APPENDIX F

Well Logs

Minnesota Unique Well Number

218575

County Goodhue
Quad Zumbrota
Quad ID 69C

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING REPORT
Minnesota Statutes Chapter 1031

Entry Date 11/04/1987
Update Date 02/14/2014
Received Date

Well Name	Township	Range	Dir	Section	Subsection
SANITARY	110	15	W	30	CCDDDB

Elevation 970 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

C/W ZUMBROTA MN 55992

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SAND & GRAVEL	0	45		
LIMESTONE	45	65	BROWN	
LIMESTONE &	65	84		
LIMESTONE	84	99	BROWN	

Remarks

Well Depth 99 ft. **Depth Completed** 99 ft. **Date Well Completed** 07/27/1970

Drill Method Non-specified Rotary **Drill Fluid**

Use commercial **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint**
Drive Shoe? Yes ☐ No ☐ **Above/Below** 0 ft.

Casing Diameter **Weight**
6 in. To 40 ft. lbs./ft.

Open Hole From 40 ft. To 99 ft.

Screen? ☐ **Type** **Make**

Static Water Level
6 ft. land surface Measure 07/27/1970

Pumping Level (below land surface)

Wellhead Completion
Pitless adapter manufacturer Model
☐ Casing Protection ☐ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☐ Yes ☐ No ☒ Not Specified

Nearest Known Source of Contamination
feet Direction Type
Well disinfected upon completion? ☐ Yes ☐ No

Pump ☐ Not Installed Date Installed
Manufacturer's name
Model Number HP 0 Volt
Length of drop pipe ft Capacity g.p. Typ

Abandoned
Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No

Variance
Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous
First Bedrock Prairie Du Chien Group Aquifer multiple
Last Strat Prairie Du Chien Group Depth to Bedrock 45 ft
Located by Minnesota Geological Survey
Locate Method Digitized - scale 1:24,000 or larger (Digitizing Table)
System UTM - NAD83, Zone 15, Meters X 526600 Y 4904924
Unique Number Verification Other, note in Input Date 01/01/1990

Angled Drill Hole

Well Contractor
Thein Well Co. 55079 VAN HOUTEN, D
Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

218577

County Goodhue
Quad Zumbrota
Quad ID 69C

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING REPORT
Minnesota Statutes Chapter 1031

Entry Date 11/04/1987
Update Date 02/14/2014
Received Date

Well Name	Township	Range	Dir	Section	Subsection
STANGEL,	110	15	W	30	BDBBAA

Elevation 1012 **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

C/W ZUMBROTA MN 55992

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
DRIFT	0	20		
SHAKOPEE	20	90		
ONEOTA	90	100		

Remarks

Well Depth 100 ft. **Depth Completed** 100 ft. **Date Well Completed** 10/22/1969

Drill Method Non-specified Rotary **Drill Fluid**

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint**
Drive Shoe? Yes ☐ No ☐ **Above/Below** 0 ft.

Casing Diameter **Weight**
5 in. To 35 ft. lbs./ft.

Open Hole From 35 ft. To 100 ft.

Screen? ☐ **Type** **Make**

Static Water Level
42 ft. land surface Measure 10/22/1969

Pumping Level (below land surface)
0 ft. hrs. Pumping at 20 g.p.m.

Wellhead Completion
Pitless adapter manufacturer Model
☐ Casing Protection ☐ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☐ Yes ☐ No ☒ Not Specified

Nearest Known Source of Contamination
feet Direction Type
Well disinfected upon completion? ☐ Yes ☐ No

Pump ☐ Not Installed Date Installed
Manufacturer's name
Model Number HP 0 Volt
Length of drop pipe ft Capacity g.p. Typ

Abandoned
Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No

Variance
Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous
First Bedrock Prairie Du Chien Group Aquifer Prairie Du Chien
Last Strat Prairie Du Chien Group Depth to Bedrock 20 ft
Located by Minnesota Geological Survey
Locate Method Digitized - scale 1:24,000 or larger (Digitizing Table)
System UTM - NAD83, Zone 15, Meters X 526720 Y 4906047
Unique Number Verification Other, note in Input Date 01/01/1990

Angled Drill Hole

Well Contractor
Christenson Well 20065
Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

250178

County Goodhue
Quad Castle Rock
Quad ID 88C

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING REPORT
Minnesota Statutes Chapter 1031

Entry Date 04/04/1996
Update Date 02/14/2014
Received Date

Well Name	Township	Range	Dir	Section	Subsection
GORMAN, JOE	110	16	W	36	AADABD

Elevation 978 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

C/W ZUMBROTA MN

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
GLACIAL DRIFT	0	17		
PRAIRIE DU CHIEN	17	59		

Remarks

GAMMA LOGGED 4-3-1996.

Well Depth 59 ft. **Depth Completed** 59 ft. **Date Well Completed**

Drill Method Cable Tool **Drill Fluid**

Use domestic **Status**

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint**
Drive Shoe? Yes ☐ No ☐ **Above/Below** 0 ft.

Casing Diameter **Weight**
6 in. To 41 ft. lbs./ft.

Open Hole From 41 ft. To 59 ft.

Screen? ☐ **Type** **Make**

Static Water Level
17 ft. land surface Measure 04/03/1996

Pumping Level (below land surface)

Wellhead Completion
Pitless adapter manufacturer Model
☐ Casing Protection ☐ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☐ Yes ☐ No ☒ Not Specified

Nearest Known Source of Contamination
feet Direction Type
Well disinfected upon completion? ☐ Yes ☐ No

Pump ☐ Not Installed Date Installed
Manufacturer's name
Model Number HP 0 Volt
Length of drop pipe ft Capacity g.p. Typ

Abandoned
Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No

Variance
Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous
First Bedrock Prairie Du Chien Group Aquifer Prairie Du Chien
Last Strat Prairie Du Chien Group Depth to Bedrock 17 ft
Located by Minnesota Geological Survey
Locate Method Digitized - scale 1:24,000 or larger (Digitizing Table)
System UTM - NAD83, Zone 15, Meters X 526190 Y 4904655
Unique Number Verification Information from Input Date 07/02/1996

Angled Drill Hole

Well Contractor
Minnesota Geological Survey MGS
Licensee Business Lic. or Reg. No. Name of Driller

APPENDIX G

Anti-Degradation Report

SEPTEMBER 2025

North Zumbro Sanitary Sewer District (NZSSD)

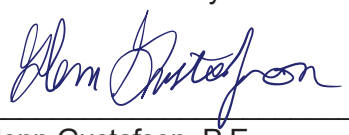
Antidegradation Report

whks engineers + planners + land surveyors

WiDSETH

ISG Architecture Engineering Environmental Planning

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.



Glenn Gustafson, P.E.	9-12-2025	40551
	Date	License No.

whks engineers + planners + land surveyors

WiDSETH

ISG Architecture Engineering Environmental Planning ISGInc.com

1. Table of Contents

1. Table of Contents 1
2. Purpose 2
3. Location 3
4. Ambient Water Quality 7
5. Treatment Alternatives 26
6. Economic Analysis 32
7. Narrative and Conclusion 38
8. List of Figures 45
9. List of Tables 46
10. List of Abbreviations 47
11. Appendices 50

2. Purpose

2.1. Purpose

The cities of Goodhue, Pine Island, Wanamingo, and Zumbrota are in the planning stage of forming a new Sanitary District and centralized WWTF to serve their communities. The new district will be called the North Zumbro Sanitary Sewer District (NZSSD). The four cities will demolish their existing wastewater treatment facilities (WWTFs) and construct pumping stations to convey their wastewater to a new centralized WWTF in Zumbrota that will discharge to the North Fork Zumbro River.

This new WWTF would be considered a new discharge and as such, the State of Minnesota requires an antidegradation report to document the ambient (existing) stream water quality, effect of the discharge on that water quality, and evaluate treatment alternatives and economic impacts in accordance with Minn. R 7050.0250-7050.0335.

This report ("Antidegradation Report") is submitted to Minnesota Pollution Control Agency (MPCA) for review and approval in accordance with these rules.

3. Location

3.1. Project Location

Figure 3-1 shows the location of the member cities and the proposed general location for the new centralized WWTF.

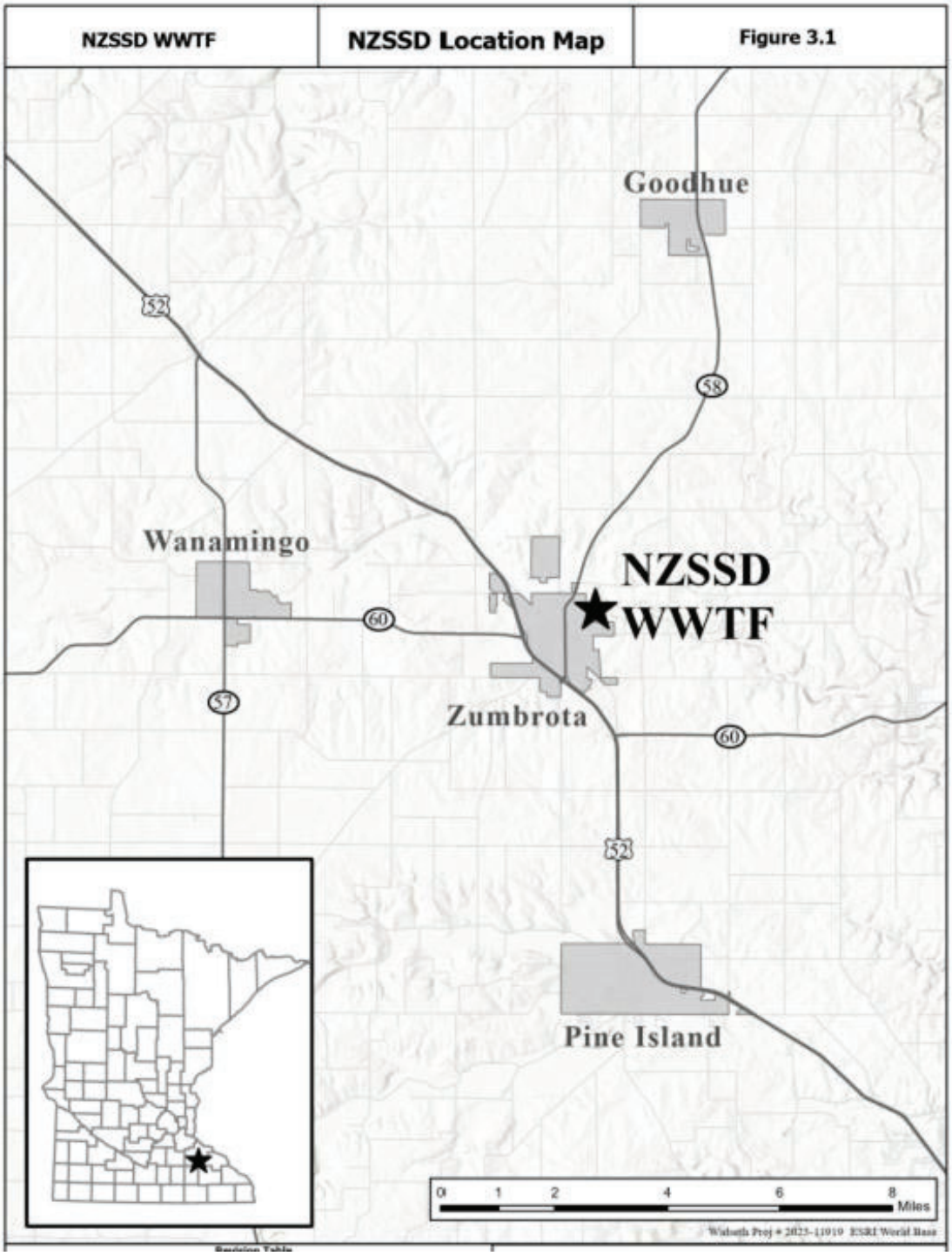


Figure 3-1 North Zumbro Sanitary Sewer District Location

3.2. Receiving Stream Network Location

All four existing facilities are in the Zumbro River Watershed. Wanamingo and Zumbrota are on the North Fork Zumbro River (NFZR), Goodhue is on the Trout Brook (Mazeppa Creek), and Pine Island is on the Middle Fork Zumbro River. The Zumbro River and downstream segments of the Mississippi River take discharge from all four cities.

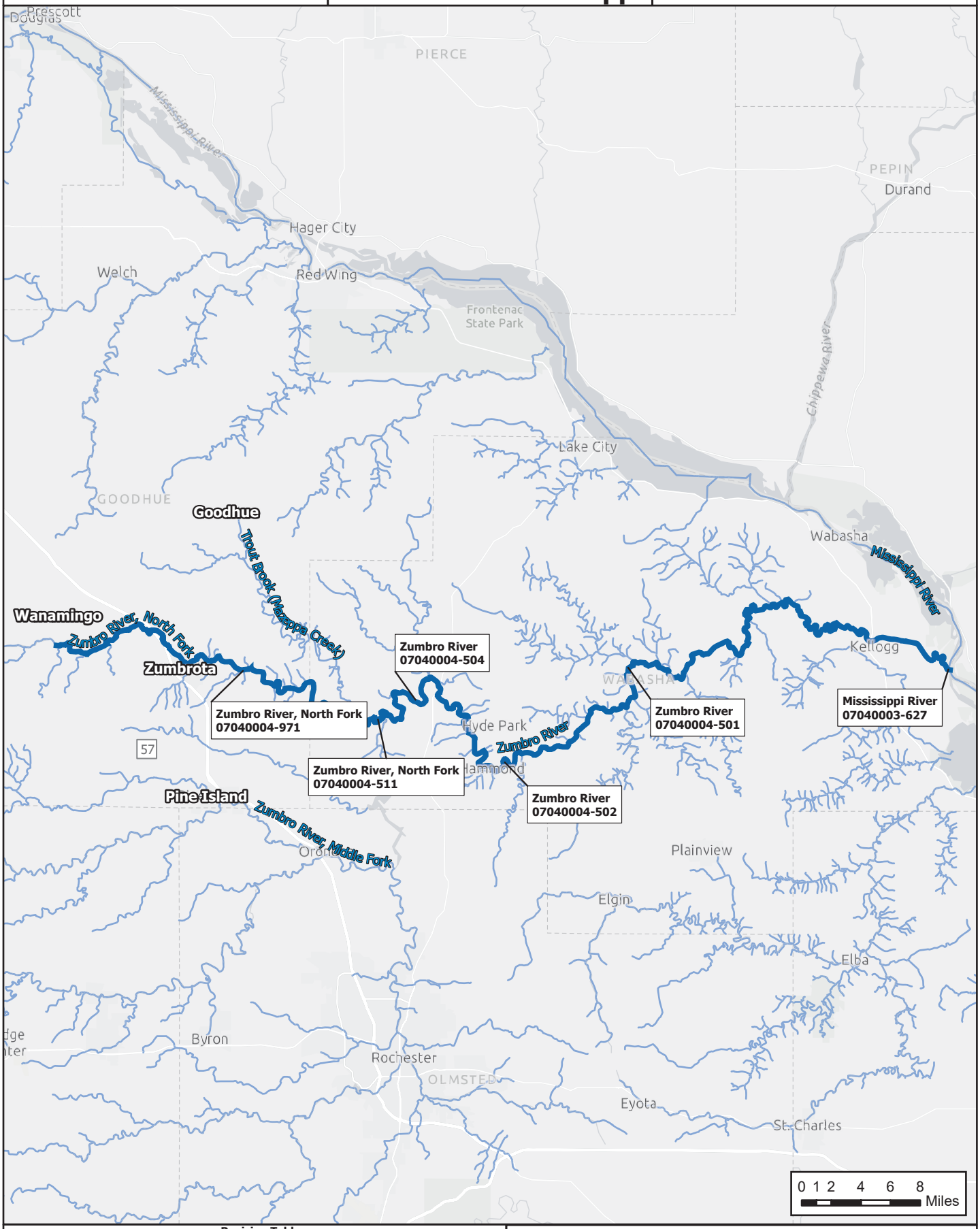
The proposed NZSSD will be a regional facility, consolidating these four existing discharges into one discharge point on the North Fork Zumbro River.

