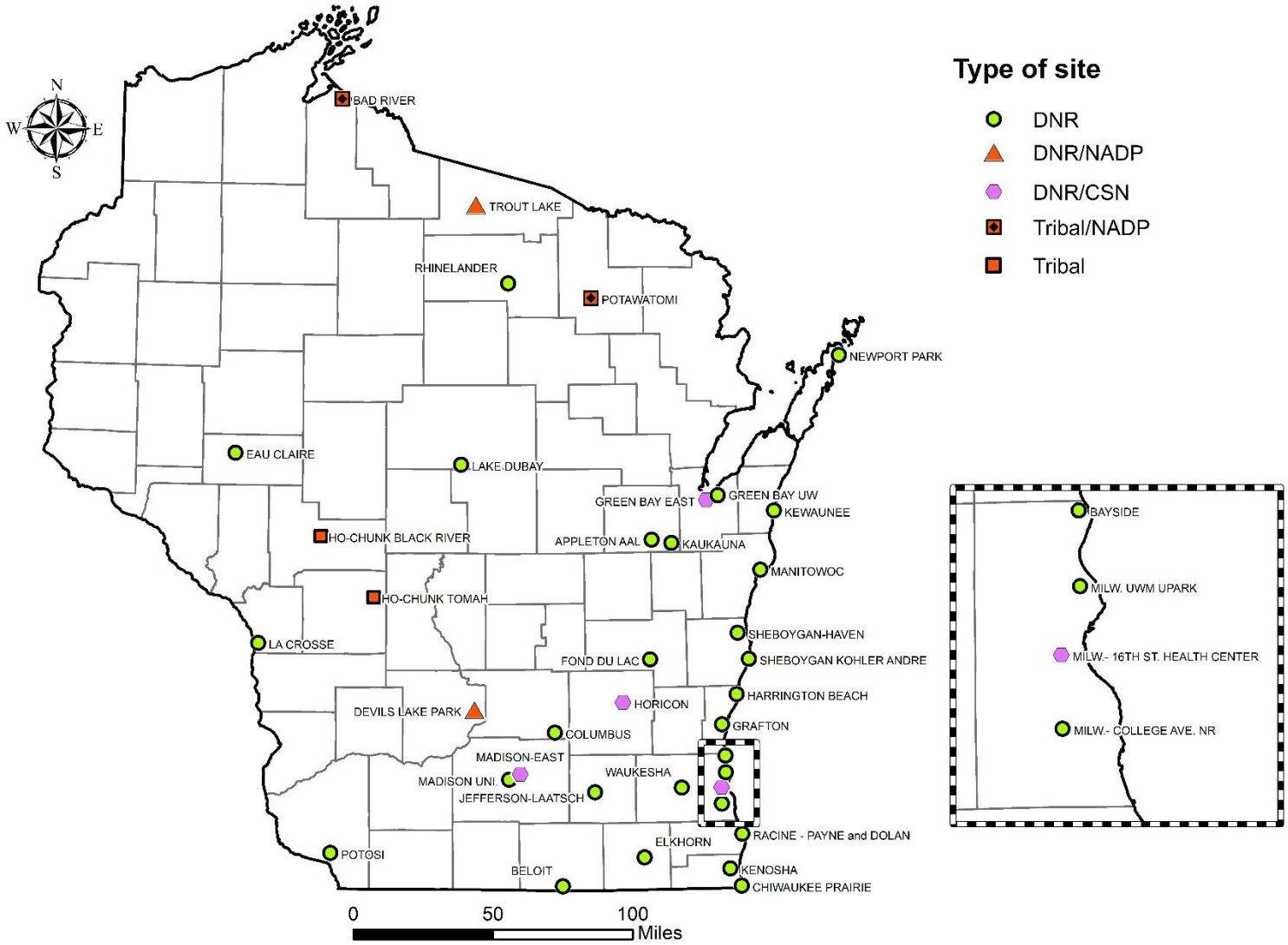


Table 3: 2026 Site Parameters

Site Name	AQS Site ID	County	O_3	$PM_{2.5}$	PM_{10}	$PM_{10-2.5}$	SO_2	NO_2	CO	Meteorological	NO_y	Metals (PM_{10})	VOC-Carbonyl	Hg (GEM)	CSN	MDN (DNR)	NTN (DNR)	Aethalometer
Appleton	55-087-0009	Outagamie	S	Cc	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bad River Tribal School-Odanah	55-003-0010	Ashland	Y	C	-	-	-	-	-	Y, RF	-	-	-	-	-	-	-	-
Bayside	55-079-0085	Milwaukee	S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beloit-Converse	55-105-0030	Rock	S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chiwaukee Prairie Stateline	55-059-0019	Kenosha	S	C	-	-	-	S	-	Y, RF	-	-	-	-	-	-	-	-
Columbus	55-021-0015	Columbia	S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Devils Lake Park	55-111-0007	Sauk	S	C	C	C	-	-	-	Y	-	-	-	-	-	Y	Y	-
Eau Claire - DOT	55-035-0014	Eau Claire	S	C	C	C	-	-	-	Y	-	-	-	-	-	-	-	-
Elkhorn	55-127-0006	Walworth	S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fond Du Lac	55-039-0006	Fond Du Lac	S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Grafton	55-089-0008	Ozaukee	S	-	-	-	-	-	-	S	-	-	-	-	-	-	-	-
Green Bay East High	55-009-0005	Brown	-	C	-	-	-	-	-	-	-	-	-	-	Y	-	-	-
Green Bay UW	55-009-0026	Brown	S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Harrington Beach Park	55-089-0009	Ozaukee	S	C	-	-	-	-	-	Y	-	-	-	-	-	-	-	Y
Ho-Chunk Nation-Black River Falls	55-053-2002	Jackson	-	C	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ho-Chunk Nation-Tomah	55-081-2001	Monroe	-	C	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Horicon Wildlife Area	55-027-0001	Dodge	Y	C, F	C	C	HS	-	HS	Y, RF	HS	-	-	-	Y	-	-	-
Jefferson - Laatsch	55-055-0009	Jefferson	S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kaukauna	55-087-0015	Outagamie	-	-	-	-	Y	-	-	Y	-	-	-	-	-	-	-	-
Kenosha - Water Tower	55-059-0025	Kenosha	S	-	-	-	-	-	-	S	-	-	-	-	-	-	-	-
Kewaunee	55-061-0002	Kewaunee	S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
La Crosse - DOT Building	55-063-0012	La Crosse	S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Site Name	AQS Site ID	County	O_3	$PM_{2.5}$	PM_{10}	$PM_{10-2.5}$	SO_2	NO_2	CO	Meteorological	NO_y	Metals (PM_{10})	VOC-Carbonyl	Hg (GEM)	CSN	MDN (DNR)	NTN (DNR)	Aethalometer
Lake DuBay	55-073-0012	Marathon	S	C	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Madison University Ave Well #6	55-025-0047	Dane	-	C	C	C	-	-	-	-	-	-	-	-	-	-	-	-
Madison - East	55-025-0041	Dane	S	C, F	-	-	-	-	-	Y, RF	-	-	-	-	Y	-	-	-
Manitowoc Woodland Dunes	55-071-0007	Manitowoc	S	-	-	-	-	-	-	S	-	-	-	-	-	-	-	-
Milwaukee - College Ave. Near Road	55-079-0056	Milwaukee	-	C	C	C	-	Y	HS	Y	-	-	-	-	-	-	-	Y
Milwaukee Sixteenth St. Health Center	55-079-0010	Milwaukee	S	C, F	Fc	-	-	-	-	Y	-	Fc	Y	Y	Y	-	-	-
Milwaukee UWM UPark	55-079-0068	Milwaukee	S	-	-	-	Y	Y	-	Y	-	-	-	-	-	-	-	-
Newport Park	55-029-0004	Door	S	-	-	-	-	-	-	S	-	-	-	-	-	-	-	-
Potawatomi	55-041-0007	Forest	Y	C	-	-	-	-	-	Y	-	-	-	-	-	Y	Y	-
Potosi	55-043-0009	Grant	-	C	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Racine - Payne and Dolan	55-101-0020	Racine	S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rhinelander Tower	55-085-0996	Oneida	-	-	-	-	Y	-	-	Y	-	-	-	-	-	-	-	-
Sheboygan - Haven	55-117-0009	Sheboygan	S	-	-	-	-	-	-	S	-	-	-	-	-	-	-	-
Sheboygan Kohler Andrae	55-117-0006	Sheboygan	S	-	-	-	-	-		S	-	-	-	-	-	-	-	-
Trout Lake	55-125-0001	Vilas	S	-	-	-	-	-	-	-	-	-	-	-	-	Y	Y	-
Waukesha-Cleveland Ave.	55-133-0027	Waukesha	S	C, F	C	C	-	-	-	Y	-	-	-	-	-	-	-	-

C – Continuous
F – Federal Reference Method
c – With a collocated monitor of same type
HS – High Sensitivity
RF – Precipitation for National Weather Service
S – Seasonal monitoring
Y – Year-round monitoring

Table 4: Methods and Equipment

Monitoring Parameter	Methods and Equipment	Analyzing Agency
Acid Deposition	Wet-only precipitation collection, Chromatography analysis	NADP
Black Carbon	Optical attenuation – Magee AE33 Aethalometer	DNR
Carbonyls	High Performance Liquid Chromatography – DNR Canister-Cartridge	WSLH
CO	Gas Filter Correlation – Teledyne API Model T300U	DNR
Mercury (Elemental)	Cold Vapor Atomic Fluorescence Spectrometry – Tekran 2537	DNR
Mercury Deposition	Wet-only precipitation collection, Inductively Coupled Argon Plasma analysis	NADP
Metals	Inductively Coupled Plasma Mass Spectroscopy – Tisch 6070V Hi-Vol sampler for PM_{10} with quartz filters	WSLH
Meteorological Data	Various meteorological sensors	DNR
NO/NO_x	Cavity Attenuated Phase Shift Spectroscopy – Teledyne Model N500U	DNR
NO/NO_y trace level	Chemiluminescence – Teledyne API Model T200U	DNR
NO_2	Cavity Attenuated Phase Shift Spectroscopy – Teledyne Model N500 and T500U	DNR
O_3	Ultraviolet Absorption – Teledyne API Models T400	DNR
PM_{10} – FEM	Scattered Light Spectroscopy – Teledyne T640X	DNR
PM_{10} – FRM	Gravimetric – Tisch 6070V Hi-Vol sampler for PM_{10} with quartz fiber	WSLH
$PM_{10\text{-}2.5}$ – FEM	Scattered Light Spectroscopy – Teledyne T640X	DNR
$PM_{2.5}$ - FEM	Scattered Light Spectroscopy – Teledyne T640 or T640X	DNR
$PM_{2.5}$ - FRM	Gravimetric – MetOne E-SEQ PM2.5 Sequential Air Samplers	WSLH
$PM_{2.5}$ Speciation - CSN	Gravimetric, GC/MS, Ion Chromatography – MetOne Instruments SASS Speciation Sampler; URG3000N Carbon Samplers	EPA
Precipitation Deposition	National Trend Network (NTN): Precipitation collection, pH and ion analysis	NADP
SO_2	Pulsed Fluorescence – Teledyne API Models T100	DNR
SO_2 trace level	Pulsed Fluorescence – Teledyne API Model T100U	DNR
VOCs	Gas Chromatography and Mass Spectrometry – DNR Canister-Cartridge	ERG

Minimum Monitoring Requirements

The EPA set the minimum number of monitoring sites needed to meet national ambient air quality monitoring objectives. Appendix D of 40 CFR Part 58 outlines the requirements and vary based on the specific criteria pollutant (e.g., ozone, $PM_{2.5}$) or objective (e.g., NCore, Toxics). The EPA determines minimum monitoring requirements using factors such as population size, measured concentrations and air pollution emissions data. Wisconsin currently meets all minimum air monitoring requirements. Appendices A and B provide a detailed discussion of these requirements, including any applicable waivers.

Monitoring Objectives

Since it is not possible to monitor everywhere in the state, monitoring sites are established according to federal rules. When designing an air monitoring network one or more of the following six objectives should be determined:

1. Highest concentrations expected to occur in the area covered by the network
2. Representative concentrations in areas of high population density
3. Impact of specific sources on ambient pollutant concentrations
4. General background concentration levels
5. Extent of regional transport among populated areas and in support of secondary standards
6. Welfare-related impacts in the more rural and remote areas

Site Selection

The selection of air monitoring sites is based on at least one of these basic monitoring objectives:

- Determine representative concentrations and exposure in areas of high population density
- Determine the highest concentrations of pollutants in an area based on topography and/or wind patterns
- Judge compliance with and/or progress made towards meeting the NAAQS
- Track pollution trends
- Determine the highest concentrations of pollutants within the state based on the known atmospheric chemistry of specific pollutants and wind patterns
- Determine the extent of regional pollutant transport to and from populated areas
- Determine how much various sources impact ambient pollution levels
- Validate control strategies designed to prevent or alleviate air pollution
- Provide a database for research and evaluation of air pollution effects
- Determine general background concentration levels

The exact location of a site often depends on logistical factors, including federal siting criteria, accessibility, security and power availability.

Network Scales

The EPA developed a system which specifies an exclusive area or spatial scale that an air monitor represents. The goal in establishing air monitoring sites is to correctly match the spatial scale that is most appropriate for the monitoring objective of the site (Table 5). The representative measurement scales are:

- Microscale (10-100 m) – Defines the concentrations in air volumes associated with area dimensions ranging from several meters up to about 100 meters. Measurements on the micro scale typically include concentrations in street canyons, intersections and areas next to major emission sources.
- Middle Scale (100-1,000 m) – Defines the concentration typical of areas up to several city blocks in size with dimensions ranging from about 100 to 1,000 meters.
- Neighborhood Scale (0.5-4 km) – Defines concentrations within some extended area of the city that has relatively uniform land use with dimensions in the half kilometer to four kilometers range. Generally, these stations represent areas with moderate to high population densities.
- Urban Scale (4-50 km) – Defines the overall, citywide conditions with dimensions on the order of four to 50 kilometers. This scale represents conditions over an entire metropolitan area and is useful in assessing city-wide trends in air quality.
- Regional Scale – Usually a rural area of reasonably homogeneous geography without large sources and extends from tens to hundreds of kilometers.
- National and global scales—These measurement scales represent concentrations characterizing the nation and the globe as a whole.

Table 5: Monitoring Objectives and Associated Network Scales

Monitoring Objective	Appropriate Siting Scales
Highest Concentration	Micro, Middle, Neighborhood (sometimes Urban or regional for secondarily formed pollutants)
Population Exposure	Neighborhood, Urban
Source Impact	Micro, Middle, Neighborhood
General/Background & Regional Transport	Urban, Regional (sometimes Neighborhood)
Welfare-Related Impacts	Urban, Regional

Regional Network Assessment

In addition to the air monitoring network plan, the EPA requires states to complete a network assessment every five years. Under the direction of the Lake Michigan Air Directors Consortium (LADCO), the DNR collaborated with other states in the region for network assessments in 2010, 2015, 2020 and 2025. The assessment provides a detailed evaluation of the regional air monitoring network. It contains a network history, a re-evaluation of the types of pollutants monitored and an evaluation of the network's objectives and costs. Also, it includes spatial analysis of ambient air monitoring data and a reconsideration of monitor placement based on changes in land use and population. The assessment recommendations provided by LADCO are based on findings from states in Region 5. The DNR reviews the assessment to determine which recommendations are applicable to Wisconsin's network.
For the 2025 Network Assessments, the DNR collaborated with other EPA Region 5 states. The results of the most recent assessment can be found on LADCO's website.

Recommendations of the 2025 Network Assessment

- Monitoring agencies should plan to make networks more resilient to extreme weather events.
- Criteria pollutant monitoring networks continue to meet EPA's minimum monitoring criteria.
- Additional monitoring sites could be added only with additional, permanent sources of funding.
- Disinvestment or relocation of existing fine particulate matter ($PM_{2.5}$) which has an aerodynamic diameter less than 2.5 microns and ozone monitoring sites is very difficult due to stringent EPA criteria for shutdown.
- In 2024 EPA lowered the $PM_{2.5}$ 24-hour NAAQS from 12 µg/m^3 to 9 µg/m^3. Expanding monitoring for the precursors including ammonia, VOCs and SO_2 emissions may help better understand $PM_{2.5}$ concentrations and distribution.
- Monitoring agencies, researchers or community groups could incorporate low-cost air quality sensors to help provide better spatial coverage of some pollutants keeping in mind the limitations of the technology.

Quality Assurance/Quality Control (QA/QC) Program

The QA/QC program purpose is to assure the quality of data obtained from the DNR air monitoring sites. The DNR meets or exceeds the QA requirements defined in 40 CFR 58 and all applicable appendices.

The QA/QC program includes but is not limited to the following activities:

- Instrument performance audits
- Monitor siting evaluations
- Zero, precision and span checks
- Bias and comparability determinations
- Flow rate verifications
- Leak checks
- Data validation
- Data certification

For independent quality assurance activities, the DNR participates in EPA's National Performance Audit Program (NPAP) which includes Through the Probe (TTP) audits and the $PM_{2.5}$ Performance Evaluation Program (PEP) program. Additional periodic inter-laboratory comparisons of performance test and exchange samples are performed for air toxics monitoring.

As the PQAO for three partner organizations in Wisconsin, the DNR operates under an EPA approved Quality Management Plan (QMP) and uses Quality Assurance Project Plans (QAPPs). The primary purpose of the QAPPs is to provide an overview of the project or pollutant, describe the need for the measurements and define QA/QC activities used in the project. All other ambient air monitoring initiatives including state, Tribal and industrial projects must have a DNR approved monitoring plan for each specific project.

The DNR performs annual audits at each monitoring site to ensure that all applicable EPA siting requirements are met. This includes a safety inspection to assure a safe work environment for staff and that sites are being properly maintained.

Data Processing and Reporting

Except for the Special Studies, CSN, mercury (Hg), and NADP data, ambient air quality data are stored in a centralized server housed at the Wisconsin Department of Administration.

Continuous pollutant monitoring data are retrieved hourly and posted to the DNR's Air Quality website and to EPA's AirNow website. The DNR submits continuous data to EPA's Air Quality System (AQS) after data has been evaluated for quality assurance.

The DNR submits discrete data (toxics and some particulate matter) collected over 24-hours to AQS after data have been analyzed and evaluated for quality assurance.

The federal contract laboratory for CSN is responsible for reporting the results directly to AQS. However, the DNR is responsible for reviewing the data.

The DNR collects ambient mercury outside the NADP program. The DNR submits this data to AQS after quality assuring the data.

The NADP data are processed and reviewed by separate national programs and housed within their internal systems.

Criteria Pollutants Network

The DNR monitors criteria pollutants established by the 1970 CAA to ensure compliance with the NAAQS. Beyond compliance, the criteria pollutants network serves several purposes, including public air quality reporting, tracking pollution trends, monitoring specific emissions sources and investigating background conditions. The criteria pollutants include particulates ($PM_{2.5}$ and PM_{10}), Pb, O_3, NO_2, SO_2 and CO. The DNR works with adjacent states to meet the criteria pollutant requirements. The Memorandums of Agreement (MOA) are found in Appendix C detailing these cooperative efforts.

The EPA identifies a primary and a secondary NAAQS for each of the criteria pollutants. Primary standards are set to protect public health, while secondary standards are set to protect the environment and public welfare (i.e., visibility, crops, animals, vegetation, and buildings).

The CAA requires the EPA to review the scientific basis of these standards every five years to ensure they are protective of public health and the environment. EPA's NAAQS Table is found on the EPA website.

Table 6: National Ambient Air Quality Standards (NAAQS)

Pollutant	Primary / Secondary	Averaging Time	Level	Form
Carbon Monoxide (CO)	Primary	8 hours 1 hour	9 ppm 35 ppm	Not to be exceeded more than once per year
Lead (Pb)	Primary and Secondary	Rolling 3-month average	0.15 µg/m^3 (1)	Not to be exceeded
Nitrogen Dioxide (NO_2)	Primary	1 hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
Nitrogen Dioxide (NO_2)	Primary and Secondary	1 year	53 ppb	Annual Mean
Ozone (O_3)	Primary and Secondary	8 hours	0.070 ppm (3)	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
Particle Matter < 2.5 microns ($PM_{2.5}$)	Primary	1 year	9.0 µg/m^3 (5)	Annual mean, averaged over 3 years
Particle Matter < 2.5 microns ($PM_{2.5}$)	Secondary	1 year	15.0 µg/m^3 (5)	Annual mean, averaged over 3 years
Particle Matter < 2.5 microns ($PM_{2.5}$)	Primary and Secondary	24 hours	35 µg/m^3 (5)	98th percentile, averaged over 3 years
Particle Matter < 10 microns (PM_{10})	Primary and Secondary	24 hours	150 µg/m^3 (5)	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (SO_2)	Primary	1 hour	75 ppb (4)	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
Sulfur Dioxide (SO_2)	Secondary	1 year	10 ppb	Annual mean, averaged over 3 years

(1) In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/m^3 as a calendar quarter average) also remain in effect.
(2) The level of the annual NO_2 standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard level.
(3) Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O_3 standards additionally remain in effect in some areas. Revocation of the previous (2008) O_3 standards and transitioning to the current (2015) standards will be addressed in the implementation rule for the current standards.
(4) The previous SO_2 standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2)any area for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and approved and which is designated nonattainment under the previous SO_2 standards or is not meeting the requirements of a SIP call under the previous SO_2 standards (40 CFR 50.4(3)).
(5) February 7, 2024, EPA finalized the health-based NAAQS for particle pollution. The annual NAAQS for PM2.5 was lowered from 12 µg/m3 to 9 µg/m3. The EPA retained the PM2.5 24-hour standard at 35 µg/m3 and the PM10 24-hour standard at 150 µg/m3. Final rule was implemented May of 2024.

Criteria monitor types include:

- SLAMS – largely determined by monitoring requirements for NAAQS comparisons and the needs of monitoring organizations to meet respective tribal implementation plan (TIP) or state implementation plan (SIP) requirements
- SPMs – provide for special studies needed by the monitoring organizations to support TIPs/SIPs and other air program activities; these monitors are not counted towards the monitoring organizations minimum requirements but may be used for regulatory purposes if operated for more than two years
- Tribal – monitors that are operated by tribal partners working within DNR's PQAO
- Industrial – monitors operated by DNR or industrial partners that are in place due to an industry specific federal monitoring requirement

Particulate Matter

Particulate matter is not a single pollutant but rather a mixture of solid particles and liquid droplets distributed among numerous gases that interact with solid and liquid phases. The DNR monitors three particle size fractions:

- $PM_{2.5,}$ particulate matter with an aerodynamic diameter less than 2.5 microns.
- $PM_{10\text{-}2.5}$ a coarse particulate matter with an aerodynamic diameter between 2.5 to 10 microns
- PM_{10} particulate matter with an aerodynamic diameter less than 10 microns

$PM_{2.5}$ is considered a regional pollutant rather than a localized, single point-source pollutant since it is produced through complex atmospheric chemistry and often travels long distances based on meteorology. $PM_{2.5}$ and PM_{10} are regulated under the NAAQS. While total suspended particulate matter (TSP) was previously regulated, TSP is primarily used for lead sampling. Since Wisconsin is no longer required to operate any lead monitoring sites, the TSP method is currently not used.

On February 7, 2024, EPA finalized the primary NAAQS for particle pollution. The annual NAAQS for $PM_{2.5}$ decreased from 12 $\mu g/m^3$ to 9 $\mu g/m^3$. The EPA retained the $PM_{2.5}$ 24-hour standard at 35 $\mu g/m^3$ and the PM_{10} 24-hour standard at 150 $\mu g/m^3$. There are currently no air quality standards for $PM_{10\text{-}2.5}$. In addition to lowering the annual $PM_{2.5}$ standard, EPA modified the $PM_{2.5}$ monitoring network design criteria to account for proximity of populations at increased risk of $PM_{2.5}$ related health effects.

$PM_{2.5}$ Network

Wisconsin operates 18 $PM_{2.5}$ sites, including four Tribal sites (Figure 2). Two types of regulatory $PM_{2.5}$ monitors operate in Wisconsin:

- Federal Reference Method (FRM) samplers- Collect 24-hour $PM_{2.5}$ samples on Teflon filters once every three or six days
- Federal Equivalent Method (FEM) continuous analyzers- Provide hourly $PM_{2.5}$ data for real-time monitoring and public reporting

Since January 2019, the DNR has operated a primary FEM network, with three sites maintaining collocated FRMs for regulatory quality assurance purposes and one site for NCORE requirements. The Teledyne T640/T640X monitors that collect and report hourly $PM_{2.5}$ concentrations:

- Demonstrate compliance with the $PM_{2.5}$ NAAQS
- Calculate the air quality index (AQI)
- Allow for the protection of public health through forecasts and Air Quality Advisories
- Provide real-time data to Wisconsin's Air Quality website and EPA's AIRNow website

The FRM monitors collect a 24-hour mass sample of $PM_{2.5}$ on Teflon filters. The DNR uses FRM monitors to meet FEM monitor collocation requirements. The FRMs sample either once every three days or once every six days (Table 7). The DNR uses $PM_{2.5}$ FRM data for quality assurance purposes and to meet network requirements. The data can serve as a substitute for primary monitor data and is comparable to the NAAQS.

Collocated FRM and FEM methods ensure consistency, with FEM monitors required to measure concentrations within a certain calculated limit of FRM data. If the data does not meet calculated comparability standards between the two instruments as identified through data certification, the CAA allows for the application of a mathematical formula to better align the FEM with the FRM data.

A monitoring site meets the annual $PM_{2.5}$ NAAQS if the three-year annual average of $PM_{2.5}$ concentration is less than or equal to 9.0 $\mu g/m^3$. Figure 3 shows the average of the 2023 through 2025 annual average $PM_{2.5}$ concentrations across Wisconsin sites and compares the values to the standard. Wisconsin averages range from 6.3 $\mu g/m^3$ at Bad River to 8.9 $\mu g/m^3$ at Milwaukee 16th Street.

A site meets the 24-hour $PM_{2.5}$ NAAQS if the 98th percentile of the 24-hour $PM_{2.5}$ concentrations in a year, averaged over three years, is less than or equal to 35 $\mu g/m^3$. Figure 4 shows the average of 2023 through 2025, 98th percentile of the daily $PM_{2.5}$ averages at Wisconsin sites and compares them to the standard. Wisconsin averages ranged from 25 $\mu g/m^3$ at Bad River to 37 $\mu g/m^3$ at Appleton and Potawatomi. With the exception of Appleton and Potawatomi, all sites are below the $PM_{2.5}$ 24-hour standard. Canadian wildfires impacted all $PM_{2.5}$ sites across Wisconsin in 2023 and 2025.

In recent years, EPA has evaluated the use of low-cost air quality sensor technology as a means of providing broader geographic coverage, beyond current regulatory monitoring networks, for some pollutants including $PM_{2.5}$. Several $PM_{2.5}$ sensors are currently included in the EPA AirNow Fire & Smoke map.

In 2026 the EPA provided the DNR with a summary of an analysis comparing publicly available 2025 $PM_{2.5}$ air sensor data from both Superior and Beloit to regulatory air monitoring data collected in nearby Duluth, MN and Rockford, IL respectively. Data for these analyses were accessed and analyzed by the EPA using the Air Sensor Network Analysis Tool, a free, opensource R shiny application that can be used to analyze air sensor network data to evaluate sensor performance and local air quality conditions.

Sensors in Superior and Beloit showed similar trends to the values of the regulatory monitors located in nearby Duluth, MN and Rockford, IL. Annual mean concentrations from the sensors for 2025 in both Superior and Beloit were near or well below levels measured at the regulatory monitoring sites in Duluth and Rockford. The 2025 annual mean of all sensors and monitors in Superior and Beloit were below EPA's 2024 PM2.5 NAAQS of 9 ug/m3 after removing the data for several wildfire smoke influenced days.

Table 7: $PM_{2.5}$ FRM Monitors Sampling Frequencies

Monitoring Site	AQS Site ID	Sampling Frequency
Horicon Wildlife Area	55-027-0001	1 in 3
Madison East	55-025-0041	1 in 6
Milwaukee Sixteenth St. Health Center	55-079-0010	1 in 3
Waukesha - Cleveland Ave.	55-133-0027	1 in 6

Figure 2: 2026 $PM_{2.5}$ Monitoring Sites in Wisconsin

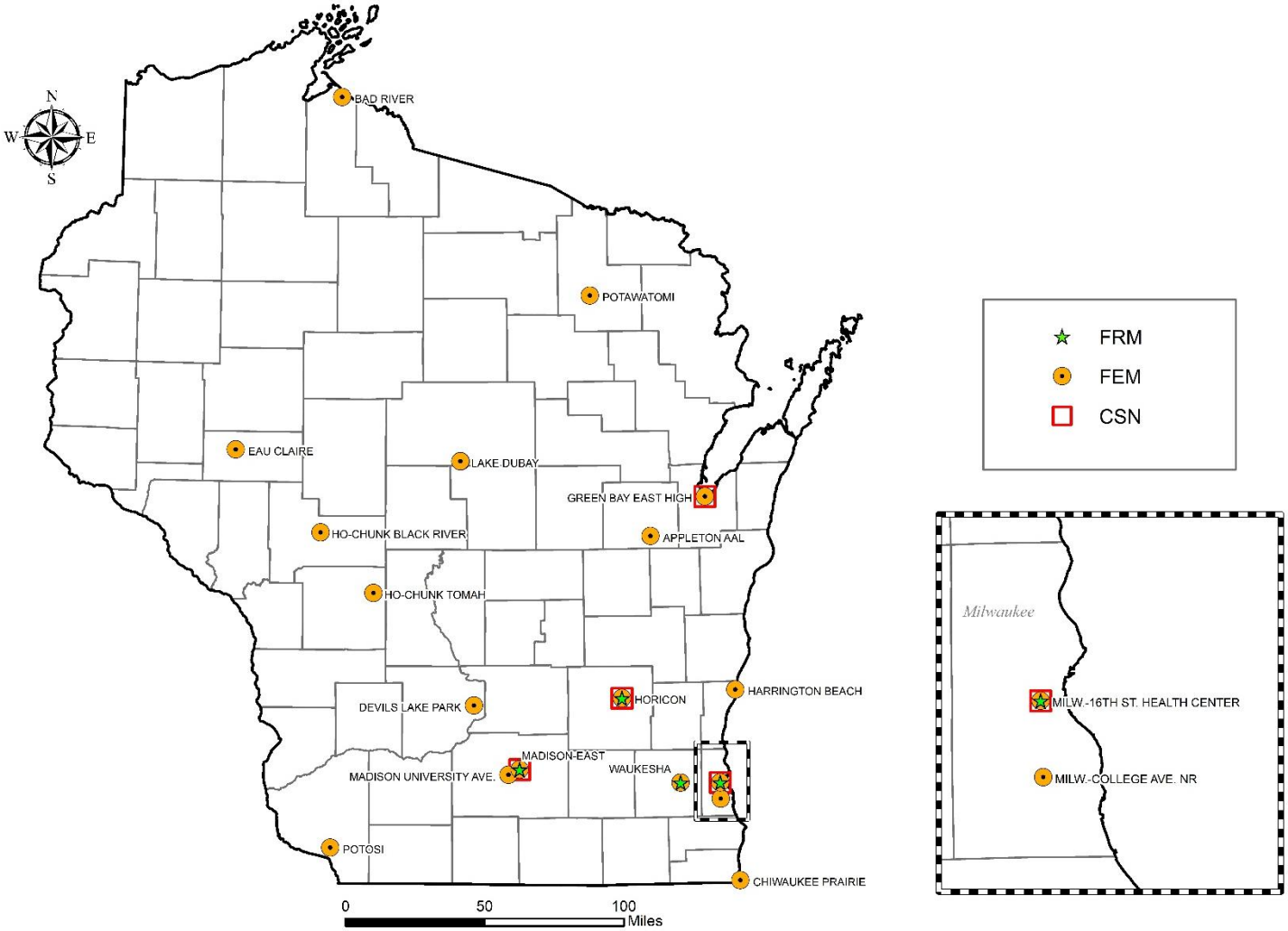


Figure 3: Annual $PM_{2.5}$ 2023-2025 Design Values Compared to the NAAQS

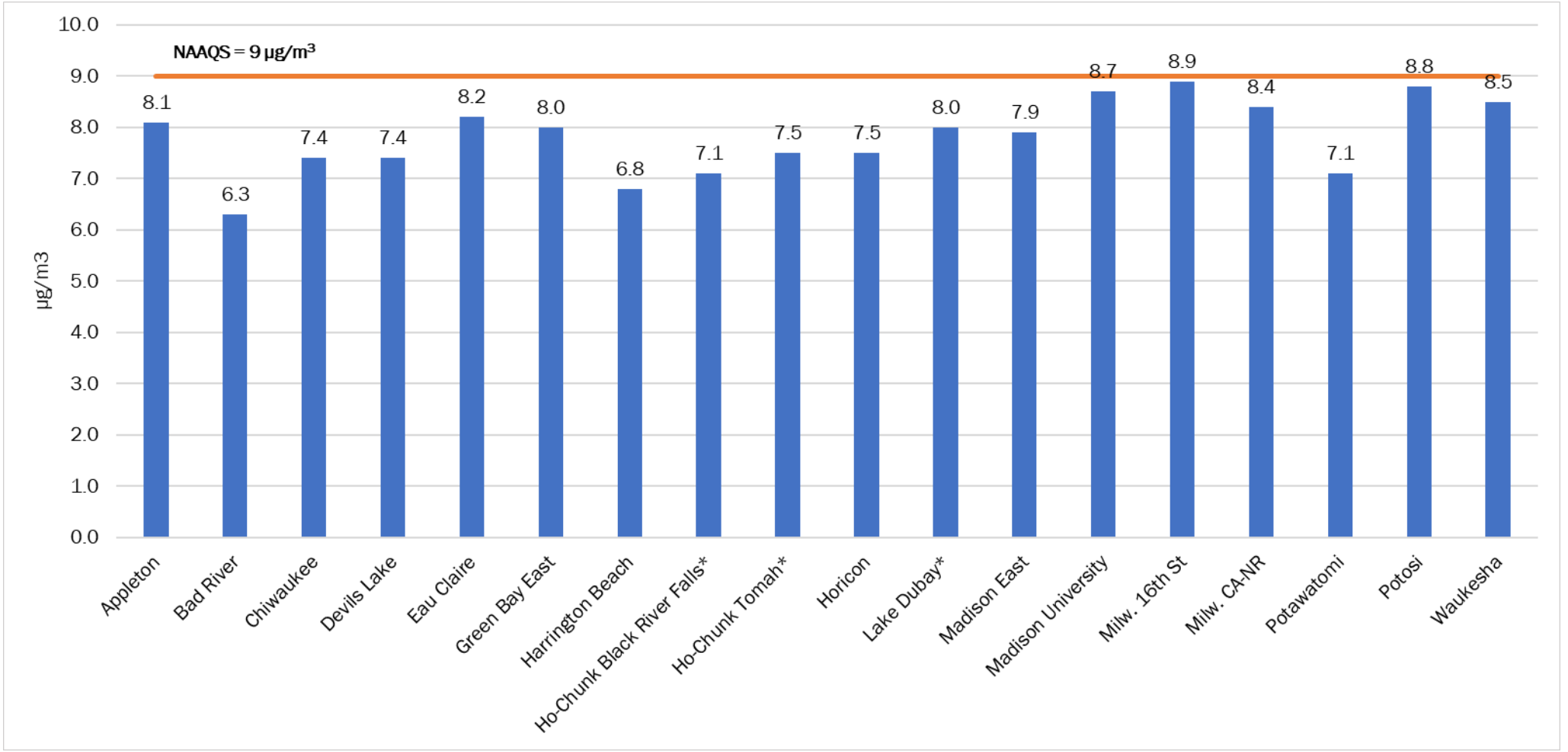
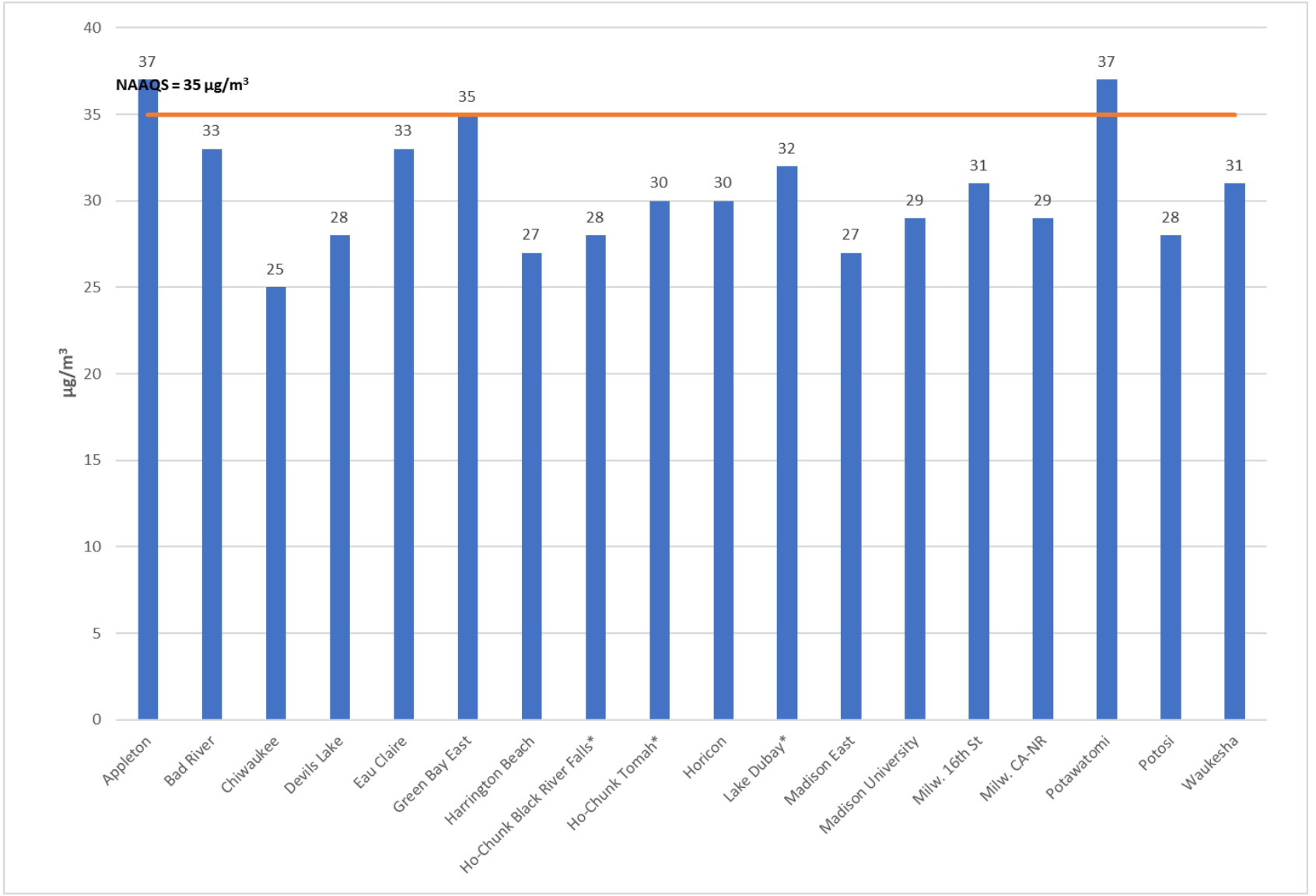


Figure 4: 24-hour $PM_{2.5}$ 2023-2025 Design Values Compared to the NAAQS



*Lake Dubay began monitoring December 20, 2023. Ho-Chunk Nation 2024 data incomplete.

$PM_{10-2.5}$ Network
The national monitoring requirements defined in Appendix D of 40 CFR Part 58 contain a requirement for $PM_{10-2.5}$ mass monitoring at NCore multipollutant monitoring sites. The DNR monitors for $PM_{10-2.5}$ at the Horicon NCore site as well as five additional sites (Devils Lake, Eau Claire, Madison University, Milwaukee – College Ave. NR and Waukesha) for a total of six sites.

PM_{10} Network
The DNR operates continuous PM_{10} FEM monitors that measure hourly concentrations at six sites: Devils Lake, Eau Claire, Horicon Wildlife Area, Madison University, Milwaukee – College Ave. NR and Waukesha. At these sites, a monitor measures PM_{10} and calculates concentrations in both local conditions (LC) and at standard temperature and pressure (STP). The LC measurements are appropriate for calculating coarse particulate concentrations but are not appropriate for comparison with the NAAQS. The STP measured values are comparable to the NAAQS.

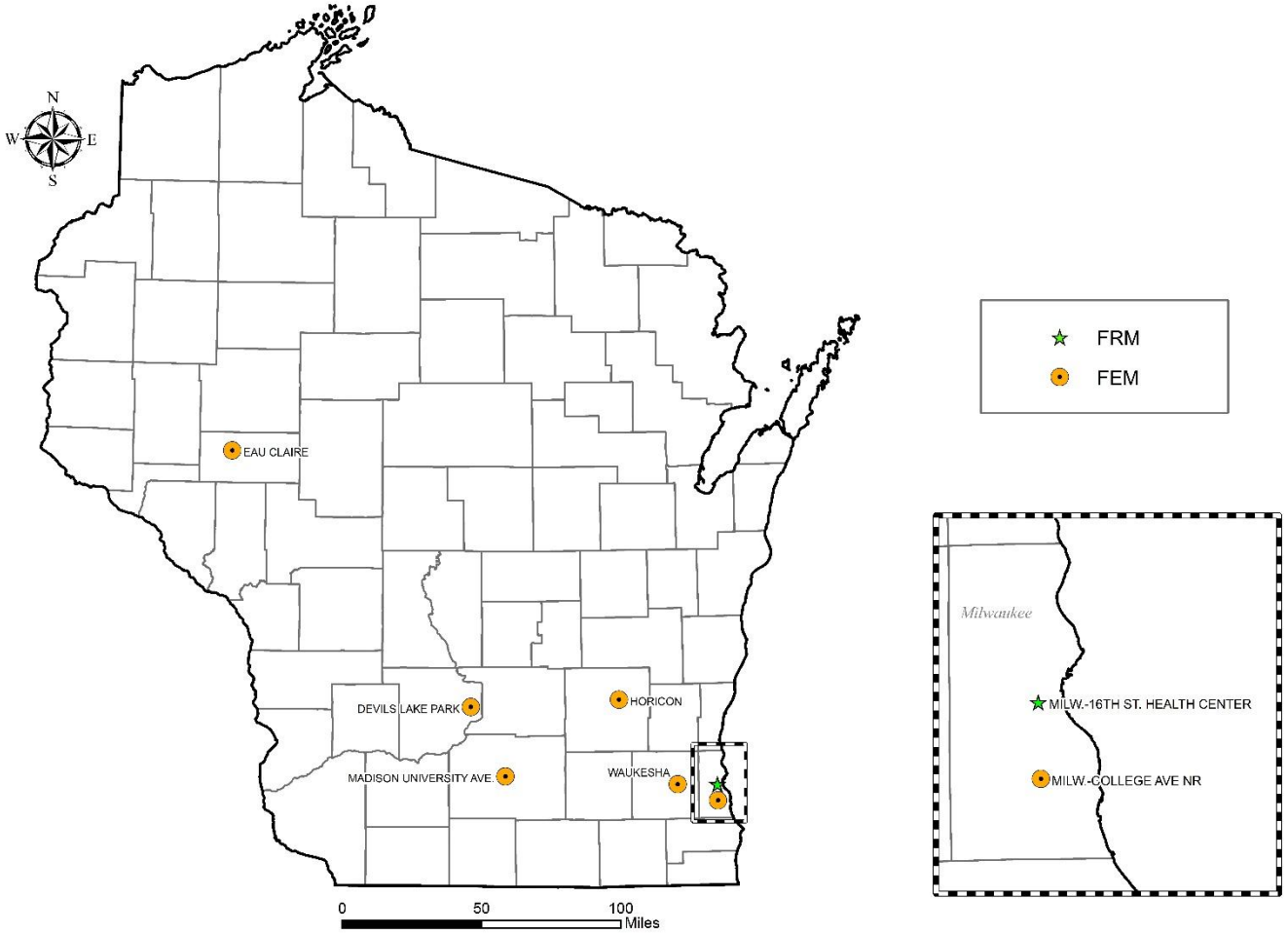
The DNR also operates two PM_{10} FRM monitors at Milwaukee Sixteenth St. Health Center. The PM_{10} samples collect over a 24-hour period once every six days. Figure 5 shows Wisconsin's PM_{10} monitoring sites.

A monitoring site meets the 24-hour PM_{10} NAAQS when concentrations do not exceed 150 $\mu g/m^3$ more than once per year on average over three years.

- 2023 Exceedances: (1), 2024 Exceedances: (0), 2025 Exceedances: (0) - **Devils Lake**
- 2023 Exceedances: (0), 2024 Exceedances: (0), 2025 Exceedances: (0) - **Eau Claire**
- 2023 Exceedances: (2), 2024 Exceedances: (0), 2025 Exceedances: (0) - **Horicon**
- 2023 Exceedances: (3), 2024 Exceedances: (0), 2025 Exceedances: (0) - **Madison University Ave.**
- 2023 Exceedances: (2), 2024 Exceedances: (0), 2025 Exceedances: (0) - **Milwaukee College Ave. NR**
- 2023 Exceedances: (0), 2024 Exceedances: (0), 2025 Exceedances: (0) - **Milwaukee 16th St.**
- 2023 Exceedances: (2), 2024 Exceedances: (0), 2025 Exceedances: (0) - **Waukesha**

In 2023, Canadian wildfire smoke significantly impacted air quality in Wisconsin. The smoke events led to several statewide $PM_{2.5}$ air quality advisories and the 24-hour PM_{10} concentrations exceeded the NAAQS at five sites ranging from 200 $\mu g/m^3$ at Horicon to 301 $\mu g/m^3$ at Devils Lake. Design values for PM_{10} in Wisconsin have not exceeded PM_{10} standards due to the three-year averaging function of NAAQs..

Figure 5: 2026 PM_{10} Monitoring Sites in Wisconsin



Lead (Pb)

Lead is a metal found naturally in the environment as well as in manufactured products. The 2008 Pb NAAQS of 0.15 µg/m^3 for a 3-month period identified one site of interest. The DNR reviews the Wisconsin Air Emission Inventory annually to determine if there are facilities with lead emissions that may require monitoring. Table 8 lists current lead monitor emissions from 2018-2024.

Table 8: 2018-2024 Lead Emissions (tons per year)

Facility	FID	County	2019	2020	2021	2022	2023	2024
Ahlstrom-Munksjo NA Specialty Solutions	744008100	Oneida	-	0.25	0.34	-	-	-
Ardagh Glass Inc	252005930	Racine	0.26	0.26	0.27	0.25	0.26	0.26
Chippewa CO Hwy Dept	609042610	Chippewa	-	-	-	-	0.27	-
Kohler Metals Processing Complex	460032870	Sheboygan	0.43	0.41	0.46	0.45	0.29	0.29
Milwaukee Valve Company	157061520	Sauk	0.26	0.21	0.22	0.21	0.22	-
Murphy Concrete and Construction (MCC)	998201820	Outagamie	-	0.23	0.24	0.25	-	-
ND Paper Inc - Biron Division	772009480	Wood	-	0.41	-	-	-	-
Rock Road Companies Inc – Bituma Plant	999010320	Rock	-	-	-	-	0.25	-
Rock Road Companies Inc – Monroe Plant	399031820	Rock	-	0.34	0.39	0.29	-	0.20
Rock Road Companies Inc – Townline Pit	154079860	Rock	-	-	-	0.28	-	-
Scott Construction Inc – Jackson Quarry	157007620	Sauk	-	-	0.20	-	-	0.27
Stark Pavement Corp	399092980	Milwaukee	-	0.34	0.40	0.31	0.28	0.25
Uniroyal Global Engineered Products	113004210	Dane	-	-		-	0.37	-
Waupaca Foundry Inc	438041450	Marinette	-	-	0.24	-	-	-
Wisconsin Rapids Mill	772010030	Wood	-	0.24	-	-	-	-

Based on the 2024 Wisconsin Air Emission Inventory, no DNR regulated facilities had lead emissions greater than 0.5 tons per year (TPY), the threshold that may initiate a monitoring requirement. Wisconsin sources that reported lead emissions close to the threshold (>90% (0.45 TPY)) were reminded of the threshold.

Ozone (O_3)

Ozone is an odorless, colorless gas composed of three atoms of oxygen (O_3). Ground-level ozone is not emitted directly into the air but is created through a reaction of oxides of nitrogen (NO_x) and volatile organic compounds (VOCs) in the presence of sunlight.

In 2015, EPA published its final rule establishing a new 8-hour NAAQS for ozone that set a level of 70 parts per billion (ppb). The rule included changes to ozone monitoring requirements such as:

- Streamlining and modernizing the PAMS network requirements.
- Changing the length of the ozone monitoring season in Wisconsin.

Ozone formation typically requires high temperatures and sunny conditions. Due to this, EPA requires Wisconsin to monitor ozone seasonally with a few exceptions. In 2018, the EPA granted the DNR a waiver modifying the ozone season to April 1- October 15 (Appendix B). This waiver excludes Kenosha County sites which operate March 1 – October 31 to align with the requirements for the Chicago Core

Base Statistical Area (CBSA). Three sites measure ozone year-round: Bad River Tribal School – Odanah (55-003-0010), Horicon Wildlife Area (NCore) (55-027-0001) and Potawatomi (55-041-0007).

The DNR monitors ozone on a continuous basis at 30 monitoring sites (Figure 6) including two Tribal sites to determine compliance with the NAAQS. The EPA operates an additional year-round Clean Air Status and Trends Network (CASTNET) monitor located in Perkinstown. Since the DNR does not have any role in this monitor, it is not included in the SLAMS or AQI monitoring networks.

A monitoring site meets the primary ozone NAAQS if the three-year average of the 4th highest daily maximum 8-hour concentration is less than or equal to 70 ppb. Figure 7 shows the 2023 through 2025 design values at Wisconsin sites compared to the standard. Ten sites had values above the level of the 8-hour standard. Most of these sites are located near the shore of Lake Michigan.

Figure 6: 2026 Ozone Monitoring Sites in Wisconsin

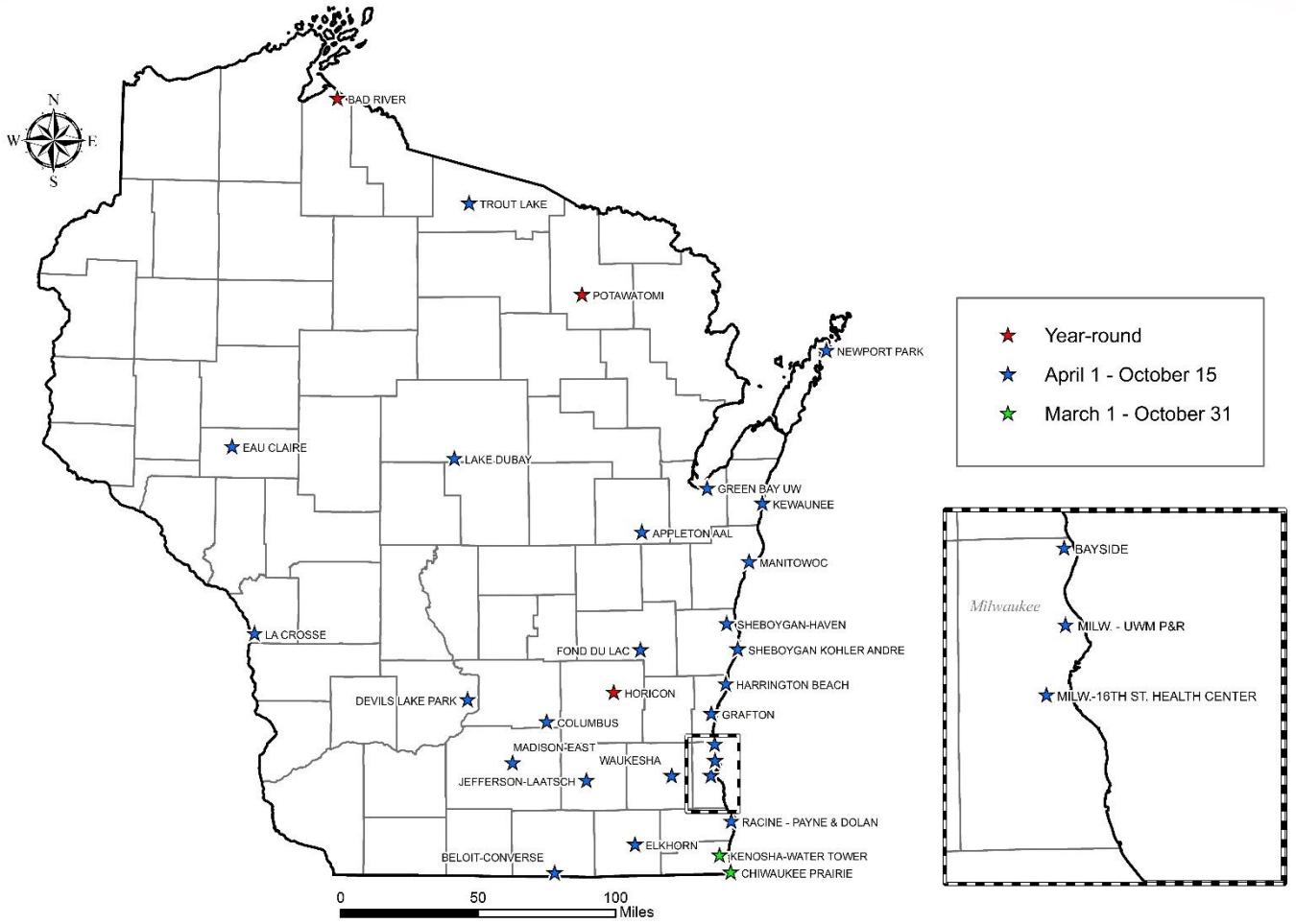
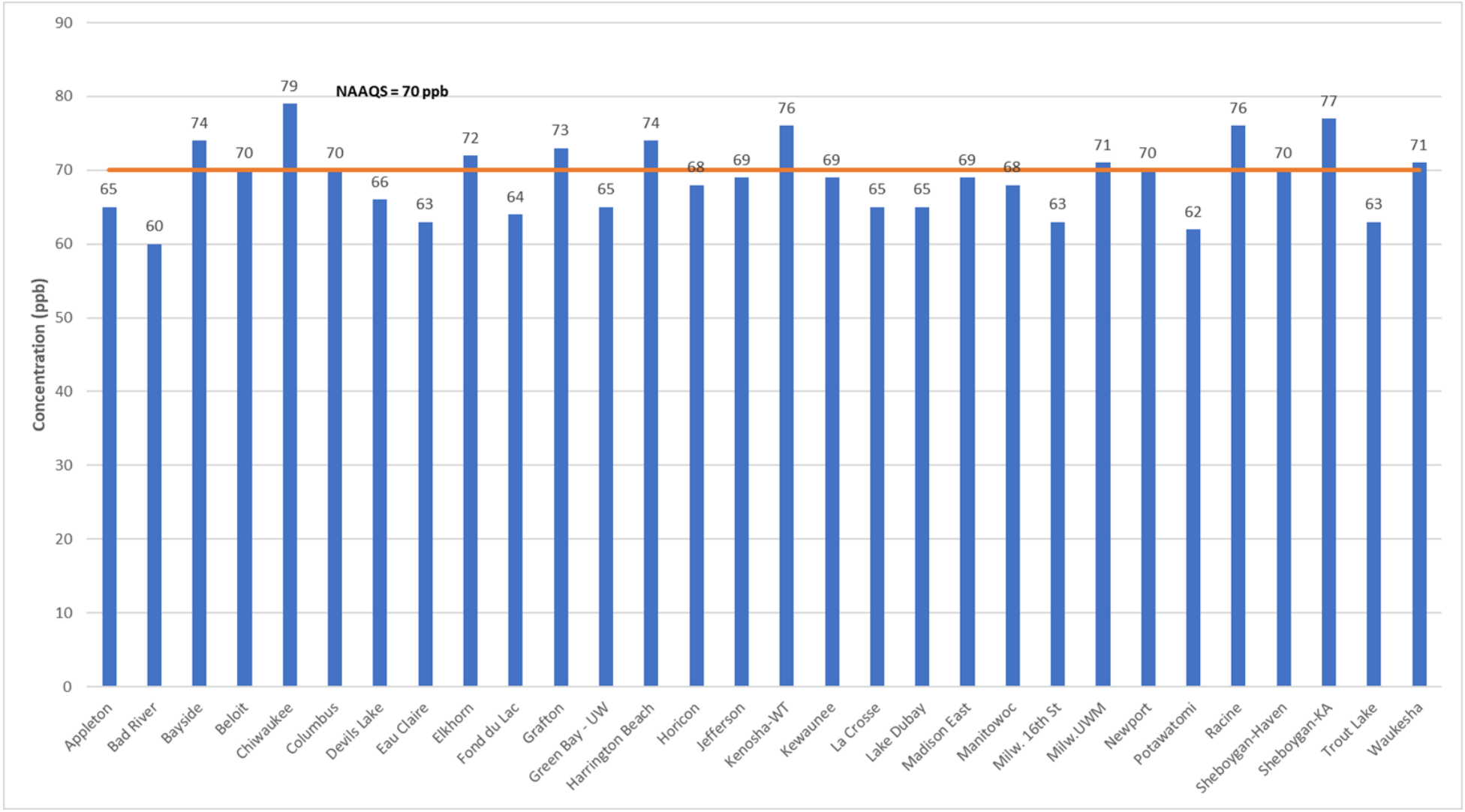


Figure 7: 8-hour Ozone 2023 – 2025 Design Values Compared to the NAAQS



Nitrogen Dioxide (NO_2)

Oxides of nitrogen (NO_x) is the generic term for a group of highly reactive gases, all of which contain nitrogen and oxygen in varying amounts. The two primary components are nitric oxide (NO) and nitrogen dioxide (NO_2). The regulated pollutant is NO_2.

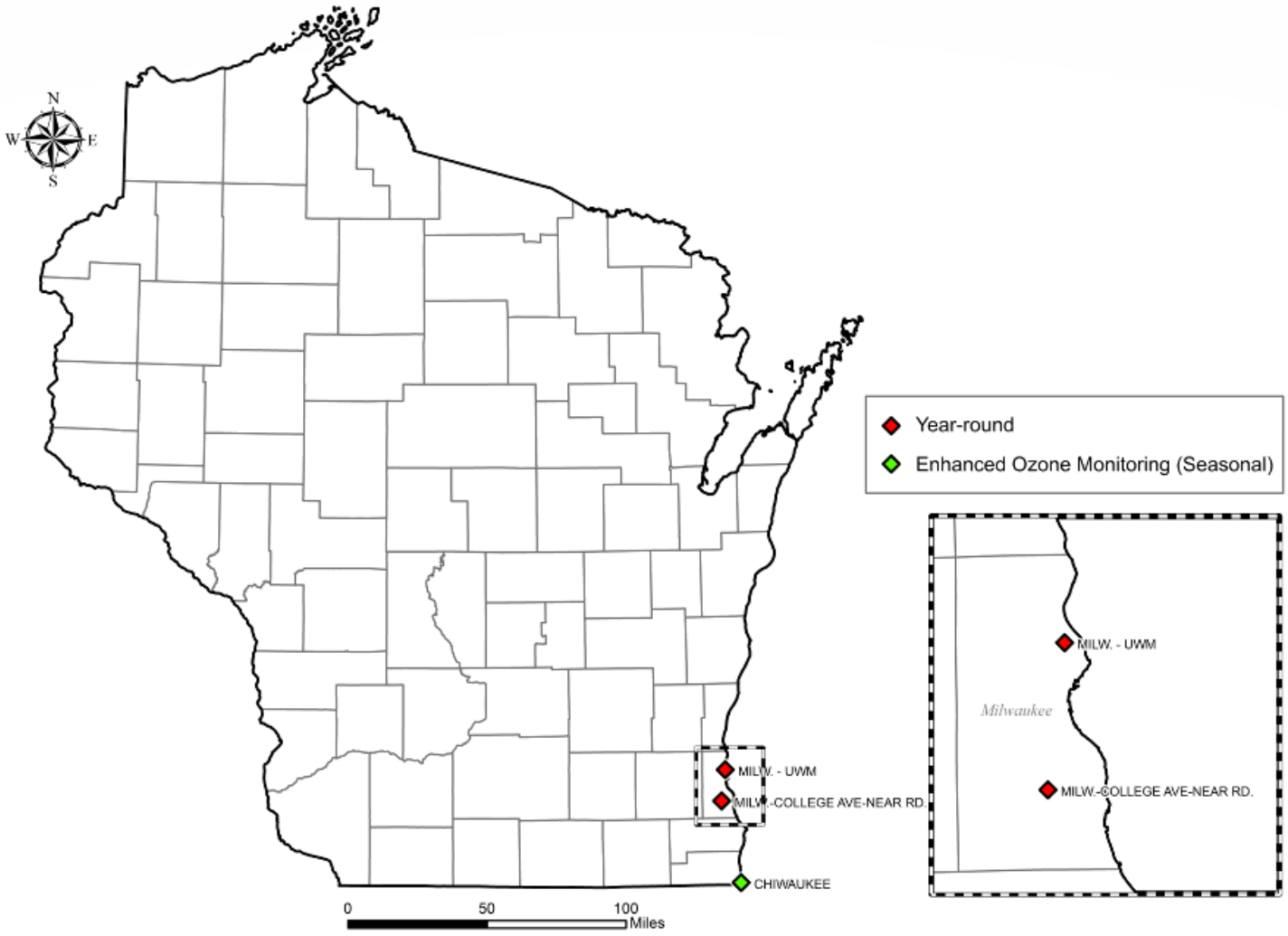
In 2010, EPA finalized the health-based NAAQS for NO_2 at 100 ppb over a 1-hour averaging period and established new ambient air monitoring and reporting requirements. As part of the standard review process, EPA retained the existing annual NO_2 NAAQS. These standards were most recently retained in a review concluded in 2012.

The DNR NO_2 criteria network consists of a population-oriented NO_2 monitor located in Milwaukee County at Milwaukee UWM UPark (55-079-0068) and a near road monitor at the Milwaukee – College Ave. NR site (55-079-0056); both sites operate year-round and fulfill Wisconsin's NO_2 monitoring requirement. A seasonal NO_2 monitor is located at Chiwaukee Prairie site (55-059-0019) as part of the Enhanced Ozone Monitoring (EOM) plan. Figure 8 shows the monitoring locations for NO_2 in Wisconsin in 2026. The DNR also monitors NO_Y at Horicon to meet NCore requirements.

A monitoring site meets the annual NAAQS for NO_2 if the annual NO_2 average is less than or equal to 53 ppb. The Milwaukee UWM UPark (55-079-0068) and the Milwaukee – College Ave. NR site (55-079-0056) monitor for NO_2 year-round and are comparable with the NAAQS. The 2025 annual averages for the two sites are 4.96 and 10.9 ppb. Therefore, Wisconsin currently meets the annual NAAQS for NO_2.

To meet the hourly standard, the three-year average of the annual 98th percentile daily maximum 1-hour NO_2 concentration must not exceed 100 ppb. The Milwaukee UWM UPark site (55-079-0068) and Milwaukee – College Ave. NR site (55-079-0056) monitor for NO_2 year-round and are comparable with the NAAQS. The 2023-2025 averages of the annual 98th percentile daily maximum 1-hour NO_2 concentrations for the two sites are 32 ppb and 42 ppb. Therefore, all Wisconsin sites currently meet the 1-hour NAAQS for NO_2.

Figure 8: 2026 NO_2 Monitoring Sites in Wisconsin



Sulfur Dioxide (SO_2)

Sulfur dioxide (SO_2) belongs to the family of sulfur oxide gases. SO_2 reacts with other chemicals in the air to form sulfate particles. The DNR monitors SO_2 on a continuous basis and reports data in hourly and 5-minute increments. Hourly data are used to determine compliance with the NAAQS.

The DNR monitors SO_2 at four sites shown in Figure 9. Trace level SO_2 monitoring at the Horicon NCore site helps researchers understand the role of SO_2 at levels far below the NAAQS. Standard monitoring at the Milwaukee UWM UPark background site allows the DNR to understand Wisconsin background concentrations relative to NAAQS. Source oriented monitors (Kaukauna and Rhinelander) help regulators and facility managers work together to understand middle-scale impacts.

In 2010, the EPA finalized revisions to the primary SO_2 NAAQS. EPA established a 1-hour standard which is met if the three-year average of the annual 99th percentile daily maximum 1-hour SO_2 concentration is less than or equal to 75 ppb. In addition to creating the new 1-hour standard, the EPA revoked the existing 24-hour and annual standards. These standards were most recently retained without revision on March 18, 2019. Figure 10 describes the 2023-2025 average 99th percentile 1-hour SO_2 concentration and compares them to the 1-hour standard. Wisconsin averages ranged from 1 ppb at Rhinelander to 20 ppb in Kaukauna. Wisconsin currently meets the 2010 SO_2 NAAQS statewide.

The EPA made initial area designations for the 2010 1-hour SO_2 NAAQS in stages. The EPA designated part of Oneida County as nonattainment of the NAAQS in 2013 based on data from the Rhinelander monitor. The EPA finalized approval of a redesignation request for this area to attainment on January 12, 2022.

In 2017, EPA designated all remaining areas of Wisconsin as attainment/unclassifiable for the NAAQS, except for Outagamie County. In December 2020, based on 2017-2019 data, the EPA made an initial area designation for Outagamie County as nonattainment. This designation was updated to attainment/unclassifiable in April 2021 based on 2018-2020 data.

Wisconsin is required to provide an annual assessment of SO_2 emissions for any areas that were designated in this round based on modeling of actual source emissions; this assessment is included as Appendix G.