A Stream network map is presented in Figure 3-2.

Stream AUID numbers relevant to this project are:

- North Fork Zumbro River AUID# 07040004-971: discharge location for the existing City of Wanamingo and City of Zumbrota WWTFs. This stream will be the discharge location for the NZSSD WWTF.
- Trout Brook (Mazeppa Creek) AUID# 07040004-516: discharge location of the existing City of Goodhue WWTF. Trout Brook -516 flows to -514, followed by -515.
- North Fork Zumbro River AUID# 07040004-511: confluence of -971 and -515. Flows from Wanamingo, Zumbrota, and Goodhue combine in this segment.
- Middle Fork Zumbro River AUID# 07040004-992: discharge location for the existing City of Pine Island WWTF. Directly downstream of this Middle Fork segment is the Middle Fork AUID# 07040004-993, followed by Lake Zumbro AUID# 55-0004-00, and the Zumbro River AUID# 07040004-505, followed by -506.
- Zumbro River AUID# 07040004-504: confluence of -511 and -506. Flows from all four existing city WWTFs combine in this segment. Directly downstream of this segment are the Zumbro River AUID#07040004-502, Zumbro River AUID# 07040004-501, and the Mississippi River AUID# 07040003-627.

Goodhue County, MN	Stream Reaches Zumbrota to Mississippi	Figure 3-2



Revision Table			
Number	Date		Initials

whks engineers + planners + land surveyors

WIDSETH

ISG Architecture Engineering Environmental Planning

Simplified flow charts of the receiving stream network under existing and proposed conditions are presented in Figure 3-3 and Figure 3-4. In the Proposed conditions, note the deletion of existing city loads from Middle Fork Zumbro River, Lake Zumbro, Trout Brook, and upstream North Fork Zumbro River.

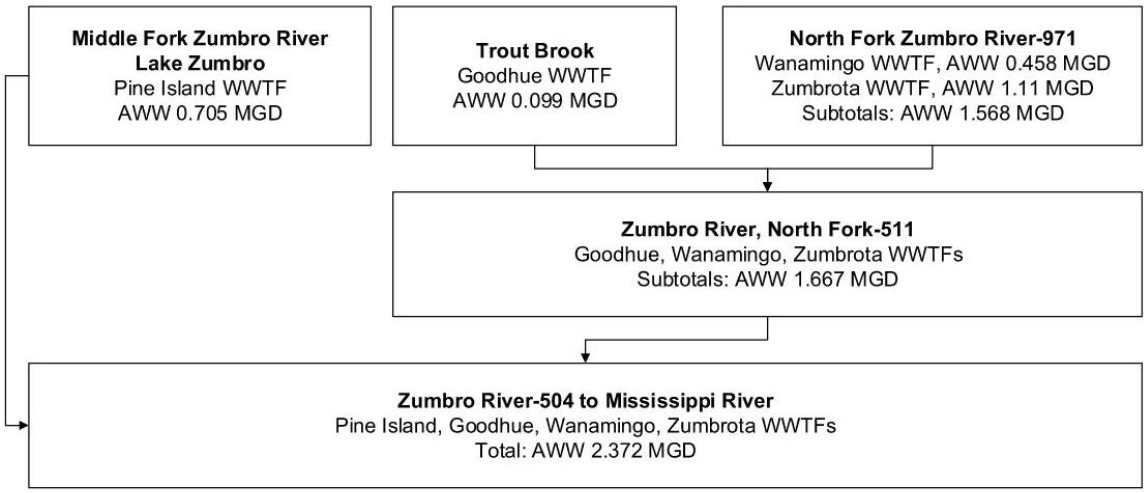


*Figure 3-3 Simplified Flow Chart of Receiving Stream Network - **Existing City WWTFs***

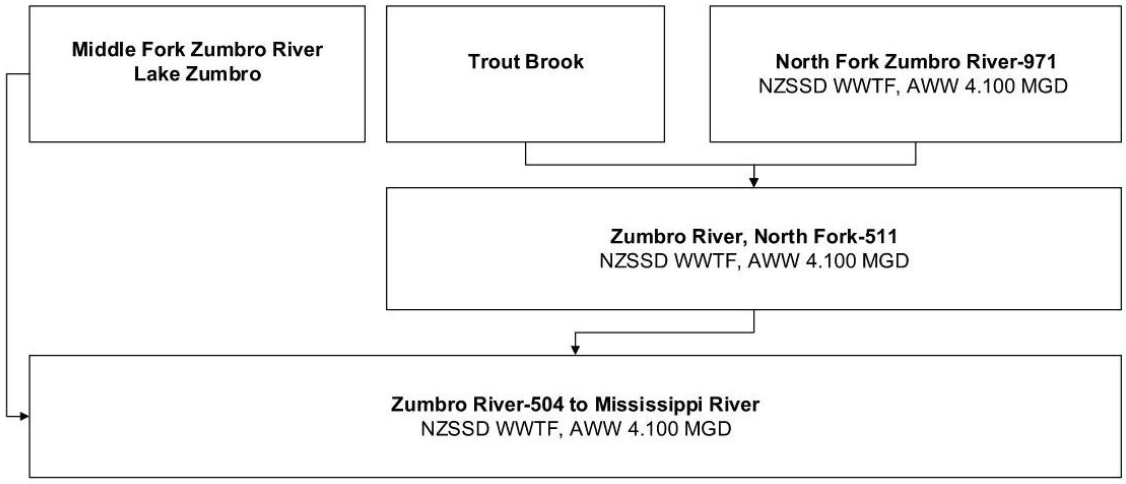


*Figure 3-4 Simplified Flow Chart of Receiving Stream Network - **Proposed Regional NZSSD WWTF***

4. Ambient Water Quality

4.1. Defining Pollutants of Concern

Table 1 lists the MPCA's potential pollutants of concern for municipal antidegradation analysis. This table is from MPCA's Antidegradation Guidance, dated December 2019.

Table 1 MPCA's Potential Pollutants of Concern for Antidegradation Analysis for Municipal Facilities

Pollutant
Carbonaceous Biochemical Oxygen Demand ($CBOD_5$)
Total Suspended Solids (TSS)
Total Phosphorus (TP)
Ammonia
Nitrate
Chloride
Mercury
~~Heavy Metals (Cu, Cd, Co, Pb, Cr, Ni, Zn, Ag)~~[1]
Sulfate[2]
Notes: 1. Only considered if a significant industrial wastewater user such as a metal plater is likely to expand their pollutant loading to the municipal WWTP. 2. Only considered if the outfall is upstream of a wild rice waterbody.

Heavy metals are only considered if a significant industrial wastewater user such as a metal plater is likely to expand their pollutant loading to the municipal WWTP. In the NZSSD, there are only two significant industries in the collection systems, both are dairies, and no new metal processing industry is anticipated. Metal processing is not anticipated in NZSSD. The City of Zumbrota has been submitting quarterly effluent results for Total Lead (Pb) since June 2024 (5 points as of Sept 2025). Four (4) of Zumbrota's samples were below detection (<0.01 µg/L), and one (1) sample was at the detection limit (0.01 µg/L). These are below or at the analysis detection limit and we do not expect this to become an issue at the proposed WWTP. Therefore, heavy metals are not pollutants of concern for the NZSSD and are not included for further analysis in this report.

Bacteria (E. coli and fecal coliform) are included in this report because there is a TMDL for E. coli in the Zumbro watershed, and fecal coliform are included in the NZSSD's preliminary effluent limits.

Total Nitrogen is not currently a pollutant of concern for antidegradation analysis, but Nitrate is. Total Nitrogen and Nitrate are intricately related. The State of Minnesota has indicated that potential future Total Nitrogen or Nitrate limits may apply in the future, so this topic is included in the rationale for future Nitrates in this report.

4.2. Will There Be a Net Increase in Loading?

4.2.1. Analysis Results

This section evaluates if there will be a net increase in mass loading for each pollutant of concern. Based on the analysis described below, there will be a net increase in loading for each pollutant except for phosphorus, nitrate, and potentially also sulfate.

4.2.2. River Segments Analyzed

When NZSSD is constructed, the existing four city facilities will stop discharging. Loads that are currently discharged from the cities to the Trout Brook, Zumbro River Middle Fork, and North Fork Zumbro River will all be moved to the North Fork Zumbro River.

MPCA Antidegradation guidance typically looks at the stream segment immediately downstream of the facility, which in this case is the North Fork Zumbro River-971. However, since the NZSSD is regionalizing four facilities in the Zumbro River watershed, the Zumbro River watershed---represented by Zumbro River-504---is also an appropriate basis for evaluation of the net impacts of the facility. Both stream segments are included in the analysis.

4.2.3. Existing Loads

Existing loads were calculated from each city's NPDES permitted concentration limit and design Average Wet Weather (AWW) flow. If a city does not have a NPDES permit concentration limit for a specific pollutant, the existing authorized load was calculated from its historical maximum effluent concentration and its design AWW flow. Historical maximum concentrations were identified from ten years of monthly data reported in the facilities' Daily Monitoring Reports (DMRs) for the period 2012-2022 unless otherwise noted. Outliers in the DMR data sets were identified and excluded using box plot analysis and are noted in the tables below. For unmonitored pollutants, a reference value was calculated based on the average of other cities' maximum mg/L values.

Each table below subtotals existing loads to the North Fork Zumbro River and the Zumbro River watershed.

Table 2 Existing Load CBOD5

Stream ID, Cities	Permit Conc. mg/L	Permit AWW MGD	Mass kg/d	Basis [NPDES limit or DMR data]
Zumbro River, North Fork 07040004-971				
Wanamingo	25	0.458	43.0	25 mg/L, 0.458 MGD, 43 kg/d [NPDES]
Zumbrota	25	1.110	105.0	25 mg/L, 1.110 MGD, 105 kg/d [NPDES]
Subtotal	25 avg	1.568	148.0	
Zumbro River Watershed, 07040004-504, and downstream segments to Mississippi River				
Goodhue	15	0.099	5.6	15 mg/L, 0.099 MGD [NPDES]
Pine Island	25	0.705	66.6	25 mg/L, 0.705 MGD [NPDES]
Total	24.6 avg	2.372	220.2	

Table 3 Existing Load TSS

Stream ID, Cities	Permit Conc. mg/L	Permit AWW MGD	Mass kg/d	Basis [NPDES limit or DMR data]
Zumbro River, North Fork 07040004-971				
Wanamingo	30	0.458	52.0	30 mg/L, 0.458 MGD, 52 kg/d [NPDES]
Zumbrota	30	1.110	126.0	30 mg/L, 1.110 MGD, 126 kg/d [NPDES]
Subtotal	30 avg	1.568	178.0	
Zumbro River Watershed, 07040004-504 and downstream segments to Mississippi River				
Goodhue	30	0.099	11.2	30 mg/L, 0.099 MGD, 11.2 kg/d [NPDES]
Pine Island	30	0.705	79.9	30 mg/L, 0.705 MGD, 79.9 kg/d [NPDES]
Total	30 avg	2.372	269.1	

Table 4 Existing Load Phosphorus

Stream ID, Cities	Conc. mg/L	Permit AWW MGD	Mass kg/d	Basis [NPDES limit or DMR data]
Zumbro River, North Fork 07040004-971				
Wanamingo	5.5	0.458	9.6	5.5 mg/L [DMR] * 0.458 MGD [NPDES]
Zumbrota	7.9	1.110	33.1	7.9 mg/L [DMR] * 1.110 MGD [NPDES]
Subtotal	7.2	1.568	42.7	
Zumbro River Watershed, 07040004-504 and downstream segments to Mississippi River				
Goodhue	9.4	0.099	3.5	9.4 mg/L [DMR] * 0.099 MGD [NPDES]
Pine Island	1.0	0.705	2.7	1 mg/L, 0.705 MGD, 972 kg/y [NPDES]
Total	5.5	2.372	48.9	

Table 5 Existing Load Ammonia

Stream ID, Cities	Conc. mg/L	Permit AWW MGD	Mass kg/d	Basis [NPDES limit or DMR data]
Zumbro River, North Fork 07040004-971				
Wanamingo	20.7	0.458	35.8	20.7 mg/L [DMR] * 0.458 MGD [NPDES]
Zumbrota	27	1.110	113.3	27 mg/L [DMR] * 1.110 MGD [NPDES]
Subtotal	25.2	1.568	149.1	
Zumbro River Watershed, 07040004-504 and downstream segments to Mississippi River				
Goodhue	25	0.099	9.2	25 mg/L [Note 1] * 0.099 MGD [NPDES]
Pine Island	26.3	0.705	70.1	26.3 mg/L [DMR] * 0.705 MGD [NPDES]
Total	25.5	2.372	228.4	
Note 1: Goodhue no DMR data---unmonitored---so a reference value was calculated based on the average of other cities' maximum mg/L values.				