Figure 9: 2026 SO_2 Monitoring Sites in Wisconsin

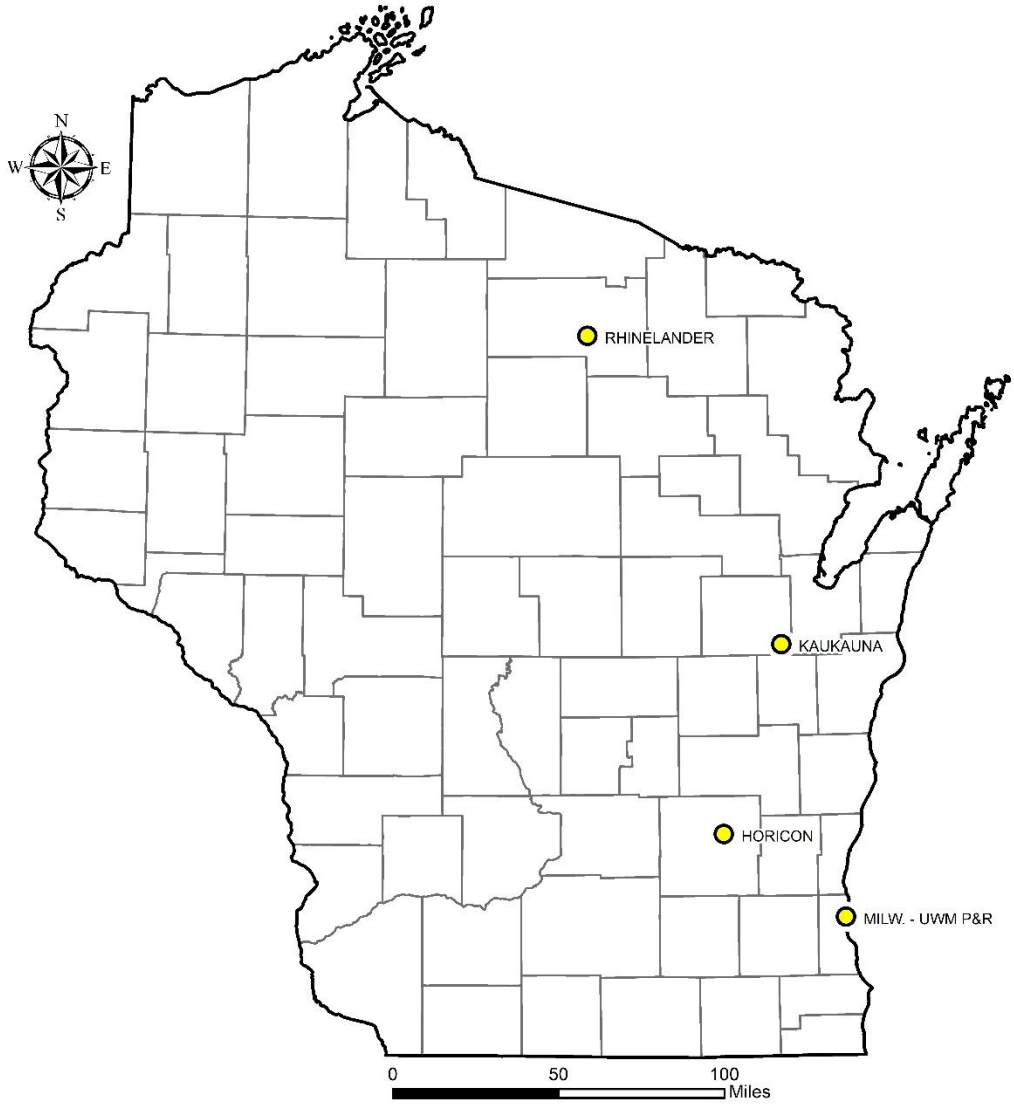
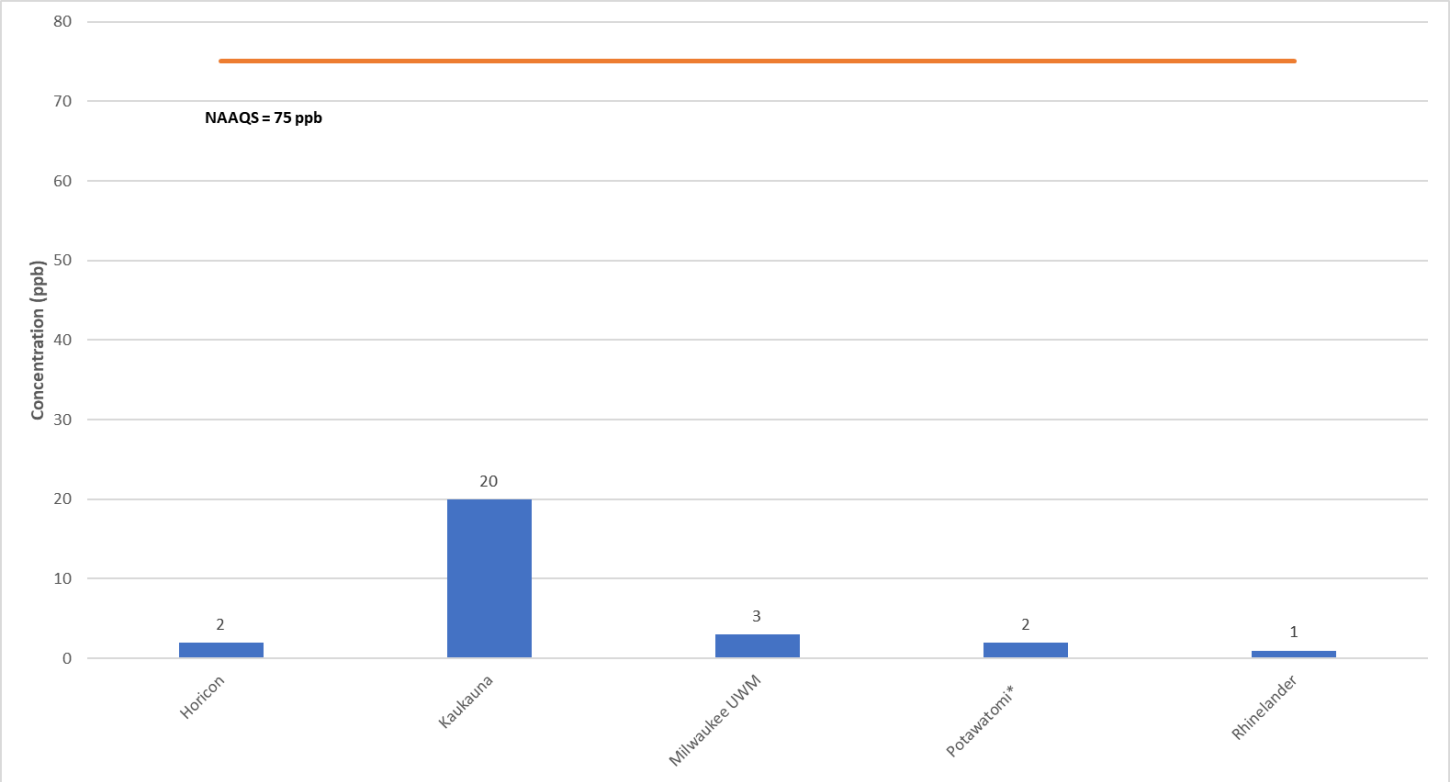


Figure 10: 1-hour SO_2 2023-2025 Design Values Compared to the NAAQS



* Potowatomi monitor shut down December 2024

Carbon Monoxide (CO)

Carbon monoxide is a colorless and odorless toxic gas formed when carbon in fuels is not completely burned. Carbon monoxide oxidizes to form carbon dioxide (CO_2) which contributes to the formation of ground-level ozone.

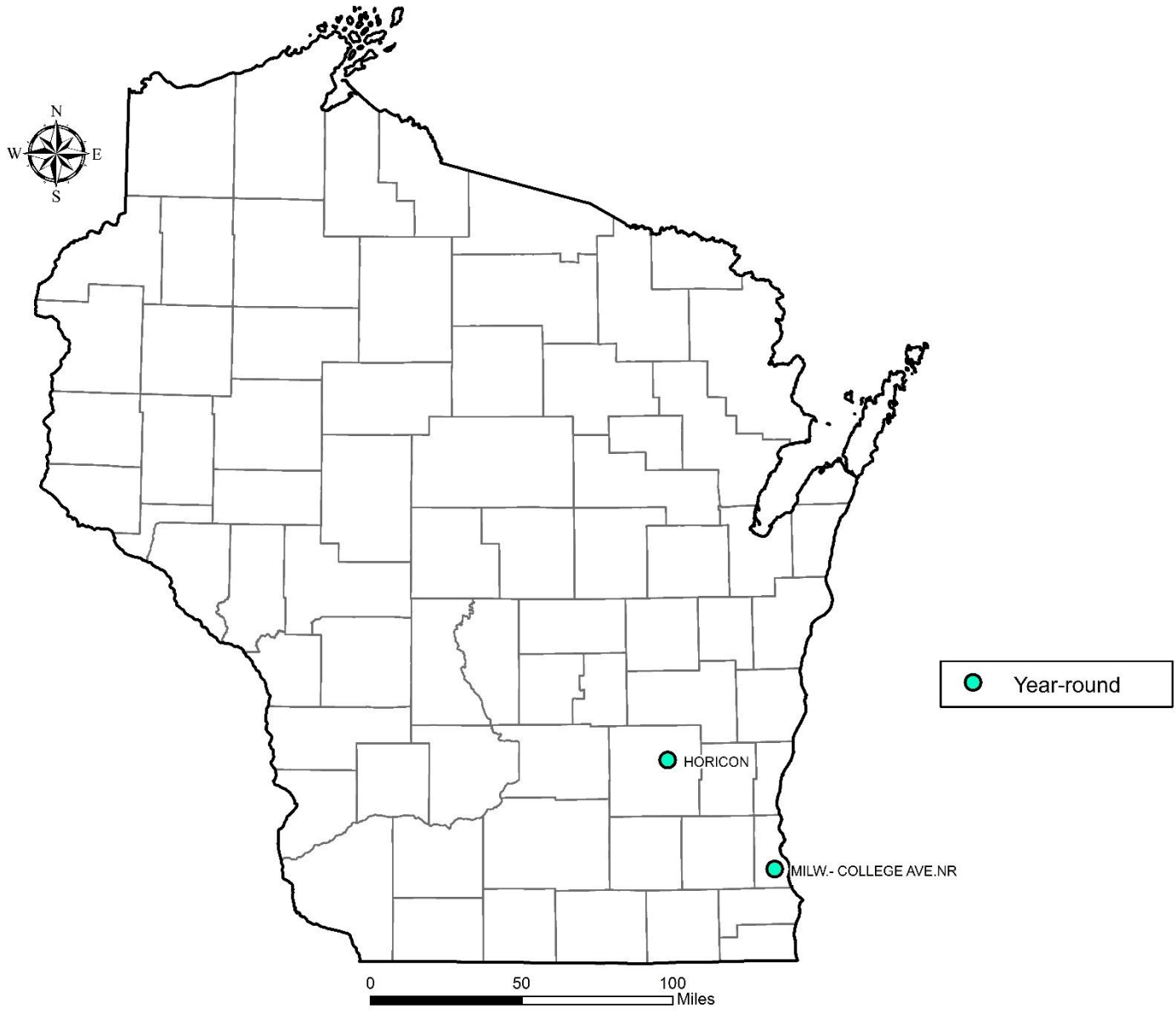
In 2011, EPA finalized a rule to retain the existing NAAQS for CO and revise the monitoring requirements for CO. The rule required CO monitors to be sited near highly trafficked roads in certain urban areas having a population of one million or more. The EPA required collocation of these CO monitors with NO_2 near-road monitors. To meet the requirements, Wisconsin added one CO monitor at the near-road monitoring site in Milwaukee on January 1, 2014.

The DNR monitors trace level CO at two sites in Wisconsin on a continuous basis; data are reported in hourly increments to determine compliance with the NAAQS and to report the AQI. Trace level CO analyzers help research partners understand the role of CO at levels far below the NAAQS.

Currently, Wisconsin meets applicable NAAQS for CO. A monitoring site meets the 8-hour CO NAAQS when the level of 9 parts per million (ppm) is not exceeded more than once per year. The Horicon Wildlife Area (55-027-0001) and the Milwaukee – College Ave. NR (55-079-0056) sites monitor for CO. The 2025 max 8-hr averages for the two sites are 1.273 ppm and 0.959 ppm.

The 1-hour CO NAAQS is met when the level of 35 ppm is not exceeded more than once per year. The Horicon Wildlife Area (55-027-0001) and the Milwaukee – College Ave. NR (55-079-0056) sites monitor for CO. The 2025 max 1-hr averages for the two sites are 1.427 ppm and 1.386 ppm.

Figure 11: 2026 CO Monitoring Sites in Wisconsin



Non-Criteria Pollutant Networks

National Core Monitoring Network (NCore)

The NCore multi-pollutant sites are part of an overall strategy to integrate multiple monitoring networks and measurements. Each state (i.e., the fifty states, District of Columbia and Puerto Rico) and some local government entities are required to operate at least one NCore site. Monitors at NCore multi-pollutant sites measure particulates ($PM_{2.5}$, speciated $PM_{2.5}$, PM_{10}, $PM_{10\text{-}2.5}$), O_3, SO_2, CO, NO_y and basic meteorology.

The NCore objective is to locate sites in broadly representative urban (about 61 sites) and rural (about 17 sites) locations throughout the country to help characterize regional and urban patterns of air pollution. In many cases, monitoring organizations collocate these sites with CSN sites measuring speciated $PM_{2.5}$ components and PAMS sites already measuring ozone precursors. By combining these monitoring programs at a single location, the EPA and its partners maximize the multi-pollutant information available. This provides the foundation for future health studies, NAAQS revisions, validation of air quality models, assessment of emission reduction programs, and studies of air pollution on ecosystem impacts.

Wisconsin's NCore site is located at Horicon Wildlife Area in Dodge County representing a rural area. High sensitivity NO_y, CO and SO_2 began operating at the Mayville site located in Dodge County in 2005-2006 and moved to Horicon in 2010.

Near-Road Air Quality Monitoring

In 2010, the EPA introduced a new air monitoring network to measure air pollution levels near heavily trafficked roadways. Near-road air monitoring sites are required to be located within 50 meters of the busiest roadways across the country. Near-road monitoring sites are required to measure hourly levels of NO_2, CO and $PM_{2.5}$. In 2016, EPA finalized "The Revision to Near-Road Ambient Nitrogen Dioxide (NO_2) Monitoring Requirements" which eliminated Phase 3 of this requirement. Phase 3 would have required a second monitoring station in Madison.

In Wisconsin, the DNR installed one required near-road monitoring site. It began operating along the Chicago/Kenosha/Milwaukee corridor near I-94 in Milwaukee on January 1, 2014. The DNR collects additional particulate matter (PM) size fractions to better characterize near-road environments (Table 9).

Table 9: Near-Road Parameters

Site Name	AQS Site ID	City	CO	NO_2	$PM_{2.5}$ FEM	Other Parameters
Milwaukee - College Ave. NR	55-079-0056	Milwaukee	x	x	x	PM_{10}, $PM_{10\text{-}2.5}$, Black Carbon, Meteorological

Air Toxics

Air toxics include, but are not limited to, the 188 Hazardous Air Pollutants (HAPs) specified in the 1990 CAA Amendments and updates. In 1999, EPA finalized the Urban Air Toxics Strategy (UATS). The UATS states that emissions data are needed to quantify the sources of air toxics impacts and aid in the development of control strategies, while ambient monitoring data are needed to understand the behavior and concentration of air toxics in the atmosphere after they are emitted.

The DNR monitors metals, VOCs and carbonyls at Milwaukee Sixteenth St. Health Center (55-079-0010) as an Urban Air Toxics Monitoring (UATM) site on a one in six-day schedule. The DNR uses the federal contract lab (Eastern Research Group, Inc) for VOC analysis and the Wisconsin State Laboratory of Hygiene (WSLH) for all other analyses.

Metals

Metals are extracted from PM_{10} filters and analyzed using inductively coupled plasma mass spectrometry following an EPA method. Table 10 lists the six metals analyzed by WSLH and reported to AQS by the DNR.

Table 10: 2026 Metals Monitored in Wisconsin

Parameter	EPA Parameter Codes
Arsenic (As)	82103
Beryllium (Be)	82105
Cadmium (Cd)	82110
Lead (Pb)	82128
Manganese (Mn)	82132
Nickel (Ni)	82136

VOCs

The DNR collects VOCs for air toxics compounds as whole air samples in evacuated stainless-steel canisters using EPA compendium method TO-15A and analyzed using gas chromatography and mass spectrometry. Table 11 lists the 57 VOCs analyzed by ERG. Ethylene oxide analysis at Milwaukee Sixteenth St. Health Center site started in 2021.

Table 11: 2026 VOCs Monitored in Wisconsin

Parameter	CAS #	EPA Parameter Code
1,1,1-Trichloroethane	71-55-6	43814
1,1,2,2-Tetrachloroethane	79-34-5	43818
1,1,2-Trichloroethane	79-00-5	43820
1,1-Dichloroethane	75-34-3	43813
1,1-Dichloroethene	75-35-4	43826
1,2,4-Trichlorobenzene	120-82-1	45810
1,2,4-Trimethylbenzene	95-63-6	45208
1,2-Dibromoethane	106-93-4	43843
1,2-Dichloroethane	107-06-2	43815

Parameter	CAS #	EPA Parameter Code
1,2-Dichloropropane	78-87-5	43829
1,3,5-Trimethylbenzene	108-67-8	45207
1,3-Butadiene	106-99-0	43218
Acetonitrile	75-05-8	43702
Acrolein	107-02-8	43505
Acrylonitrile	107-13-1	43704
Benzene	71-43-2	45201
Bromochloromethane	74-97-5	43836
Bromodichloromethane	75-27-4	43828
Bromoform	75-25-2	43806
Bromomethane	74-83-9	43819
Carbon Disulfide	75-15-0	42153
Carbon Tetrachloride	56-23-5	43804
Chlorobenzene	108-90-7	45801
Chloroethane	75-00-3	43812
Chloroform	67-66-3	43803
Chloromethane	74-87-3	43801
Chloroprene	126-99-8	43835
cis-1,2-Dichloroethylene	156-59-2	43839
cis-1,3-Dichloropropene	10061-01-5	43831
Dibromochloromethane	124-48-1	43832
Dichlorodifluoromethane	75-71-8	43823
Dichloromethane	75-09-2	43802
Dichlorotetrafluoroethane	76-14-2	43208
Ethyl Acrylate	140-88-5	43438
Ethyl tert-Butyl Ether	637-92-3	43396
Ethylbenzene	100-41-4	45203
Ethylene oxide	75-21-8	43601
Hexachloro-1,3-butadiene	87-68-3	43844
m-Dichlorobenzene	541-73-1	45806
Methyl Isobutyl Ketone	108-10-1	43560
Methyl Methacrylate	80-62-6	43441
Methyl tert-Butyl Ether	1634-04-4	43372
m,p-Xylene	108-38-3, 106-42-3	45109
n-Octane	111-65-9	43233
o-Dichlorobenzene	95-50-1	45805
o-Xylene	95-47-6	45204

Parameter	CAS #	EPA Parameter Code
p-Dichlorobenzene	106-46-7	45807
Styrene	100-42-5	45220
tert-Amyl Methyl Ether	994-05-8	43373
Tetrachloroethylene	127-18-4	43817
Toluene	108-88-3	45202
trans-1,2-Dichloroethylene	156-60-5	43838
trans-1,3-Dichloropropene	10061-02-6	43830
Trichloroethylene	79-01-6	43824
Trichlorofluoromethane	75-69-4	43811
Trichlorotrifluoroethane	76-13-1	43821
Vinyl chloride	75-01-4	43860

Carbonyls

Carbonyls are collected on sorbent tubes using EPA Compendium method TO-11A and are analyzed using high-performance liquid chromatography. Table 12 lists Carbonyls analyzed by WSLH then reported to AQS by DNR.

Table 12: 2026 Carbonyls Monitored in Wisconsin

Parameter	CAS #	EPA Parameter Code
Acetaldehyde	75-07-0	43503
Acetone	67-64-1	43551
Benzaldehyde	100-52-7	45501
Formaldehyde	50-00-0	43502
Hexaldehyde	66-25-1	43517
Isovaleraldehyde	590-86-3	43513
Methyl ethyl ketone	78-93-3	43552
Propionaldehyde	123-38-6	43504
Valeraldhyde	110-62-3	43518

Enhanced Ozone Monitoring (EOM) and Photochemical Assessment Monitoring Stations (PAMS)

The chief objective of enhanced ozone monitoring is to provide an air quality database that assists air pollution control agencies in evaluating, tracking the progress of and refining control strategies for attaining the ozone NAAQS. The data helps ensure the implementation of the most effective regulatory controls. Federal regulations require an EOM plan for ozone nonattainment areas classified as moderate or above.

On October 26, 2015, EPA published its final 2015 Ozone NAAQS rule. This rule included new PAMS directives that removed the requirement and funding for a PAMS site in Milwaukee. However, this rule also required states with moderate or above ozone nonattainment areas to implement an EOM plan describing enhanced ozone and ozone precursor monitoring activities. The DNR's EOM plan is outlined in Appendix E.

Chemical Speciation Network (CSN)

The CSN network is an EPA effort to gather data on the chemical composition of $PM_{2.5}$ and to provide a long-term record of the concentration levels of selected ions, metals, carbon species and organic compounds found in $PM_{2.5}$. The current EPA network consists of approximately 50 STN sites and 100 supplemental sites. CSN data is useful for assessing trends and developing mitigation strategies to reduce emissions and ambient concentrations.

Currently, there are four CSN sites in Wisconsin: Green Bay East High, Horicon Wildlife Area, Madison East and Milwaukee Sixteenth St. Health Center. The Milwaukee Sixteenth St. Health Center site is an STN site which requires a collocated $PM_{2.5}$ FRM sampler operating on a 1 in 3-day schedule. The other sites are considered supplemental sites and do not require collocated samplers for the purpose of CSN. Figure 2 shows the locations of these sites.

National Atmospheric Deposition Program (NADP)

The NADP is a cooperative effort between federal, state, Tribal and local governmental agencies, educational institutions, private companies and non-governmental agencies that measure atmospheric pollutants (i.e. acids, nutrients, and base cations) deposited to land and surface water in wet and dry form. NADP consists of five networks: National Trends Network (NTN), Mercury Deposition Network (MDN), Atmospheric Integrated Monitoring Network (AIRMoN), Atmospheric Mercury Network (AMNet) and Ammonia Monitoring Network (AMoN). Data are available on the NADP website. Wisconsin has NTN, MDN and AMoN sites.

National Trends Network (NTN)

The purpose of the NTN network is to collect data on the chemistry of precipitation for monitoring of geographical and long-term trends. Seven NTN sites operate in Wisconsin. The DNR operates two NTN sites at Trout Lake and Devils Lake Park. Additionally, five sites operate independent of the DNR. The U.S. Forest Service (USFS) operates sites at Spooner and Chequamegon Bay; EPA operates a site at Perkinstown. Forest County Potawatomi Community (FCPC) operates a site at Potawatomi and WSLH operates a site in Madison. These sites are highlighted in Figure 12.

Site operators follow standard procedures to ensure NTN data comparability and representativeness. Site operators collect and send samples weekly to the designated NTN laboratory, which is WSLH. The

WSLH reviews field and laboratory data and delivers all data and information to the NADP office, which applies a final set of checks and resolves remaining discrepancies. Additional information is found on the NTN website.

Mercury Deposition Network (MDN)

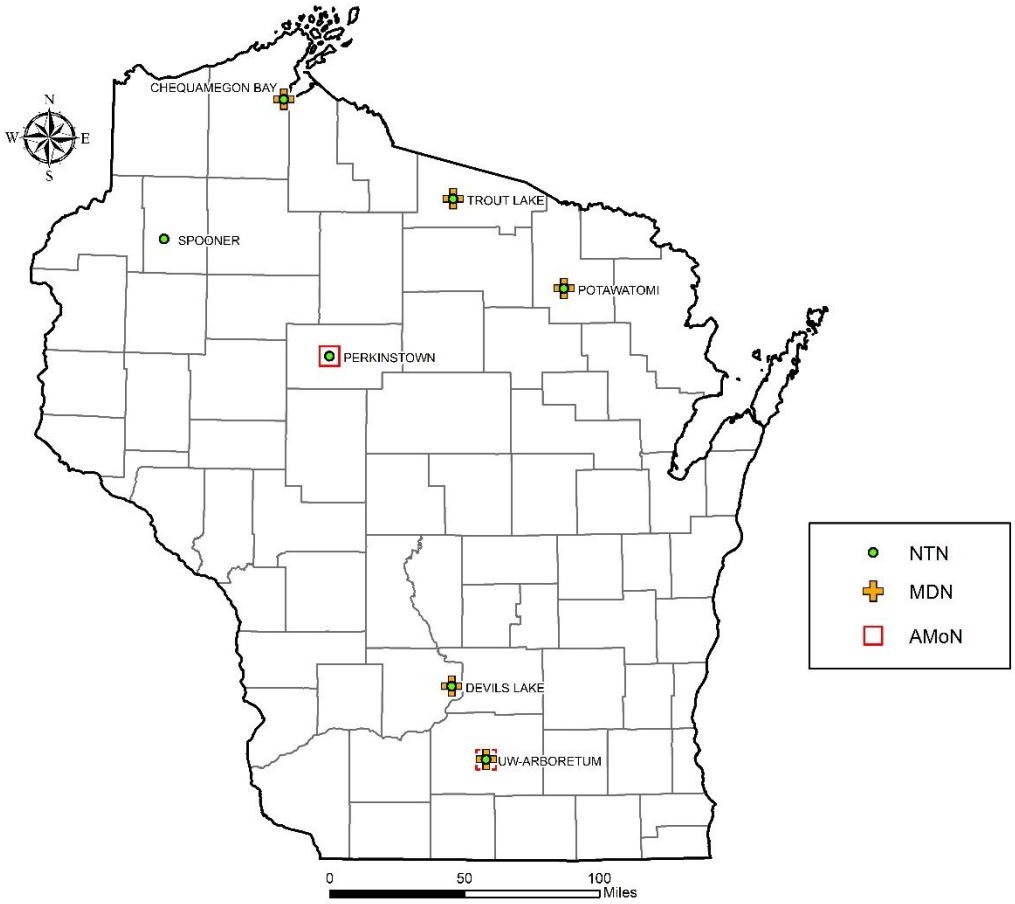
The MDN measures atmospheric mercury deposition on land and surface water in the form of precipitation. All MDN sites follow standard procedures and have uniform precipitation chemistry collectors and gauges. The objective of the MDN is to provide a nationally consistent survey of mercury in precipitation so that atmospheric loading to surface water can be quantified and long-term changes can be detected. Wisconsin has five MDN sites. The DNR operates two sites at Trout Lake and Devils Lake Park. The other three sites are operated by FCPC, WSLH and USFS. See Figure 12.

Site operators collect and send samples to the designated MDN laboratory which is WSLH. The WSLH reviews field and laboratory data and delivers all data and information to the NADP Program Office for final checks and resolution of remaining discrepancies. Additional information is found on the MDN website.

Ammonia Monitoring Network (AMoN)

The AMoN measures ammonia (NH_3) gas concentrations across the United States. There are two AMoN sites located in Wisconsin. The EPA operates the Perkinstown site and WSLH operates a site in Madison. See Figure 12. Additional information can be found on the AMoN website.

Figure 12: 2026 NADP Sites in Wisconsin



Industrial Monitoring for State Permit Conditions

In Wisconsin, air pollution control permits are required to legally operate certain industrial facilities, to begin construction on new facilities or to modify certain facilities. Air pollution control permits contain state and federal requirements to minimize the adverse impacts of air emissions from these facilities. Some federal programs specify performance standards for certain types of facilities or processes within a facility. Others address the impact of newly constructed facilities or modifications to existing facilities on ambient air quality.

Facilities that are required by state regulations to monitor ambient air quality receive assistance from the DNR through monitoring plan review, siting evaluations and data review. These facilities are responsible for operating sampling equipment, sample analysis and additional QA/QC activities. Table 13 lists the current industrial monitoring sites.

Table 13: Industrial Monitoring Sites in Wisconsin

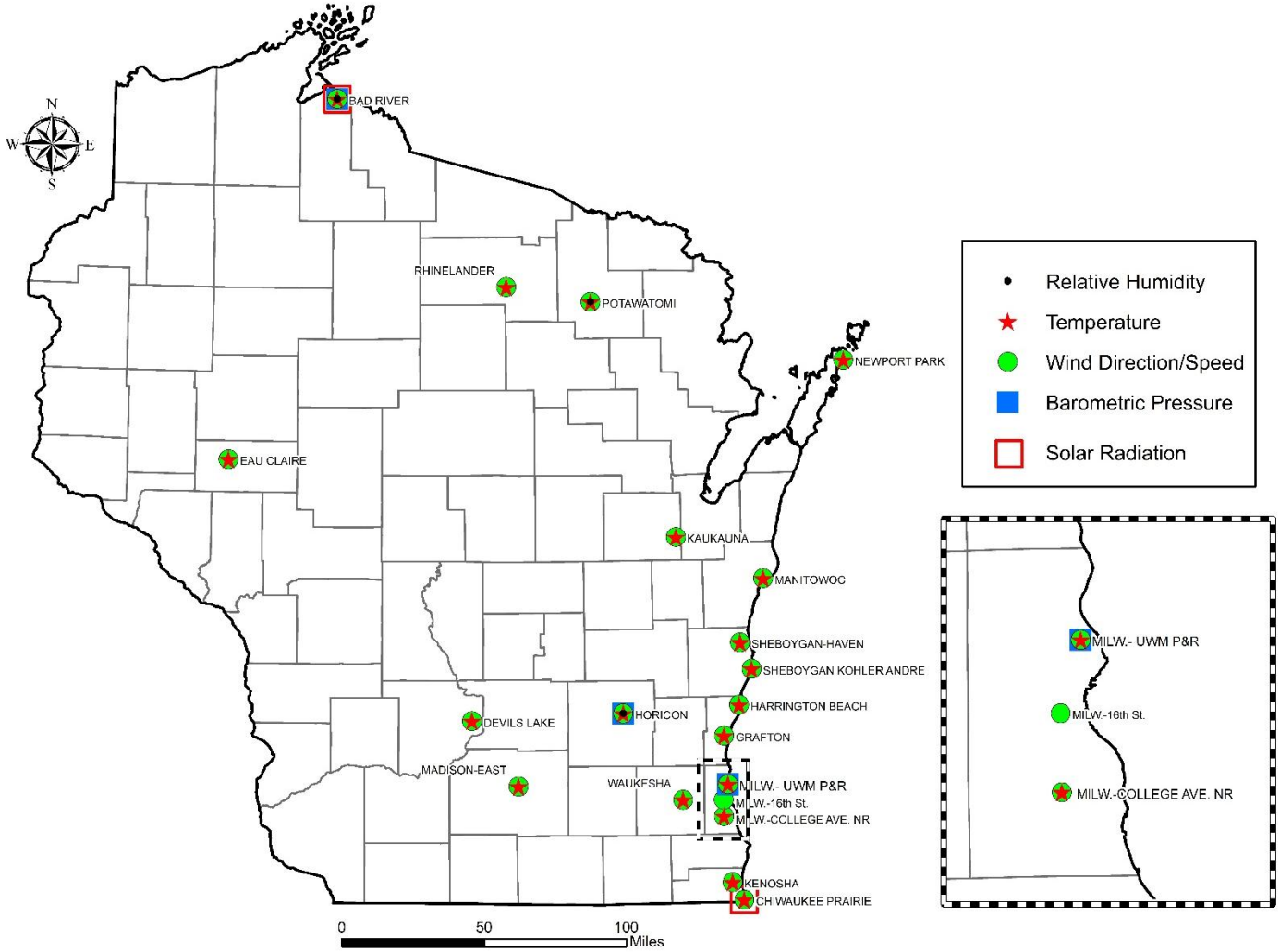
Facility*	AQS Site ID	County	Pollutants
MetalTek International, Wisconsin Centrifugal	55-133-0039	Waukesha	TSP
Smart Sands – Blair	55-121-1004	Trempealeau	PM_{10}
Smart Sands – Hixton	55-053-1002	Jackson	PM_{10}
Smart Sands – Oakdale	55-081-1001	Monroe	PM_{10}

* Industrial monitoring sites may start up or shut down in 2026-2027 as warranted by permits issued/updated and variances granted.

Meteorological Data

Air pollution concentrations are strongly influenced by atmospheric conditions. Meteorological data can be an important tool for understanding and interpreting concentration data. The DNR collects hourly wind speed and wind direction data at 20 sites and temperature data at 19 sites, including two Tribal sites. Relative humidity and solar radiation data are collected at a few sites. See Figure 13 for details.

Figure 13: 2026 Meteorological Sites in Wisconsin



Network Changes

Changes to the DNR Air Monitoring Network are intended to improve the effectiveness of monitoring efforts, ensure compliance with the EPA National Ambient Air Monitoring Strategy and leverage resources to ensure the strategy can be facilitated in Wisconsin. The DNR plans some changes well in advance and are detailed in the Network Plan each year. This section of the document contains all changes that are planned for May 1, 2026 through December 31, 2027. In Appendix F, the planned and actual changes from the 2026 network plan are detailed.

Some changes cannot be anticipated and are due to unforeseen circumstances including severe weather, legislation, administrative directives, land-use and ownership changes, loss of funding, enforcement actions or complaints. If resources are available and state law is satisfied, the DNR will attempt to revive the impacted site. If the site must be moved, the DNR will attempt to find a nearby location satisfying all siting criteria that can replace the problematic site.

Proposed Network Changes (May 1, 2026 – December 31, 2027)

Table 14 lists the proposed network changes from May 1, 2026 to December 31, 2027 by parameter network. Details of the proposed changes:

- Implement EOM Plan per Appendix E
- Shutdown and start-up of industrial monitors as needed
- Shutdown and start-up of SPM monitors associated with Enhanced Ozone Monitoring
- Replacing aging monitoring shelters at Elkhorn, Eau Claire, Newport, Fond du Lac, Madison East, Rhinelander and Racine sites
- Adding meteorological parameter to Ho-Chunk Tribal sites located in Black River Falls and Tomah
- The DNR is planning to relocate the Milwaukee 16th Street site (55-079-0010) located on the roof of a Sixteenth Street Community Health Center property due to uncertainty surrounding site access. Suitable locations proximal to the current monitoring site are being considered including Mitchell Park 0.9 miles away or Southside Health Center 0.6 miles away. All locations under consideration will be representative of the neighborhoods surrounding the current location.