Table 6 Existing Load Nitrate

Stream ID, Cities	Conc. mg/L	Permit AWW MGD	Mass kg/d	Basis [NPDES limit or DMR data]
Zumbro River, North Fork 07040004-971				
Wanamingo	28	0.458	48.5	28 mg/L [DMR] * 0.458 MGD [NPDES]
Zumbrota	17	1.110	71.3	17 mg/L [DMR] * 1.110 MGD [NPDES]
Subtotal	20.2	1.568	119.8	
Zumbro River Watershed, 07040004-504 and downstream segments to Mississippi River				
Goodhue	30.2	0.099	11.3	30.2 mg/L [DMR] * 0.099 MGD [NPDES]
Pine Island	34	0.705	90.6	34 mg/L [DMR] * 0.705 MGD [NPDES]
Total	24.7	2.372	221.7	

Table 7 Existing Load Chloride

Stream ID, Cities	Conc. mg/L	Permit AWW MGD	Mass kg/d	Basis [NPDES limit or DMR data]
Zumbro River, North Fork 07040004-971				
Wanamingo	431	0.458	746	431 mg/L [Note 1] * 0.458 MGD [NPDES]
Zumbrota	368	1.110	1,544	368 mg/L [DMR Note 2] * 1.110 MGD [NPDES]
Subtotal		1.568	2,290	
Zumbro River Watershed, 07040004-504 and downstream segments to Mississippi River				
Goodhue	513	0.099	192	513 mg/L [DMR Note 3] * 0.099 MGD [NPDES]
Pine Island	519	0.705	1,383	519 mg/L [DMR Note 4] * 0.705 MGD [NPDES]
Total	431	2.372	3,865	
Note 1: Wanamingo no DMR data---unmonitored---so a reference value was calculated based on the average of other cities' maximum mg/L values. Note 2: Zumbrota DMR data May 2024-2025 (15 points). Note 3: Goodhue DMR data excluded outliers by box plot analysis: 607 mg/L (3/2013) and 538 mg/L (4/2023). Note 4: Pine Island DMR data excluded outlier by box plot analysis: 639 mg/L (3/2014).				

Table 8 Existing Load Total Mercury

Stream ID, Cities	Conc. ng/L	Permit AWW MGD	Mass mg/d	Basis [NPDES limit or DMR data]
Zumbro River, North Fork 07040004-971				
Wanamingo	2.4	0.458	4.2	2.4 ng/L [DMR Note 1] * 0.458 MGD [NPDES]
Zumbrota	5.3	1.110	22.2	5.3 ng/L [DMR] * 1.110 MGD [NPDES]. Note 2
Subtotal	4.5	1.568	26.4	
Zumbro River Watershed, 07040004-504 and downstream segments to Mississippi River				
Goodhue	3.5	0.099	1.3	3.5 ng/L [Note 3] * 0.099 MGD [NPDES]
Pine Island	1.3	0.705	3.5	1.3 ng/L [DMR Note 4] * 0.705 MGD [NPDES]
Total	3.5	2.372	31.2	
Note 1: Wanamingo DMR data excluded outlier by box plot analysis: 3.59 ng/L (12/2019). Note 2: Zumbrota DMR data excluded outliers by box plot analysis: 7.4 ng/L (5/2018) and 10.6 ng/L (5/2016). Note 3: Goodhue no DMR data---unmonitored---so a reference value was calculated based on the average of other cities' maximum ng/L values. Note 4: Pine Island DMR data max 1.3 ng/L. Excluded outlier identified by box plot analysis 6.72 ng/L (7/2019).				

Table 9 Existing Load Sulfate

Stream ID, Cities	Conc. mg/L	Permit AWW MGD	Mass kg/d	Basis [NPDES limit or DMR data]
Zumbro River, North Fork 07040004-971				
Wanamingo	42.3	0.458	73.2	42.3 mg/L Max of 2022 & 2024 data, 8 data points, * 0.458 MGD. Note 1
Zumbrota	50.0	1.110	209.8	50.0 mg/L [DMR Note 2] * 1.110 MGD [NPDES]
Subtotal	47.8	1.568	283.0	
Zumbro River Watershed, 07040004-504 and downstream segments to Mississippi River				
Goodhue	41.0	0.099	15.3	41.0 mg/L [DMR] * 0.099 MGD [NPDES]
Pine Island	100.0	0.705	266.5	100 mg/L [DMR Note 3] * 0.705 MGD [NPDES]
Total	63.0	2.372	564.9	
Note 1. Wanamingo and Zumbrota will continue to sample effluent sulfates quarterly through 2024 and 2025. As of Sept 2025, Wanamingo has sampled WWTP Effluent 8 times and the maximum value of 42.3 mg/L is reported here. Note 2. Zumbrota DMR data May 2024-July 2025 (15 points). Note 3. Pine Island DMR data excluded outliers by box plot analysis: 110 mg/l (8/2021), 117 mg/L (9/2021), 112 mg/L (9/2022).				

4.2.4. Future Loading

4.2.4.1. Design Sizing for Year 2045

NZSSD design loads are based on design flows of 4.100 MGD AWW and 2.520 MGD ADW and projected future loads.

The plant design includes a 20-year planning period that anticipates residential, commercial, and industrial growth within the member cities to the year 2045.

Details for loads and planning period assumptions were presented in the approved NZSSD Facility Plan (Vols 1-4) dated February 2024, revised and preliminarily approved October 2024.

The summary of anticipated growth and design loads is presented in Table 10.

Table 10 NZSSD Design Year 2045 Influent Loads and Flows

Load	Year 2024	Design Year 2045
Residential Population (4 Cities Total)	9,853 Pop.	16,200 Pop.
Commercial & Industrial Flow Allocation	Land O' Lakes 0.100 MGD Dairy Farmers of Amer. 0.450 MGD	Land O' Lakes 0.100 MGD Dairy Farmers of Amer. 0.600 MGD Indus. & Com. Growth 0.345 MGD
AVG Flow	1.257 MGD	2.633 MGD
ADW Flow	1.080 MGD	2.520 MGD
AWW Flow	2.536 MGD	4.100 MGD
CBOD5	1,685 PPD	5,115 PPD
TSS	3,168 PPD	7,127 PPD
Phosphorus	85 PPD	181 PPD
TKN	425 PPD	1,001 PPD

4.2.4.2. Preliminary Effluent Limits

The regional NZSSD received a preliminary effluent letter (PEL) from MPCA dated 1/11/2024. The PEL are presented below in Table 11Table 11. The full MPCA letter is attached in the Appendix. The PEL are the basis for the analysis of future load conditions in this section.

Table 11 Preliminary Effluent Limits (MPCA 1/11/2024)

Parameter	Effective Period	Type	Units	Value
Average Wet Weather AWW Design	Jan. – Dec.	Monthly Avg.	MGD	4.10
$CBOD_5$	Jan. – Dec.	Monthly Avg.	mg/L	25
			kg/day	387.5
Total Suspended Solids	Jan. – Dec.	Monthly Avg.	mg/L	30
			kg/day	464.95
pH	Jan. – Dec.	Monthly Min.	SU	6.0
		Monthly Max.	SU	9.0
Fecal Coliform	Apr. – Oct.	Monthly Geo. Mean	CFU/100mL	200
Total Phosphorus	Oct. - May	Monthly Avg.	mg/L	1.0
		Yearly Avg	kg/day	15.5
	Jun. - Sep.	Monthly Avg.	mg/L	0.4
		Yearly Avg	kg/day	6.2
Ammonia-N* (*MPCA notes that new water quality standards for nitrate and/or ammonia are currently under development and may be applied to this facility)	Jun. – Sep	Monthly Avg.	mg/L	6.2
		Yearly Avg	kg/day	96.1
	Oct. – Nov.	Monthly Avg.	mg/L	19.1
		Yearly Avg	kg/day	260.0
	Dec. – Mar.	Monthly Avg.	mg/L	32.5
		Yearly Avg	kg/day	503.7
	Apr. - May	Monthly Avg.	mg/L	19.7
		Yearly Avg	kg/day	305.3
Sulfate, Total	Jan. – Dec.	Monthly Avg.	mg/L	15.9
		Monthly Avg.	kg/day	246.8

4.2.5. Net Increase in Loading

This section compares the design sizing for NZSSD to existing loads for each pollutant by summarizing the analyses in this section. The comparison is on an average annual mass basis (kg/d or mg/d).

The comparison is presented in Table 12 on the following page.

Table 12 Increase in Effluent Loads with NZSSD Facility

Pollutant	Existing Loads		NZSSD PEL	Increase in Load?
	Wanamingo & Zumbrota North Fork-971	All 4 Cities Zumbro Watershed		
CBOD5	148 kg/d	220.2 kg/d	387.5 kg/d	Yes
TSS	178 kg/d	269.1 kg/d	464.95 kg/d	Yes
Phosphorus	42.7 kg/d	48.9 kg/d	6.2 / 15.5 kg/d (Note 1)	No
Ammonia-N	149.1 kg/d	228.4 kg/d	96.1-503.7 kg/d	Yes
Nitrate	119.8 kg/d	221.7 kg/d	120.9 (Note 2)	No
Chloride	2,290 kg/d	3,864 kg/d	6,681 kg/d (Note 3)	Yes
Mercury	26.4 mg/d	31.2 mg/d	54.0 mg/d (Note 3)	Yes
Sulfate - PEL	283.0 kg/d	564.9 kg/d	246.8 kg/d (Note 4)	No
Sulfate – Compliance Schedule Request	283.0 kg/d	564.9 kg/d	976.4 kg/d (Note 4)	Yes
Bacteria	N/A	N/A	N/A	N/A

Notes:

1. *Phosphorus* -The PEL is based on capping phosphorus on North Fork using Wanamingo & Zumbrota @ 1 mg/L as basis. This is a mass cap limit and results in a net decrease in annual loading.
2. *Nitrate* - No PEL limit. Potential 109 kg/d assumes future 10 & 1 limit and 78% NO3:TN ratio.
3. *Chloride, Mercury* - No PEL limit. Assumed NZSSD load calculated from AWW-weighted maximum concentration of 4 cities, 0% removal, * AWW 4.1 MGD.
4. *Sulfate - PEL limit for sulfate is 15.9 mg/L and 246.8 kg/d.* This would result in a net decrease in loading for the watershed. However, due to cost prohibitive treatment a compliance schedule request will be made on this limit. NZSSD would have a net increase in load if compliance schedule is approved.

4.3. Mass Cap Limits

4.3.1. Summary

A Mass Cap limits discharge of a pollutant at the current allowable level. If a facility accepts a Mass Cap limit, no net increase in future mass loading is permitted and further antidegradation analysis is not required. The NZSSD PEL contains a mass cap limit for Total Phosphorus, as described below.

4.3.2. Mass Cap Limit for Total Phosphorus

4.3.2.1. NZSSD WWTF PEL

The mass limits and seasonal concentration limits for Total Phosphorus from the 1/11/24 PEL were as follows:

- 1.0 mg/L (15.5 kg/d) from October-May
- 0.4 mg/L (6.2 kg/d) from June-Sept

The PEL mass caps phosphorus on the North Fork. It was calculated using Wanamingo & Zumbrota plants at their combined AWW flow of 1.656 MGD and potential future limit concentration of 1.0 mg/L TP as a basis. Since neither Wanamingo nor Zumbrota have a TP limit yet, this mass cap would discharge less phosphorus than existing conditions on the North Fork. It would also yield less phosphorus discharge into the Zumbro watershed. MPCA analysis and memorandums provide support for the limit derivation, attached in the Appendix.

Table 13 Mass Cap Total Phosphorus Effluent Limit

Parameter	Effective Period	Type	Units	Value
Total Phosphorus	Oct. - May	Monthly Avg.	mg/L	1.0
		Yearly Avg	kg/day	15.5
	Jun. - Sep.	Monthly Avg.	mg/L	0.4
		Yearly Avg	kg/day	6.2

4.4. Designated Uses and Water Quality Standards

4.4.1. Designated Uses

The designated uses for all the North Fork Zumbro River and Zumbro River segments between -971 and the Mississippi River are the same set of designations: 2Bg, 3, 4A, 4B, 5, 6. Summarized in Table 14.

The table includes common names, MPCA Stream AUID identification numbers, designated uses of the relevant downstream waterbodies (Minn. R. 7050.0280, subp. 2.B.(1)), and which cities are currently discharging to each segment.

Designated uses shown below are from MPCA's Beneficial Use Designations for Stream Reaches: Zumbro River Watershed (07040004), updated March 2023, as per Minn. R. 7050.0470 (wq-s6-48m).

Table 14 Beneficial Use Legend - Selected Entries from Minn. R. 7050.0470

Use	Beneficial Use Legend
1B	Domestic Consumption (requires moderate treatment)
2Bg	Aquatic Life and Recreation – General Warm Water Habitat (lakes and streams)
2Ag	Aquatic Life and Recreation – General Cold Water Habitat (lakes and streams)
3	Industrial Consumption
4A	Agriculture and Wildlife (irrigation)
4B	Agriculture and Wildlife (livestock and wildlife)
5	Aesthetic Enjoyment and Navigation
6	Other Uses

Table 15 Zumbro Watershed Receiving Stream Network Beneficial Uses and Impairments

<table>
<tr><th>Middle Fork</th><th>Trout Brook</th><th>North Fork</th></tr>
<tr><td>Zumbro River Middle Fork 07040004-992, -993
Description: N Br M Fk Zumbro R to Zumbro Lk
Uses: 2Bg, 3, 4A, 4B, 5, 6
TMDL(s): E. coli, TSS
Impairments: E. coli, TSS</td><td>Trout Brook (Mazeppa Creek) 07040004-515
Desc: T110 R15W S24, west line to N Fk Zumbro R
Uses: 1B, 2Ag, 3, 4A, 4B, 5, 6
TMDL(s): E. coli
Impairments: E. coli</td><td>Zumbro River, North Fork 07040004-971
Desc: T109 R19W S11, west line to Trt Brook
Uses: 2Bg, 3, 4A, 4B, 5 and 6
Stream-specific: Benthic macroinvertebrates bioassessments; E. coli TMDL; Turbidity TMDL; Watershed: Mercury TMDL</td></tr>
<tr><td>Lake Zumbro 55-0004-00
TMDL(s): TSS
Impairments: Turbidity, TSS, E. coli, Phosphorus</td><td colspan="2" rowspan="2">Zumbro River, North Fork 07040004-511:
Zumbro River-511 is at the junction of Trout Brook and North Fork-971
Description: Trout Brook to Zumbro River (1.18 mi)
Uses: 2Bg, 3, 4A, 4B, 5, 6
Watershed: E. coli TMDL; Turbidity TMDL; Mercury TMDL</td></tr>
<tr><td>Zumbro River 07040004-506
Desc: Lake Zumbro to Zumbro River-504
Uses: 2Bg, 3, 4A, 4B, 5, 6
TMDL(s): TSS</td></tr>
<tr><td colspan="3">Zumbro River 07040004-504: Zumbro River-504 is at the junction of Zumbro Rivers -511 and -506. It is the stream segment where flows from all four existing city plants combine.
Description: Zumbro River to Cold Creek (6.38 mi)
Uses: 2Bg, 3, 4A, 4B, 5, 6
Stream-specific: Mercury TMDL, PCB impairment. Watershed: E. coli TMDL; Turbidity TMDL;</td></tr>
<tr><td colspan="3">Zumbro River 07040004-502: Cold Creek to West Indian Creek (24.21 mi)
Uses: 2Bg, 3, 4A, 4B, 5, 6
Stream-specific: E. coli TMDL; Mercury TMDL. Watershed: Turbidity TMDL.</td></tr>
<tr><td colspan="3">Zumbro River 07040004-501: West Indian Creek to Mississippi River (23.93 mi)
Uses: 2Bg, 3, 4A, 4B, 5, 6</td></tr>
<tr><td colspan="3">Mississippi River 07040003-627: Chippewa River to Lock & Dam #6 (48.58 mi)
Uses: 2Bg
Stream-specific: Mercury TMDL; Aluminum, PCB, Sulfate impairments.
Watershed: E. coli TMDL, Turbidity TMDL.</td></tr>
</table>

4.4.1. Water Quality Standards

The applicable Water Quality Standards (WQS) per Minn. R. 7050.0220-0226 are summarized in Table 16. A double dash ("--") followed by reference ([7050.0220]) indicates no standard for that pollutant under that specific designated use.