Table 14: Proposed Network Changes

May 1, 2026 – December 31, 2027

Monitoring Site	AQS Site ID	Site	Ozone	$PM_{2.5}$	PM_{10}	$PM_{10-2.5}$	SO_2	NO_2	CO	NO_y	Meteorological	Metals (PM_{10})	VOC / Carbonyl	Hg	NADP	CSN
Elkhorn	55-127-0006	M2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eau Claire	55-035-0014	M2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fond du Lac	55-039-0006	M2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Madison East	55-025-0041	M2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Newport	55-029-0004	M2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Racine	55-102-0020	M2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rhinelander	55-085-0996	M2														
Milwaukee 16th Street	55-079-0010	R	R	R	R	R	-	-	-	-	R	R	R	R	-	R
Ho-Chunk Black River Falls	55-053-2002	-	-	-	-	-	-	-	-	-	A1	-	-	-	-	-
Ho-Chunk Nation Tomah	55-081-2001	-	-	-	-	-	-	-	-	-	A1	-	-	-	-	-

A = Addition
M = Modification
T = Termination
R = Relocate

1 = Wind Speed/Wind Direction/Ambient Temperature
2 = Shelter replacement scheduled

Appendix A: Minimum Monitoring Requirements and 2027 Monitor Classifications

Summary

The EPA establishes the minimum number of monitoring sites required to meet national ambient monitoring objectives. The minimum monitoring requirements are codified in Appendix D of 40 CFR Part 58. Minimum requirements are specific to each individual pollutant (e.g., ozone, $PM_{2.5}$) or objective based (e.g., NCore, PAMS) monitoring network. Minimum monitoring requirements typically rely on population and/or air pollution emissions data. Wisconsin currently meets all minimum air monitoring requirements. This appendix provides a detailed description of these requirements, as well as tables that describe each monitor's scale, objective, method, and collocation where required. There are no Prevention of Significant Deterioration (PSD) monitors in Wisconsin.

Federal Regulation

40 CFR § 58.10(a)(1) Beginning July 1, 2007, the state, or where applicable local agency shall submit to the Regional Administrator an annual monitoring network plan which shall provide for the documentation of the establishment and maintenance of an air quality surveillance system that consists of a network of SLAMS monitoring stations that can include FRM, FEM, and ARM monitors that are part of SLAMS, NCore, CSN, PAMS, and SPM stations. The plan shall include a statement of whether the operation of each monitor meets the requirements of appendices A, B, C, D, and E of this part, where applicable. The Regional Administrator may require additional information in support of this statement. The annual monitoring network plan must be made available for public inspection and comment for at least 30 days prior to submission to the EPA and the submitted plan shall include and address, as appropriate, any received comments.

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List of Tables

$PM_{2.5}$

Fine Particle ($PM_{2.5}$) Monitoring Requirements

The minimum monitoring requirements for $PM_{2.5}$ are established in Appendix D of 40 CFR Part 58 and are summarized in Tables 1 and 2. In addition to these population-based requirements, $PM_{2.5}$ monitoring is required at NCore and near-road air monitoring sites. Wisconsin currently meets all $PM_{2.5}$ monitoring requirements (see Table 2). Design values (DVs) used in Table 3 are the certified valid 2025 DVs calculated using the AQS AMP480 report generated on April 16, 2026. Scales and objectives of the DNR and tribal $PM_{2.5}$ monitors are summarized in Table 4. Scales and objectives of monitors have been updated using current information. Table 5 summarizes the sampling frequencies, durations, methods and collocations of the DNR and Tribal $PM_{2.5}$ monitors.

The DNR's primary monitors include fourteen T640 scattered light spectroscopy Federal Equivalent Method (FEM) analyzers with a method code of 636 and six T640X scattered light spectroscopy FEM analyzers with a method code of 638. The DNR meets the collocation requirements by operating three Met One ESEQ filter based FRM samplers with a method code of 545 and one FEM T640 with a method code of 636. The DNR also operates one Met One ESEQ FRM sampler to meet NCore requirements that does not meet collocation siting. Based on Table 3, the collocation requirements and monitors satisfying them are listed below:

- Three method 636 collocations (23% collocation)
    - 55-025-0041-88101-3 collocated with 55-025-0041-88101-1 (FEM-FRM)
    - 55-079-0010-88101-3 collocated with 55-079-0010-88101-2 (FEM-FRM)
    - 55-087-0009-88101-3 collocated with 55-087-0009-88101-4 (FEM-FEM)
- One method 638 collocation (16.7% collocation)
    - 55-133-0027-88101-3 collocated with 55-0133-027-88101-2 (FEM-FRM)

Table 1: $PM_{2.5}$ Minimum Monitoring Requirements

MSA Population [1,2,5]	Most recent 3-year design value ≥ 85% of any $PM_{2.5}$ NAAQS[3]	Most recent 3-year design value ≤ 85% of any $PM_{2.5}$ NAAQS[3,4]
> 1,000,000	3	2
500,000 – 1,000,000	2	1
50,000 - < 500,000	1	0

1 = Minimum monitoring requirement applies to the Metropolitan statistical area (MSA).
2 = Population based on latest available census figures.
3 = The $PM_{2.5}$ National Ambient Air Quality Standard (NAAQS) levels and forms are defined in 40 CFR part 50.
4 = These minimum monitoring requirements apply in the absence of a design value.
5 = Metropolitan statistical areas (MSA) must contain an urbanized area of 50,000 or more population.

Table 2: $PM_{2.5}$ Collocation Requirements Demonstrated Using the Collocation Procedure with a PQAO Having One Type of Primary and Multiple Primary FEMs[1-4]

# Primary FEMS of a unique method designation	# Collocated	# Collocated with an FRM	# Collocated with the same method designation
1 - 9	1	1	0
10 - 16	2	1	1
17 - 23	3	2	1
24 - 29	4	2	2
30 - 36	5	3	2
37 - 43	6	3	3

1 = A primary monitor designated as an EPA FRM shall be collocated with a quality control monitor having the same EPA FRM method designation.
2 = For each primary monitor designated as an EPA FEM used by the PQAO, 50 percent of the monitors designated for collocation, or the first if only one collocation is necessary, shall be collocated with a FRM quality control monitor and 50 percent of the monitors shall be collocated with a monitor having the same method designation as the FEM primary monitor.
3 = If an odd number of collocated monitors is required, the additional monitor shall be a FRM quality control monitor.
4 = A site can only count for the collocation of the method designation of the primary monitor at that site.

Table 3: Wisconsin $PM_{2.5}$ Monitoring Requirements

Metropolitan Statistical Area	2025 Population Estimate	Maximum 2025 Annual DV as % of Standard (9 µg/m³)	Maximum 2025 Daily DV as % of Standard (35 µg/m³)	Minimum Requirement	2025 Sites with FRM or FEM monitor
Minneapolis-St. Paul-Bloomington, MN-WI[1]	3,790,295	101	103	3	12
Milwaukee-Waukesha-West Allis, WI[2]	1,575,010	99	89	3	4
Madison, WI[3]	709,685	97	83	2	2
Green Bay, WI[4]	336,756	89	100	1	1
Duluth, MN-WI[5]	281,219	87	103	1	4
Appleton, WI[6]	249,876	90	106	1	1
Racine, WI[7]	198,919	-	-	0	0
Eau Claire, WI[8]	176,647	91	94	1	1
Oshkosh-Neenah, WI[9]	174,218	-	-	0	0
La Crosse-Onalaska, WI-MN[10]	171,182	-	-	0	0
Kenosha, WI Metro Area[11]	168,448	82	71	0	1
Janesville-Beloit, WI[12]	166,472	-	-	0	0
Wausau, WI[13]	139,432	89	89	1	1
Sheboygan, WI[14]	118,047	-	-	0	0
Fond du Lac, WI[15]	104,669	-	-	0	0
NCore site (Horicon)-not required by population	NA	NA	NA	1	1
Near-road site (Milwaukee)-not required by population	NA	NA	NA	1	1

1 = Counties include: Anoka (MN), Carver (MN), Chisago (MN), Dakota (MN), Hennepin (MN), Isanti (MN), Le Sueur (MN), Mille Lacs (MN), Ramsey (MN), Scott (MN), Sherburne (MN), Washington (MN), Wright (MN), Pierce (WI), St. Croix (WI)
2 = Counties include: Milwaukee (WI), Ozaukee (WI), Washington (WI) and Waukesha (WI)
3 = Counties include: Columbia (WI), Dane (WI), Green (WI), Iowa (WI)
4 = Counties include: Brown (WI), Kewaunee (WI), Oconto (WI)
5 = Counties include: Carlton (MN), St. Louis (MN), Douglas (WI)
6 = Counties include: Calumet (WI), Outagamie (WI)
7 = Counties include: Racine (WI)
8 = Counties include: Chippewa (WI), Eau Claire (WI)
9 = Counties include: Winnebago (WI)
10 = Counties include: Houston (MN), La Crosse (WI), Vernon (WI)
11 = Counties include: Kenosha (WI)
12 = Counties include: Rock (WI)
13 = Counties include: Marathon (WI)
14 = Counties include: Sheboygan (WI)
15 = Counties include: Fond du Lac (WI)

Table 4: Scales and Objectives of $PM_{2.5}$ Monitors

Site Name	AQS Monitor ID	Monitor Type	Parameter Description	Measurement Scale	Monitor Objective Type
APPLETON	55-087-0009-88101-3	SLAMS	PM2.5 - Local Conditions	Urban	Highest Concentration
APPLETON	55-087-0009-88101-4	SLAMS	PM2.5 - Local Conditions	Urban	Quality Assurance
BAD RIVER TRIBAL SCHOOL – ODANAH	55-003-0010-88101-3	Tribal	PM2.5 - Local Conditions	Regional	General/Background
CHIWAUKEE PRAIRIE STATELINE	55-059-0019-88101-3	SLAMS	PM2.5 - Local Conditions	Regional	Regional Transport
DEVILS LAKE PARK	55-111-0007-88101-7	SLAMS	PM2.5 - Local Conditions	Regional	General/Background
EAU CLAIRE – DOT SIGN SHOP	55-035-0014-88101-3	SLAMS	PM2.5 - Local Conditions	Urban	Population Exposure
GREEN BAY EAST HIGH	55-009-0005-88101-3	SLAMS	PM2.5 - Local Conditions	Urban	Highest Concentration
HARRINGTON BEACH PARK	55-089-0009-88101-3	SLAMS	PM2.5 - Local Conditions	Urban	Regional Transport
HO-CHUNK NATION BLACK RIVER FALLS	55-053-2002-88101-3	Tribal	PM2.5 - Local Conditions	Regional	General/Background
HO-CHUNK NATION TOMAH	55-081-2001-88101-3	Tribal	PM2.5 - Local Conditions	Regional	General/Background
HORICON WILDLIFE AREA	55-027-0001-88101-1	Tribal	PM2.5 - Local Conditions	Regional	General / Background
HORICON WILDLIFE AREA	55-027-0001-88101-3	SLAMS	PM2.5 - Local Conditions	Regional	General / Background
LAKE DUBAY	55-073-0012-88101-3	SLAMS	PM2.5 - Local Conditions	Regional	General/Background
MADISON - UNIVERSITY AVE WELL #6	55-025-0047-88101-3	SLAMS	PM2.5 - Local Conditions	Urban	Highest Concentration
MADISON EAST	55-025-0041-88101-1	SLAMS	PM2.5 - Local Conditions	Urban	Quality Assurance
MADISON EAST	55-025-0041-88101-3	SLAMS	PM2.5 - Local Conditions	Urban	Population Exposure
MILWAUKEE – COLLEGE AVE. NR	55-079-0056-88101-3	SLAMS	PM2.5 - Local Conditions	Neighborhood	Population Exposure
MILWAUKEE – SIXTEENTH ST. HEALTH CENTER	55-079-0010-88101-2	SLAMS	PM2.5 - Local Conditions	Urban	Quality Assurance
MILWAUKEE – SIXTEENTH ST. HEALTH CENTER	55-079-0010-88101-3	SLAMS	PM2.5 - Local Conditions	Urban	Highest Concentration
POTAWATOMI	55-041-0007-88101-3	Tribal	PM2.5 - Local Conditions	Regional	General/Background
POTOSI	55-043-0009-88101-3	SLAMS	PM2.5 - Local Conditions	Regional	Regional Transport
WAUKESHA – CLEVELAND AVE	55-133-0027-88101-2	SLAMS	PM2.5 - Local Conditions	Neighborhood	Quality Assurance
WAUKESHA – CLEVELAND AVE	55-133-0027-88101-3	SLAMS	PM2.5 - Local Conditions	Neighborhood	Highest Concentration

Table 5: Sampling Frequencies, Durations, Methods and Collocations of $PM_{2.5}$ monitors

Site Name	AQS Monitor ID	Monitor Type	Method Code	Sample Analysis Description	Sample Duration	Collection Frequency	Collocation Primary Monitor Indicator	Distance from Primary Monitor
APPLETON	55-087-0009-88101-3	SLAMS	636	Light Spectroscopy	1 hour	Every Day	P	NA
APPLETON	55-087-0009-88101-4	SLAMS	636	Light Spectroscopy	1 hour	Every Day	C	1.8
BAD RIVER TRIBAL SCHOOL – ODANAH	55-003-0010-88101-3	TRIBAL	636	Light Spectroscopy	1 hour	Every Day	P	NA
CHIWAUKEE PRAIRIE STATELINE	55-059-0019-88101-3	SLAMS	636	Light Spectroscopy	1 hour	Every Day	P	NA
DEVILS LAKE PARK	55-111-0007-88101-7	SLAMS	638	Light Spectroscopy	1 hour	Every Day	P	NA
EAU CLAIRE – DOT SIGN SHOP	55-035-0014-88101-3	SLAMS	638	Light Spectroscopy	1 hour	Every Day	P	NA
GREEN BAY EAST HIGH	55-009-0005-88101-3	SLAMS	636	Light Spectroscopy	1 hour	Every Day	P	NA
HARRINGTON BEACH PARK	55-089-0009-88101-3	SLAMS	636	Light Spectroscopy	1 hour	Every Day	P	NA
HO-CHUNK NATION BLACK RIVER FALLS	55-053-2002-88101-3	Tribal	636	Light Spectroscopy	1 hour	Every Day	P	NA
HO-CHUNK NATION TOMAH	55-081-2001-88101-3	Tribal	636	Light Spectroscopy	1 hour	Every Day	P	NA
HORICON WILDLIFE AREA	55-027-0001-88101-1	SLAMS	545	Gravimetric	24 hours	Every 3rd Day	NA	NA
HORICON WILDLIFE AREA	55-027-0001-88101-3	SLAMS	638	Light Spectroscopy	1 hour	Every Day	P	NA
LAKE DUBAY	55-073-0012-88101-3	SLAMS	636	Light Spectroscopy	1 hour	Every Day	P	NA
MADISON – UNIVERSITY AVE WELL #6	55-025-0047-88101-3	SLAMS	638	Light Spectroscopy	1 hour	Every Day	P	NA
MADISON EAST	55-025-0041-88101-1	SLAMS	545	Gravimetric	24 hours	Every 6th Day	C	1.0
MADISON EAST	55-025-0041-88101-3	SLAMS	636	Light Spectroscopy	1 hour	Every Day	P	NA
MILWAUKEE – COLLEGE AVE. NR	55-079-0056-88101-3	SLAMS	638	Light Spectroscopy	1 hour	Every Day	P	NA
MILWAUKEE – SIXTEENTH ST. HEALTH CENTER	55-079-0010-88101-2	SLAMS	545	Gravimetric	24 hours	Every 3rd Day	C	3.2
MILWAUKEE – SIXTEENTH ST. HEALTH CENTER	55-079-0010-88101-3	SLAMS	636	Light Spectroscopy	1 hour	Every Day	P	NA
POTAWATOMI	55-041-0007-88101-3	Tribal	636	Light Spectroscopy	1 hour	Every Day	P	NA
POTOSI	55-043-0009-88101-3	SLAMS	636	Light Spectroscopy	1 hour	Every Day	P	NA
WAUKESHA – CLEVELAND AVE	55-133-0027-88101-2	SLAMS	545	Gravimetric	24 hours	Every 6th Day	C	3.5
WAUKESHA – CLEVELAND AVE	55-133-0027-88101-3	SLAMS	638	Light Spectroscopy	1 hour	Every Day	P	NA

PM_{10}

PM_{10} Monitoring Requirements

The minimum monitoring requirements for PM_{10} are established in Appendix D of 40 CFR Part 58 and are summarized in Table 6. In addition to these population-based requirements, PM_{10} monitoring is required at NCore sites. Currently, Wisconsin meets all PM_{10} monitoring requirements (see Table 6). PM_{10} values used in Table 7 were downloaded from AQS on April 16, 2026. Scales and objectives of the DNR and tribal PM_{10} monitors and industrial monitors are summarized in Tables 8 and 9. Scales and objectives of monitors have been updated using current information. Tables 10 and 11 summarize sampling frequencies, durations, methods and collocations of the DNR and industrial PM_{10} monitors.

Wisconsin experienced significant wildfire smoke events in 2023 causing several of the PM_{10} monitors in the state to exceed 150 $\mu g/m^3$. Based on analysis of the data, the DNR determined that the dates where PM_{10} values exceeded 150 $\mu g/m^3$ were clearly due to broadscale wildfire events that affected the entire Midwest. For this reason, additional PM10 monitoring is unnecessary and unable to provide further information beyond what Wisconsin's existing $PM_{2.5}$ network already provides.

Currently, the DNR's primary monitors consist of six T640X scattered light spectroscopy FEMs with a method code of 638 and one gravimetric FRM sampler with a method code of 141. Collocation requirements for PM_{10} only apply to FRM monitors. At least 15% of the primary FRM monitors must be collocated. The collocated FRMs at Milwaukee 16th St. Health Center (55-079-0010) meet this requirement.

- One method 141 collocation (100% collocation)
    - 55-079-0010-81102-1 collocated with 55-079-0010-81102-2 (FRM-FRM)

Table 6: PM_{10} Minimum Monitoring Requirements (number of stations per MSA)[1]

Population Category	High Concentration[2]	Medium Concentration[3]	Low Concentration[4,5]
>1 million	6-10	4-8	2-4
500,000 – 1 million	4-8	2-4	1-2
250,000 – 500,000	3-4	1-2	0-1
100,000 – 250,000	1-2	0-1	0

1 = Selection of urban areas and actual numbers of stations per area within the ranges shown in this table will be jointly determined by EPA and the State Agency.
2 = High concentration areas are those for which ambient PM_{10} data show ambient concentrations exceeding the PM_{10} NAAQS by 20 percent or more.
3 = Medium concentration areas are those for which ambient PM_{10} data show ambient concentrations exceeding 80 percent of the PM_{10} NAAQS.
4 = Low concentration areas are those for which ambient PM_{10} data show ambient concentrations less than 80 percent of the PM_{10} NAAQS.
5 = These minimum monitoring requirements apply in the absence of a design value.

Table 7: Wisconsin PM_{10} Monitoring Requirements

Metropolitan Statistical Area	2025 Population Estimate	2023-2025 Days greater than 80% of the NAAQS (120 µg/m^3)[16]	Minimum Requirement	2025 Sites
Minneapolis-St. Paul-Bloomington, MN-WI[1]	3,790,295	6	4-8	5
Milwaukee-Waukesha-West Allis, WI[2]	1,575,010	7	2-4	3
Madison, WI[3]	709,685	3	1-2	1
Green Bay, WI[4]	336,756	-	0-1	0
Duluth, MN-WI[5]	281,219	3	3-4	3
Appleton, WI[6]	249,876	-	0	0
Racine, WI[7]	198,919	-	0	0
Eau Claire, WI[8]	176,647	0	0	1
Oshkosh-Neenah, WI[9]	174,218	-	0	0
La Crosse-Onalaska, WI-MN[10]	171,182	-	0	0
Kenosha, WI Metro Area[11]	168,448	-	0	0
Janesville-Beloit, WI[12]	166,472	-	0	0
Wausau, WI[13]	139,432	-	0	0
Sheboygan, WI[14]	118,047	-	0	0
Fond du Lac, WI[15]	104,669	-	0	0
NCore (Horicon)-not required by population	NA	-	1	1

1 = Counties include: Anoka (MN), Carver (MN), Chisago (MN), Dakota (MN), Hennepin (MN), Isanti (MN), Le Sueur (MN), Mille Lacs (MN), Ramsey (MN), Scott (MN), Sherburne (MN), Washington (MN), Wright (MN), Pierce (WI), St. Croix (WI)

2 = Counties include: Milwaukee (WI), Ozaukee (WI), Washington (WI) and Waukesha (WI)

3 = Counties include: Columbia (WI), Dane (WI), Green (WI), Iowa (WI)

4 = Counties include: Brown (WI), Kewaunee (WI), Oconto (WI)

5 = Counties include: Carlton (MN), St. Louis (MN), Douglas (WI)

6 = Counties include: Calumet (WI), Outagamie (WI)

7 = Counties include: Racine (WI)

8 = Counties include: Chippewa (WI), Eau Claire (WI)

9 = Counties include: Winnebago (WI)

10 = Counties include: Houston (MN), La Crosse (WI), Vernon (WI)

11 = Counties include: Kenosha (WI)

12 = Counties include: Rock (WI)

13 = Counties include: Marathon (WI)

14 = Counties include: Sheboygan (WI)

15 = Counties include: Fond du Lac (WI)

16= This count excludes PM_{10} monitoring results from an industrial area of North Minneapolis (27-053-0909 and 27-053-0910)

Table 8: Scales and Objectives of DNR PM_{10} Monitors

Site Name	AQS Monitor ID	Monitor Type	Parameter Description	Measurement Scale	Monitor Objective Type
DEVILS LAKE PARK	55-111-0007-81101-3	SLAMS	PM10 Total 0-10 µm STP	Regional Scale	General/Background
EAU CLAIRE DOT	55-035-0014-81101-3	SLAMS	PM10 Total 0-10 µm STP	Urban Scale	Population Exposure
HORICON WILDLIFE AREA	55-027-0001-81102-1	SLAMS	PM10 Total 0-10 µm STP	Regional Scale	General/Background
MADISON - UNIVERSITY AVE WELL #6	55-025-0047-81102-3	SLAMS	PM10 Total 0-10 µm STP	Neighborhood	Population Exposure
MILWAUKEE - COLLEGE AVE. NR	55-079-0056-81102-3	SLAMS	PM10 Total 0-10 µm STP	Neighborhood	Population Exposure
MILWAUKEE - SIXTEENTH ST. HEALTH CENTER	55-079-0010-81102-1	SLAMS	PM10 Total 0-10 µm STP	Neighborhood	Population Exposure
MILWAUKEE - SIXTEENTH ST. HEALTH CENTER	55-079-0010-81102-2	SLAMS	PM10 Total 0-10 µm STP	Neighborhood	Quality Assurance
WAUKESHA - CLEVELAND AVE	55-133-0027-81102-3	SLAMS	PM10 Total 0-10 µm STP	Middle Scale	Highest Concentration

Table 9: Scales and Objectives of Industrial PM_{10} Monitors

Site Name	AQS Monitor ID	Monitor Type	Parameter Description	Measurement Scale	Monitor Objective Type
Smart Sands – Blair	55-121-1004-81102-1	Industrial	PM10 Total 0-10 µm STP	Middle Scale	Source Oriented
Smart Sands – Hixton	55-053-1002-81102-1	Industrial	PM10 Total 0-10 µm STP	Middle Scale	Source Oriented
Smart Sands – Oakdale	55-081-1001-81102-1	Industrial	PM10 Total 0-10 µm STP	Middle Scale	Source Oriented

Table 10: Sampling Frequencies, Durations, Methods and Collocations of DNR PM_{10} Monitors

Site Name	AQS Monitor ID	Monitor Type	Method Code	Sample Analysis Description	Sample Duration	Collection Frequency	Collocation Primary Monitor Indicator	Distance from Primary Monitor
DEVILS LAKE PARK	55-111-0007-81102-3	SLAMS	639	Light Spectroscopy	1 hour	Every Day	P	NA
EAU CLAIRE DOT	55-035-0014-81102-3	SLAMS	639	Light Spectroscopy	1 hour	Every Day	P	NA
HORICON WILDLIFE AREA	55-027-0001-81102-3	SLAMS	639	Light Spectroscopy	1 hour	Every Day	NA	NA
MADISON - UNIVERSITY AVE WELL #6	55-025-0047-81102-3	SLAMS	639	Light Spectroscopy	1 hour	Every Day	P	NA
MILWAUKEE - COLLEGE AVE. NR	55-079-0056-81102-3	SLAMS	639	Light Spectroscopy	1 hour	Every Day	P	NA
MILWAUKEE - SIXTEENTH ST. HEALTH CENTER	55-079-0010-81102-1	SLAMS	141	Gravimetric	24 hours	Every 6th Day	P	NA
MILWAUKEE - SIXTEENTH ST. HEALTH CENTER	55-079-0010-81102-2	SLAMS	141	Gravimetric	24 hours	Every 6th Day	C	2.1
WAUKESHA - CLEVELAND AVE	55-133-0027-81102-1	SLAMS	639	Light Spectroscopy	1 hour	Every Day	P	NA

Table 11: Sampling Frequencies, Durations, Methods and Collocations of Industrial PM_{10} Monitors

Site Name	AQS Monitor ID	Monitor Type	Method Code	Sample Analysis Description	Sample Duration	Collection Frequency	Collocation Primary Monitor Indicator	Distance from Primary Monitor
Smart Sands – Blair	55-121-1004-81102-1	Industrial	141	Gravimetric	24 hours	Every 6th Day	P	NA
Smart Sands – Hixton	55-053-1002-81102-1	Industrial	141	Gravimetric	24 hours	Every 6th Day	P	NA
Smart Sands – Oakdale	55-081-1001-81102-1	Industrial	141	Gravimetric	24 hours	Every 6th Day	P	NA

TSP

TSP Monitoring Requirements

TSP was one of the original NAAQS; however, it was replaced in 1987 by the PM_{10} standard at the national level. In Tables 12 and 13; sampling frequencies, durations, methods and collocations of the DNR, tribal and industrial PM_{10} monitors are summarized. Currently, there are no federal requirements to monitor TSP. There is one TSP industrial site located in Waukesha which is the reason for TSP's inclusion in this appendix.

Table 12: Scales and Objectives of the DNR and Industrial TSP Monitors

Site Name	AQS Monitor ID	Monitor Type	Parameter Description	Measurement Scale	Monitor Objective Type
MetalTek International - Wisconsin Centrifugal Division	55-133-0039-11101-1	Industrial	Total Suspended Particulate	Middle Scale	Source Oriented

Table 13: Sampling Frequencies, Durations, Methods and Collocations of DNR TSP Monitors

Site Name	AQS Monitor ID	Monitor Type	Method Code	Sample Analysis Description	Sample Duration	Collection Frequency	Collocation Primary Monitor Indicator	Distance from Primary Monitor
MetalTek International - Wisconsin Centrifugal Division	55-133-0039-11101-1	Industrial	091	Gravimetric	24 hours	Every 6th Day	P	NA

Lead

Lead Monitoring Requirements

The minimum monitoring requirements for lead are established in Appendix D of 40 CFR Part 58. The lead monitoring requirements are based on annual lead emissions. This source-oriented network requires lead monitoring for non-airport sources which emit 0.5 TPY and for each airport which emits 1.0 or more TPY based on either the most recent National Emission Inventory or other scientifically justifiable methods and data.

Based on the 2024 Wisconsin Air Emission Inventory, no DNR regulated facilities had lead emissions greater than 0.5 TPY, the threshold that may initiate a monitoring requirement. Wisconsin sources that reported lead emissions close to the threshold (>90% (0.45 TPY)) were reminded of the threshold.

Ozone

Ozone Monitoring Requirements

The minimum monitoring requirements for ozone are established in Section 4.1 of Appendix D of 40 CFR part 58 and are summarized in Table 15. In addition to these population-based requirements, ozone monitoring is required at NCore sites. Wisconsin currently meets all ozone monitoring requirements (see Table 14). Design values (DVs) used in Table 15 were downloaded from AQS on April 16, 2026. Scales, objectives, seasons and methods of ozone monitors are summarized in Tables 16 and 17. Scales and objectives of monitors have been updated using current information. All ozone monitors continuously collect hourly observations.

Table 14: Ozone Minimum Monitoring Requirements

MSA Population[1,2,5]	Most recent 3-year design value concentrations ≥ 85% of any O_3 NAAQS[3]	Most recent 3-year design value concentration < 85% of any O_3 NAAQS[3,4]
>10 million	4	2
4-10 million	3	1
350,000 - <4 million	2	1
50,000 - <350,000	1	0

1 = Minimum monitoring requirements apply to the Metropolitan statistical area (MSA).
2 = Population based on latest available census figures.
3 = The ozone (O_3) National Ambient Air Quality Standards (NAAQS) levels and forms are defined in 40 CFR part 50.
4 = These minimum monitoring requirements apply in the absence of a design value.
5 = Metropolitan statistical areas (MSA) must contain an urbanized area of 50,000 or more population.