Table 16 Water Quality Standards for Designated Uses 2Bg, 3, 4A, 4B, 5, 6 from Minn R. 7050.0220-0226.

Use	CBOD5	TSS	TP	Ammonia	Nitrate	Chloride	Mercury	Sulfate
2Bg	**D.O. >=5.0 mg/L** [7050.0222]	30 mg/L for Central RNR, **65 mg/L for South RNR** (Note 1) [7050.0222]	-- [7050.0222]	**40 ug/L un-ionized** [7050.0222]	-- [7050.0222]	**230 mg/**L or maintain ambient if above 230 mg/L [7050.0220]	**6.9 ng/L** [7050.0220]	-- [7050.0220]
3	-- [7050.0223]	-- [7050.0223]	-- [7050.0223]	-- [7050.0223]	-- [7050.0223]	-- [7050.0223]	-- [7050.0223]	-- [7050.0223]
4A	-- [7050.0224]	-- [7050.0224]	-- [7050.0224]	-- [7050.0220, 7050.0224]	-- [7050.0220]	-- [7050.0220]	-- [7050.0220]	**10 mg/L** if wild rice present (Note 2) [7050.0220, 7050.0224]
4B	-- [7050.0224]	-- [7050.0224]	-- [7050.0220, 7050.0224]	-- [7050.0220, 7050.0224]	**100 mg/L Nitrate + Nitrite as N** [7050.0220, 7050.0224]	- [7050.0220]	-- [7050.0220]	**600 mg/L** [7050.0220, 7050.0224]
5	-- [7050.0225]	-- [7050.0225]	-- [7050.0225]	-- [7050.0225]	-- [7050.0225]	--- [7050.0225]	-- [7050.0225]	-- [7050.0225]
6	-- [7050.0226]	-- [7050.0226]	-- [7050.0226]	-- [7050.0226]	-- [7050.0226]	-- [7050.0226]	-- [7050.0226]	-- [7050.0226]

Notes:
1. The 2017 Zumbro River Watershed TMDL uses South RNR for the 65 mg/L TSS TMDL applicable to the Zumbro River Watershed.
2. MPCA lists sulfates as being downstream of NZSSD due to connectivity to Mississippi River.

4.4.1.1. TMDLs

Four TMDLs are active in this watershed:

- 2017 Zumbro River Watershed TMDL (TSS, E. coli)
- 2012 Zumbro River Turbidity TMDL (mainly covered south branch and doesn't apply to North Fork Zumbro River)
- Lower Mississippi River Basin Regional Fecal Coliform TMDL
- Statewide Mercury TMDL

4.5. Existing Surface Water Quality for Pollutants of Concern

4.5.1. Purpose

This section summarizes existing surface water quality for pollutants of concern (Minn. R. 7050.0280, subp. 2.B.(2)).

4.5.2. Data Sources

Fortunately, much data exists for the North Fork and Zumbro River and these data are the main basis for Ambient Water Quality summarized in this report.

MPCA database for -971 contained sample results from the following list of collecting organizations:

- Biological Monitoring (MNPCA_BIO)
- Citizen Stream Monitoring Program
- Goodhue County SWCD
- MN Dept of Agriculture Ambien Water Quality Monitoring Program (MNDA_PESTICIDE)
- MPCA Stream Monitoring Program Project
- Nitrogen and Bacteria Monitoring of the Zumbro River Watershed
- Root River Watershed SWAG
- Watershed Pollutant Load Monitoring Network (WPLMN)
- Data sources searched were: MPCA Surface Water Data Access https://webapp.pca.state.mn.us/surface-water/search and EPA Water Quality Data tool https://www.waterqualitydata.us/

Data from the MPCA database matched the TSS and E coli data included in the 2017 Zumbro River Watershed TMDL, which confirmed the consistency of the data in each source.

4.5.3. Stream Segments Presented

As the first stream segment downstream of the NZSSD, -971 data is presented when available. If -971 data is not available, segments -511 and possibly farther downstream are presented as reference data.

As the first stream segment at the confluence of the four existing city plants, Zumbro -504 is presented when available. If -504 is not available, segments -502 or -501 are presented as reference data.

For pollutants with a TMDL we are required to trace downstream, therefore, stream segments with available data between -971 and the Mississippi are summarized. If no additional data are presented here no data exists. The applicable TMDLs are TSS, E coli, and Mercury.

Phosphorus data are not included in the table because a mass cap limit will be accepted, and no further analysis is required for this pollutant.

4.5.4. Average, Median, Geometric Mean

The summary table in Table 17 uses Average, Median, or Geometric Mean values to summarize each pollutant. The choice of metric presented was as follows:

- Average is presented for data sets with low variability, ie, a standard deviation less than half its average value. Dissolved Oxygen, Nitrate, Chloride, Sulfate, and Mercury are summarized here by average values.
- Median is presented for data sets with high variability where a few outlying points can swing average values tremendously. TSS and Ammonia data sets are summarized here by median value.
- Geometric Mean is only used for bacteria because it is the required method of calculating MPN/100mL.

4.5.5. Summary of Existing Surface Water Quality for Pollutants of Concern

Table 17 Summary of Existing Surface Water Quality for Pollutants of Concern

Pollutant	North Fork-971 [Source]	North Fork -511 [Source]	Zumbro-504 [Source]	Zumbro -502 [Source]	Zumbro -501 [Source]
CBOD5 [DO]	2.3 mg/L [EQUIS Watershed-wide] Dissolved Oxygen 10.9 mg/L [MPCA 2009-2013, avg, 61 samples]	2.3 mg/L [EQUIS Watershed-wide] Dissolved Oxygen 10.71 mg/L [MPCA 2013-2024, avg, 256 samples]	2.3 mg/L [EQUIS Watershed-wide] No DO data. Use Zumbro-502 ref.	2.3 mg/L [EQUIS Watershed-wide] Dissolved Oxygen 9.97 mg/L [MPCA 2023, avg, 12 samples]	2.3 mg/L [EQUIS Watershed-wide] Dissolved Oxygen 10.3 mg/L [MPCA 2007-2024, avg, 226 samples]
TSS	12 mg/L [MPCA & TMDL Apr-Sep 2009-2013, median, 62 samples]	56.1 mg/L [MPCA Apr-Sep 2013-2024, median, 198 samples]	No data. Use North Fork -511 ref.	5 mg/L [MPCA Apr-Sep 2012&2023, median, 18 samples]	76 mg/L [MPCA Apr-Sep 2012-2024, median, 569 samples]
Ammonia	0.057 mg/L (2 ug/L unionized) [MPCA 2009-2013, median, 39 samples]	No data.	No data. Use Zumbro-502 ref.	0.040 mg/L (1 ug/L unionized) [MPCA 2012, median, 12 samples]	0.050 mg/L (2 ug/L unionized) [MPCA 2008-2012, median, 66 samples]
Nitrate	6.9 mg/L [MPCA 1958-2023, avg, 287 samples]	6.5 mg/L [MPCA 2013-2024, avg, 279 samples]	No data. Use Zumbro-502 ref.	5.6 mg/L [MPCA 2007-2023, average, 36 samples]	5.4 mg/L [MPCA 2007-2024, average, 696 samples]
Chloride	24.5 mg/L [MPCA 1956-2023, avg, 86 samples]	No data.	No data. Use Zumbro-502 ref.	34.6 mg/L [MPCA 2012-2023, avg, 13 samples]	25.6 mg/L [MPCA 2007-2023, avg, 70 samples]
Sulfate	32.2 mg/L [MPCA 2012-2013, avg, 12 samples]	No data.	No data. Use Zumbro-502 ref.	24.4 mg/L [MPCA 2012, avg, 12 samples]	18.2 mg/L [MPCA 2007-2023, avg, 87 samples]
Mercury	No data.	No data.	No data. No data. Use Zumbro-501 ref.	No data	1.340 ng/L [MPCA 2011-2021, avg, 21 samples]
E coli.	349.7 MPN/100mL [MPCA & TMDL 2009-2023, geom. mean, 84 samples]	252 MPN/100mL [MPCA 2023, geom. Mean, 10 samples]	No data. No data. Use Zumbro-502 ref.	212 MPN/100mL [MPCA 2002-2023, geom. mean, 63 samples]	177 MPN/100ml [MPCA 2002-2023, geom. mean, 39 samples]

4.6. Determining Degradation to Surface Water Quality Due to Increased Pollutant Loading

4.6.1. Pollutant Concentration in Receiving Waters by Mass Balance

This section calculates the concentration of pollutants in the receiving water using a steady-state mass balance formula.

MPCA equation in MPCA Antideg Guidance Section 4.5. [wq-wwprm2-65 pg 13]:

$$C_{Future\ Water} = \frac{Q_{WWTP} \times C_{Future\ WWTP} + Q_{Water} \times C_{Existing\ Water}}{Q_{Water} + Q_{WWTP}}$$

$C_{Future\ Water}$ = *Expected future surface water concentration*

Q_{WWTP} = *Applicable design flow of the WWTP*

$C_{Future\ WWTP}$ = *Expected future WWTP concentration*

Q_{Water} = *Applicable low flow rate for the waterbody in question*

$C_{Existing\ Water}$ = *Existing surface water concentration upstream of WWTP*

The tables below compare the river concentration 'before' (with existing plants at full authorized load per NPDES permit limits and design AWW flow), and 'after' (with NZSSD at full potential load per PEL) using the mass-balance equation. Comparisons are presented for the North Fork-971, and the Zumbro watershed -504.

The variable $C_{EXISTING\ WATER}$ (mg/L) represents ambient conditions without the existing wastewater plants in operation. The $C_{EXISTING\ WATER\ ADJ}$ (mg/L) values in the tables below were back-calculated to approximate ambient conditions without the plants' loads. Values were calculated using the mass-balance equation and the existing plants' historic average effluent flows, historic average concentrations, and MPCA river data as inputs.

Calculated values for $C_{FUTURE\ WATER}$ (mg/L) represent the river conditions with wastewater plants in operation. The calculated values were rounded to the same number of decimal places as the regulatory water quality standards are written, or as the quality of available data allows.

Note, a mass-balance equation is not well suited to calculating the effect of non-steady state pollutants, therefore, additional analysis for CBOD and ammonia are presented in the following section.

Table 18 Critical Flows

Flows	Wanamingo & Zumbrota	North Fork - 971	All 4 Cities	Zumbro Watershed - 504	NZSSD
ADW	0.75 MGD	--	1.128 MGD	--	2.520 MGD
AWW	1.568 MGD	--	2.372 MGD	--	4.100 MGD
7Q10 Annual	--	20.8 cfs		74.1 cfs	
7Q10 Jun-Sep	--	23.2 cfs	--	85.1 cfs	--
30Q10 Jun-Sep	--	25.7 cfs	--	101.4 cfs	--

Table 19 Pollutant Concentration in Receiving Waters by Mass Balance – CBOD5

	'Before and After' North Fork -971		'Before and After' Zumbro -504	
Equation parameters	Wanamingo & Zumbrota	NZSSD	All 4 Cities	NZSSD
Q_{WWTP} (MGD)	1.568	4.100	2.372	4.100
$C_{FUTURE\ WWTP}$ (mg/L)	25	25	24.6	25
Q_{WATER} (cfs) 7Q10 Jun-Sep	23.2	23.2	85.1	85.1
$C_{EXISTING\ WATER\ ADJ}$ (mg/L)	2	2	2	2
$C_{FUTURE\ WATER}$ (mg/L)	4	7	3	4
Comparison		Increased Conc.		Increased Conc.

Notes:

1. See DO Sag equations

Table 20 Pollutant Concentration in Receiving Waters by Mass Balance – TSS

	'Before and After' North Fork -971		'Before and After' Zumbro -504	
Equation parameters	Wanamingo & Zumbrota	NZSSD	All 4 Cities	NZSSD
Q_{WWTP} (MGD)	1.568	4.100	2.372	4.100
$C_{FUTURE\ WWTP}$ (mg/L)	30	30	30	30
Q_{WATER} (cfs) 7Q10 Annual	20.8	20.8	74.1	74.1
$C_{EXISTING\ WATER\ ADJ}$ (mg/L)	12	12	57	57
$C_{FUTURE\ WATER}$ (mg/L)	14	16	56	55
Comparison		Increased Conc.		Decreased Conc.

Table 21 Pollutant Concentration in Receiving Waters by Mass Balance – Ammonia

	'Before and After' North Fork -971		'Before and After' Zumbro -504	
Equation parameters	Wanamingo & Zumbrota	NZSSD	All 4 Cities	NZSSD
Q_{WWTP} (MGD)	0.750	2.520	1.128	2.520
$C_{FUTURE\ WWTP}$ (mg/L)	25.2	6.2	25.5	6.2
Q_{WATER} (cfs)30Q10 Jun-Sep	25.7	25.7	101.4	101.4
$C_{EXISTING\ WATER\ ADJ}$ (mg/L)	0.000	0.000	0.000	0.000
$C_{FUTURE\ WATER}$ (mg/L)	1.089	0.817	0.431	0.230
Comparison		Decreased Conc.		Decreased Conc.