Table 15: Wisconsin Ozone Monitoring Requirements

Metropolitan Statistical Area	2025 Population Estimate	Maximum 2023-2025 8-Hour DV as % of Standard (70 ppb)	Minimum Requirement	2025 Sites
Minneapolis-St. Paul-Bloomington, MN-WI[1]	3,790,295	99	2	7
Milwaukee-Waukesha-West Allis, WI[2]	1,575,010	106	2	6
Madison, WI[3]	709,685	100	2	2
Green Bay, WI[4]	336,756	93	1	2
Duluth, MN-WI[5]	281,219	90	1	3
Appleton, WI[6]	249,876	93	1	1
Racine, WI[7]	198,919	109	1	1
Eau Claire, WI[8]	176,647	90	1	1
Oshkosh-Neenah, WI[9]	174,218	-	0	0
La Crosse-Onalaska, WI-MN[10]	171,182	93	1	1
Kenosha, WI Metro Area[11]	168,448	113	1	2
Janesville-Beloit, WI[12]	166,472	100	1	1
Wausau, WI[13]	139,432	93	1	1
Sheboygan, WI[14]	118,047	110	1	2
Fond du Lac, WI[15]	104,669	91	1	1
NCore (Horicon)-not required by population	NA	-	1	1

1 = Counties include: Anoka (MN), Carver (MN), Chisago (MN), Dakota (MN), Hennepin (MN), Isanti (MN), Le Sueur (MN), Mille Lacs (MN), Ramsey (MN), Scott (MN), Sherburne (MN), Washington (MN), Wright (MN), Pierce (WI), St. Croix (WI)

2 = Counties include: Milwaukee (WI), Ozaukee (WI), Washington (WI) and Waukesha (WI)

3 = Counties include: Columbia (WI), Dane (WI), Green (WI), Iowa (WI)

4 = Counties include: Brown (WI), Kewaunee (WI), Oconto (WI)

5 = Counties include: Carlton (MN), St. Louis (MN), Douglas (WI)

6 = Counties include: Calumet (WI), Outagamie (WI)

7 = Counties include: Racine (WI)

8 = Counties include: Chippewa (WI), Eau Claire (WI)

9 = Counties include: Winnebago (WI)

10 = Counties include: Houston (MN), La Crosse (WI), Vernon (WI)

11 = Counties include: Kenosha (WI)

12 = Counties include: Rock (WI)

13 = Counties include: Marathon (WI)

14 = Counties include: Sheboygan (WI)

15 = Counties include: Fond du Lac (WI)

Table 16: Scales and Objectives of Ozone Monitors

Site Name	AQS Monitor ID	Monitor Type	Parameter Description	Measurement Scale	Monitor Objective Type
APPLETON	55-087-0009-44201-1	SLAMS	Ozone	Urban	Max Ozone Concentration
BAD RIVER TRIBAL SCHOOL – ODANAH	55-003-0010-44201-1	Tribal	Ozone	Regional	General/Background
BAYSIDE	55-079-0085-44201-1	SLAMS	Ozone	Neighborhood	Population Exposure
BELOIT – CONVERSE	55-105-0030-44201-1	SLAMS	Ozone	Urban	Regional Transport and Max Ozone Concentration
CHIWAUKEE PRAIRIE STATELINE	55-059-0019-44201-1	SLAMS	Ozone	Neighborhood	Regional Transport and Max Ozone Concentration
COLUMBUS	55-021-0015-44201-1	SLAMS	Ozone	Regional	Max Ozone Concentration
DEVILS LAKE PARK	55-111-0007-44201-1	SLAMS	Ozone	Regional	General / Background
EAU CLAIRE – DOT SIGN SHOP	55-035-0014-44201-1	SLAMS	Ozone	Urban	Max Ozone Concentration
ELKHORN	55-127-0006-44201-1	SLAMS	Ozone	Regional	Regional Transport
FOND DU LAC	55-039-0006-44201-1	SLAMS	Ozone	Regional	Max Ozone Concentration
GRAFTON	55-089-0008-44201-1	SLAMS	Ozone	Neighborhood	Regional Transport and Max Ozone Concentration
GREEN BAY – UW	55-009-0026-44201-1	SLAMS	Ozone	Urban	Population Exposure
HARRINGTON BEACH PARK	55-089-0009-44201-1	SLAMS	Ozone	Urban	Max Ozone Concentration
HORICON WILDLIFE AREA	55-027-0001-44201-2	SLAMS	Ozone	Regional	General/Background
JEFFERSON – LAATSCH	55-055-0009-44201-1	SLAMS	Ozone	Regional	Regional Transport and General/Background
KENOSHA – WATER TOWER	55-059-0025-44201-1	SPM	Ozone	Neighborhood	Population Exposure
KEWAUNEE	55-061-0002-44201-1	SLAMS	Ozone	Neighborhood	Regional Transport and Max Ozone Concentration
LACROSSE – DOT BUILDING	55-063-0012-44201-1	SLAMS	Ozone	Regional	Max Ozone Concentration
LAKE DUBAY	55-073-0012-44201-1	SLAMS	Ozone	Regional	General/Background
MADISON EAST	55-025-0041-44201-1	SLAMS	Ozone	Urban	Population Exposure
MANITOWOC – WDLND DUNES	55-071-0007-44201-1	SLAMS	Ozone	Neighborhood	Regional Transport
MILWAUKEE – SIXTEENTH ST. HEALTH CENTER	55-079-0010-44201-2	SLAMS	Ozone	Neighborhood	Population Exposure
MILWAUKEE – UWM UPark	55-079-0068-44201-1	SLAMS	Ozone	Neighborhood	Population Exposure
NEWPORT PARK	55-029-0004-44201-1	SLAMS	Ozone	Neighborhood	Regional Transport
POTAWATOMI	55-041-0007-44201-1	Tribal	Ozone	Regional	General/Background
RACINE – PAYNE AND DOLAN	55-101-0020-44201-1	SLAMS	Ozone	Neighborhood	Regional Transport and Max Ozone Concentration
SHEBOYGAN – HAVEN	55-117-0009-44201-1	SPM	Ozone	Neighborhood	Population Exposure
SHEBOYGAN – KOHLER ANDRAE	55-117-0006-44201-1	SLAMS	Ozone	Neighborhood	Regional Transport and Max Ozone Concentration
TROUT LAKE	55-125-0001-44201-1	SLAMS	Ozone	Regional	General/Background
WAUKESHA – CLEVELAND AVE	55-133-0027-44201-1	SLAMS	Ozone	Urban	Population Exposure

Table 17: Methods and Season of Ozone Monitors

Site Name	AQS Monitor ID	Monitor Type	Method Code	Sample Analysis Description	Season
APPLETON	55-087-0009-44201-1	SLAMS	087	Ultraviolet Absorption	Apr 1 – Oct 15
BAD RIVER TRIBAL SCHOOL – ODANAH	55-003-0010-44201-1	Tribal	087	Ultraviolet Absorption	Year Round
BAYSIDE	55-079-0085-44201-1	SLAMS	087	Ultraviolet Absorption	Apr 1 – Oct 15
BELOIT – CONVERSE	55-105-0030-44201-1	SLAMS	087	Ultraviolet Absorption	Apr 1 – Oct 15
CHIWAUKEE PRAIRIE STATELINE	55-059-0019-44201-1	SLAMS	087	Ultraviolet Absorption	Mar 1 – Oct 31
COLUMBUS	55-021-0015-44201-1	SLAMS	087	Ultraviolet Absorption	Apr 1 – Oct 15
DEVILS LAKE PARK	55-111-0007-44201-1	SLAMS	087	Ultraviolet Absorption	Apr 1 – Oct 15
EAU CLAIRE – DOT SIGN SHOP	55-035-0014-44201-1	SLAMS	087	Ultraviolet Absorption	Apr 1 – Oct 15
ELKHORN	55-127-0006-44201-1	SLAMS	087	Ultraviolet Absorption	Apr 1 – Oct 15
FOND DU LAC	55-039-0006-44201-1	SLAMS	087	Ultraviolet Absorption	Apr 1 – Oct 15
GRAFTON	55-089-0008-44201-1	SLAMS	087	Ultraviolet Absorption	Apr 1 – Oct 15
GREEN BAY – UW	55-009-0026-44201-1	SLAMS	087	Ultraviolet Absorption	Apr 1 – Oct 15
HARRINGTON BEACH PARK	55-089-0009-44201-1	SLAMS	087	Ultraviolet Absorption	Apr 1 – Oct 15
HORICON WILDLIFE AREA	55-027-0001-44201-2	SLAMS	087	Ultraviolet Absorption	Year Round
JEFFERSON – LAATSCH	55-055-0009-44201-1	SLAMS	087	Ultraviolet Absorption	Apr 1 – Oct 15
KENOSHA – WATER TOWER	55-059-0025-44201-1	SPM	087	Ultraviolet Absorption	Mar 1 – Oct 31
KEWAUNEE	55-061-0002-44201-1	SLAMS	087	Ultraviolet Absorption	Apr 1 – Oct 15
LACROSSE – DOT BUILDING	55-063-0012-44201-1	SLAMS	087	Ultraviolet Absorption	Apr 1 – Oct 15
LAKE DUBAY	55-073-0012-44201-1	SLAMS	087	Ultraviolet Absorption	Apr 1 – Oct 15
MADISON EAST	55-025-0041-44201-1	SLAMS	087	Ultraviolet Absorption	Apr 1 – Oct 15
MANITOWOC – WDLND DUNES	55-071-0007-44201-1	SLAMS	087	Ultraviolet Absorption	Apr 1 – Oct 15
MILWAUKEE – SIXTEENTH ST. HEALTH CENTER	55-079-0010-44201-2	SLAMS	087	Ultraviolet Absorption	Apr 1 – Oct 15
MILWAUKEE – UWM UPark	55-079-0068-44201-1	SLAMS	087	Ultraviolet Absorption	Apr 1 – Oct 15
NEWPORT PARK	55-029-0004-44201-1	SLAMS	087	Ultraviolet Absorption	Apr 1 – Oct 15
POTAWATOMI	55-041-0007-44201-1	Tribal	087	Ultraviolet Absorption	Year Round
RACINE – PAYNE AND DOLAN	55-101-0020-44201-1	SLAMS	087	Ultraviolet Absorption	Apr 1 – Oct 15
SHEBOYGAN – HAVEN	55-117-0009-44201-1	SPM	087	Ultraviolet Absorption	Apr 1 – Oct 15
SHEBOYGAN – KOHLER ANDRAE	55-117-0006-44201-1	SLAMS	087	Ultraviolet Absorption	Apr 1 – Oct 15
TROUT LAKE	55-125-0001-44201-1	SLAMS	087	Ultraviolet Absorption	Apr 1 – Oct 15
WAUKESHA – CLEVELAND AVE	55-133-0027-44201-1	SLAMS	087	Ultraviolet Absorption	Apr 1 – Oct 15

Carbon Monoxide

Carbon Monoxide Monitoring Requirements

The minimum monitoring requirements for carbon monoxide (CO) are established in Appendix D of 40 CFR Part 58. These requirements include CO monitoring at NCore sites and at one near-road air monitoring site in CBSAs having a population of 1,000,000 or more persons. In addition to these minimum requirements, the Regional Administrator may require additional monitors in situations where data or other information suggests that CO concentrations may be approaching or exceeding the NAAQS. Wisconsin currently meets the minimum CO monitoring requirements (See Table 18). All CO monitors continuously collect hourly observations. Scales, objectives and methods of CO monitors are summarized in Tables 19 and 20.

Table 18: 2025 Wisconsin Carbon Monoxide Monitoring Requirements

Core Based Statistical Area > 1 million	2025 Population Estimate	Required Near-Road	Required NCore	2025 Near-Road	2025 NCore	2025 Other
Minneapolis-St. Paul-Bloomington, MN-WI[1]	3,790,295	1	1	2	1	3
Milwaukee-Waukesha-West Allis, WI[2]	1,575,010	1	0	1	0	0
DNR Rural NCore (Horicon)	Not a population-based requirement	0	1	0	1	0

1 = Counties include: Anoka (MN), Carver (MN), Chisago (MN), Dakota (MN), Hennepin (MN), Isanti (MN), Le Sueur (MN), Mille Lacs (MN), Ramsey (MN), Scott (MN), Sherburne (MN), Washington (MN), Wright (MN), Pierce (WI), St. Croix (WI)
2 = Counties include: Milwaukee (WI), Ozaukee (WI), Washington (WI) and Waukesha (WI)
Mille Lacs (MN), Ramsey (MN), Scott (MN), Sherburne (MN), Washington (MN), Wright (MN), Pierce (WI), St. Croix (WI)

Table 19: Scales and Objectives of Carbon Monoxide Monitors

Site Name	AQS Monitor ID	Monitor Type	Parameter Description	Measurement Scale	Monitor Objective Type
HORICON WILDLIFE AREA	55-027-0001-42101-1	SLAMS	Carbon Monoxide	Regional	General/Background
MILWAUKEE – COLLEGE AVE. NR	55-079-0056-42101-1	SLAMS	Carbon Monoxide	Neighborhood	Max Precursor Emissions Impact

Table 20: Methods of Carbon Monoxide Monitors

Site Name	AQS Monitor ID	Monitor Type	Method Code	Sample Analysis Description
HORICON WILDLIFE AREA	55-027-0001-42101-1	SLAMS	593	Gas Filter Correlation
MILWAUKEE – COLLEGE AVE. NR	55-079-0056-42101-1	SLAMS	593	Gas Filter Correlation

Nitrogen Dioxide

Nitrogen Dioxide Monitoring Requirements

The minimum monitoring requirements for nitrogen dioxide (NO_2) are established in Appendix D of 40 CFR Part 58. There are two primary monitoring objectives for NO_2 including monitoring near roads and population based (area-wide). Table 21 summarizes the minimum monitoring requirements for NO_2. In addition to these minimum requirements, the Regional Administrator may require additional monitoring in areas where NO_2 is expected to be near the level of the NAAQS. Currently, Wisconsin meets all NO_2 monitoring requirements and operates two additional seasonal NO_2 monitors for the purpose of its enhanced ozone monitoring plan (Table 22). Scales, objectives and methods of NO_2 monitors are summarized in Tables 23 and 24. Scales and objectives of monitors have been updated using current information.

Table 21: Nitrogen Dioxide Minimum Monitoring Requirements

CBSA Population	Near-Road Monitors	Area-Wide Monitors
> 1,000,000	1	1
> 2,500,000	2	1

Table 22: 2025 Wisconsin Nitrogen Dioxide Monitoring Requirements

Core Based Statistical Area > 1 million	2025 Population Estimate	Required Near-Road	Required NCore	Required Area-Wide	2025 Near-Road	2025 NCore	2025 Area-Wide
Minneapolis-St. Paul-Bloomington, MN-WI[1]	3,790,295	1	1	1	2	1	3
Milwaukee-Waukesha-West Allis, WI[2]	1,575,010	1	0	1	1	0	1
DNR Rural NCore (Horicon)	Not a population-based requirement	0	1	0	0	1	0

1 = Counties include: Anoka (MN), Carver (MN), Chisago (MN), Dakota (MN), Hennepin (MN), Isanti (MN), Le Sueur (MN), Mille Lacs (MN), Ramsey (MN), Scott (MN), Sherburne (MN), Washington (MN), Wright (MN), Pierce (WI), St. Croix (WI)
2 = Counties include: Milwaukee (WI), Ozaukee (WI), Washington (WI) and Waukesha (WI)
Mille Lacs (MN), Ramsey (MN), Scott (MN), Sherburne (MN), Washington (MN), Wright (MN), Pierce (WI), St. Croix (WI)

Table 23: Scales and Objectives of Nitrogen Dioxide Monitors

Site Name	AQS Monitor ID	Monitor Type	Parameter Description	Measurement Scale	Monitor Objective Type
CHIWAUKEE PRAIRIE STATELINE*	55-059-0019-42602-1	SPM	Nitrogen Dioxide (NO_2)	Regional	Regional Transport
HORICON WILDLIFE AREA	55-027-0001-42612-4	SLAMS	Reactive Oxides of Nitrogen (NO_Y)	Regional	General/Background
MILWAUKEE – COLLEGE AVE. NR	55-079-0056-42602-1	SLAMS	Nitrogen Dioxide (NO_2)	Microscale	Highest Concentration
MILWAUKEE – UWM UPARK	55-079-0068-42602-1	SLAMS	Nitrogen Dioxide (NO_2)	Neighborhood	Population Exposure

*Operates May-August to support enhanced ozone monitoring

Table 24: Methods of DNR Nitrogen Dioxide Monitors

Site Name	AQS Monitor ID	Monitor Type	Method Code	Sample Analysis Description
CHIWAUKEE PRAIRIE STATELINE	55-059-0019-42602-1	SPM	256	Cavity Attenuation Phase Shift
HORICON WILDLIFE AREA	55-027-0001-42612-4	SLAMS	699	Chemiluminescence
MILWAUKEE – COLLEGE AVE. NR	55-079-0056-42602-1	SLAMS	212	Cavity Attenuation Phase Shift
MILWAUKEE – UWM UPARK	55-079-0068-42602-1	SLAMS	256	Cavity Attenuation Phase Shift

Sulfur Dioxide

Sulfur Dioxide Monitoring Requirements

The minimum monitoring requirements for SO_2 are established in Appendix D of 40 CFR Part 58. The SO_2 monitoring requirement is based on the Population Weighted Emissions Index (PWEI) for all Core Based Statistical Areas (CBSAs). The PWEI is calculated by multiplying the population of each CBSA, using the most recent census data or estimates, and the total amount of SO_2 in tons per year emitted within the CBSA area, using an aggregate of the most recent county level emissions data available in the National Emissions Inventory (NEI) for each county in each CBSA. The resulting value is divided by one million providing a PWEI value. The units are million person-tons per year. The minimum monitoring requirements based on PWEI are summarized in Tables 25 and 26. For NCore sites, SO_2 monitoring is required independent of population-based requirements.

Table 25: Sulfur Dioxide Minimum Monitoring Requirements

PWEI	Required Sites
≥1 million	3
100,000 to < 1 million	2
5,000 to < 100,000	1

Table 26: Wisconsin Sulfur Dioxide Monitoring Requirements

Core Based Statistical Area	2025 Population Estimate	2023 NEI SO_2 (tons/year)	PWEI	Minimum Requirement	2025 Sites
Minneapolis-St. Paul-Bloomington, MN-WI[1]	3,790,295	7365.9	27919	1	6
Milwaukee-Waukesha-West Allis, WI[2]	1,575,010	1109.9	1748	0	1
Madison, WI[3]	709,685	2038.3	1447	0	0
Green Bay, WI[4]	336,756	910.9	307	0	0
Duluth, MN-WI[5]	281,219	3320.9	934	0	1
Appleton, WI[6]	249,876	5005.0	1251	0	1
Racine, WI[7]	198,919	220.0	44	0	0
Eau Claire, WI[8]	176,647	127.2	22	0	0
Oshkosh-Neenah, WI[9]	174,218	147.1	26	0	0
La Crosse-Onalaska, WI-MN[10]	171,182	399.6	68	0	0
Kenosha, WI Metro Area[11]	168,448	49.1	8	0	0
Janesville-Beloit, WI[12]	166,472	69.3	12	0	0
Wausau, WI[13]	139,432	1779.9	248	0	0
Sheboygan, WI[14]	118,047	339.6	40	0	0
Fond du Lac, WI[15]	104,669	131.0	14	0	0
NCore (Horicon)-not required by population	NA	NA	NA	1	1
Rhinelander, WI-Source based monitor	NA	NA	NA	1	1

1 = Counties include: Anoka (MN), Carver (MN), Chisago (MN), Dakota (MN), Hennepin (MN), Isanti (MN), Le Sueur (MN), Mille Lacs (MN), Ramsey (MN), Scott (MN), Sherburne (MN), Washington (MN), Wright (MN), Pierce (WI), St. Croix (WI)

2 = Counties include: Milwaukee (WI), Ozaukee (WI), Washington (WI) and Waukesha (WI)

3 = Counties include: Columbia (WI), Dane (WI), Green (WI), Iowa (WI)

4 = Counties include: Brown (WI), Kewaunee (WI), Oconto (WI)

5 = Counties include: Carlton (MN), St. Louis (MN), Douglas (WI)
6 = Counties include: Calumet (WI), Outagamie (WI)
7 = Counties include: Racine (WI)
8 = Counties include: Chippewa (WI), Eau Claire (WI)
9 = Counties include: Winnebago (WI)
10 = Counties include: Houston (MN), La Crosse (WI), Vernon (WI)
11 = Counties include: Kenosha (WI)
12 = Counties include: Rock (WI)
13 = Counties include: Marathon (WI)
14 = Counties include: Sheboygan (WI)
15 = Counties include: Fond du Lac (WI)

In addition to the minimum monitoring requirements above, on August 21, 2015, EPA published its final Data Requirements Rule (DRR) for the 2010 1-hour SO_2 NAAQS (80 Fed. Reg. 51052). On July 1, 2016, the DNR notified EPA that the department would be characterizing the air quality around one DRR-listed source (The Ahlstrom-Munksjo facility (formerly Expera) in Kaukauna) using ambient monitoring. This monitor was installed and was operational by January 1, 2017. The Kaukauna site operations were administered by the facility but transferred to the DNR in February 2020 per state statute.

There are two source-oriented sites (Kaukauna and Rhinelander Tower), two non-source-oriented sites (Milwaukee-UWM UPark and Potawatomi) and one NCore site (Horicon Wildlife Area). Scales, objectives and methods of SO_2 monitors are summarized in Tables 27 and 28. Scales and objectives of monitors have been updated using current information.

Table 27: Scales and Objectives of DNR and Industrial Sulfur Dioxide Monitors

Site Name	AQS Monitor ID	Monitor Type	Parameter Description	Measurement Scale	Monitor Objective Type
KAUKAUNA	55-087-0015-42401-1	Industrial	Sulfur Dioxide (SO_2)	Neighborhood	Highest Concentration and Source Oriented
HORICON WILDLIFE AREA	55-027-0001-42401-1	SLAMS	Sulfur Dioxide (SO_2)	National/Global	General/Background
MILWAUKEE – UWM UPARK	55-079-0068-42401-1	SLAMS	Sulfur Dioxide (SO_2)	Urban	Population Exposure
POTAWATOMI	55-041-0007-42401-1	Tribal	Sulfur Dioxide (SO_2)	Regional	General/Background
RHINELANDER TOWER	55-085-0996-42401-1	SLAMS	Sulfur Dioxide (SO_2)	Neighborhood	Highest Concentration and Source Oriented

Table 28: Methods of DNR and Industrial Sulfur Dioxide Monitors

Site Name	AQS Monitor ID	Monitor Type	Method Code	Sample Analysis Description
KAUKAUNA	55-087-0015-42401-1	Industrial	100	Ultraviolet Fluorescence
HORICON WILDLIFE AREA	55-027-0001-42401-1	SLAMS	600	Ultraviolet Fluorescence
MILWAUKEE – UWM UPARK	55-079-0068-42401-1	SLAMS	100	Ultraviolet Fluorescence
POTAWATOMI	55-041-0007-42401-1	Tribal	100	Ultraviolet Fluorescence
RHINELANDER TOWER	55-085-0996-42401-1	SLAMS	100	Ultraviolet Fluorescence

Appendix B: Waivers and Approvals

Summary

The EPA establishes minimum requirements for air monitoring networks. However, the EPA can waive many of these requirements. For example, the EPA establishes the minimum sampling frequencies for $PM_{2.5}$ monitors. Deviations from these minimums may be granted by submitting requests to the EPA Regional Administrator based on factors including the historical $PM_{2.5}$ data quality assessments, the location of current $PM_{2.5}$ design value sites and regulatory data needs. Approved deviations from the minimum sampling frequencies are formalized in waivers. This appendix contains air monitoring waivers and any associated approvals.

Federal Regulation

Specific types of waivers appear in a number of sections in 40 CFR § 58.

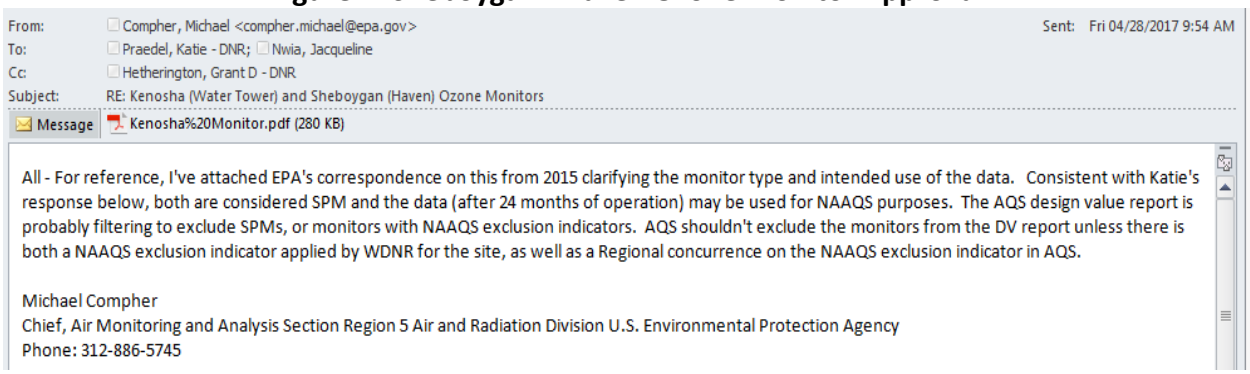
Table of Contents

Waivers and Approvals

Sheboygan - Haven (55-117-0009)

The EPA approved that after 24 months of operation the ozone monitor will retain a monitor type of SPM and the monitor measurements will be considered comparable to the ozone NAAQS.

Figure 1: Sheboygan - Haven Ozone Monitor Approval



From: Compher, Michael <compher.michael@epa.gov> Sent: Fri 04/28/2017 9:54 AM
To: Praedel, Katie - DNR; Nwia, Jacqueline
Cc: Hetherington, Grant D - DNR
Subject: RE: Kenosha (Water Tower) and Sheboygan (Haven) Ozone Monitors
Message Kenosha%20Monitor.pdf (280 KB)

All - For reference, I've attached EPA's correspondence on this from 2015 clarifying the monitor type and intended use of the data. Consistent with Katie's response below, both are considered SPM and the data (after 24 months of operation) may be used for NAAQS purposes. The AQS design value report is probably filtering to exclude SPMs, or monitors with NAAQS exclusion indicators. AQS shouldn't exclude the monitors from the DV report unless there is both a NAAQS exclusion indicator applied by WDNR for the site, as well as a Regional concurrence on the NAAQS exclusion indicator in AQS.

Michael Compher
Chief, Air Monitoring and Analysis Section Region 5 Air and Radiation Division U.S. Environmental Protection Agency
Phone: 312-886-5745

Ozone Season Waiver

The EPA approved the DNR's request to alter ozone monitoring season for the majority of the DNR monitoring sites based on historical monitoring data. All ozone monitors operate from April 1 – October 15 with the exception of year-round sites and Kenosha County sites which operate from March 1 – October 31.

In 2026, the EPA reviewed the DNR's ozone season waiver. Ozone data in March and late October for the last six years (2019-2025) was evaluated from the Chiwaukee and Horicon ozone monitoring sites, because they operate during these time periods. The analysis showed that the remainder of the state is unlikely to have elevated ozone concentrations before April 1 or after October 15. This supports the continuation of the modified ozone season for most of the ozone monitors operated by the DNR.

Figure 2: Ozone Season Waiver

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

DEC 2 1 2018

REPLY TO THE ATTENTION OF:

Ms. Gail Good
Director, Bureau of Air Management
Wisconsin Department of Natural Resources
P.O. Box 7921
Madison, Wisconsin 53707-7921

Dear Ms. Good:

The U.S. Environmental Protection Agency has reviewed the Wisconsin Department of Natural Resources' (WDNR) request of November 19, 2018 to waive ambient ozone monitoring between March 1 and March 31 for 26 ozone monitors.

EPA approves the request for 24 of the 26 ozone monitors identified in Table 1 of the WNDR's November 19, 2018 letter. EPA is disapproving the WDNR's request to waive ozone monitoring requirements in March for the Chiwaukee Prairie (55-059-0019) and Kenosha Water Tower (55-059-0025) monitoring sites in Kenosha County. These two ozone monitoring sites should continue to monitor from March 1 through October 31 (extension to October 31 was approved on December 5, 2017) to maintain consistency with both the Illinois and Indiana ozone monitoring season, since it is part of the Chicago-Naperville-Elgin, IL-IN-WI metropolitan statistical area, and Memorandum of Agreement (signed in 2017 and contained in Appendix C of Wisconsin's Annual Network Monitoring Plan) between the three states regarding monitoring in multi-state areas.

EPA is approving the shortening of the ozone season, eliminating March for most sites, because the data demonstrates that elevated ozone levels in Wisconsin during the month of March are rare. The analysis included a review of ozone data from 2012 through 2018 and consideration of the criteria in 40 C.F.R. Part 58, Appendix D, Section 4.1(i), including frequency of ozone exceedances in March, occurrences of the moderate air quality index level in March, regional consistency, and logistical issues, such as site access. In reviewing your request, EPA also considered the document "Guidelines for Selecting and Modifying the Ozone Monitoring Season Based on an 8-Hour Ozone Standard."[1]

To reiterate EPA's prior decision conveyed in our December 5, 2017 letter to WDNR, the ozone monitoring season for the Chiwaukee Prairie and Kenosha Water Tower monitors in Kenosha County extends to October 31, which is two weeks past the end of the ozone season for most of

[1] Guidelines for Selecting and Modifying the Ozone Monitoring Season, EPA's Office of Air Quality Planning and Standards (June 1998)

the other ozone monitors in Wisconsin. This two-week extension provides consistency with the States of Illinois and Indiana ozone seasons where other monitors are operated within the Chicago-Naperville, IL-IN-WI ozone nonattainment area, as well as the Memorandum of Agreement signed by all three states contained in Appendix C of WDNR's 2019 annual network plan.

If you have any questions or comments regarding this approval, please contact Michael Compher, Air Monitoring and Analysis Section Chief, at (312) 886-5745.

Sincerely,

Edward Nam
Director
Air and Radiation Division

Lake Geneva/Elkhorn Ozone Data Combination Approval

The EPA approved the DNR's request to combine ozone data from the Lake Geneva and Elkhorn sites in Walworth County.

Figure 3: Lake Geneva/Elkhorn ozone data approval letter

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

MAR 0 2 2020

REPLY TO THE ATTENTION OF

Ms. Gail Good
Director, Bureau of Air Management
Wisconsin Department of Natural Resources
P.O. Box 7921
Madison, Wisconsin 53707-7921

Dear Ms. Good:

The U.S. Environmental Protection Agency received the Wisconsin Department of Natural Resources' (WDNR) request of February 19, 2020 to combine the monitoring data for the Walworth County ozone monitoring site for design value calculations, following a site relocation from Lake Geneva (55-127-0005) to Elkhorn (55-127-0006). The relocation of the monitoring site was proposed in WDNR's 2019 Annual Air Monitoring Network Plan and approved by EPA on September 20, 2018. EPA approves WDNR's request to combine data from the two sites to allow for a contiguous data set and calculation of design values for Walworth County.

The request to combine monitoring data was reviewed by EPA against criteria in 40 CFR Part 50, Appendix U.2(c). Based on similarities between the two sites including proximity, monitoring scale, and monitoring objective, and similar local meteorology and emissions, the Elkhorn monitoring site satisfies the criteria for combining the monitoring data.

If you have any questions or comments regarding this letter, please contact Michael Compher, Air Monitoring and Analysis Section Chief, at (312) 886-5745.

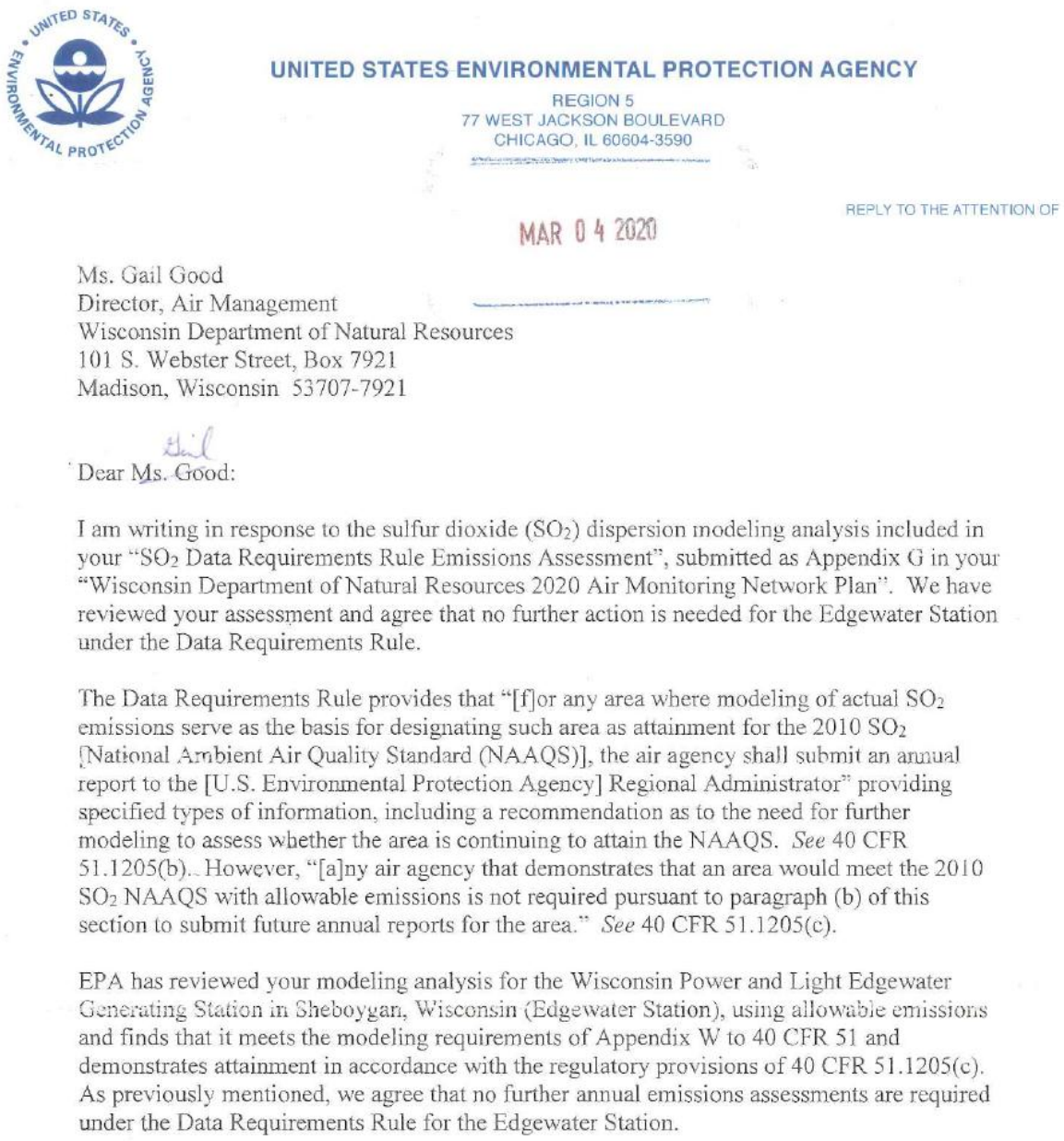
Sincerely,

John Mooney
Acting Director
Air and Radiation Division

Edgewater Station Annual Emissions Assessment Waiver

The EPA approved the DNR's modeling analysis based on allowable emissions for the Wisconsin Power and Light Edgewater Generating Station in Sheboygan, WI (Edgewater Station). This approval waives the requirement to do an annual emissions assessment for this facility as part of Appendix G.

Figure 4: Edgewater Station Annual Emissions Assessment Waiver



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF

MAR 04 2020

Ms. Gail Good
Director, Air Management
Wisconsin Department of Natural Resources
101 S. Webster Street, Box 7921
Madison, Wisconsin 53707-7921

Dear Ms. Good:

I am writing in response to the sulfur dioxide (SO_2) dispersion modeling analysis included in your "SO_2 Data Requirements Rule Emissions Assessment", submitted as Appendix G in your "Wisconsin Department of Natural Resources 2020 Air Monitoring Network Plan". We have reviewed your assessment and agree that no further action is needed for the Edgewater Station under the Data Requirements Rule.

The Data Requirements Rule provides that "[f]or any area where modeling of actual SO_2 emissions serve as the basis for designating such area as attainment for the 2010 SO_2 [National Ambient Air Quality Standard (NAAQS)], the air agency shall submit an annual report to the [U.S. Environmental Protection Agency] Regional Administrator" providing specified types of information, including a recommendation as to the need for further modeling to assess whether the area is continuing to attain the NAAQS. *See* 40 CFR 51.1205(b). However, "[a]ny air agency that demonstrates that an area would meet the 2010 SO_2 NAAQS with allowable emissions is not required pursuant to paragraph (b) of this section to submit future annual reports for the area." *See* 40 CFR 51.1205(c).

EPA has reviewed your modeling analysis for the Wisconsin Power and Light Edgewater Generating Station in Sheboygan, Wisconsin (Edgewater Station), using allowable emissions and finds that it meets the modeling requirements of Appendix W to 40 CFR 51 and demonstrates attainment in accordance with the regulatory provisions of 40 CFR 51.1205(c). As previously mentioned, we agree that no further annual emissions assessments are required under the Data Requirements Rule for the Edgewater Station.

Thank you for your work on this area. If you have any questions, please contact me at (312) 886-6043 or Sarah Arra of my staff at (312) 886-9401.

Sincerely,

John Mooney
Acting Director
Air and Radiation Division

Kaukauna Siting Waiver (55-087-0015)

The EPA approved the DNR's request for a siting waiver due to the proximity of the tree line located west of the monitoring site. The proximity of the trees is not expected to impact the measurement of the criteria pollutant (SO_2) monitored at the site.

Figure 5: Kaukauna Siting Waiver

REGION 5
CHICAGO, IL 60604

October 29, 2025

Ms. Gail Good
Director, Bureau of Air Management
Wisconsin Department of Natural Resources
P.O. Box 7921
Madison, Wisconsin 53707

Dear Ms. Good:

Thank you for your September 10, 2025, letter requesting approval of Wisconsin Department of Natural Resources' request to waive a siting criterion for the SO_2 monitoring site located in Kaukauna, Wisconsin. The U.S. Environmental Protection Agency approves the request to waive the requirement for the monitor's inlet to be at least 10 meters from the tree line.

The EPA reviewed WDNR's documentation and agrees that the proximity and direction of the tree identified in the request are unlikely to impact the measurement of SO_2 emissions from the facility.

The EPA appreciates your partnership in protecting air quality. If you have any questions, please contact Michael Compher, Air Monitoring and Analysis Supervisor, at Compher.michael@epa.gov.

Sincerely,

JOHN MOONEY

Digitally signed by JOHN MOONEY
Date: 2025.10.28 16:46:40 -05'00'

John Mooney
Director
Air and Radiation Division

Appendix C: Memorandums of Agreement

Summary

Due to the geographic monitoring boundaries determined by the EPA, Wisconsin is working collaboratively with adjacent states to meet 40 CFR 58 Appendix D, Section 2(e) minimum monitoring requirements. Memorandums of Agreement (MOAs) are designed to reaffirm that we are meeting monitoring requirements established by the EPA. The following MOA constitute this reaffirmation.

Federal Regulation

40 CFR § 58 Appendix D to Part 58 2(e) This appendix uses the statistical-based definitions for metropolitan areas provided by the Office of Management and Budget and the Census Bureau. These areas are referred to as metropolitan statistical areas (MSA), micropolitan statistical areas, core-based statistical areas (CBSA), and combined statistical areas (CSA). A CBSA associated with at least one urbanized area of 50,000 population or greater is termed a Metropolitan Statistical Area (MSA). A CBSA associated with at least one urbanized cluster of at least 10,000 population or greater is termed a Micropolitan Statistical Area. CSA consist of two or more adjacent CBSA. In this appendix, the term MSA is used to refer to a Metropolitan Statistical Area. By definition, both MSA and CSA have a high degree of integration; however, many such areas cross State or other political boundaries. MSA and CSA may also cross more than one air shed. The EPA recognizes that State or local agencies must consider MSA/CSA boundaries and their own political boundaries and geographical characteristics in designing their air monitoring networks. The EPA recognizes that there may be situations where the EPA Regional Administrator and the affected State or local agencies may need to augment or to divide the overall MSA/CSA monitoring responsibilities and requirements among these various agencies to achieve an effective network design. Full monitoring requirements apply separately to each affected State or local agency in the absence of an agreement between the affected agencies and the EPA Regional Administrator.

Table of Contents

Memorandum of Agreement with Minnesota

Memorandum of Agreement
Air Quality Monitoring for Criteria Pollutants for the
Minneapolis-St. Paul-Bloomington, MN-WI;
Duluth, MN-WI; and
La Crosse-Onalaska, WI-MN
Metropolitan Statistical Areas (MSA)

Date: May 2025

Participating Agencies:

Minnesota Pollution Control Agency (MPCA)
Environmental Analysis and Outcomes Division

Wisconsin Department of Natural Resources (WDNR)
Air Management Program

I. Purpose, Objectives and Goals

40 CFR Part 58 Appendix D Section 2 paragraph (e) states "[t]he [United States Environmental Protection Agency (EPA)] recognizes that State or local agencies must consider MSA/CSA boundaries and their own political boundaries and geographical characteristics in designing their air monitoring networks. The EPA recognizes that there may be situations where the EPA Regional Administrator and the affected State or local agencies may need to augment or to divide the overall MSA/CSA monitoring responsibilities and requirements among these various agencies to achieve an effective network design. Full monitoring requirements apply separately to each affected State or local agency in the absence of an agreement between the affected agencies and the EPA Regional Administrator."

The purpose of this Memorandum of Agreement (MOA) is to establish a Criteria Pollutants Air Quality Monitoring Agreement between MPCA and WDNR (individually a "Party" and together, the "Parties") for three Metropolitan Statistical Areas (the MSAs) (Minneapolis-St. Paul-Bloomington MN-WI; Duluth MN-WI; and La Crosse-Onalaska WI-MN) with populations greater than 50,000 that cross State boundaries between Minnesota and Wisconsin so the Parties may collectively achieve the EPA's minimum monitoring requirements for the following criteria pollutants:

- Particles of an aerodynamic diameter of 10 micrometer and less (PM_{10})
- Particles of an aerodynamic diameter of 2.5 micrometer and less ($PM_{2.5}$)
- Ozone (O_3)
- Nitrogen Dioxide (NO_2)
- Sulfur Dioxide (SO_2)
- Carbon Monoxide (CO)

- Lead (Pb)

a. Minneapolis-St. Paul-Bloomington MN-WI MSA

According to U.S. Census data, the Minneapolis-St. Paul-Bloomington MN-WI MSA had an estimated population of 3,757,952 in 2024. The MSA consists of 14 counties in Minnesota (Anoka, Carver, Chisago, Dakota, Hennepin, Isanti, Le Sueur, Mille Lacs, Ramsey, Scott, Sherburne, Sibley, Washington, Wright) and two counties in Wisconsin (Pierce, St. Croix). In 2011, MPCA and WDNR established an air monitoring MOA that included only the Minneapolis-St. Paul-Bloomington MN-WI MSA. This updated MOA will replace the 2011 MOA for the Minneapolis-St. Paul-Bloomington MN-WI MSA.

The minimum monitoring requirements according to 40 CFR Part 58, Appendix D for the estimated population of the Minneapolis-St. Paul-Bloomington MN-WI MSA are provided below along with the current number of monitors as of 2024.

Parameter	Monitors Required	2024 Monitors
$PM_{2.5}$	2	19
PM_{10}	4-8	8
Ozone	2	7
Sulfur Dioxide	1	6
Carbon Monoxide	1 Near-Road, 1 NCore	2 Near-Road, 1 NCore, 3 others
Nitrogen Dioxide	2 Near-Road, 1 Area-Wide	2 Near-Road, 3 Area-Wide
Lead	Determined by annual emissions	20

To meet the minimum monitoring requirements for the Minneapolis-St. Paul-Bloomington MN-WI MSA, the following sites will collect the required parameters during the 2025-2029 monitoring years:

County	AQS ID	Site name	**$PM_{2.5}$	**PM_{10}	Ozone	Sulfur Dioxide	Carbon Monoxide	Nitrogen Dioxide	*Lead/TSP
Anoka	27-003-1001	Cedar Creek			X				
Anoka	27-003-1002	Anoka County Airport	FCS	C	X	X	X	X	X
Anoka	27-003-6021	Federal Cartridge							Xx
Dakota	27-037-0020	Flint Hills Refinery 420				X	X	X	Xx
Dakota	27-037-0423	Flint Hills Refinery 423				X	X	X	X
Dakota	27-037-0443	Flint Hills Refinery 443				X			
Dakota	27-037-0465	Gopher Resources							Xxx

Dakota	27-037-0470	Apple Valley	Cc						
Dakota	27-037-0480	Near Road I-35	C				X	X	
Hennepin	27-053-0909	Lowry Avenue		C					X
Hennepin	27-053-0910	Pacific Street		C					X
Hennepin	27-053-0954	Hennepin Center for the Arts				X	X		
Hennepin	27-053-0962	Near Road I-35/I-94	C		X		X	X	X
Hennepin	27-053-0963	Anderson School	FCS						X
Hennepin	27-053-0966	City of Lakes Building		F					X
Hennepin	27-053-1007	Humbolt Avenue							X
Hennepin	27-053-1904	Greenway Neighborhood	C						X
Hennepin	27-053-1909	Bottineau/Marshall Ter		C					X
Hennepin	27-053-2006	St. Louis Park City Hall	Ff						
Ramsey	27-123-0866	Red Rock Road		Ff					
Ramsey	27-123-0868	Ramsey Health Center	F	C					
Ramsey	27-123-0871	Harding High School	FfC						X
Ramsey	27-123-0875	West Side							X
Ramsey	27-123-0890	Northern Iron							X
Scott	27-139-0505	B.F. Pearson School	C		X				
Washington	27-163-0436	St. Paul Park Refinery 436				X			
Washington	27-163-6016	St. Croix Research Station			X				
Wright	27-171-3201	St. Michael Elem. School	C		X				
Forest	27-095-3051	Mille Lacs Band			X				

X=representative of a single monitor

**C = $PM_{2.5}$ Continuous monitor **c = Collocated $PM_{2.5}$ Continuous monitor

**F = $PM_{2.5}$ FRM monitor **f = Collocated $PM_{2.5}$ FRM monitor

**S = $PM_{2.5}$ Speciation *x= Collocated lead/TSP monitor

b. Duluth MN-WI MSA

According to U.S. Census data, the Duluth MN-WI MSA had an estimated population of 281,815 in 2024. The MSA consists of 2 counties in Minnesota (Carlton, St. Louis) and 1 county in Wisconsin (Douglas).

The minimum monitoring requirements according to 40 CFR Part 58, Appendix D for the estimated population of the Duluth MN-WI MSA are provided below along with the current number of monitors as of 2024.

Parameter	Monitors Required	2024 monitors
$PM_{2.5}$	0	5
PM_{10}	1-2	3
Ozone	1	3
Sulfur Dioxide	0	1
Carbon Monoxide	0	0
Nitrogen Dioxide	0	1
Lead	Determined by annual emissions	4

To meet the minimum monitoring requirements for the Duluth MN-WI MSA, the following sites will collect the required parameters during the 2025-2029 monitoring years:

County	AQS ID	Site name	**$PM_{2.5}$	**PM_{10}	Ozone	Sulfur Dioxide	Carbon Monoxide	Nitrogen Dioxide	Lead/TSP
Saint Louis	27-137-0032	Oneota Street		Ff					
Saint Louis	27-137-7001	Virginia City Hall	C	F		X		X	X
Saint Louis	27-137-7549	Michigan Street							X
Saint Louis	27-137-7550	U of M-Duluth	C		X				
Saint Louis	27-137-7555	Waseca Road							Xx
Saint Louis	27-137-7554	Laura McArthur School	C						
Carlton	27-017-7417	Fond du Lac Band	C		X				
Saint Louis	27-137-0034	Voyageurs NP-Sullivan Bay	S		X				

X=representative of a single monitor

**C = $PM_{2.5}$ Continuous monitor **c = Collocated $PM_{2.5}$ Continuous monitor

**F = $PM_{2.5}$ FRM monitor **f = Collocated $PM_{2.5}$ FRM monitor

**S = $PM_{2.5}$ Speciation *x= Collocated lead/TSP

c. LaCrosse-Onalaska WI-MN MSA

According to U.S. Census data, the LaCrosse-Onalaska WI-MN MSA had an estimated population of 170,763 in 2024. The MSA consists of 1 county in Minnesota (Houston) and 1 county in Wisconsin (La Crosse).

The minimum monitoring requirements according to 40 CFR Part 58, Appendix D for the estimated population of the LaCrosse-Onalaska WI-MN MSA are provided below along with the current number of monitors as of 2024.

Parameter	Monitors Required	2024 Monitors

$PM_{2.5}$	0	0
PM_{10}	0	0
Ozone	1	1
Sulfur Dioxide	0	0
Carbon Monoxide	0	0
Nitrogen Dioxide	0	0
Lead	Determined by annual emissions	0

To meet the minimum monitoring requirements for the La Crosse WI-MN MSA, the following sites will collect the required parameters during the 2025-2029 monitoring years:

County	AQS ID	Site name	^^$PM_{2.5}$	^^PM_{10}	Ozone	Sulfur Dioxide	Carbon Monoxide	Nitrogen Dioxide	^Lead/TSP
La Crosse	55-063-0012	La Crosse DOT			X				

X=representative of a single monitor

**C = $PM_{2.5}$ Continuous monitor **c = Collocated $PM_{2.5}$ Continuous monitor

**F = $PM_{2.5}$ FRM monitor **f = Collocated $PM_{2.5}$ FRM monitor

**S = $PM_{2.5}$ Speciation *x= Collocated lead/TSP

II. Responsibilities/Actions

The Parties commit to conducting appropriate monitoring in their respective jurisdictions of the MSAs. Each Party is responsible for ensuring that its obligations under the MOA are met. As conditions warrant, the Parties may communicate to discuss monitoring activities for the MSAs. Each Party shall notify the other Party of any monitoring changes occurring within its jurisdiction in any of the MSAs as soon as practicable after learning of the need for the change(s) or prior to making the change(s). Such changes may include evictions of monitoring sites, destruction of monitoring sites due to natural disasters, or any occurrences that result in an extended (greater than a quarter) or permanent change to the monitoring network.

III. Limitations

- All commitments made in the MOA are subject to the availability of appropriated funds and each Party's budget priorities. Nothing in the MOA obligates the Parties to expend appropriations or enter any contract, assistance agreement, interagency agreement, or other financial obligation.
- The MOA is neither a fiscal nor a funds obligation document. Any endeavor involving reimbursement or contribution of funds between the Parties will be subject to separate agreements that will be affected in writing by representatives of the Parties.

- This MOA does not create any right or benefit enforceable by law or equity against the Parties, their officers or employees, or any other person. This MOA does not apply to any entity outside of the MPCA or the WDNR.
- No proprietary information or intellectual property is anticipated to arise out of this MOA.

IV. Points of Contact

The following individuals may be contacted with questions regarding this Agreement.

Ben Wolf, Air Monitoring Section Manager
Air Management-Department of Natural Resources
Phone: (414) 216-1082
Benjamin.wolf@wisconsin.gov

Kurt Anderson, Air Monitoring Unit Supervisor
Environmental Analysis and Outcomes Division-Minnesota Pollution Control Agency
Phone: (651) 757-2192; (952) 221-3910
Kurt.anderson@state.mn.us

V. Termination

This MOA will be effective when signed by all Parties (the "effective date"). This MOA may be amended at any time by the mutual written consent of both Parties. The Parties agree to review this MOA every 5 years from the effective date to determine whether the MOA should be revised, renewed, or terminated. Each Party reserves the right to terminate this MOA at any time for any reason by giving a thirty (30) days written notice prior to the date of termination.

Approvals

Minnesota Pollution Control Agency

Signed by:
By: Sandeep R. Burman 5/5/2025 | 8:03 AM CDT

Sandeep R. Burman, PG
Director, Environmental Analysis & Outcomes Division
Minnesota Pollution Control Agency

Wisconsin Department of Natural Resources

Signed by:
By: Gail E. Good 5/2/2025 | 8:33 AM CDT

Gail E. Good
Director, Air Management Program
Department of Natural Resources

Appendix D: 2026 Air Monitoring Site Descriptions

Summary

This appendix provides details on the monitoring sites operated by the DNR. Each site page includes the site name, AQS site ID, county, city, address, operating schedule, latitude, longitude, elevation and year established. A state map at the top of the page provides the approximate location of the monitoring site. A smaller scale map at the bottom of the page indicates the major roadways or other geographic features that are near the site. A table of monitoring parameters tracked in the annual network plan indicates which parameters operate at the site along with their season, frequency and monitoring objectives. A short description of the site is included along with a picture. If there are any proposed changes to a site, an additional section detailing those changes is included.

Federal Regulation

40 CFR § 58.10(a)(1) Beginning July 1, 2007, the state, or where applicable local, agency shall submit to the Regional Administrator an annual monitoring network plan which shall provide for the documentation of the establishment and maintenance of an air quality surveillance system that consists of a network of SLAMS monitoring stations that can include FRM, FEM, and ARM monitors that are part of SLAMS, NCore, CSN, PAMS, and SPM stations. The plan shall include a statement of whether the operation of each monitor meets the requirements of appendices A, B, C, D, and E of this part, where applicable. The Regional Administrator may require additional information in support of this statement. The annual monitoring network plan must be made available for public inspection and comment for at least 30 days prior to submission to the EPA and the submitted plan shall include and address, as appropriate, any received comments.

Table of Contents

Appleton

AQS Site ID: 55-087-0009

Address: 4579 N Meade Street **City:** Appleton **County:** Outagamie

Latitude: 44.30738 **Longitude**: -88.39509

Elevation: 240 (m) **Year Established:** 1995

Monitoring Parameters:

-	O_3	$PM_{2.5}$	PM_{10}	CO	SO_2	NO_2	Met	Toxics	Other
Frequency	SC	YC, YC	-	-	-	-	-	-	-
Objectives	P	G, Q	-	-	-	-	-	-	-

Frequency: S = Seasonal, Y = Year-round, C = Continuous, 1 = Daily, 3 = 1/3, 6 =1/6, 12 = 1/12
Objectives: G = General/Background, H = Highest Concentration, M = Max Ozone Concentration, NA = Not Applicable, O = Other, P = Population Exposure, Q = Quality Assurance, R = Regional Transport, S = Source Oriented

Site Description:

This year-round urban site is in an Appleton neighborhood. The $PM_{2.5}$ is collocated FEM/FEM. The sample inlets are about 5 meters above ground level and 9-10.3 meters from the nearest road. Verified through annual DNR audits, the site meets the requirements of 40 CFR 58, Appendices C, D, E and G.

Bad River Tribal School-Odanah

AQS Site ID: 55-003-0010

Address: 4579 N Meade Street **City:** Ashland **County:** Odanah

Latitude: 46.60234 **Longitude**: -90.65615

Elevation: 188 (m) **Year Established:** 2002

Monitoring Parameters:

-	O_3	$PM_{2.5}$	PM_{10}	CO	SO_2	NO_2	Met	Toxics	Other
Frequency	YC	YC	-	-	-	-	YC	-	-
Objectives	G	G	-	-	-	-	-	-	-

Frequency: S = Seasonal, Y = Year-round, C = Continuous, 1 = Daily, 3 = 1/3, 6 =1/6, 12 = 1/12
Objectives: G = General/Background, H = Highest Concentration, M = Max Ozone Concentration, NA = Not Applicable, O = Other, P = Population Exposure, Q = Quality Assurance, R = Regional Transport, S = Source Oriented

Site Description:

This tribal site is located on the Bad River Reservation adjacent to the Tribal School. The sample inlets are 220 meters from the nearest road. Meteorological includes WS/WD, barometric pressure, relative humidity, temperature, solar radiation and precipitation. Verified through annual DNR audits, the site meets the requirements of 40 CFR 58, Appendices C, D, E and G.

Bayside

AQS Site ID: 55-079-0085

Address: 601 E. Ellsworth Lane **City:** Bayside **County:** Milwaukee

Latitude: 43.181792 **Longitude**: -87.900976

Elevation: 204 (m) **Year Established:** 1984

Monitoring Parameters:

-	O_3	$PM_{2.5}$	PM_{10}	CO	SO_2	NO_2	Met	Toxics	Other
Frequency	SC	-	-	-	-	-	-	-	-
Objectives	P	-	-	-	-	-	-	-	-

Frequency: S = Seasonal, Y = Year-round, C = Continuous, 1 = Daily, 3 = 1/3, 6 =1/6, 12 = 1/12
Objectives: G = General/Background, H = Highest Concentration, M = Max Ozone Concentration, NA = Not Applicable, O = Other, P = Population Exposure, Q = Quality Assurance, R = Regional Transport, S = Source Oriented

Site Description:

This urban site is in Milwaukee County in the community of Bayside. This site is located inside Bayside Middle School. The sample inlet is 15 meters above ground level and 258 meters from the nearest road. Verified through annual DNR audits, the site meets the requirements of 40 CFR 58, Appendices C, D, E and G.

Beloit-Converse

AQS Site ID: 55-105-0030

Address: 1501 Ritsher Street **City:** Beloit **County:** Rock

Latitude: 42.51831 **Longitude**: -89.06360

Elevation: 243 (m) **Year Established:** 2013

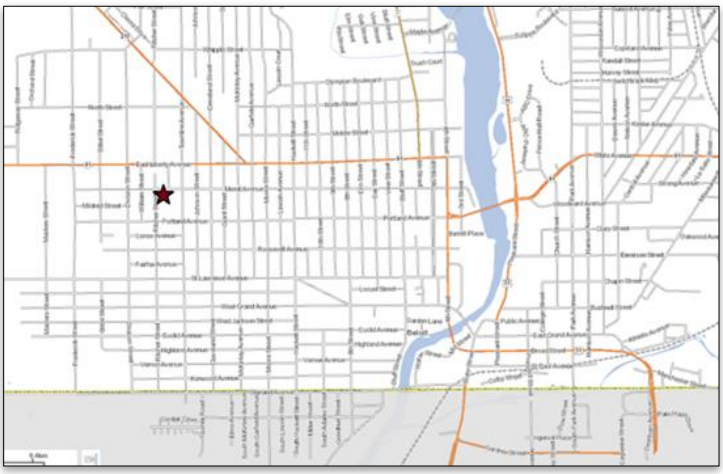
Monitoring Parameters:

-	O_3	$PM_{2.5}$	PM_{10}	CO	SO_2	NO_2	Met	Toxics	Other
Frequency	SC	-	-	-	-	-	-	-	-
Objectives	P	-	-	-	-	-	-	-	-

Frequency: S = Seasonal, Y = Year-round, C = Continuous, 1 = Daily, 3 = 1/3, 6 =1/6, 12 = 1/12
Objectives: G = General/Background, H = Highest Concentration, M = Max Ozone Concentration, NA = Not Applicable, O = Other, P = Population Exposure, Q = Quality Assurance, R = Regional Transport, S = Source Oriented

Site Description:

This suburban site is located near Converse Elementary School in Beloit. The sample inlet is 5 meters above ground level and 4.9 meters from the nearest road. Verified through annual DNR audits, the site meets the requirements of 40 CFR 58, Appendices C, D, E and G.



Chiwaukee Prairie Stateline

AQS Site ID: 55-059-0019

Address: 11838 First Court **City:** Pleasant Prairie **County:** Kenosha

Latitude: 42.50472 **Longitude**: -87.80930

Elevation: 179 (m) **Year Established:** 1987

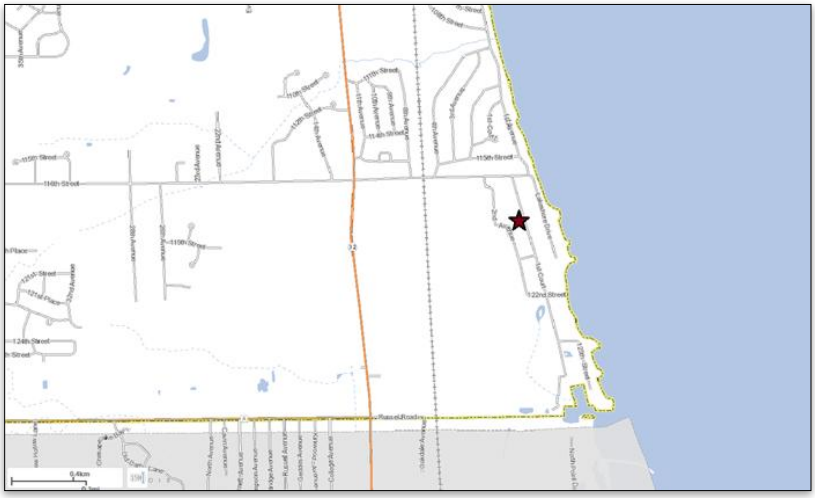
Monitoring Parameters:

-	O_3	$PM_{2.5}$	PM_{10}	CO	SO_2	NO_2	Met	Toxics	Other
Frequency	SC	YC	-	-	-	SC	YC	-	-
Objectives	M, R	R	-	-	-	S, R	-	-	-

Frequency: S = Seasonal, Y = Year-round, C = Continuous, 1 = Daily, 3 = 1/3, 6 =1/6, 12 = 1/12
Objectives: G = General/Background, H = Highest Concentration, M = Max Ozone Concentration, NA = Not Applicable, O = Other, P = Population Exposure, Q = Quality Assurance, R = Regional Transport, S = Source Oriented

Site Description:

This rural site is in the Chiwaukee Prairie, a rural area near the Wisconsin-Illinois border. The sample inlets are 5 to 8.5 meters above ground level and 13.7 meters from the nearest road. Meteorological includes WS/WD, temperature, solar radiation and seasonal precipitation. Verified through annual DNR audits, the site meets the requirements of 40 CFR 58, Appendices C, D, E and G.



Columbus

AQS Site ID: 55-021-0015

Address: N 1045 Wendt Road **City:** Columbus **County:** Columbia

Latitude: 43.31551 **Longitude**: -89.10889

Elevation: 307 (m) **Year Established:** 1988

Monitoring Parameters:

-	O_3	$PM_{2.5}$	PM_{10}	CO	SO_2	NO_2	Met	Toxics	Other
Frequency	SC	-	-	-	-	-	-	-	-
Objectives	M	-	-	-	-	-	-	-	-

Frequency: S = Seasonal, Y = Year-round, C = Continuous, 1 = Daily, 3 = 1/3, 6 =1/6, 12 = 1/12
Objectives: G = General/Background, H = Highest Concentration, M = Max Ozone Concentration, NA = Not Applicable, O = Other, P = Population Exposure, Q = Quality Assurance, R = Regional Transport, S = Source Oriented

Site Description:

This rural site is in Columbia County on Wendt Road. The sample inlet is 5 meters above ground level and 10 meters from the nearest road. Verified through annual DNR audits, the site meets the requirements of 40 CFR 58, Appendices C, D, E and G.

Devil's Lake Park

AQS Site ID: 55-111-0007

Address: E12886 Tower Road **City:** Baraboo **County:** Sauk

Latitude: 43.43510 **Longitude**: -89.67979

Elevation: 383 (m) **Year Established:** 1995

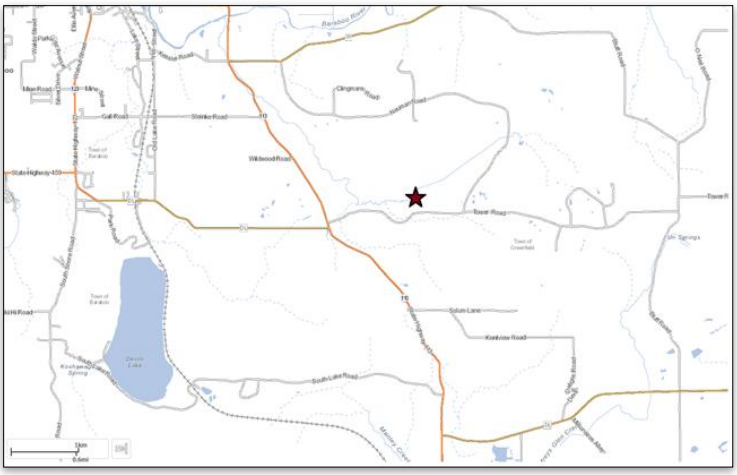
Monitoring Parameters:

-	O_3	$PM_{2.5}$	PM_{10}	CO	SO_2	NO_2	Met	Toxics	Other
Frequency	SC	YC	YC	-	-	-	YC	-	Y
Objectives	G	G	G	-	-	-	-	-	-

Frequency: S = Seasonal, Y = Year-round, C = Continuous, 1 = Daily, 3 = 1/3, 6 =1/6, 12 = 1/12
Objectives: G = General/Background, H = Highest Concentration, M = Max Ozone Concentration, NA = Not Applicable, O = Other, P = Population Exposure, Q = Quality Assurance, R = Regional Transport, S = Source Oriented

Site Description:

This rural site is located at Devils Lake State Park operates year-round. The sample inlets range from 5-6.4 meters from the ground. The inlets are 200 meters from the nearest rural road and 1,380 meters from the nearest state road. Meteorological includes WS/WD and temperature. Other parameters include MDN and NTN composite samples collected weekly. Verified through annual DNR audits, the site meets the requirements of 40 CFR 58, Appendices C, D, E and G.



Eau Claire-DOT Sign Shop

AQS Site ID: 55-035-0014

Address: 5509 Highway 53 South **City:** Eau Claire **County:** Eau Claire

Latitude: 44.76249 **Longitude**: -91.41445

Elevation: 277 (m) **Year Established:** 2011

Monitoring Parameters:

-	O_3	$PM_{2.5}$	PM_{10}	CO	SO_2	NO_2	Met	Toxics	Other
Frequency	SC	YC	YC	-	-	-	YC	-	-
Objectives	M	H	H	-	-	-	-	-	-

Frequency: S = Seasonal, Y = Year-round, C = Continuous, 1 = Daily, 3 = 1/3, 6 =1/6, 12 = 1/12
Objectives: G = General/Background, H = Highest Concentration, M = Max Ozone Concentration, NA = Not Applicable, O = Other, P = Population Exposure, Q = Quality Assurance, R = Regional Transport, S = Source Oriented

Site Description:

This site is in the corner of the Wisconsin State Patrol office parking lot, next to the Department of Transportation (DOT) sign shop. The sample inlets range from 5.0 to 6.2 meters above ground level and 145 meters from the nearest roadway. Meteorological includes WS/WD and temperature. Verified through annual DNR audits, the site meets the requirements of 40 CFR 58, Appendices C, D, E and G.

Elkhorn

AQS Site ID: 55-127-0006

Address: Near W3905 County Road NN **City:** Elkhorn **County:** Walworth

Latitude: 42.66218 **Longitude**: -88.48703

Elevation: 316 (m) **Year Established:** 2019

Monitoring Parameters:

-	O_3	$PM_{2.5}$	PM_{10}	CO	SO_2	NO_2	Met	Toxics	Other
Frequency	SC	-	-	-	-	-	-	-	-
Objectives	M	-	-	-	-	-	-	-	-

Frequency: S = Seasonal, Y = Year-round, C = Continuous, 1 = Daily, 3 = 1/3, 6 =1/6, 12 = 1/12
Objectives: G = General/Background, H = Highest Concentration, M = Max Ozone Concentration, NA = Not Applicable, O = Other, P = Population Exposure, Q = Quality Assurance, R = Regional Transport, S = Source Oriented

Site Description:

This site is located on the eastern edge of Elkhorn in a rural area. The sample inlet is 5.2 meters above ground level and 44 meters from the nearest road. Verified through annual DNR audits, the site meets the requirements of 40 CFR 58, Appendices C, D, E and G.

Fond du Lac

AQS Site ID: 55-039-0006

Address: N4010 Kelly Road **City:** Byron **County:** Fond du Lac

Latitude: 43.68740 **Longitude**: -88.42205

Elevation: 322 (m) **Year Established:** 1994

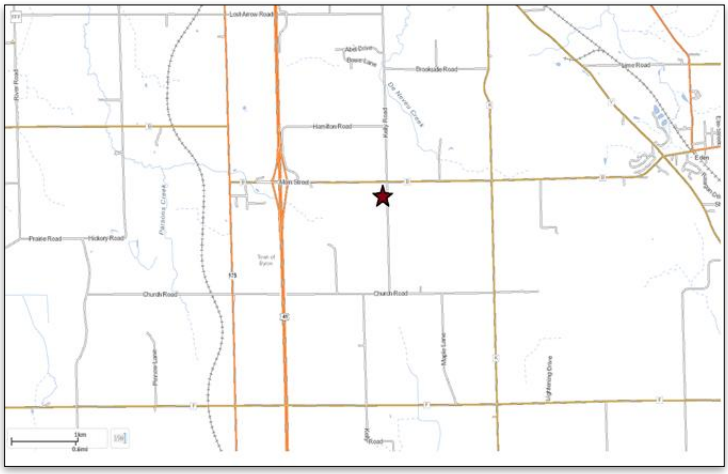
Monitoring Parameters:

-	O_3	$PM_{2.5}$	PM_{10}	CO	SO_2	NO_2	Met	Toxics	Other
Frequency	SC	-	-	-	-	-	-	-	-
Objectives	M	-	-	-	-	-	-	-	-

Frequency: S = Seasonal, Y = Year-round, C = Continuous, 1 = Daily, 3 = 1/3, 6 =1/6, 12 = 1/12
Objectives: G = General/Background, H = Highest Concentration, M = Max Ozone Concentration, NA = Not Applicable, O = Other, P = Population Exposure, Q = Quality Assurance, R = Regional Transport, S = Source Oriented

Site Description:

This rural site is in a farm field in the town of Byron. The sample inlet is 5 meters above ground level and 32.5 meters from the nearest road. Verified through annual DNR audits, the site meets the requirements of 40 CFR 58, Appendices C, D, E and G.



Grafton

AQS Site ID: 55-089-0008

Address: 1866 North Port Washington Road **City:** Grafton **County:** Ozaukee

Latitude: 43.34317 **Longitude**: -87.92087

Elevation: 230 (m) **Year Established:** 1991

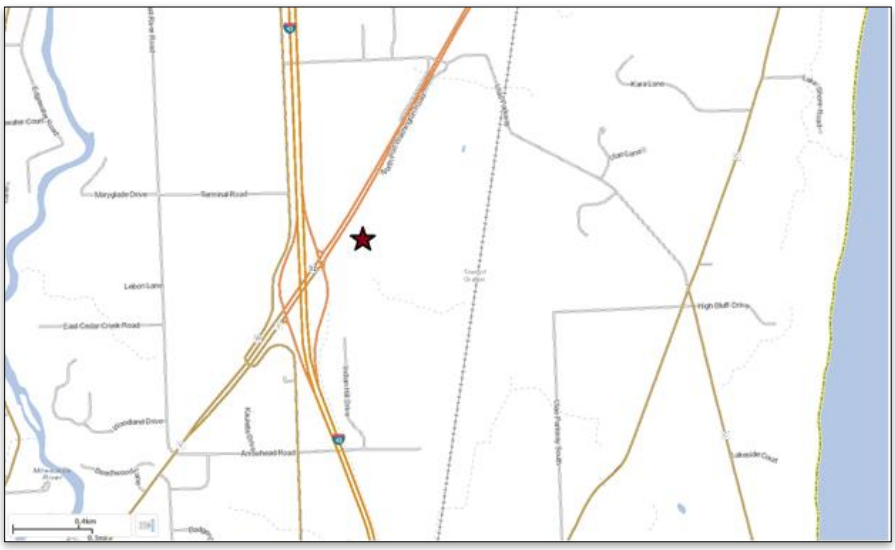
Monitoring Parameters:

-	O_3	$PM_{2.5}$	PM_{10}	CO	SO_2	NO_2	Met	Toxics	Other
Frequency	SC	-	-	-	-	-	SC	-	-
Objectives	M	-	-	-	-	-	-	-	-

Frequency: S = Seasonal, Y = Year-round, C = Continuous, 1 = Daily, 3 = 1/3, 6 =1/6, 12 = 1/12
Objectives: G = General/Background, H = Highest Concentration, M = Max Ozone Concentration, NA = Not Applicable, O = Other, P = Population Exposure, Q = Quality Assurance, R = Regional Transport, S = Source Oriented

Site Description:

This rural site is located off Highway I-43, next to the WE Energies landfill. The sample inlet is 5 meters above ground level and 44 meters from the nearest road. Seasonal meteorological parameters include WS/WD and temperature. Verified through annual DNR audits, the site meets the requirements of 40 CFR 58, Appendices C, D, E and G.