Table 22 Pollutant Concentration in Receiving Waters by Mass Balance – Nitrate

	'Before and After' North Fork -971		'Before and After' Zumbro -504	
Equation parameters	Wanamingo & Zumbrota	NZSSD	All 4 Cities	NZSSD
Q_{WWTP} (MGD)	0.750	2.520	1.128	2.520
$C_{FUTURE\ WWTP}$ (mg/L)	20.2	7.8	24.7	7.8
Q_{WATER} (cfs) 7Q10 Jun-Sep	23.2	23.2	85.1	85.1
$C_{EXISTING\ WATER\ ADJ}$ (mg/L)	7	7	6	6
$C_{FUTURE\ WATER}$ (mg/L)	7	7	6	6
Comparison		No change		No change

Table 23 Pollutant Concentration in Receiving Waters by Mass Balance – Chloride

	'Before and After' North Fork -971		'Before and After' Zumbro -504	
Equation parameters	Wanamingo & Zumbrota	NZSSD	All 4 Cities	NZSSD
Q_{WWTP} (MGD)	1.568	4.100	2.372	4.100
$C_{FUTURE\ WWTP}$ (mg/L)	513	431	431	431
Q_{WATER} (cfs) 7Q10 Annual	20.8	20.8	74.1	74.1
$C_{EXISTING\ WATER\ ADJ}$ (mg/L)	2	2	26	26
$C_{FUTURE\ WATER}$ (mg/L)	55	102	45	57
Comparison		Increased Conc.		Increased Conc.

Table 24 Pollutant Concentration in Receiving Waters by Mass Balance – Sulfate

	'Before and After' North Fork -971		'Before and After' Zumbro -504	
Equation parameters	Wanamingo & Zumbrota	NZSSD	All 4 Cities	NZSSD
BASED ON NZSSD PEL (15.9 mg/L Sulfate Limit)				
Q_{WWTP} (MGD)	1.568	4.100	2.372	4.100
$C_{FUTURE\ WWTP}$ (mg/L)	47.8	15.9	63.0	15.9
Q_{WATER} (cfs) 7Q10 Annual	20.8	20.8	74.1	74.1
$C_{EXISTING\ WATER\ ADJ}$ (mg/L)	32	32	24	24
$C_{FUTURE\ WATER}$ (mg/L)	34	29	26	23
Comparison		Decreased Conc.		Decreased Conc.
Based on NZSSD Requested Compliance Schedule				
Q_{WWTP} (MGD)	1.568	4.100	2.372	4.100
$C_{FUTURE\ WWTP}$ (mg/L)	47.8	63.0	63.0	63.0
Q_{WATER} (cfs) 7Q10 Annual	20.8	20.8	74.1	74.1
$C_{EXISTING\ WATER\ ADJ}$ (mg/L)	32	32	24	24
$C_{FUTURE\ WATER}$ (mg/L)	34	40	26	27
Comparison		Increased Conc.		Increased Conc.

The upper half of this table shows the river concentration with NZSSD at 15.9 mg/L sulfate. The lower half of this table shows river concentration if a compliance schedule were to be approved for sulfate. In this case NZSSD effluent concentration is calculated based on the historic weighted maximum sulfate concentration of the four cities, with 0% removal.

Table 25 Pollutant Concentration in Receiving Waters by Mass Balance – Mercury

	'Before and After' North Fork -971		'Before and After' Zumbro -504	
Eq. Variables	Wanamingo & Zumbrota	NZSSD	All 4 Cities	NZSSD
Q_{WWTP} (MGD)	1.568	4.100	2.372	4.100
$C_{FUTURE\ WWTP}$ (ng/L)	4.5	3.5	3.5	3.5
Q_{WATER} (cfs)	N/A	N/A	N/A	N/A
$C_{EXISTING\ WATER\ ADJ}$ (ng/L)	N/A	N/A	N/A	N/A
$C_{FUTURE\ WATER}$ (ng/L)	4.5	3.5	3.5	3.5
Comparison		Decreased Conc.		No change (possible decrease w/ BioP + ChemP)

Mass balance equations are N/A for bacteria so E coli is not included here. Phosphorus will have a mass-cap so before and after concentrations are not presented here.

4.6.2. Concentration of Non-Steady State Pollutants

4.6.2.1. CBOD5

The applicable WQS for CBOD is the Dissolved Oxygen (DO) minimum requirement of 5.0 mg/L.

The impact of the NZSSD on the North Fork-971 was modeled using the Streeter-Phelps equation under average dry weather (ADW) and 7Q10 conditions, an average ambient DO concentration of 10.9 mg/L, a 25 mg/L CBOD effluent limit, and an assumed 0.0 mg/L DO in the effluent as worst-case scenario for effluent oxygen conditions. Parameters for deoxygenation and reoxygenation in the river were selected based on surveyed cross section data for the North Fork-971. Under these assumptions, the model projects the DO sag for the existing plants on the North Fork-971 will go down to 8.1 mg/L, and DO sag for NZSSD will go down to 6.7 mg/L. There is a decrease in projected DO; however, it remains above the WQS. These results are presented in Table 26.

An alternative analysis was also performed at average wet weather (AWW) flows to simulate a situation where the river is at 7Q10, but the WWTF is experiencing higher flows than would be expected. This also includes 0.0 mg/L DO in the effluent as worst-case scenario. The projected DO sag for the existing two plants goes down to 7.4 mg/L DO and the projected sag for NZSSD goes down to 5.6 mg/L. There is a decrease in DO, but it is still above the WQS. These calculations are not presented in Table 26 but are included in the Appendix.

The DO sag critical distance (point of lowest DO) is 5,000 meters (3.1 miles) from the outfall based on the Streeter-Phelps model. Therefore, the comparison of DO farther downstream on the Zumbro River-504 is highly relevant to the comparison of ‘before and after’ conditions. The impact of the NZSSD on Zumbro River-504 was modeled using the Streeter-Phelps equation under average dry weather (ADW) and 7Q10 conditions, an average ambient DO concentration of 9.97 mg/L, a 25 mg/L CBOD effluent limit (24.7 mg/L weighted average CBOD permit limit for the existing four plants since Goodhue is 15 mg/L), and an assumed 0.0 mg/L DO in the effluent. The projected DO sag for the existing four plants goes down to 8.8 mg/L DO and the projected sag for NZSSD goes down to 8.7 mg/L. There is a slight decrease in DO that is likely within a margin of rounding error compared to existing conditions and the projected DO is still above the WQS.

By comparing the DO sag under a range of ‘before and after’ conditions, including worst-case assumption for the effluent aeration, we conclude that a CBOD effluent limit of 25 mg/L is protective of the 5 mg/L DO WQS. Calculations for all conditions are included in the Appendix.

Table 26 Dissolved Oxygen Concentration in Receiving Waters by DO Sag Equation

	'Before and After' North Fork -971		'Before and After' Zumbro -504	
Equation parameters	Wanamingo & Zumbrota	NZSSD	All 4 Cities	NZSSD
Q WWTP (MGD)	0.750	2.520	1.128	2.520
C FUTURE WWTP (mg/L)	25 mg/L CBOD 0 mg/L DO	25 mg/L CBOD 0 mg/L DO	24.7 mg/L CBOD 0 mg/L DO	25 mg/L CBOD 0 mg/L DO
Q WATER (cfs)	23.2	23.2	85.1	85.1
C EXISTING WATER (mg/L)	10.9 mg/L DO	10.9 mg/L DO	10.9 mg/L DO	10.9 mg/L DO
C FUTURE WATER (mg/L)	8.1 mg/L DO	6.7 mg/L DO	8.8 mg/L DO	8.7 mg/L DO
WQS	>= 5.0 mg/L	>= 5.0 mg/L	>= 5.0 mg/L	>= 5.0 mg/L
Meets WQS?	Yes	Yes	Yes	Yes

4.6.2.2. Ammonia

The applicable WQS for Ammonia is 40 micrograms per liter (ug/L) or less of ammonia in its un-ionized form. The percent un-ionized ammonia can be calculated for any temperature and pH by using the following equation [Minn. R. 7050.0222]: *Emerson, K., R.C. Russo, R.E. Lund, and R.V. Thurston, Aqueous ammonia equilibrium calculations; effect of pH and temperature. Journal of the Fisheries Research Board of Canada 32: 2379-2383 (1975):*

$$f = 1/(10^{(pka-pH)} + 1) \times 100$$

where: f = the percent of total ammonia in the un-ionized state

pka = 0.09 + (2730/T) (dissociation constant for ammonia)

T = temperature in degrees Kelvin (273.16° Kelvin = 0° Celsius)

The impact of the NZSSD was modeled using the Emerson equation, and ambient temperature and pH calculated on a quarterly basis from historical data taken from the North Fork-971, and assumed values for temperature and pH of the proposed effluent. These calculations are included in the Appendix to this report (MN0071901 Ammonia Limit Calcs 10-31-2023). The calculations yielded a conversion factor (*f in Enerson equation above*) of 4.41% for the Jun-Sep seasonal set of values

The model estimates the seasonal ammonia limits in the NZSSD PEL are protective of the 40 µg/L unionized ammonia WQS.

4.7. Will there be a violation of a water quality standard due to increased pollutant loading

This section evaluates if mass increases identified in the previous section will be acceptable and maintain the designated uses for the receiving streams based on meeting water quality standards in the Minnesota state code.

4.7.1. Results

NZSSD WWTF discharging at the effluent limits listed in the 1/11/2024 PEL will result in no violations of water quality standards, except for sulfate.

Sulfate projections based on PEL vs a compliance schedule request are both included in Table 27. The projected future river concentrations do not meet the Class 4A 10 mg/L water quality standard for sulfate in either scenario. The existing ambient river concentrations are higher than the standard and dominate the calculation in either scenario. The projected future river concentrations do meet the Class 4B 600 mg/L water quality standard for sulfate in either scenario.

4.7.2. Evaluation

Table 27 compares regulatory Water Quality Standards to the projected river concentrations with NZSSD discharging full loads. An evaluation is provided for the North Fork-971 and the Zumbro Watershed -504.

Water Quality Standards were presented in Section 4. Projected river concentrations were calculated based on the river dilution mass-balance and other equations presented in the previous section.

Table 27 Protection of WQS in North Fork and Zumbro Watershed

		North Fork -971		Zumbro -504	
Pollutant	**WQS**	**Projected River Conc. w/ NZSSD**	**Protects WQS?**	**Projected River Conc. w/ NZSSD**	**Protects WQS?**
CBOD	**DO>5.0 mg/L**	6.7 mg/L DO	**YES**	8.7 mg/L DO	**YES**
TSS	**65 mg/L**	16 mg/L	**YES**	55 mg/L	**YES**
Ammonia	**40 µg/L unionized**	36 µg/L	**YES**	10 µg/L	**YES**
Nitrate	**100 mg/L**	7 mg/L	**YES**	6 mg/L	**YES**
Chloride	**230 mg/L**	102 mg/L	**YES**	57 mg/L	**YES**
Sulfate-PEL	**10 mg/L (4A), 600 mg/L (4B)**	29 mg/L	**4A No 4B YES**	23 mg/L	**4A No 4B YES**
Sulfate-Compliance Schedule	**10 mg/L (4A), 600 mg/L (4B)**	40 mg/L	**4A No 4B YES**	27 mg/L	**4A No 4B YES**
Mercury	**6.9 ng/L no dilution**	3.5 ng/L	**YES**	3.5 ng/L	**YES**
Bacteria	**126 CFU/100 mL E. coli no dilution**	200 CFU/100mL Fecal coliform	**YES**	200 CFU/100mL Fecal coliform	**YES**

Notes:

1. This table shows the sulfate concentration based on NZSSD PEL and 'what if' a compliance schedule were to be approved for sulfate.
2. From 2017 Zumbro River Watershed TMDL (pgs 10-11), 126 CFU /100 mL for E coli is equivalent to 200 CFU /100 mL fecal coliform. Minnesota changed its WQS to E coli in 2008, but the NPDES permits are written based on fecal coliform.
3. Phosphorus will have a mass cap limit and further analysis is not required so it is excluded here.

5. Treatment Alternatives

5.1. Identify Alternatives

The following list identifies a range of general pollution control alternatives which might avoid additional loading or minimize degradation in some circumstances. Not all these alternatives are applicable to a regionalized WWTF discharging at 4.1 MGD. Discussion of these alternatives is presented in Section 5.2.

- Holding tanks
- Regionalization
- Pretreatment
- Modified, additional or enhanced treatment technology
- Discharge to alternative locations
- Loading offsets/pollutant trading
- Recycling water
- Improved operation and maintenance of existing WWTFs
- Land application
- Alternative water supply sources
- Do nothing (continue current practice)

5.2. Elimination of Alternatives

The NZSSD WWTF project includes several of the solutions mentioned above. For this project, others are not recommended or practicable. This section goes over each option and weeds out the ones that aren't practical or wise for this undertaking.

- Holding tanks: not reasonable for a WWTF discharging 4.1 MGD. This alternative is not considered further.
- Regionalization: The NZSSD WWTF project will regionalize four existing WWTF sites into one WWTF.
- Pretreatment techniques: The NZSSD WWTF has two significant industrial users, one of which pretreats its effluent prior to disposal into the NZSSD system. This practice is anticipated to continue in the future.
- Modified, additional or enhanced treatment technology: This is a benefit of regionalization, new state of the art treatment is better than existing.
- Discharge to alternative locations: not feasible for a regionalized WWTP. This alternative is not considered further.

- Loading offsets/pollutant trading: By building a regionalized facility, the NZSSD is taking loads off impaired streams in the Zumbro Watershed.

  Another potential trading option to consider is sulfate. However, since 90% of Minnesota is in the Mississippi watershed and faces the same limits and challenges in meeting them, there are no realistic trading partners for sulfate.

- Recycling water: NZSSD WWTF Facility Plan evaluates options for recycling effluent internally in the facility to recover heat and use the water for non-potable uses before its eventual discharge. The NZSSD WWTF will internally recycle effluent to a feasible extent, but recycling will not change the amount of effluent discharged from the facility.

- Improved operation and maintenance of existing WWTFs: the NZSSD WWTF project will regionalize four existing WWTF sites into one WWTF. This will lead to the abandonment and demolition of four existing aging facilities.

- Land application: not reasonable for a WWTF discharging 4.1 MGD. This alternative is not considered further.

- Alternative water supply sources: Each of the four member cities of NZSSD owns and operates its own drinking water wells and distribution system. Their drinking water comes from aquifers that are the primary source of sulfates in the wastewater streams. This is typical across the state of Minnesota and there are no viable alternative water supply sources with less sulfate.

  Source reduction via drinking water treatment to remove sulfates would help decrease sulfate in the wastewater streams; however, it would carry a high economic cost and create other pollution streams. Drinking water treatment is discussed further in the section below.

- Do nothing (continue current practice): All four existing WWTFs are ageing and have limited ability for expansion. Leaving the existing plants in place does not allow for the same economic growth as building a new plant. Leaving the existing plants in place also does not allow for the same nitrogen and phosphorus removal as a new plant could provide and keeps effluent loads from the member cities on impaired stream segments in the Zumbro Watershed. This alternative is not considered further.

5.3. Identifying Technology Needed to Meet Various Limit Scenarios

This section identifies and describes treatment technologies needed to meet various limit scenarios. It evaluates options including constructing new wastewater plants at each city, a NZSSD regional plant, or a NZSSD regional plant with advanced treatment and/or drinking water plants for source reduction. A description of the treatment capabilities for each one is presented in the narrative below. Not all technologies listed below would be appropriate for application at NZSSD. Prudent and feasible alternatives are carried forward to Section 5.4 Ranking of Alternatives and the Economic Analysis in Chapter 6.

5.3.1. New City WWTFs (4)

5.3.1.1. Four New WWTFs

The NZSSD WWTF Facility Plans Volumes 1 - 4 provided an evaluation for constructing new WWTFs at each of the four member cities. Each of the new plants would be an Enhanced Biological Nutrient Removal (EBNR) treatment facility. This alternative would provide updated wastewater treatment, give additional capacity for growth but would still keep effluent loads from the member cities on impaired stream segments in the Zumbro Watershed. Building 4 New WWTFs is viable and may be a future alternative for the cities if a regional plant does not come to fruition. Four (4) New WWTFs is an alternative carried forth into the ranking and economic analysis.

5.3.1.2. Upgrading Existing WWTFs

All four cities evaluated upgrading their existing city WWTFs but only one, Wanamingo, found that it would be feasible. Since this is not a viable option for all member cities this alternative is not carried forward.

5.3.2. NZSSD REGIONAL WWTF: EBNR

The NZSSD WWTF Facility Plan provided a detailed evaluation of four Enhanced Biological Nutrient Removal (EBNR) treatment technologies:

- EBNR oxidation ditch
- EBNR sequenced batch reactor
- EBNR extended aeration
- EBNR activated granular sludge

These technologies were evaluated for feasibility, reliability, availability of equipment and licensed operators, capital costs, and operations & maintenance costs. Based on the NZSSD WWTF Facility Plan evaluation, oxidation ditches were the recommended EBNR technology for the NZSSD WWTF. All four EBNR alternatives are carried forth here into the ranking and economic analysis.

All four EBNR technologies listed above can produce similar effluent quality. All four would be able to meet the Preliminary Effluent Limits received from MPCA 1/11/24 (and 10 mg/L Total Nitrogen or Total Nitrate) except EBNR could not meet 15.9 mg/L sulfate limit listed in the PEL.

5.3.3. NZSSD REGIONAL WWTF: EBNR Plus RO/NF

Meeting a 15.9 mg/L sulfate limit is much more difficult than phosphorus. The MPCA published a review of the state of technology available for sulfate removal in 2018, titled “Analyzing Alternatives for Sulfate Treatment in Municipal Wastewater.” This report is still the most up-to-date available. All the alternatives presented came with high cost and little engineering and historic performance data. The highest-ranked alternative from the analysis was reverse osmosis (RO) with micro(nano)filtration. Electricity and natural gas inputs are high to crystallize RO waste streams and then that concentrate becomes its own waste stream with disposal issues and costs. Capital costs for reverse osmosis with micro(nano)filtration are approximately double the cost of a new activated sludge plant and O&M is approximately 800% that of a new plant.

Chlorides and mercury are like sulfate in that gross removal of either of these two pollutants would also require reverse osmosis or nanofiltration (RO/NF). (Although some

mercury reduction is anticipated with EBNR, the 50%-75% reduction that would be needed if a mass cap were desired would require RO/NF).

An RO/NF facility would typically have EBNR as a base process and add either RO or NF as additional treatment, with the selection determined after some pilot testing. RO and NF have similar treatment capabilities, equipment costs, and O&M costs. For this report, EBNR + RO/NF is carried forth into the ranking and economic analysis. It represents both EBNR + RO and EBNR + NF.

5.3.4. NZSSD REGIONAL WWTF PLUS 4 WATER TREATMENT PLANTS

The primary source of sulfates from the combined cities is drinking water. Source reduction via sulfate removal at drinking water treatment plants would help decrease sulfate in the wastewater streams and would be able to meet a 15.9 mg/L sulfate PEL.

Each city owns and operates its own drinking water treatment and distribution system. A drinking water treatment plant would be needed in each city (4 total) to remove sulfates in addition to the regional NZSSD WWTF project for wastewater treatment.

Drinking water treatment would be RO/NF, just like for wastewater, and carry the same high capital and O&M costs and waste disposal issues. Removal of RO waste is not simpler on the drinking water side. The typical method of waste disposal for RO concentrate is to dump it into the sewer and of course that would not work here since that just moves the sulfates back to the wastewater plant.

"EBNR (Oxidation Ditch) WWTF + 4 Water Treatment Plants for SO_4" is carried forward into the ranking and economic analysis to demonstrate that source reduction is not a viable pathway to meet sulfate limits.

5.4. Ranking of Remaining Alternatives from Least to Most Degrading

This section ranks the potential wastewater treatment technology alternatives from least to most degrading.

5.4.1. Scoring and Ranking Narrative

Ranking criteria were created and assigned subjective point values for each of the categories listed below. Each treatment alternative was then scored according to its objective ability to meet those criteria on a Yes/No basis.

In total there are 40 points for water quality in the rating table which makes water quality the largest factor in the rankings. The nine water quality pollutant criteria are each worth 3 points in the scoring table for meeting WQS concentration-based standards. Phosphorus offers an additional 3 points for being able to meet a mass cap on the North Fork-971. Additionally, there are 10 points for taking loads off the Middle Fork, Trout Brook, and upstream North Fork to reflect the benefits to water quality on those other streams from creating the regionalized facility.

There are 2 points for avoiding creating other waste streams. This scoring factor specifically applies to the byproduct waste streams created by RO/NF for sulfate removal. This factor assigns a value to not trading one problem for another when using a whole-environment perspective.

There are also 8 points for creating the treatment capacity to allow the communities to grow to 4.1 MGD AWW flow which allows residential, commercial and industrial projected growth for the next twenty years. This factor scores the ability for the treatment alternatives to allow for important economic and social development.

Project construction and O&M costs relative to household income and city financial strength are not considered in this Section 5.4 ranking but are considered separately in the next chapter (Chapter 6) and brought together in the Conclusion in Chapter 7.

Table 28 Ranking of Remaining Alternatives from Least to Most Degrading

Alternative / Effluent Criteria	EBNR + RO / NF (SO4)	EBNR + 4 Water Treatment Plants (SO4)	EBNR – Oxidation Ditches	EBNR – Sequencing Batch Reactor	EBNR – Extended Air Activ. Sludge	EBNR – Aerobic Granular Sludge	4 New WWTFs
CBOD 25 mg/L (3 points)	☑ YES	☑ YES	☑ YES	☑ YES	☑ YES	☑ YES	☑ YES
TSS 30 mg/L (3 points)	☑ YES	☑ YES	☑ YES	☑ YES	☑ YES	☑ YES	☑ YES
Phos 1 mg/L (3 points) Mass Cap-971 (3 points)	☑ YES ☑ YES	☑ YES	☑ YES ☑ YES	☑ YES ☑ YES	☑ YES ☑ YES	☑ YES ☑ YES	☑ YES
Ammonia 6-30 mg/L (3 points)	☑ YES	☑ YES	☑ YES	☑ YES	☑ YES	☑ YES	☑ YES
Nitrate 8 mg/L (3 points)	☑ YES	☑ YES	☑ YES	☑ YES	☑ YES	☑ YES	☑ YES
Chloride 230 mg/L w/ dil (3 points)	☑ YES	☑ YES	☑ YES	☑ YES	☑ YES	☑ YES	☑ YES
Mercury 6.9 ng/L (3 points)	☑ YES	☑ YES	☑ YES	☑ YES	☑ YES	☑ YES	☑ YES
Sulfate 15.9 mg/L (3 points)	☑ YES	☑ YES					
Bacteria 200/100mL (3 points)	☑ YES	☑ YES	☑ YES	☑ YES	☑ YES	☑ YES	☑ YES
Avoids creating other atypical waste streams (2 points)			☑ YES	☑ YES	☑ YES	☑ YES	☑ YES
Allows for growth to 4.1 MGD (8 points)	☑ YES	☑ YES	☑ YES	☑ YES	☑ YES	☑ YES	☑ YES
Removes loads on Trout Brook and Middle Fork (Impaired waters) (10 points)	☑ YES	☑ YES	☑ YES	☑ YES	☑ YES	☑ YES	
Ranking	1st (48/50 points)	3rd (45/50 points)	2nd tied (47/50 points)	2nd tied (47/50 points	2nd tied (47/50 points	2nd tied (47/50 points	4th (34/50 points)

6. Economic Analysis

Project construction and O&M costs relative to household income and city financial strength are considered in this chapter. The Economic analysis prescribed by Antidegradation guidance consists of three parts: the Municipal Preliminary Screener, Secondary Financial Tests, and Assessment of Substantial Impacts Matrix.

6.1. Municipal Preliminary Screener Value

The first economic analysis is the Municipal Preliminary Screener Value. This screener calculates the cost of a project as percentage of median household income. The Municipal Preliminary Screener equation is found in MPCA Antidegradation Guidance Section 4.5. [wq-wwprm2-65 pg 13]:

$$Municipal\ Preliminary\ Screener = \frac{Annual\ pollution\ control\ cost\ per\ household\ \times 100}{Median\ household\ income}$$

The MPS matrix for NZSSD is presented on the following page.

Table 29 Municipal Preliminary Screener Value

NZSSD Item	EBNR + RO / NF (SO4)	EBNR + 4 Water Treatment Plants (SO4)	EBNR – Oxidation Ditches	EBNR – Sequencing Batch Reactor	EBNR – Extended Air Activ. Sludge	EBNR – Aerobic Granular Sludge	4 New WWTFs
Construct. WWTF	163,300,000	83,300,000.00	83,300,000	82,500,000	91,800,000	95,300,000	110,762,100
Construct. Conveyance	28,000,000	28,000,000	28,000,000	28,000,000	28,000,000	28,000,000	-
Construct. Water Plants	-	100,000,000	-	-	-	-	-
Salvage	-20,471,000	-20,471,000	-20,471,000	-19,602,000	-21,912,000	-19,459,000	-27,507,000
Bonding Credit	-10,000,000	-10,000,000	-10,000,000	-10,000,000	-10,000,000	-10,000,000	-
Construction Total	160,829,000	180,829,000	88,829,000	80,898,000	87,888,000	93,841,000	83,255,100
Construct. Annualized	11,834,079	13,305,714	5,947,539	5,952,616	6,466,953	6,904,985	6,126,056
O&M WWTF	8,111,000	961,000	961,000	906,000	1,073,000	812,000	1,583,000
O&M Conveyance	163,000	163,000	163,000	163,000	163,000	163,000	-
O&M City Collec. Sys	430,000	430,000	430,000	430,000	430,000	430,000	430,000
O&M Water Plants	0	7,150,000	0	0	0	0	0
O&M Annual Total	8,704,000	8,704,000	1,554,000	1,499,000	1,666,000	1,405,000	2,013,000
Total Cost Annualized	20,538,079	22,009,714	7,501,539	7,506,616	8,020,953	8,458,985	8,139,056
Households	3,941	3,941	3,941	3,941	3,941	3,941	3,941
MHI 2022	78,338	78,338	78,338	78,338	78,338	78,338	78,338
MHI 2027 index by CPI	95,310	95,310	95,310	95,310	95,310	95,310	95,310
Muni Prelim Screener	**5.5%**	**5.9%**	**2.0%**	**2.0%**	**2.1%**	**2.3%**	**2.2%**
RESULT	**>5% Unaffordable**	**>5% Unaffordable**	**1%<X<5% Continue to 2° financial tests**	**1%<X<5% Continue to 2° financial tests**	**1%<X<5% Continue to 2° financial tests**	**1%<X<5% Continue to 2° financial tests**	**1%<X<5% Continue to 2° financial tests**

Notes:

1. Annualized Cost based on equation A = (P * r) / (1 - (1 + r)-n) for 20 years, 4% annual.
2. Number of Households is from city data, referenced from NZSSD Facility Plan Vol. 1 dated Feb 2024 (rev Oct 2024).
3. MHI is from US CENSUS data for Goodhue County, MN. MHI 2018-2022 in 2022 dollars. There is not city-level data available in the Census for populations under 5K.
4. MHI indexed to 2027 is $78,338-->$95,310 based on 4% for 5 years. CPI for 5-yrs 2019-2024 has been 4.1% annual. CPI for 10-yrs 2014-2024 has been 2.9% annual. https://www.bls.gov/data/inflation_calculator.htm

6.2. Secondary Financial Tests

Secondary Financial Test data for NZSSD member cities are presented below.