Green Bay East High

AQS Site ID: 55-009-0005

Address: 1415 Walnut Street **City:** Green Bay **County:** Brown

Latitude: 44.50729 **Longitude**: -87.99344

Elevation: 180 (m) **Year Established:** 1971

Monitoring Parameters:

-	O_3	$PM_{2.5}$	PM_{10}	CO	SO_2	NO_2	Met	Toxics	Other
Frequency	-	YC	-	-	-	-	-	-	Y6
Objectives	-	H	-	-	-	-	-	-	-

Frequency: S = Seasonal, Y = Year-round, C = Continuous, 1 = Daily, 3 = 1/3, 6 =1/6, 12 = 1/12
Objectives: G = General/Background, H = Highest Concentration, M = Max Ozone Concentration, NA = Not Applicable, O = Other, P = Population Exposure, Q = Quality Assurance, R = Regional Transport, S = Source Oriented

Site Description:

This site is located on the rooftop of Green Bay East High School. The sample inlets are 11 meters above the ground and 85 meters from the nearest road. Other parameters include CSN monitoring on a 1/6 schedule. Verified through annual DNR audits, the site meets the requirements of 40 CFR 58, Appendices C, D, E and G.

Green Bay UW

AQS Site ID: 55-009-0026

Address: East Circle Drive **City:** Green Bay **County:** Brown

Latitude: 44.53098 **Longitude**: -87.90799

Elevation: 213 (m) **Year Established:** 1994

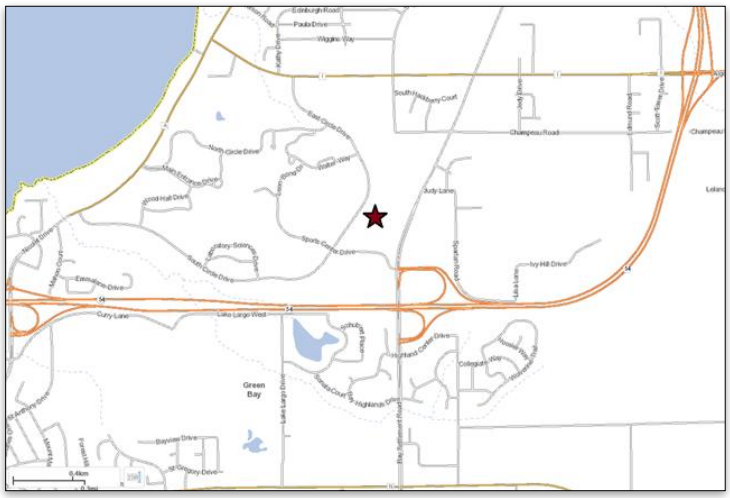
Monitoring Parameters:

-	O_3	$PM_{2.5}$	PM_{10}	CO	SO_2	NO_2	Met	Toxics	Other
Frequency	SC	-	-	-	-	-	-	-	-
Objectives	P	-	-	-	-	-	-	-	-

Frequency: S = Seasonal, Y = Year-round, C = Continuous, 1 = Daily, 3 = 1/3, 6 =1/6, 12 = 1/12
Objectives: G = General/Background, H = Highest Concentration, M = Max Ozone Concentration, NA = Not Applicable, O = Other, P = Population Exposure, Q = Quality Assurance, R = Regional Transport, S = Source Oriented

Site Description:

This site is located behind the University of Wisconsin—Green Bay campus. The sample inlet is 5 meters above ground level and 600 meters from the nearest road. Verified through annual DNR audits, the site meets the requirements of 40 CFR 58, Appendices C, D, E and G



Harrington Beach

AQS Site ID: 55-089-0009

Address: 531 Highway D **City:** Belgium **County:** Ozaukee

Latitude: 43.49830 **Longitude**: -87.81020

Elevation: 208 (m) **Year Established:** 1994

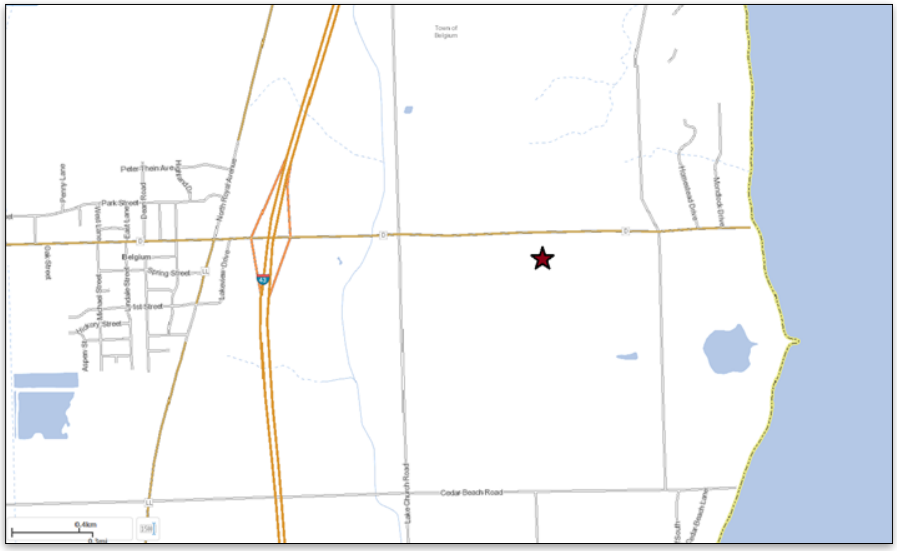
Monitoring Parameters:

-	O_3	$PM_{2.5}$	PM_{10}	CO	SO_2	NO_2	Met	Toxics	Other
Frequency	SC	YC	-	-	-	-	YC	-	YC
Objectives	M	R	-	-	-	-	-	-	-

Frequency: S = Seasonal, Y = Year-round, C = Continuous, 1 = Daily, 3 = 1/3, 6 =1/6, 12 = 1/12
Objectives: G = General/Background, H = Highest Concentration, M = Max Ozone Concentration, NA = Not Applicable, O = Other, P = Population Exposure, Q = Quality Assurance, R = Regional Transport, S = Source Oriented

Site Description:

This rural site is located at Harrington Beach State Park. The sample inlets range from 3-5 meters above ground level and 34 meters from the nearest road. Meteorological parameters include WS/WD and temperature. Other parameters include an aethalometer measuring black carbon. Verified through annual DNR audits, the site meets the requirements of 40 CFR 58, Appendices C, D, E and G.



Ho-Chunk Nation Black River Falls

AQS Site ID: 55-053-2002

Address: N7289 Five Horned Avenue **City:** Black River Falls **County:** Jackson

Latitude: 44.33466 **Longitude**: -90.78680

Elevation: 264 (m) **Year Established:** 2020

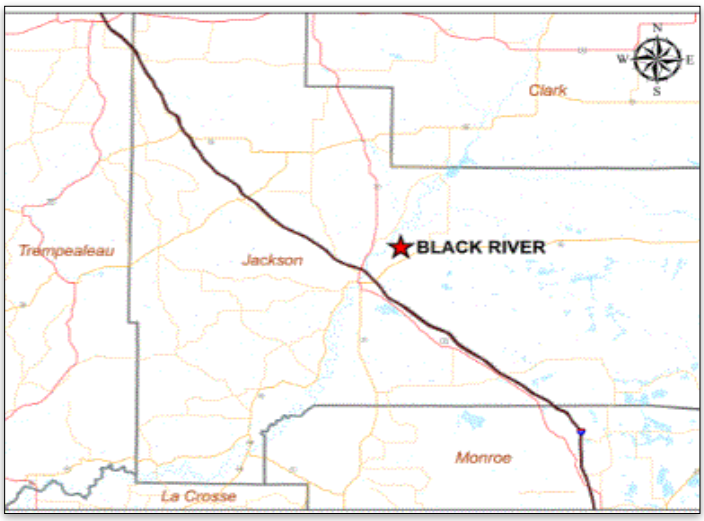
Monitoring Parameters:

-	O_3	$PM_{2.5}$	PM_{10}	CO	SO_2	NO_2	Met	Toxics	Other
Frequency	-	YC	-	-	-	-	-	-	-
Objectives	-	G	-	-	-	-	-	-	-

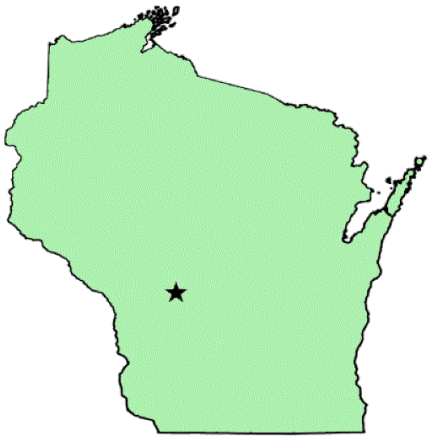
Frequency: S = Seasonal, Y = Year-round, C = Continuous, 1 = Daily, 3 = 1/3, 6 =1/6, 12 = 1/12
Objectives: G = General/Background, H = Highest Concentration, M = Max Ozone Concentration, NA = Not Applicable, O = Other, P = Population Exposure, Q = Quality Assurance, R = Regional Transport, S = Source Oriented

Site Description:

This tribal site is located on the Ho-Chunk Nation reservation northeast of Black River Falls. The sample inlet is 5 meters above ground level and 46 meters from the nearest road. Verified through annual DNR audits, the site meets the requirements of 40 CFR 58, Appendices C, D, E and G.



Ho-Chunk Nation Tomah



AQS Site ID: 55-081-2001

Address: 10750 County Hwy N **City:** Tomah **County:** Monroe

Latitude: 44.02086 **Longitude**: -90.40161

Elevation: 282 (m) **Year Established:** 2020

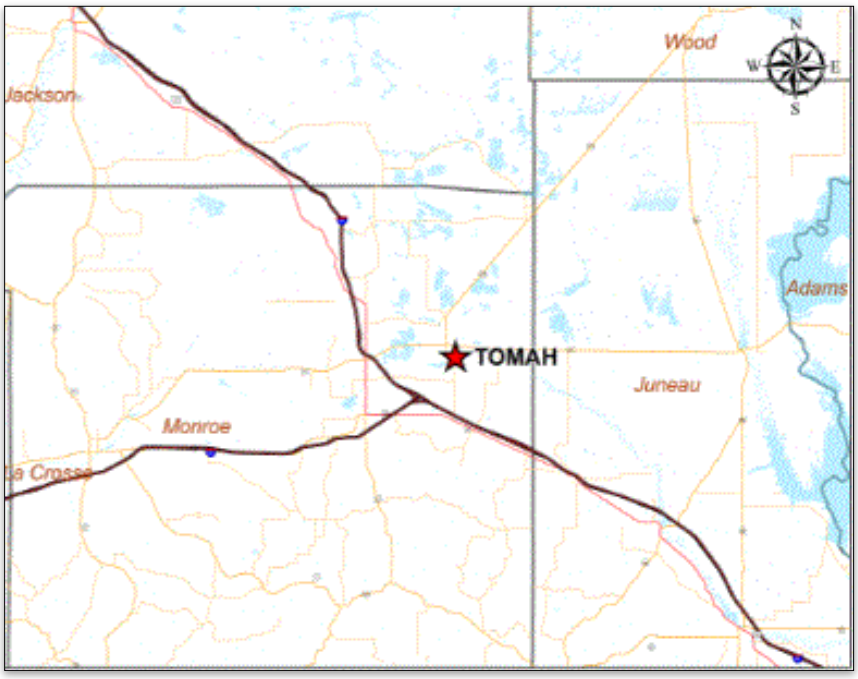
Monitoring Parameters:

-	O_3	$PM_{2.5}$	PM_{10}	CO	SO_2	NO_2	Met	Toxics	Other
Frequency	-	YC	-	-	-	-	-	-	-
Objectives	-	G	-	-	-	-	-	-	-

Frequency: S = Seasonal, Y = Year-round, C = Continuous, 1 = Daily, 3 = 1/3, 6 =1/6, 12 = 1/12
Objectives: G = General/Background, H = Highest Concentration, M = Max Ozone Concentration, NA = Not Applicable, O = Other, P = Population Exposure, Q = Quality Assurance, R = Regional Transport, S = Source Oriented

Site Description:

This tribal site is located on the Ho-Chunk Nation reservation east of Tomah. The sample inlet is 5 meters above ground level and 210 meters from nearest state road. Verified through annual DNR audits, the site meets the requirements of 40 CFR 58, Appendices C, D, E and G.



Horicon Wildlife Area

AQS Site ID: 55-027-0001

Address: 1298 N. Palmatory Street **City:** Horicon **County:** Dodge

Latitude: 43.46611 **Longitude**: -88.62111

Elevation: 267 (m) **Year Established:** 1982

Monitoring Parameters:

-	O_3	$PM_{2.5}$	PM_{10}	CO	SO_2	NO_y	Met	Toxics	Other
Frequency	YC	YC, Y3	YC	YC	YC	YC	YC	-	Y3
Objectives	G	G, Q	G	G	G	O	-	-	-

Frequency: S = Seasonal, Y = Year-round, C = Continuous, 1 = Daily, 3 = 1/3, 6 =1/6, 12 = 1/12
Objectives: G = General/Background, H = Highest Concentration, M = Max Ozone Concentration, NA = Not Applicable, O = Other, P = Population Exposure, Q = Quality Assurance, R = Regional Transport, S = Source Oriented

Site Description:

This rural site located at the Horicon Marsh State Wildlife Area is part of the NCore network. The $PM_{2.5}$ FEM is the primary monitor and the FRM secondary meets NCore requirements. Other parameters include CSN sampling on a 1/3 schedule. Meteorological parameters include WS/WD, RH, BP, temperature and seasonal precipitation. The sample inlets range from 3-10 meters above ground level and are 42 meters from a rural road. Verified through annual DNR audits, the site meets the requirements of 40 CFR 58, Appendices C, D, E and G.

Jefferson-Laatsch

AQS Site ID: 55-055-0009

Address: N4440 Laatsch Lane **City:** Jefferson **County:** Jefferson

Latitude: 43.00340 **Longitude**: -88.82830

Elevation: 240 (m) **Year Established:** 2013

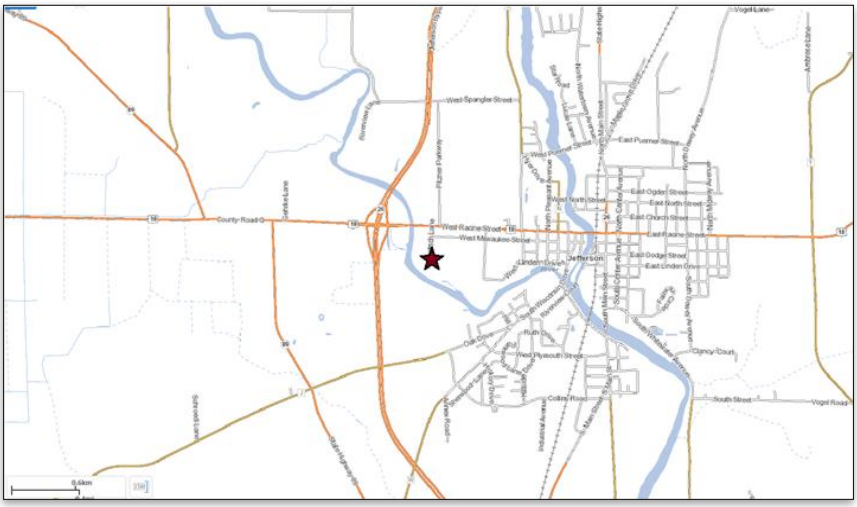
Monitoring Parameters:

-	O_3	$PM_{2.5}$	PM_{10}	CO	SO_2	NO_2	Met	Toxics	Other
Frequency	SC	-	-	-	-	-	-	-	-
Objectives	G, R	-	-	-	-	-	-	-	-

Frequency: S = Seasonal, Y = Year-round, C = Continuous, 1 = Daily, 3 = 1/3, 6 =1/6, 12 = 1/12
Objectives: G = General/Background, H = Highest Concentration, M = Max Ozone Concentration, NA = Not Applicable, O = Other, P = Population Exposure, Q = Quality Assurance, R = Regional Transport, S = Source Oriented

Site Description:

This site is at the end of Laatsch Lane and west of Jefferson Elementary School. The sample inlet is 4 meters above ground level and 90 meters from the nearest road. Verified through annual DNR audits, the site meets the requirements of 40 CFR 58, Appendices C, D, E and G.



Kaukauna

AQS Site ID: 55-087-0015

Address: 601 Plank Road **City:** Kaukauna **County:** Outagamie

Latitude: 44.28930 **Longitude**: -88.25219

Elevation: 205 (m) **Year Established:** 2017

Monitoring Parameters:

-	O_3	$PM_{2.5}$	PM_{10}	CO	SO_2	NO_2	Met	Toxics	Other
Frequency	-	-	-	-	YC	-	YC	-	-
Objectives	-	-	-	-	S	-	-	-	-

Frequency: S = Seasonal, Y = Year-round, C = Continuous, 1 = Daily, 3 = 1/3, 6 =1/6, 12 = 1/12
Objectives: G = General/Background, H = Highest Concentration, M = Max Ozone Concentration, NA = Not Applicable, O = Other, P = Population Exposure, Q = Quality Assurance, R = Regional Transport, S = Source Oriented

Site Description:

This site is located north of the Ahlstrom-Munksjo Kaukauna facility at a quarry entrance on Plank Road. Model results identified this location as having the highest normalized design value for SO_2. The sample inlet is 5.8 meters above ground level and 10 meters from the nearest road. Meteorological parameters include WS/WD and temperature. Verified through annual DNR audits, the site meets the requirements of 40 CFR 58, Appendices C, D, E and G or has an EPA approved waiver on file.

Kenosha-Water Tower

AQS Site ID: 55-059-0025

Address: 4504 64th Avenue **City:** Kenosha **County:** Kenosha

Latitude: 42.59560 **Longitude**: -87.88576

Elevation: 222 (m) **Year Established:** 2013

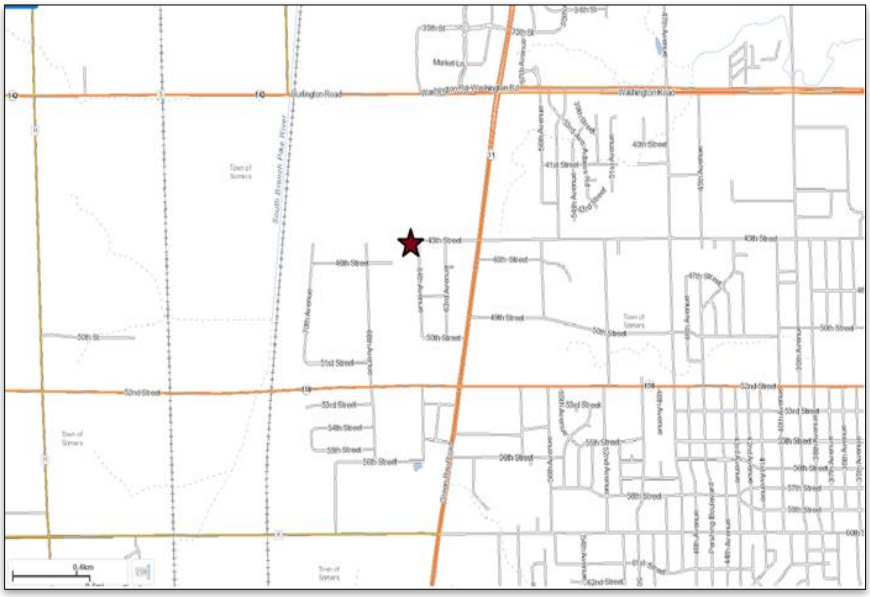
Monitoring Parameters:

-	O_3	$PM_{2.5}$	PM_{10}	CO	SO_2	NO_2	Met	Toxics	Other
Frequency	SC	-	-	-	-	-	SC	-	-
Objectives	P	-	-	-	-	-	-	-	-

Frequency: S = Seasonal, Y = Year-round, C = Continuous, 1 = Daily, 3 = 1/3, 6 =1/6, 12 = 1/12
Objectives: G = General/Background, H = Highest Concentration, M = Max Ozone Concentration, NA = Not Applicable, O = Other, P = Population Exposure, Q = Quality Assurance, R = Regional Transport, S = Source Oriented

Site Description:

This site is located just east of Green Bay Road and north of the City of Kenosha. The sample inlet is 5 meters above ground level and 36 meters from the nearest road. Seasonal meteorological parameters include WS/WD and temperature. Verified through annual DNR audits, the site meets the requirements of 40 CFR 58, Appendices A, C, D, E and G.



Kewaunee

AQS Site ID: 55-061-0002

Address: 1630 Milwaukee Street **City:** Kewaunee **County:** Kewaunee

Latitude: 44.44312 **Longitude**: -87.50525

Elevation: 203 (m) **Year Established:** 1994

Monitoring Parameters:

-	O_3	$PM_{2.5}$	PM_{10}	CO	SO_2	NO_2	Met	Toxics	Other
Frequency	SC	-	-	-	-	-	-	-	-
Objectives	R, M	-	-	-	-	-	-	-	-

Frequency: S = Seasonal, Y = Year-round, C = Continuous, 1 = Daily, 3 = 1/3, 6 =1/6, 12 = 1/12
Objectives: G = General/Background, H = Highest Concentration, M = Max Ozone Concentration, NA = Not Applicable, O = Other, P = Population Exposure, Q = Quality Assurance, R = Regional Transport, S = Source Oriented

Site Description:

This site is located on a bluff over Lake Michigan next to a farm field. The sample inlet is 6 meters above ground level and 83 meters from the nearest road. Verified through annual DNR audits, the site meets the requirements of 40 CFR 58, Appendices C, D, E and G.

La Crosse-DOT Building

AQS Site ID: 55-063-0012

Address: 3550 Mormon Coulee Road **City:** La Crosse **County:** La Crosse

Latitude: 43.77750 **Longitude**: -91.2269

Elevation: 201 (m) **Year Established:** 2005

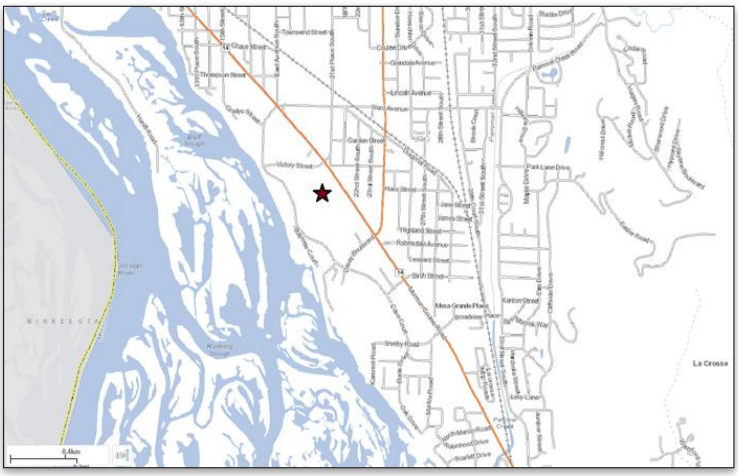
Monitoring Parameters:

-	O_3	$PM_{2.5}$	PM_{10}	CO	SO_2	NO_2	Met	Toxics	Other
Frequency	SC	-	-	-	-	-	-	-	-
Objectives	M	-	-	-	-	-	-	-	-

Frequency: S = Seasonal, Y = Year-round, C = Continuous, 1 = Daily, 3 = 1/3, 6 =1/6, 12 = 1/12
Objectives: G = General/Background, H = Highest Concentration, M = Max Ozone Concentration, NA = Not Applicable, O = Other, P = Population Exposure, Q = Quality Assurance, R = Regional Transport, S = Source Oriented

Site Description:

This site is located on a Wisconsin Department of Transportation lot. The sample inlet is 5 meters above ground level and 113 meters from the nearest road. Verified through annual DNR audits, the site meets the requirements of 40 CFR 58, Appendices C, D, E and G.



Lake Dubay

AQS Site ID: 55-073-0012

Address: 1804 Bergen Road **City:** Mosinee **County:** Marathon

Latitude: 44.70735 **Longitude**: -89.77192

Elevation: 383 (m) **Year Established:** 1991

Monitoring Parameters:

-	O_3	$PM_{2.5}$	PM_{10}	CO	SO_2	NO_2	Met	Toxics	Other
Frequency	SC	YC	-	-	-	-	-	-	-
Objectives	G	G	-	-	-	-	-	-	-

Frequency: S = Seasonal, Y = Year-round, C = Continuous, 1 = Daily, 3 = 1/3, 6 =1/6, 12 = 1/12
Objectives: G = General/Background, H = Highest Concentration, M = Max Ozone Concentration, NA = Not Applicable, O = Other, P = Population Exposure, Q = Quality Assurance, R = Regional Transport, S = Source Oriented

Site Description:

This site is located near Lake DuBay in Marathon County. The sample inlets range from 5.4 - 6 meters above ground level and 16.8 meters from the nearest road. Verified through annual DNR audits, the site meets the requirements of 40 CFR 58, Appendices C, D, E and G.

Madison East

AQS Site ID: 55-025-0041

Address: 2302 Hoard Street **City:** Madison **County:** Dane

Latitude: 43.10101 **Longitude**: -89.35768

Elevation: 259 (m) **Year Established:** 1999

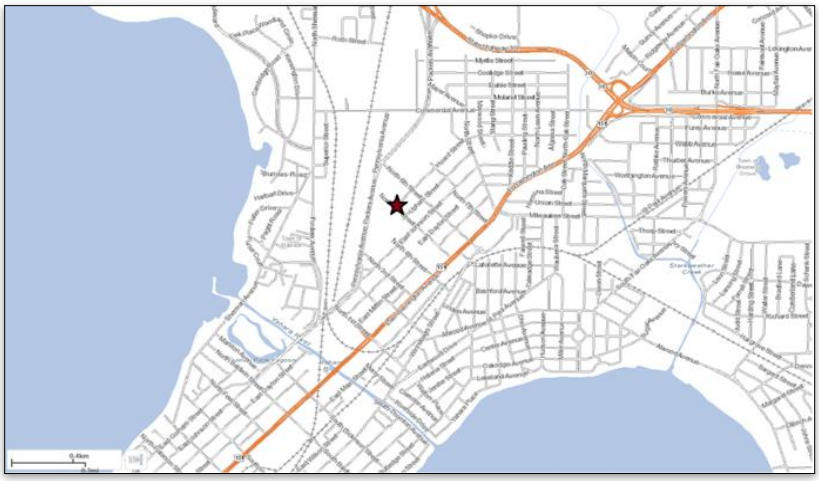
Monitoring Parameters:

-	O_3	$PM_{2.5}$	PM_{10}	CO	SO_2	NO_2	Met	Toxics	Other
Frequency	SC	YC, Y6	-	-	-	-	YC	-	Y6
Objectives	P	P, Q	-	-	-	-	-	-	-

Frequency: S = Seasonal, Y = Year-round, C = Continuous, 1 = Daily, 3 = 1/3, 6 =1/6, 12 = 1/12
Objectives: G = General/Background, H = Highest Concentration, M = Max Ozone Concentration, NA = Not Applicable, O = Other, P = Population Exposure, Q = Quality Assurance, R = Regional Transport, S = Source Oriented

Site Description:

This urban site is located next to the Madison East High School sports field. The sample inlets range from 5-6.1 meters above ground level and 43 meters from nearest public road. The $PM_{2.5}$ FEM monitor is collocated with a $PM_{2.5}$ FRM monitor that samples on a 1/6 schedule. Meteorological parameters include WS/WD, temperature and seasonal precipitation. Other parameters include CSN that samples on a 1/6 schedule. Verified through annual DNR audits, the site meets the requirements of 40 CFR 58, Appendices C, D, E and G.



Madison University Avenue Well #6

AQS Site ID: 55-025-0047

Address: 2757 University Avenue **City:** Madison **County:** Dane

Latitude: 43.07378 **Longitude**: -89.43595

Elevation: 266 (m) **Year Established:** 1992

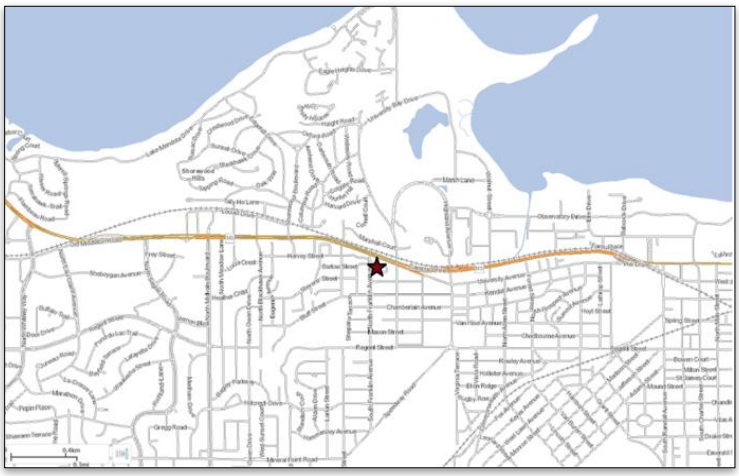
Monitoring Parameters:

-	O_3	$PM_{2.5}$	PM_{10}	CO	SO_2	NO_2	Met	Toxics	Other
Frequency	-	YC	YC	-	-	-	-	-	-
Objectives	-	H	P	-	-	-	-	-	-

Frequency: S = Seasonal, Y = Year-round, C = Continuous, 1 = Daily, 3 = 1/3, 6 =1/6, 12 = 1/12
Objectives: G = General/Background, H = Highest Concentration, M = Max Ozone Concentration, NA = Not Applicable, O = Other, P = Population Exposure, Q = Quality Assurance, R = Regional Transport, S = Source Oriented

Site Description:

This urban site is located on top of a City of Madison utility building. The sample inlet is 6 meters above ground level and 12 meters from the nearest road. Verified through annual DNR audits, the site meets the requirements of 40 CFR 58, Appendices C, D, E and G.



Manitowoc Woodland Dunes

AQS Site ID: 55-071-0007

Address: Near 2193 East Goodwin Road **City:** Two Rivers **County:** Manitowoc

Latitude: 44.13862 **Longitude**: -87.61612

Elevation: 182 (m) **Year Established:** 1994

Monitoring Parameters:

-	O_3	$PM_{2.5}$	PM_{10}	CO	SO_2	NO_2	Met	Toxics	Other
Frequency	SC	-	-	-	-	-	SC	-	-
Objectives	R	-	-	-	-	-	-	-	-

Frequency: S = Seasonal, Y = Year-round, C = Continuous, 1 = Daily, 3 = 1/3, 6 =1/6, 12 = 1/12
Objectives: G = General/Background, H = Highest Concentration, M = Max Ozone Concentration, NA = Not Applicable, O = Other, P = Population Exposure, Q = Quality Assurance, R = Regional Transport, S = Source Oriented

Site Description:

This rural site is located at the Woodland Dunes Nature Center & Preserve in Two Rivers. The sample inlet is 6 meters above ground level and 20 meters from the nearest road. Seasonal meteorological parameters include WS/WD and temperature. Verified through annual DNR audits, the site meets the requirements of 40 CFR 58, Appendices C, D, E and G.

Milwaukee-College Avenue Near Road

AQS Site ID: 55-079-0056

Address: 1400 W. College Avenue **City:** Milwaukee **County:** Milwaukee

Latitude: 42.93257 **Longitude**: -87.93434

Elevation: 228 (m) **Year Established:** 2013

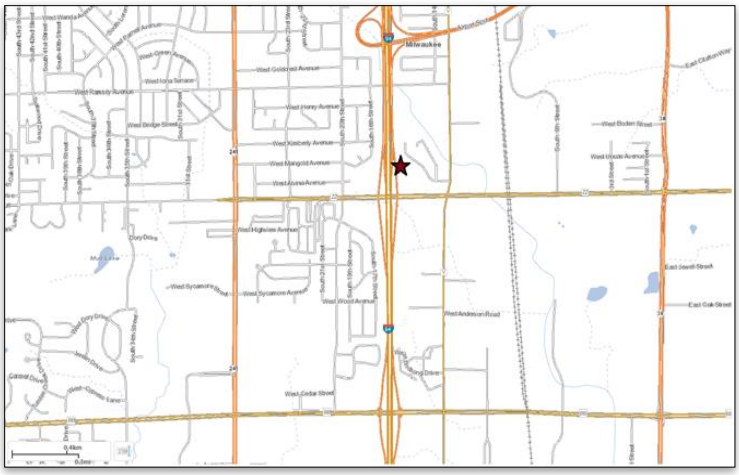
Monitoring Parameters:

-	O_3	$PM_{2.5}$	PM_{10}	CO	SO_2	NO_2	Met	Toxics	Other
Frequency	-	YC	YC	YC	-	YC	YC	-	YC
Objectives	-	P	P	-	H	P	-	-	-

Frequency: S = Seasonal, Y = Year-round, C = Continuous, 1 = Daily, 3 = 1/3, 6 =1/6, 12 = 1/12
Objectives: G = General/Background, H = Highest Concentration, M = Max Ozone Concentration, NA = Not Applicable, O = Other, P = Population Exposure, Q = Quality Assurance, R = Regional Transport, S = Source Oriented

Site Description:

This near-road site is located near the I-94 entrance ramp at College Avenue in the Park and Ride area. The sample inlets are 5 meters above ground level and 14 meters from the nearest road. Given its proximity to a major interstate, this site is influenced by transportation pollution sources. Meteorological parameters include WS/WD and temperature. Other parameters include an aethalometer measuring black carbon. Verified through annual DNR audits, the site meets the requirements of 40 CFR 58, Appendices C, D, E and G.