Table 30 Secondary Financial Test Data

Data	Goodhue	Pine Island	Wanamingo	Zumbrota	Notes/Source
Direct Net Debt, $	2,491,678	11,406,481	3,063,000	3,430,000	City General Obligation Bond Sale Financial Statements, 2022 and 2023
Overlapping Debt, $	4,433,882	23,136,213	1,738,392	16,918,802	City General Obligation Bond Sale Financial Statements, 2022
Market Value of Taxable Property	121,202,300	295,267,900	118,933,700	429,070,100	Mn Dept of Revenue TMV by City, 2022 Report
Bond Rating for uninsured bonds	S&P AA-	S&P AA-	S&P A	Moody's A1	City General Obligation Bond Sale Financial Statements, 2022
Community Unemployment Rate	2.4%	2.4%	2.4%	2.4%	Minnesota LAUS, September 2024, for Goodhue County, MN
National Unemployment Rate	3.9%	3.9%	3.9%	3.9%	Minnesota LAUS, September 2024, for USA
Community Median Household Income not adjusted for inflation, $	78,338	78,338	78,338	78,338	US Census, MHI for Goodhue County MN 2018-2022 in 2022 dollars
State Median Household Income for same time period as Community MHI, $	84,313	84,313	84,313	84,313	US Census, MHI for State of Minnesota 2018-2022 in 2022 dollars
Average Effective Tax Rate	1.75%	1.98%	1.87%	1.98%	Mn Dept of Revenue City Tax Data, 2022 Report. Average Effective Tax Rate for All Property.
Property Tax Collection Rate	99.5%	99.5%	99.5%	99.5%	Goodhue County, MN Financial Statement period ending Dec 31, 2022
Property Tax Revenues, $	1,261,878	6,982,278	2,099,297	6,884,056	Mn Dept of Revenue City Tax Data, 2022 Report. Sum of County, City/Town, School District, Special Taxing District, Other Local, and State Levies
Overall Net Debt as Percent of Full Market Value of Taxable Property	5.7%	11.7%	4.0%	4.7%	Direct Net Debt + Overlapping Debt / Market Value of Taxable Property

Notes:
1. 2022 financial data are used here because it is the most recent year with reports available in all categories.

Scoring of the Secondary Financial Test Data is presented below. The scoring format and scoring criteria follow Antidegradation guidance. The applicable scores are highlighted in the orange cells.

Table 31 Score for Secondary Test Indicators – City of Goodhue, MN

Indicator	Weak (1 pt)	Mid-Range (2 pts)	Strong (3 pts)	Score
Bond Rating	Below BBB (S&P) or Baa (Moody's)	BBB or Baa	Above BBB or Baa	3
Overall Net Debt as Percent of Full Market Value of Taxable Property	Above 5%	2% - 5%	Below 2%	1
Unemployment	Above National Average	National Average	Below National Average	3
Median Household Income	Below State Median	State Median	Above State Median	1
Property Tax Revenues as Percent of Full Market Value of Taxable Property	Above 4%	2% - 4%	Below 2%	3
Property Tax Collection Rate	< 94%	94% - 98%	> 98%	3
			SCORE TOTAL	14
			SCORE AVG	**2.3**

Table 32 Score for Secondary Test Indicators – City of Pine Island, MN

Indicator	Weak (1 pt)	Mid-Range (2 pts)	Strong (3 pts)	Score
Bond Rating	Below BBB (S&P) or Baa (Moody's)	BBB or Baa	Above BBB or Baa	3
Overall Net Debt as Percent of Full Market Value of Taxable Property	Above 5%	2% - 5%	Below 2%	1
Unemployment	Above National Average	National Average	Below National Average	3
Median Household Income	Below State Median	State Median	Above State Median	1
Property Tax Revenues as Percent of Full Market Value of Taxable Property	Above 4%	2% - 4%	Below 2%	3
Property Tax Collection Rate	< 94%	94% - 98%	> 98%	3
			SCORE TOTAL	14
			SCORE AVG	**2.3**

Table 33 Score for Secondary Test Indicators – City of Wanamingo, MN

Indicator	Weak (1 pt)	Mid-Range (2 pts)	Strong (3 pts)	Score
Bond Rating	Below BBB (S&P) or Baa (Moody's)	BBB or Baa	Above BBB or Baa	3
Overall Net Debt as Percent of Full Market Value of Taxable Property	Above 5%*	2% - 5%	Below 2%	1
Unemployment	Above National Average	National Average	Below National Average	3
Median Household Income	Below State Median	State Median	Above State Median	1
Property Tax Revenues as Percent of Full Market Value of Taxable Property	Above 4%	2% - 4%	Below 2%	3
Property Tax Collection Rate	< 94%	94% - 98%	> 98%	3
			SCORE TOTAL	14
			SCORE AVG	**2.3**
"Wanamingo Statutory Debt Limits: The City will keep outstanding debt within the limits prescribed by State Statutes. Minnesota Statutes §475.53 restricts net debt obligations to 3% of the estimated market value of taxable property within the City. The policy of the City [Wanamingo] is to limit net debt obligations to half of the State limit, or 1.5% of the City's estimated taxable market value." (Wanamingo debt policy). Due to the debt policy that requires a lower ratio of debt than the State prescribes, Wanamingo scores in the 'Weak' category for % Net Debt / TMV despite being below 5%.				

Table 34 Score for Secondary Test Indicators – City of Zumbrota, MN

Indicator	Weak (1 pt)	Mid-Range (2 pts)	Strong (3 pts)	Score
Bond Rating	Below BBB (S&P) or Baa (Moody's)	BBB or Baa	Above BBB or Baa	3
Overall Net Debt as Percent of Full Market Value of Taxable Property	Above 5%	2% - 5%	Below 2%	2
Unemployment	Above National Average	National Average	Below National Average	3
Median Household Income	Below State Median	State Median	Above State Median	1
Property Tax Revenues as Percent of Full Market Value of Taxable Property	Above 4%	2% - 4%	Below 2%	3
Property Tax Collection Rate	< 94%	94% - 98%	> 98%	3
			SCORE TOTAL	15
			SCORE AVG	**2.5**

6.3. Assessment of Substantial Impacts

The assessment of substantial impacts is a matrix that brings in the Municipal Preliminary Screener (project cost) scores on the top row, and the Secondary Financial Tests (city financial strength) scores into the left column. Scoring is then assigned a 'X", "?", or "†" that is prescribed by Antidegradation Guidance as shown in the clip below:

Table 6: Assessment of substantial impacts matrix

Secondary Score	Municipal Preliminary Screener		
	Less than 1.0%	Between 1.0 and 2.0%	Greater than 2.0%
Less than 1.5	?	X	X
Between 1.5 and 2.5	†	?	X
Greater than 2.5	†	†	?

In the matrix, "X" indicates that the impact is likely to interfere with economic development. The closer the community is to the upper right hand corner of the matrix, the greater the likelihood. Similarly, "†" indicates that the impact is not likely to interfere with development. The closer to the lower left hand corner of the matrix, the smaller the likelihood. Finally, the "?" indicates that the impact is unclear and the applicant will need to justify why the alternative is not prudent or feasible.

Figure 6-1 Clip from MPCA Antidegradation Guidance showing the format of the assessment matrix

The assessment matrix applied to the NZSSD is presented below. This analysis identifies two out of seven technologies as potentially affordable: EBNR Oxidation Ditch, and EBNR SBR.

The alternatives for sulfate removal were deemed unaffordable by scoring over 5% in the Municipal Preliminary Screener so these are not included in Table 35.

Table 35 Assessment of Substantial Impacts

Secondary Score	Municipal Preliminary Screener		
	Less than 1.0%	Between 1.0 and 2.0%	Greater than 2.0%
Less than 1.5	?: --	X: --	X: --
Between 1.5 and 2.5 **Goodhue, Pine Island, Wanamingo, Zumbrota all score in this range**	†: --	**?:** **EBNR Oxidation Ditch** **EBNR SBR**	**X:** **EBNR Extended Aeration** **EBNR AGS** **4 New WWTFs**
Greater than 2.5	†: --	†: --	?: --

7. Narrative and Conclusion

This section provides a narrative and conclusion on the NZSSD's recommended technology and requested permit limits based on this Antidegradation Analysis.

7.1. Technology

The recommended alternative needs to prudently and feasibly minimize degradation, and any degradation needs to be justified in that it allows for important economic and social growth (Minn. R. 7050.0265).

This Antidegradation report presented the twenty-year projections for residential, commercial, and industrial growth that were built into the design sizing for the proposed NZSSD WWTF in Section 4.2.1. The existing city plants have limited capacity and the NZSSD WWTF roughly doubles the capacity available for city growth from a design capacity of 2.536 MGD combined at the existing plants to 4.100 MGD at NZSSD, allowing for population increase from 9,853 pop. to 16,200 pop., and an increase in commercial and industrial reserves from 0.550 MGD to 1.045 MGD.

The design sizing for NZSSD WWTF leads to an increase in loads for almost all pollutants of concern compared to the outputs from the existing city plants. Chapter 4 of this Antidegradation report summarizes the ambient water quality metrics, regulatory water quality standards, and effect on the NZSSD WWTF on water quality.

Prudent technologies capable of meeting water quality standards were then described and ranked according to their ability to reduce degradation in Chapter 5.

Feasibility is, in large part, based on the ability for sewer rate payers to afford a plant built around a particular technology. Chapter 6 presents the economic analysis that tests the affordability of each technology alternative.

The recommended technology is the least degrading technology that is also considered affordable based on these tests.

7.1.1. Summary of Chapter 5: Ranking Technology and Degradation

Seven (7) treatment technology alternatives were scored and ranked in Chapter 5. Water quality was the single most important set of ranking criteria. Avoiding the creation of new waste streams (a "whole-environment" perspective) and allowing for important economic growth and social development were also included in the scoring.

The ranking of the alternatives, in order, were:

- EBNR + RO / NF for SO_4 (1st place best ranking and least degrading)
- EBNR Oxidation Ditch, SBR, AGS, Extended Air (tied 2nd place)
- EBNR + 4 Water Treatment Plants for SO_4 (3rd place)
- New WWTF (4th place)

7.1.2. *Summary of Chapter 6: Economic Analyses*

The same seven technology alternatives were tested for affordability in Chapter 6. The analysis included capital cost recovery and O&M costs for each technology as well as the member cities' financial strength metrics and median household income. According to the prescribed scoring criteria only two (2) technologies were deemed potentially affordable by costing ≤ 2.0% of median household income. They are:

- EBNR Oxidation Ditch
- EBNR SBR

The other five alternatives were found to be unaffordable by costing greater than 2.0% of median household income. At the high range in this group, the sulfate removal options were greater than 5.0% of median household income.

7.1.3. *Technology Recommendation from Degradation and Economic Analyses*

The antidegradation analyses contained in this report include Ambient Water Quality (Chapter 4), Treatment Alternatives (Chapter 5), and Economic Impact (Chapter 6). These analyses result in selection of a **EBNR Oxidation Ditch** for the NZSSD WWTF as the least-degrading (highest-ranked) technology that is affordable (≤ 2.0% of MHI). Oxidation Ditches have lower cost and less complex operation than SBRs, so Oxidation Ditches are the recommended technology for NZSSD.

7.2. Requested Limits

7.2.1. *Requested Modifications to PEL*

The NZSSD WWTF received Preliminary Effluent Limits (PEL) from MPCA on 1/11/2024. The limits follow regulatory Water Quality Standards and applicable TMDLs. These limits are achievable with a EBNR Oxidation Ditch facility.

NZSSD will request a compliance schedule for sulfate because the cost of removing sulfates would be an unaffordable economic burden to sewer rate payers. This table summarizes NZSSD's requested effluent limits for the new plant and reference section in this report.

Table 36 Requested Effluent Limits

Parameter	Effective Period	Type	Units	Value	Basis
Average Wet Weather AWW Design*	Jan. – Dec.	Monthly Avg.	MGD	4.10	PEL
$CBOD_5$	Jan. – Dec.	Monthly Avg.	mg/L	25	PEL
			kg/day	387.5	PEL
Total Suspended Solids	Jan. – Dec.	Monthly Avg.	mg/L	30	PEL
			kg/day	464.95	PEL
pH	Jan. – Dec.	Monthly Min.	SU	6.0	PEL
		Monthly Max.	SU	9.0	PEL
Fecal Coliform	Apr. – Oct.	Monthly Geo. Mean	CFU/100mL	200	PEL
Total Phosphorus	Oct. - May	Monthly Avg.	mg/L	1.0	PEL
		Yearly Avg	kg/day	15.5	PEL
	Jun. - Sep.	Monthly Avg.	mg/L	0.4	PEL
		Yearly Avg	kg/day	6.2	PEL
Ammonia-N	Jun. – Sep	Monthly Avg.	mg/L	6.2	PEL
		Yearly Avg	kg/day	96.1	PEL
	Oct. – Nov.	Monthly Avg.	mg/L	19.1	PEL
		Yearly Avg	kg/day	260.0	PEL
	Dec. – Mar.	Monthly Avg.	mg/L	32.5	PEL
		Yearly Avg	kg/day	503.7	PEL
	Apr. - May	Monthly Avg.	mg/L	19.7	PEL
		Yearly Avg	kg/day	305.3	PEL
~~Sulfate, Total~~	~~Jan. – Dec.~~	~~Monthly Avg.~~	~~mg/L~~	~~**15.9**~~	Compliance Schedule requested
		~~Monthly Avg.~~	~~kg/day~~	~~**246.8**~~	
Note: * AWW flow is included here because it was in the PEL, however AWW is a requested design sizing parameter not a requested NPDES permit limit.					

7.2.2. Narrative

The following narrative discusses, for each pollutant, why the NZSSD PEL is protective of water quality.

- **CBOD** – CBOD will break down in the environment and the main effect of CBOD is on dissolved oxygen in the water near the plant outfall. The NZSSD PEL allows an increase in concentration of CBOD, however, CBOD dissolved oxygen will stay well above the minimum required levels. Ambient dissolved oxygen in the North Fork is 10.9 mg/L and downstream on the Zumbro River it is 9.97 mg/L. The critical distance downstream of the plant is approximately 5,000 meters (3.1 miles) based on Streeter-Phelps DO Sag equation, and the minimum dissolved oxygen at this location on the Zumbro River is projected to remain at or above 8.7 mg/L, well above the 5 mg/L minimum standard. This is without any effluent aeration. CBOD effluent limit of 25 mg/L will meet water quality standards and is feasible with the best affordable technology, EBNR (Oxidation Ditch) and should be formally approved.
- **TSS** – There is a TMDL for TSS in the Zumbro River watershed. The NZSSD PEL allows an increase in mass and a slight increase in concentration for TSS on the North Fork -971, however, on a watershed basis, the PEL improves water

quality. Based on MPCA ambient river data and the mass-balance equation, the PEL will yield a decrease in TSS concentration on the Zumbro -504. The PEL limit of TSS 30 mg/L will meet the Central and Southern River Nutrient Region concentration-based water quality standards (30 mg/ L & 65 mg/L) and is feasible with EBNR (Oxidation Ditch) and should be formally approved.