Milwaukee Sixteenth Street Health Center

AQS Site ID: 55-079-0010

Address: 1337 South 16th Street **City:** Milwaukee **County:** Milwaukee

Latitude: 43.01724 **Longitude**: -87.93369

Elevation: 192 (m) **Year Established:** 1997

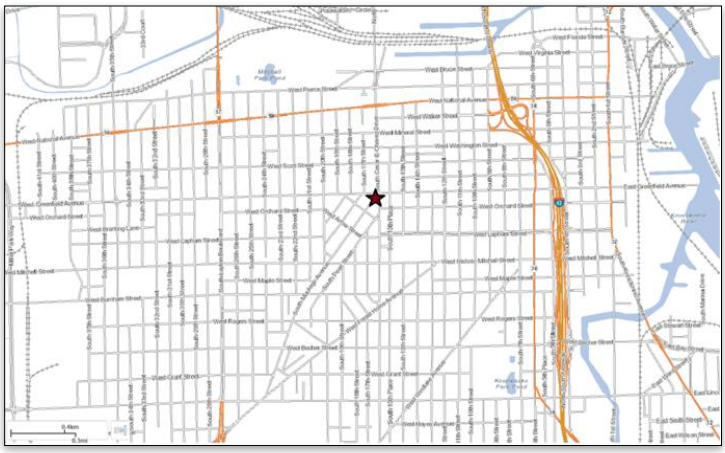
Monitoring Parameters:

-	O_3	$PM_{2.5}$	PM_{10}	CO	SO_2	NO_2	Met	Toxics	Other
Frequency	SC	YC, Y3	Y6, Y6	-	-	-	YC	Y6	Y3, YC
Objectives	P	H, Q	P, Q	-	-	-	-	-	-

Frequency: S = Seasonal, Y = Year-round, C = Continuous, 1 = Daily, 3 = 1/3, 6 =1/6, 12 = 1/12
Objectives: G = General/Background, H = Highest Concentration, M = Max Ozone Concentration, NA = Not Applicable, O = Other, P = Population Exposure, Q = Quality Assurance, R = Regional Transport, S = Source Oriented

Site Description:

This urban site is located on the roof of the Health Center Building on the corner of South Cesar E Chavez Drive (16th Street) and Greenfield Avenue. Sample inlets are 10-14 meters above ground level and 12 meters from the nearest road. The $PM_{2.5}$ FEM monitor is collocated with a $PM_{2.5}$ FRM monitor that samples on a 1/3 schedule due to being an STN CSN site. Other parameters include CSN that samples on a 1/3 schedule and Hg monitoring. PM_{10} is collocated FRM/FRM monitors that sample on a 1/6 schedule. Toxics include VOCs, carbonyls and metals on a 1/6 schedule and QC samples as prescribed in the applicable QAPPs. Meteorological parameters include WS/WD. Verified through annual DNR audits, the site meets the requirements of 40 CFR 58, Appendices C, D, E and G.



Milwaukee UWM UPark

AQS Site ID: 55-079-0068

Address: 4372 N. Humboldt Boulevard **City:** Milwaukee **County:** Milwaukee

Latitude: 43.09456 **Longitude**: -87.90144

Elevation: 184 (m) **Year Established:** 2021

Monitoring Parameters:

-	O_3	$PM_{2.5}$	PM_{10}	CO	SO_2	NO_2	Met	Toxics	Other
Frequency	SC	-	-	-	YC	YC	YC	-	-
Objectives	P	-	-	-	P	P, H	-	-	-

Frequency: S = Seasonal, Y = Year-round, C = Continuous, 1 = Daily, 3 = 1/3, 6 =1/6, 12 = 1/12
Objectives: G = General/Background, H = Highest Concentration, M = Max Ozone Concentration, NA = Not Applicable, O = Other, P = Population Exposure, Q = Quality Assurance, R = Regional Transport, S = Source Oriented

Site Description:

This urban site is installed in the UW-Milwaukee Park & Ride lot. Sample inlets are 5 meters above ground and 119 meters from the nearest road. Meteorological parameters include WS/WD, temperature and barometric pressure. Verified through annual DNR audits, the site meets the requirements of 40 CFR 58, Appendices C, D, E and G.

Newport Park

AQS Site ID: 55-029-0004

Address: 475 Newport Park Road **City:** Ellison Bay **County:** Door

Latitude: 45.23840 **Longitude**: -86.99400

Elevation: 192 (m) **Year Established:** 1989

Monitoring Parameters:

-	O_3	$PM_{2.5}$	PM_{10}	CO	SO_2	NO_2	Met	Toxics	Other
Frequency	SC	-	-	-	-	-	SC	-	-
Objectives	R	-	-	-	-	-	-	-	-

Frequency: S = Seasonal, Y = Year-round, C = Continuous, 1 = Daily, 3 = 1/3, 6 =1/6, 12 = 1/12
Objectives: G = General/Background, H = Highest Concentration, M = Max Ozone Concentration, NA = Not Applicable, O = Other, P = Population Exposure, Q = Quality Assurance, R = Regional Transport, S = Source Oriented

Site Description:

This rural site is located inside Newport State Park. The sample inlet is 12 meters above ground level and 250 meters from the nearest road. Seasonal meteorological parameters include WS/WD and temperature. Verified through annual DNR audits, the site meets the requirements of 40 CFR 58, Appendices C, D, E and G.

Potawatomi

AQS Site ID: 55-041-0007

Address: 7474 Air Site Road **City:** Crandon **County:** Forest

Latitude: 45.56498 **Longitude**: -88.80859

Elevation: 556 (m) **Year Established:** 2002

Monitoring Parameters:

-	O_3	$PM_{2.5}$	PM_{10}	CO	SO_2	NO_2	Met	Toxics	Other
Frequency	YC	YC	-	-	-	-	YC	-	Y
Objectives	G	G	-	-	-	-	-	-	-

Frequency: S = Seasonal, Y = Year-round, C = Continuous, 1 = Daily, 3 = 1/3, 6 =1/6, 12 = 1/12
Objectives: G = General/Background, H = Highest Concentration, M = Max Ozone Concentration, NA = Not Applicable, O = Other, P = Population Exposure, Q = Quality Assurance, R = Regional Transport, S = Source Oriented

Site Description:

This tribal site is located on the Forest County Potawatomi Community reservation. The sample inlets range from 2-6 meters above ground level and are 200 meters from the nearest road. Meteorological parameters include WS/WD, relative humidity and temperature. Other parameters include NTN and MDN composite samples collected weekly. Verified through annual DNR audits, the site meets the requirements of 40 CFR 58, Appendices C, D, E and G.

Potosi

AQS Site ID: 55-043-0009

Address: 128 Highway 61 **City:** Potosi **County:** Grant

Latitude: 42.69302 **Longitude**: -90.69813

Elevation: 298 (m) **Year Established:** 1999

Monitoring Parameters:

-	O_3	$PM_{2.5}$	PM_{10}	CO	SO_2	NO_2	Met	Toxics	Other
Frequency	-	YC	-	-	-	-	-	-	-
Objectives	-	R	-	-	-	-	-	-	-

Frequency: S = Seasonal, Y = Year-round, C = Continuous, 1 = Daily, 3 = 1/3, 6 =1/6, 12 = 1/12
Objectives: G = General/Background, H = Highest Concentration, M = Max Ozone Concentration, NA = Not Applicable, O = Other, P = Population Exposure, Q = Quality Assurance, R = Regional Transport, S = Source Oriented

Site Description:

This site is located on the Potosi High School grounds. The sample inlets are 5 meters above ground level and 100 meters from the nearest road. Verified through annual DNR audits, the site meets the requirements of 40 CFR 58, Appendices C, D, E and G.

Racine-Payne and Dolan

AQS Site ID: 55-101-0020

Address: 4500 Charles Street **City:** Racine **County:** Racine

Latitude: 42.77719 **Longitude**: -87.79675

Elevation: 190 (m) **Year Established:** 2015

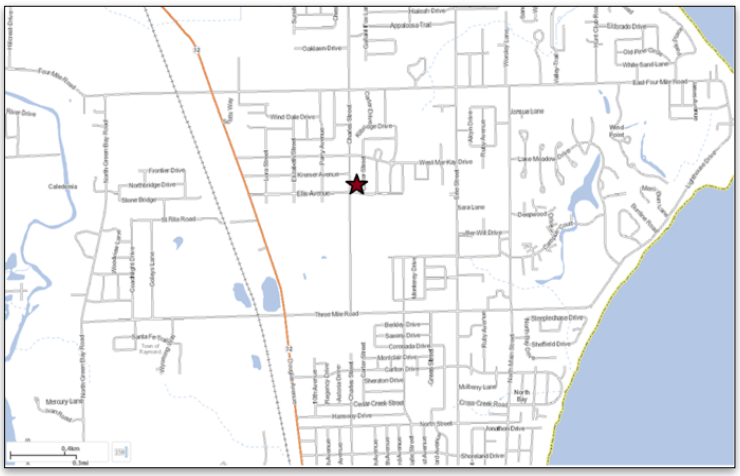
Monitoring Parameters:

-	O_3	$PM_{2.5}$	PM_{10}	CO	SO_2	NO_2	Met	Toxics	Other
Frequency	SC	-	-	-	-	-	-	-	-
Objectives	M, R	-	-	-	-	-	-	-	-

Frequency: S = Seasonal, Y = Year-round, C = Continuous, 1 = Daily, 3 = 1/3, 6 =1/6, 12 = 1/12
Objectives: G = General/Background, H = Highest Concentration, M = Max Ozone Concentration, NA = Not Applicable, O = Other, P = Population Exposure, Q = Quality Assurance, R = Regional Transport, S = Source Oriented

Site Description:

This site is located next to a farm field in the rural village of Caledonia. The sample inlet is 4.9 meters above ground level and 20 meters from the nearest road. Verified through annual DNR audits, the site meets the requirements of 40 CFR 58, Appendices C, D, E and G.



Rhinelander

AQS Site ID: 55-085-0996

Address: 434 High Street **City:** Rhinelander **County:** Oneida

Latitude: 45.64510 **Longitude**: -89.41848

Elevation: 490 (m) **Year Established:** 1981

Monitoring Parameters:

-	O_3	$PM_{2.5}$	PM_{10}	CO	SO_2	NO_2	Met	Toxics	Other
Frequency	-	-	-	-	YC	-	YC	-	-
Objectives	-	-	-	-	H, S	-	-	-	-

Frequency: S = Seasonal, Y = Year-round, C = Continuous, 1 = Daily, 3 = 1/3, 6 =1/6, 12 = 1/12
Objectives: G = General/Background, H = Highest Concentration, M = Max Ozone Concentration, NA = Not Applicable, O = Other, P = Population Exposure, Q = Quality Assurance, R = Regional Transport, S = Source Oriented

Site Description:

This site is located next to the Water Tower property accessed on Morrill Street. The sample inlet is 5 meters above ground level and 30.5 meters from the nearest road. Meteorological parameters include WS/WD and temperature. Verified through annual DNR audits, the site meets the requirements of 40 CFR 58, Appendices C, D, E and G.

Sheboygan Haven

AQS Site ID: 55-117-0009

Address: N7563 Highway 42 **City:** Sheboygan **County:** Sheboygan

Latitude: 43.81560 **Longitude**: -87.79223

Elevation: 224 (m) **Year Established:** 2014

Monitoring Parameters:

-	O_3	$PM_{2.5}$	PM_{10}	CO	SO_2	NO_2	Met	Toxics	Other
Frequency	SC	-	-	-	-	-	SC	-	-
Objectives	P	-	-	-	-	-	-	-	-

Frequency: S = Seasonal, Y = Year-round, C = Continuous, 1 = Daily, 3 = 1/3, 6 =1/6, 12 = 1/12
Objectives: G = General/Background, H = Highest Concentration, M = Max Ozone Concentration, NA = Not Applicable, O = Other, P = Population Exposure, Q = Quality Assurance, R = Regional Transport, S = Source Oriented

Site Description:

This site is located in a rural setting. The sample inlet is 5 meters above ground level and 61 meters from the nearest public road. Seasonal meteorological parameters include WS/WD and temperature. Verified through annual DNR audits, the site meets the requirements of 40 CFR 58, Appendices A, C, D, E and G.

Sheboygan Kohler Andrae

AQS Site ID: 55-117-0006

Address: 1020 Beach Park Road **City:** Sheboygan **County:** Sheboygan

Latitude: 43.66737 **Longitude**: -87.71631

Elevation: 180 (m) **Year Established:** 1997

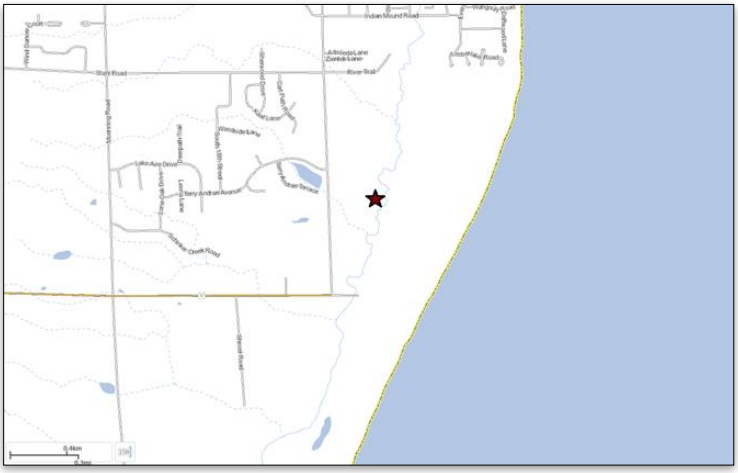
Monitoring Parameters:

-	O_3	$PM_{2.5}$	PM_{10}	CO	SO_2	NO_2	Met	Toxics	Other
Frequency	SC	-	-	-	-	-	SC	-	-
Objectives	P	-	-	-	-	-	-	-	-

Frequency: S = Seasonal, Y = Year-round, C = Continuous, 1 = Daily, 3 = 1/3, 6 =1/6, 12 = 1/12
Objectives: G = General/Background, H = Highest Concentration, M = Max Ozone Concentration, NA = Not Applicable, O = Other, P = Population Exposure, Q = Quality Assurance, R = Regional Transport, S = Source Oriented

Site Description:

This site is located inside the nature center along the shore of Lake Michigan at Kohler-Andrae State Park. The sample inlet is 6.4 meters above ground level and 482 meters from the nearest service road and 747 meters from the nearest public road. Seasonal meteorological parameters include WS/WD and temperature. Verified through annual DNR audits, the site meets the requirements of 40 CFR 58, Appendices C, D, E and G.



Trout Lake

AQS Site ID: 55-125-0001

Address: 4125 Forest Headquarter Road **City:** Boulder Junction **County:** Vilas

Latitude: 46.05200 **Longitude**: -89.65405

Elevation: 500 (m) **Year Established:** 1973

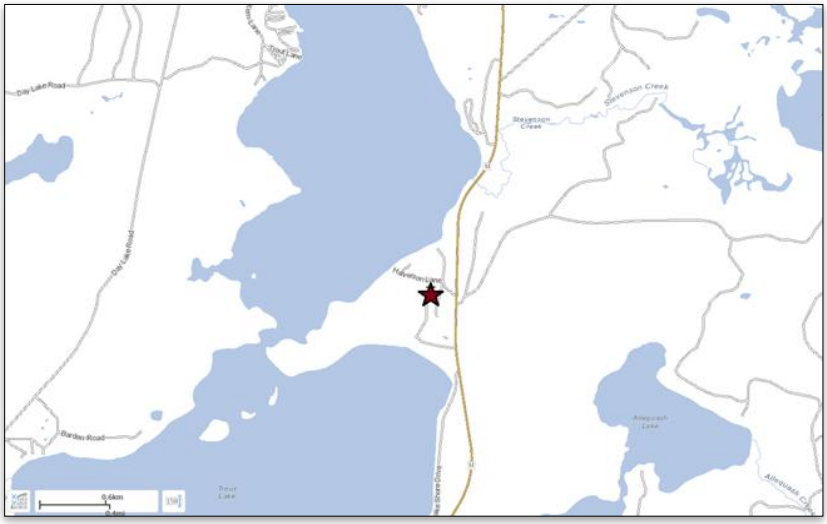
Monitoring Parameters:

-	O_3	$PM_{2.5}$	PM_{10}	CO	SO_2	NO_2	Met	Toxics	Other
Frequency	SC	-	-	-	-	-	-	-	Y
Objectives	G	-	-	-	-	-	-	-	-

Frequency: S = Seasonal, Y = Year-round, C = Continuous, 1 = Daily, 3 = 1/3, 6 =1/6, 12 = 1/12
Objectives: G = General/Background, H = Highest Concentration, M = Max Ozone Concentration, NA = Not Applicable, O = Other, P = Population Exposure, Q = Quality Assurance, R = Regional Transport, S = Source Oriented

Site Description:

This rural site is in a field at the Trout Lake State Forestry Headquarters on County M, Boulder Junction. The sample inlets range from 5-6 meters above ground level and 36.5 meters from the nearest road. Other parameters include MDN and NTN composite samples collected weekly. Verified through annual DNR audits, the site meets the requirement of 40 CFR 58, Appendices C, D, E and G



Waukesha-Cleveland Avenue

AQS Site ID: 55-133-027

Address: 1310 Cleveland Avenue **City:** Waukesha **County:** Waukesha

Latitude: 43.02012 **Longitude**: -88.21505

Elevation: 262 (m) **Year Established:** 1989

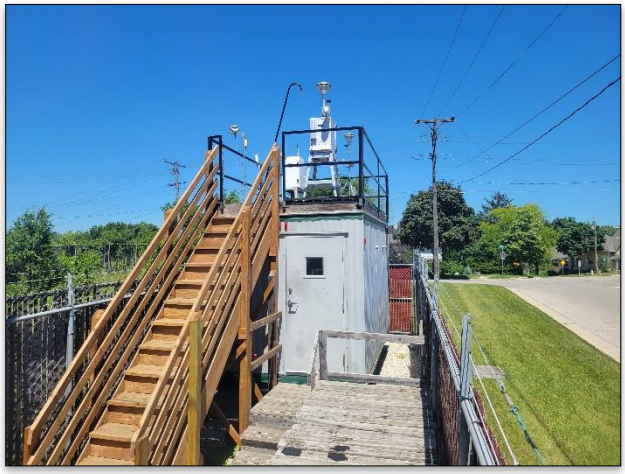
Monitoring Parameters:

-	O_3	$PM_{2.5}$	PM_{10}	CO	SO_2	NO_2	Met	Toxics	Other
Frequency	SC	YC, Y6	YC	-	-	-	YC	-	-
Objectives	P, R	H, Q	H	-	-	-	-	-	-

Frequency: S = Seasonal, Y = Year-round, C = Continuous, 1 = Daily, 3 = 1/3, 6 =1/6, 12 = 1/12
Objectives: G = General/Background, H = Highest Concentration, M = Max Ozone Concentration, NA = Not Applicable, O = Other, P = Population Exposure, Q = Quality Assurance, R = Regional Transport, S = Source Oriented

Site Description:

This urban site is in a fenced-in area on a city lot in Waukesha County. The sample inlets are 5 meters above ground level and 6 meters from the nearest road. The $PM_{2.5}$ FEM monitor is collocated with a $PM_{2.5}$ FRM monitor that samples on a 1/6 schedule. Meteorological parameters include WS/WD and temperature. Verified through annual DNR audits, the site meets the requirement of 40 CFR 58, Appendices C, D, E and G.



Appendix E: Enhanced Ozone Monitoring Plan

Introduction

As required by 40 CFR Part 58 Appendix D 5(h), the DNR is providing an enhanced ozone monitoring plan (EMP). Appendix D (5)(h) states, in part:

The EMP will include monitoring activities deemed important to understanding the Ozone (O_3) problems in the state. Such activities may include, but are not limited to, the following:

(1) Additional O_3 monitors beyond the minimally required under paragraph 4.1 of this appendix,
(2) Additional NO_X or NO_y monitors beyond those required under 4.3 of this appendix,
(3) Additional speciated VOC measurements including data gathered during different periods other than required under paragraph 5(g) of this appendix, or locations other than those required under paragraph 5(a) of this appendix, and
(3) Enhanced upper air measurements of meteorology or pollution concentrations.

Overview

The EPA approved an EMP as part of its approval of Wisconsin's 2020-2026 Annual Network Plans. As part of its continued requirement to perform enhanced ozone monitoring, the DNR plans to:

- Continue the operation of ozone and ozone precursor monitors (NO_x, carbonyls and VOCs) beyond those minimally required.
- Engage and support external partners collecting ozone-related data.

Details on these activities are provided below. These efforts provide:

- Additional insights into the mechanisms and dynamics of ozone formation and transport along Wisconsin's Lake Michigan lakeshore.
- Advances into the DNR's understanding of the ozone challenges in Wisconsin.
- Improved modeling in the region.
- Support for future regulatory submittals related to ozone.

Monitoring ozone beyond federal requirements

In advance of each ozone season, the DNR works with EPA and external partners to review data generated by enhanced ozone monitoring and to focus resources for the upcoming ozone season. This review is completed with research and policy decisions in mind, to meet Wisconsin's EMP goals.

The DNR is conducting enhanced ozone monitoring at two sites located inland from the Lake Michigan shoreline: Sheboygan Haven (55-117-0009) and Kenosha Water Tower (55-059-0025). These sites are not required by federal rule to meet minimum monitoring requirements (see Appendix A: Minimum Monitoring Requirements and Appendix B: Waivers and Approvals). The DNR has been monitoring ozone at these locations since 2013 (Kenosha Water Tower) and 2014 (Sheboygan Haven) for the purpose of better understanding the lakeshore impact on ozone concentrations along Lake Michigan's western shoreline. These sites are located 3.2 to 3.6 miles inland from monitors along the shoreline. Ozone concentration gradients have been extrapolated from the comparison of the shoreline vs. inland monitors.

Monitoring ozone precursors provides insight to contributing conditions of ozone formation near the lakeshore. Milwaukee UWM UPark site (55-079-0068) is a population-based site that operates a year-round NO_x (CAPS) monitor. The Chiwaukee site (55-059-0019) operates a seasonal NO_2 (CAPS) monitor from May to August.

The DNR continues long term monitoring of the concentrations of volatile organic compounds (VOCs) and carbonyls at Milwaukee 16th Street Health Center (55-079-0010). The Milwaukee 16th Street Health Center site is part of the Urban Air Toxics Monitoring program (UATM). The site provides critical data on formaldehyde and acetaldehyde, which are key ozone precursors. Comparing these data sets with past collected lakeshore VOC and carbonyl measurements helps contextualize air quality dynamics across urban and lakeshore areas.

Data analysis of speciated ozone event-based VOC and carbonyls has shown limitations of speciated sampling in a rural environment and has helped policymakers in the region understand the over-lake NO_x/VOC gradient dynamics. Further data analysis will continue. The DNR does not intend to include ozone event-based VOC or carbonyl sample collections in the 2027 EMP.

Supporting external partners conducting ozone research studies

The DNR continues to engage external partners and agencies that are researching ozone issues in Wisconsin through field research campaigns. The specific activities that will be undertaken each year are subject to partner resource availability and program priorities, but have historically included the following:

- Collection of ozone-related data using nontraditional methods, such as drones and ships.
- Operation of Pandora and Aeronet monitors at lakeshore locations to help determine the levels of NO_2 and formaldehyde in the boundary layer column.
- Wind lidar measurements to help determine emission mapping and trajectories.
- Real time continuous VOC monitoring using Proton Transfer Reaction – Mass Spectrometry (PTR-MS).
- University of Alabama-Huntsville's Rocket-city Ozone Quality Evaluation in the Troposphere (RO3QET) Trailer with ozone lidar to help determine vertical ozone gradients; also included meteorological and ozone sondes deployments

Historic enhanced ozone collaborations and campaigns

In 2017, the Lake Michigan Ozone Study campaign was a collaborative, multi-agency field study of ozone chemistry and meteorology along the Wisconsin-Illinois Lake Michigan shoreline using a combination of aircraft, ground-based and ship-based measurements. Field activities were conducted May 22 through June 22, 2017. The campaign was conducted by researchers from three federal agencies and five research universities, in collaboration with LADCO. Measurements focused on the Lake Michigan shoreline between Sheboygan, WI and Chicago, IL and addressed all four types of measurement suggested in 40 CFR Appendix D (5)(h).

In 2019, the DNR deployed its mobile air monitoring laboratory trailer (MAML) at two different locations with the goal to better understand lakeshore gradients in WI. Event based VOC samples were collected and analyzed for photochemical assessment monitoring station (PAMS) compounds. In 2020, the MAML was deployed near the lakeshore in Sheboygan paired with additional VOC sampling

capability at Chiwaukee, but equipment availability due to COVID-19 limited the state to carbonyl sampling only.

In 2022 and 2023, the DNR partnered with researchers from the University of Wisconsin and Great Lakes Environmental Research Laboratory (GLERL) to conduct mobile marine based air monitoring onboard the Viking Octantis research vessel. This vessel traversed Lake Michigan twice monthly during ozone season to capture O_3 and NO_2 (CAPS) data directly over central areas of the lake.

In 2023, the DNR hosted researchers near the Chiwaukee Prairie site. Specifically, the DNR participated in National Aeronautics and Space Administration (NASA) with the National Oceanic and Atmospheric Administration (NOAA) AGES+ campaign. This campaign was the AEROMMA/STAQs focus which included five days of low-altitude flights over Lake Michigan. The RO3QET monitoring platform gathered tropospheric ozone profiles using an ozone lidar. The researchers also deployed 36+ wind sondes and 15 ozone sondes. Additionally, a SeaRay plane provided by researchers had 15+ flights over nine days capturing data on O_3 and NO_2 over Lake Michigan. Researchers also deployed drones over multiple days and flights to collect data over land.

To better understand ozone precursors, CO was monitored at the Chiwaukee Prairie site from 2022 to 2024 from May to August as an air mass tracing pollutant. It has been determined that the CO data collected has been of limited use for better understanding Wisconsin's unique lakeshore ozone formation.

Quality Assurance/Quality Control (QA/QC) Program

The purpose of the QA/QC program is to assure the quality of data obtained from the DNR air monitoring sites. The DNR meets or exceeds the QA requirements defined in 40 CFR 58 and all applicable appendices.
The QA/QC program includes but is not limited to the following activities:

- Monitor siting evaluations
- Zero, precision and span checks
- Bias determinations
- Flow rate audits
- Leak checks
- Data validation

As the PQAO for ambient air monitoring activities in Wisconsin, the DNR operates under an EPA approved QMP and uses QAPPs for each statewide monitoring network. The primary purpose of the QAPP is to provide an overview of the project, describe the need for the measurements, and define QA/QC activities to be applied to the project. All other ambient air monitoring initiatives including state, tribal, and industrial projects must have a DNR approved monitoring plan for each specific project.

Data produced by external research partners may use equipment and methods that are not commonly used by the DNR. The DNR may cooperate with or provide some oversight of these activities. The external partners are expected to operate independently to produce usable data and maintain their own quality documentation. The DNR may use this data in its decision making, as deemed appropriate.

Data Processing and Reporting

Ambient air quality data are stored in a centralized server located at the Wisconsin Department of Administration. Continuous pollutant monitoring data are retrieved hourly and posted to the DNR Air Quality website and to the EPA's AirNow air quality map.

Due to the interest from the public and researchers the DNR began sharing EOM data via the Widen platform. The data collection primarily consists of raw data sets and interim draft analysis. The EOM Collection portal to Widen is available on the DNR Air Quality Monitoring website.

Network Changes

Changes to the Enhanced Ozone Monitoring Network are intended to improve the effectiveness of monitoring efforts. This section of the document contains all changes that are planned for May 1, 2026 through December 31, 2027.

Proposed Network Changes (May 1, 2026 – December 31, 2027)

Enhancements needed to support Wisconsin's enhanced ozone monitoring efforts during the 2026 ozone season are detailed in this section. Following the conclusion of the 2026 ozone season, data will be reviewed to determine the configuration of the enhanced ozone monitoring network for the 2027 ozone season. This approach allows the DNR to ensure an up-to-date, scientific approach to this critical work.

Appendix F: Planned and Actual Changes from the 2026 Air Monitoring Network Plan

Summary

Each annual network plan includes changes to the network since the last network plan and anticipated changes for the next 18 months ending on December 31 of the year specified in the network plan title. Table 1 lists the proposed network changes from the 2026 Network Plan by parameter network. Table 2 lists the actual network changes that occurred through April 1, 2026 by parameter.

Federal Regulation

Requirements to submit network change information are found in several places in 40 CFR including: §58.10(a)(2), §58.10(e), §58.10(b)(5), §58.14(a), §58.14(b) and §58.14(c).

Table 1: Planned Network Changes from the 2026 Air Monitoring Network Plan

May 1, 2025 – December 31, 2026

Monitoring Site	AQS Site ID	Site	Ozone	$PM_{2.5}$	PM_{10}	$PM_{10-2.5}$	SO_2	NO_2	CO	NOy	Meteorological	Metals (PM_{10})	VOC / Carbonyl	Hg	NADP	CSN
Milwaukee Sixteenth St. Health Center	55-079-0010	-	-	-	-	-	-	-	-	-	M1	-	-	-	-	-
Chiwaukee Prairie Stateline	55-059-0019	-	-	-	-	-	-	-	T	-	-	-	-	-	-	-

A = Addition
M = Modification
T = Termination
1 = Outdoor Temperature

Table 2: Actual Network Changes from the 2026 Air Monitoring Network Plan

Monitoring Site	AQS Site ID	Site	Ozone	$PM_{2.5}$	PM_{10}	$PM_{10-2.5}$	SO_2	NO_2	CO	NOy	Meteorological	Metals (PM_{10})	VOC / Carbonyl	Hg	NADP	CSN
AMI Silica-Hixton	55-053-1003	T	-	-	T3	-	-	-	-	-	-	-	-	-	-	-
Bad River Tribal School-Odanah	55-003-0010	-	-	-	-	-	-	-	-	-	-	-	-	-	T1	-
Chiwaukee Prairie Stateline	55-059-0019	M4	-	-	-	-	-	-	T	-	-	-	-	-	-	-
Grafton	55-089-0008	M4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lake Dubay	55-073-0012	M4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potosi	55-043-0009	M4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waukesha - Cleveland Ave.	55-133-0027	-	-	-	-	-	-	-	-	-	T2	-	-	-	-	-

A = Addition
M = Modification
T = Termination

1 = Ammonia Monitoring
2 = Barometric Pressure
3 = Industrial Sand Mine Monitor
4 = Shelter Replacement

Appendix G: SO2 Data Requirements Rule Emissions Assessment

Section 51.1205(b) of EPA's SO_2 Data Requirements Rule (DRR) (40 CFR 51 Subpart BB) requires Wisconsin to submit an annual report to the Regional Administrator that documents the annual SO_2 emissions of each applicable source in each area where modeling of actual SO_2 emissions served as the basis for designating such area as attaining the 2010 1-hour SO_2 NAAQS. This report is to be submitted by July 1 of each year and must provide an assessment of the cause of any emissions increases and a recommendation regarding the need for additional modeling to determine if the areas are still meeting the 2010 1-hour SO_2 NAAQS.

Marathon County is the only attainment/unclassifiable area in Wisconsin that remains subject to this annual DRR verification requirement. As recommended by the EPA, the DNR has elected to submit the annual assessment for this area as part of this network plan.

The table below shows actual SO_2 emissions for Marathon County for 2013 through 2015 (the years used in the modeling of this area submitted to the EPA in January 2016) and the most recent three years of data. Annual SO_2 emissions are listed for the DRR-identified source in the area—the WPSC-Weston Plant—along with the two other sources that were included in the DRR modeling.

SO_2 emissions data for Marathon County (tons per year)

FACILITY ID (FID)	FACILITY NAME	2013	2014	2015		2023	2024	2025
737009020	WISCONSIN PUBLIC SERVICE CORPORATION (WPSC) - WESTON PLANT	7,120	5,521	4,099		529	597	804
737009570	AHLSTROM MOSINEE, LLC (FORMERLY, 'EXPERA SPECIALTY SOLUTIONS - MOSINEE')	1,381	1,461	1,498		983	1,063	327
737010450	DOMTAR PAPER COMPANY, LLC	28	27	29		18	20	22
-	AREA TOTAL	8,529	7,009	5,626		1,530	1,680	1,153

As shown in the table, SO_2 emissions in Marathon County have declined significantly since these sources were modeled for the DRR. SO_2 emissions from the modeling domain attainment/unclassifiable area totaled 1,153 tons in 2025. This is 86% lower than emissions in 2013 and 80% lower than emissions in 2015 (the years modeled to satisfy Round 3 DRR requirements). Given the general significant decrease in SO_2 emissions and emissions below the standard, the DNR concludes that no additional modeling for the Marathon County attainment/unclassifiable area is necessary to satisfy ongoing DRR compliance requirements.