- **Phosphorus –** Phosphorus limits in the PEL are mass caps. The mass caps were calculated by MPCA based on matching the output of just two of the four existing plants and setting a theoretical 1 mg/L TP limit on those plants which is not currently in place. The result is that the Phosphorus mass caps in the PEL will decrease phosphorus mass and concentration both on the North Fork and on a watershed basis.

  Effluent filtration is required on an EBNR facility to achieve a 0.4 mg/L Total Phosphorus limit. An effluent filtration system was included in the Facility Plan and included in the pricing for the EBNR prices presented here. PEL limits are feasible with EBNR (Oxidation Ditch) and should be formally approved.

- **Ammonia** - The NZSSD PEL allows an increase in concentration of ammonia, however, the projected ammonia levels on the North Fork and on a watershed basis are still below the water quality standard of 40 µg/L un-ionized ammonia. Seasonal ammonia limits of 6.2 – 32.5 mg/L will meet water quality standards and are feasible with the best affordable technology, EBNR (Oxidation Ditch) and should be formally approved.

- **Nitrate** – The NZSSD WWTF will be designed to denitrify wastewater so the plant can meet a potential future 10 mg/L Total Nitrogen or 10 mg/L Nitrate limit. Denitrification is not a process currently included in the existing city plants. By including denitrification in the plant design NZSSD effluent will be cleaner than the existing plants. Even though NZSSD will have nearly double the capacity of the existing plants the NZSSD effluent mass at full design loads will match existing mass loads and the concentration in the river will be the same as existing.

  River nitrate concentrations are well below the existing 100 mg/L water quality standards for nitrate in both the existing and future scenarios.

- **Sulfate** – The existing city plants do not have sulfate limits. The NZSSD PEL includes a 15.9 mg/L potential sulfate limit based on Class 4A 10 mg/L WQS because of potential wild rice production downstream on the Mississippi River. A Class 4B 600 mg/L WQS is also applicable to the receiving waters downstream of NZSSD.

  As discussed in Section 4.7, the projected future receiving water sulfate concentrations would not meet the Class 4A 10 mg/L water quality standard regardless of whether the NZSSD discharges at the PEL level or at current maximum concentrations; the existing ambient river concentrations are higher than the standard and dominate the calculation in either scenario. The projected future receiving water sulfate concentrations do meet the Class 4B 600 mg/L water quality standard whether NZSSD discharges at the PEL level or at current maximum concentrations.

The issue of sulfate is present as background condition. Sulfate in drinking water is the primary source of sulfate coming into the four cities. Sulfates are higher in drinking water than the PEL limit. That is because drinking water is sourced from groundwater, and groundwater has sulfates. This is typical across the state of Minnesota and there are no viable alternative water supply sources with less sulfate.

Dairies are also sources of sulfate, and two of the cities (Pine Island and Zumbrota) have dairies as significant industrial users.

Regionalization to the NZSSD WWTF will not change the influent sulfate coming from each city, and EBNR (Oxidation Ditch) would not remove sulfates from the waste stream. Sulfate removal by RO/NF would be required to meet PEL levels.

RO/NF creates its own waste streams. Much electricity and natural gas are required to crystallize RO concentrate, and disposal is not straightforward since the typical route of disposal (dumping to wastewater system) is not an option.

Cost analysis in Chapter 6 demonstrated that removing sulfate by a RO/NF wastewater facility increases capital costs from $80M to $160M and increases O&M by 800%. RO/NF wastewater treatment is over 5% of median household income and is not affordable. Likewise, building four drinking water sulfate plants would be even more expensive which demonstrates that source reduction is not a viable option.

Capping mass to existing conditions without RO / NF would be infeasible with EBNR technology. Capping mass would mean capping flows and influent loads to existing conditions, allowing no social or economic growth in the member cities.

Minn R. 7050.0190 subpart 4 a (3) would reject a solution that “would cause more environmental damage to correct than to leave in place.” In this case, the excess energy inputs and waste streams that sulfate removal would require are worse than leaving sulfate in the wastewater.

In the balance of options, allowing a sulfate variance would allow an affordable regional WWTF to be constructed which would provide capacity for growth in the member cities and take loads off the other impaired streams in the Zumbro watershed. It would not trade one pollutant stream for another. For these reasons the NZSSD requests a sulfate compliance schedule and believes the request should be approved.

- **Chloride** – Influent chloride concentrations are very similar for the four cities and assuming they remain the same, the NZSSD would see influent loads increase proportional to flow increases as the communities grow. The NZSSD at design loads would increase chloride mass and concentration in the receiving streams compared to existing conditions.

  Regionalization to the NZSSD WWTF will not change the influent chloride coming from each city, and EBNR (Oxidation Ditch) would not remove chlorides from the waste stream. Chloride removal by RO/NF would be required to meet any sort of

significant reduction, which is unaffordable and creates other waste streams as described above for sulfate.

Based on what is feasible with EBNR (Oxidation Ditch) technology, chloride concentrations would still be well below the 230 mg/L water quality standards for chloride in the existing and future scenarios.

- **Mercury** – There is a TMDL for Mercury statewide. The TMDL follows the concentration-based water quality limit of 6.9 ng/L. Mercury impacts are reviewed based purely on the effluent concentration with no river dilution factored in. The existing city plants average a mercury concentration of 3.5 ng/L in their effluent.

  Conservatively if we assume NZSSD WWTF effluent to be the same concentration (3.5 ng/L) it would be well below the TMDL and water quality standard of 6.9 ng/L. Based on references we have a reasonable expectation of some degree of additional mercury removal that could lead to lower mercury concentrations at NZSSD not seen in the old plants.

  Upgrading to a NZSSD WWTF EBNR (Oxidation Ditch) facility is likely to produce some reduction in mercury concentration due to Bio-P and chemical precipitation steps, which are not in the existing plants.

  When alum is added as part of the chemical phosphorus removal process, some mercury will precipitate out of solution further enhancing the plant's mercury removal efficiency. Actual mercury removal by coprecipitation with alum will vary by plant but data presented in an EPA Project Summary titled "Removal of Heavy Metals Using Aluminum Salts for Phosphorus Removal", dated March 1985, indicates alum addition at a tested facility could increase mercury removal by approximately 14%. And from a newer reference, MPCA wq-iw4-01b.pdf (Mercury TMDL): "…[Bio-P] processes have already been added to a number of large WWTP in Minnesota and data collection has shown reductions in mercury concentrations as well, by one-half to two-thirds."

  Additionally, all four of the NZSSD member cities have or will have mercury minimization plans that include source identification, education, and action planning to reduce sources of mercury from entering the wastewater streams.

  NZSSD will meet the concentration-based WQS for mercury but there will be higher mass loads of mercury due to increase design AWW in future. The statewide Mercury TMDL (wq-iw4-01) states that there is a reserve allocation for additional point-source loads of mercury available. Therefore, the NZSSD WWTF would be compliant with water quality standards and the TMDL under full design loads.

- **Bacteria** – There is a bacteria TMDL in the Zumbro River watershed. The TMDL requires that effluent meets the concentration – based water quality standards. Mass is not a valid concept with bacterial loads. The NZSSD PEL meets the 126 CFU/100mL E coli standard through its equivalent 200 Fecal Coliform/100mL PEL. The PEL is protective of water quality standards, and therefore TMDL, and should be approved.

7.3. Benefits of Regionalization

Building a new regional facility provides capacity for the communities to grow. The design sizing of the new facility is based on a 20-year planning period to the year 2045 and will approximately double the combined capacities of the existing plants.

Four communities with aging treatment plants will join into one plant with updated and more reliable treatment. Efficiencies and updated technologies are available for the new plant that are not available for the existing plants.

The stream segments directly downstream of the new facility are featured heavily in the required analysis. What must not be lost in the analysis, however, is the elimination of the existing city discharges at three other points in the watershed, all of which will improve the water quality on those reaches.

Constructing the new regional plant will mean less impact to the Zumbro Watershed than leaving the existing plants in place. Within the Zumbro Watershed, moving the loads from four communities to one plant may increase loads on the immediate stream (North Fork) receiving the regionalized facility discharge but will completely remove loads from member cities farther upstream on the North Fork, and on Trout Brook and the Middle Fork Zumbro River. Trout Brook is impaired for E. coli and the Middle Fork is impaired for phosphorus, TSS and E. coli. Lake Zumbro collects phosphorus from sediment deposited from the Middle Fork and has the most acutely observable phosphorus impairment. Eliminating the load on Trout Brook and the Middle Fork is a massive benefit of the NZSSD project on these streams and Lake Zumbro.

7.4. Conclusion

The selection of an EBNR (Oxidation Ditch) plant for NZSSD is the best-available affordable and prudent-to-implement technology currently available. This alternative prudently and feasibly minimizes degradation. To the extent that some degradation occurs locally, it is justified in that it allows for important economic and social growth (Minn. R. 7050.0265) and the benefits to taking loads off other impaired streams in the watershed.

NZSSD respectfully submits for MPCA review and approval this Antidegradation Report, which includes proposed compliance schedule for sulfate limits from the Preliminary Effluent Limits. Additionally, if a wasteload allocation is required to facilitate the approval of increased point-source mercury loads, we kindly request that MPCA initiate the wasteload allocation approval process.

8. List of Figures

Figure 3-1 North Zumbro Sanitary Sewer District Location 3
Figure 3-2 Receiving Stream Network Location Map 5
Figure 3-3 Simplified Flow Chart of Receiving Stream Network - Existing City WWTFs 6
Figure 3-4 Simplified Flow Chart of Receiving Stream Network - Proposed Regional NZSSD WWTF . 6
Figure 6-1 Clip from MPCA Antidegradation Guidance showing the format of the assessment matrix 37

9. List of Tables

Table 1 MPCA's Potential Pollutants of Concern for Antidegradation Analysis for Municipal Facilities . 7
Table 2 Existing Load CBOD5 8
Table 3 Existing Load TSS 9
Table 4 Existing Load Phosphorus 9
Table 5 Existing Load Ammonia 9
Table 6 Existing Load Nitrate 9
Table 7 Existing Load Chloride 10
Table 8 Existing Load Total Mercury 10
Table 9 Existing Load Sulfate 11
Table 10 NZSSD Design Year 2045 Influent Loads and Flows 11
Table 11 Preliminary Effluent Limits (MPCA 1/11/2024) 12
Table 12 Increase in Effluent Loads with NZSSD Facility 13
Table 13 Mass Cap Total Phosphorus Effluent Limit 14
Table 14 Beneficial Use Legend - Selected Entries from Minn. R. 7050.0470 14
Table 15 Zumbro Watershed Receiving Stream Network Beneficial Uses and Impairments 15
Table 16 Water Quality Standards for Designated Uses 2Bg, 3, 4A, 4B, 5, 6 from Minn R. 7050.0220-0226. .. 16
Table 17 Summary of Existing Surface Water Quality for Pollutants of Concern 19
Table 18 Critical Flows 20
Table 19 Pollutant Concentration in Receiving Waters by Mass Balance – CBOD5 21
Table 20 Pollutant Concentration in Receiving Waters by Mass Balance – TSS 21
Table 21 Pollutant Concentration in Receiving Waters by Mass Balance – Ammonia 21
Table 22 Pollutant Concentration in Receiving Waters by Mass Balance – Nitrate 21
Table 23 Pollutant Concentration in Receiving Waters by Mass Balance – Chloride 22
Table 24 Pollutant Concentration in Receiving Waters by Mass Balance – Sulfate 22
Table 25 Pollutant Concentration in Receiving Waters by Mass Balance – Mercury 22
Table 26 Dissolved Oxygen Concentration in Receiving Waters by DO Sag Equation 24
Table 27 Protection of WQS in North Fork and Zumbro Watershed 25
Table 28 Ranking of Remaining Alternatives from Least to Most Degrading 31
Table 29 Municipal Preliminary Screener Value 33
Table 30 Secondary Financial Test Data 34
Table 31 Score for Secondary Test Indicators – City of Goodhue, MN 35
Table 32 Score for Secondary Test Indicators – City of Pine Island, MN 35
Table 33 Score for Secondary Test Indicators – City of Wanamingo, MN 36
Table 34 Score for Secondary Test Indicators – City of Zumbrota, MN 36
Table 35 Assessment of Substantial Impacts 37
Table 36 Requested Effluent Limits 40

10. List of Abbreviations

ADF	Average Daily Flow in a continuous 12-month period.
ADW	Average Dry Weather is the lowest average flow in a continuous 30-day period.
AVG	Average Day is the average flow or load in a continuous 12-month period. AVG is preferred acronym for this facility plan.
AWW	Average Wet Weather is the highest average flow in a continuous 30-day period.
BEP	Best Efficiency Point is where a motor or blower runs at its best efficiency.
BNR	Biological Nutrient Removal is a biochemical treatment process to remove nitrogen and phosphorus.
BOD_5	Five-day Biochemical Oxygen Demand is the total organic load. $CBOD_5$ + $NBOD_5$ = BOD_5.
BTU	British Thermal Unit measures heat.
$CBOD_5$	Five-day Carbonaceous Biochemical Oxygen Demand is the portion of the organic load reduced by carbon-metabolizing microbes.
CFU	Colony Forming Units measures bacteria counts.
DFA	Dairy Farmers of America is a significant industrial user located in Zumbrota.
EBNR	Enhanced Biological Nutrient Removal is a biochemical treatment process to remove nitrogen and phosphorus to a greater degree than BNR.
GPCPD	Gallons per Capita per Day is a measure of flow produced by each person on a per capita basis.
GPD	Gallons per day.
GPM	Gallons per minute.
I&I	Inflow and Infiltration. Clear water from rainfall and groundwater that enters the sanitary sewer system from defects and illicit connections to the system.
kg/d	kilograms per day measures load received or produced in a 24-hour period.
kg/yr	kilograms per year measures load received or produced in a 12-month period.
kWh/lb.	kilowatt-Hour per Pound measures the energy used to produce a mass of solids (biosolids).
kWh/MGD	kilowatt-Hour per Million Gallons per Day measures the energy used to treat a volume of water.
LO'L	Land O' Lakes is a significant industrial user located in Pine Island.
Max Day	Highest flow or load for a 24-hour period.
Max Month	Highest average flow or load in a continuous 30-day period.

MF	Microfiltration.
mg/L	Milligrams per liter equivalent to 1 part per million or 1 ppm.
MGD	Million Gallons per Day.
MPCA	Minnesota Pollution Control Agency.
MWW	Max Wet Weather (Max Day) is the highest flow for a 24-hour period.
NF	Nanofiltration.
NFPA	National Fire Protection Agency.
ng/L	Nanograms per liter equivalent to 1 part per trillion or 1 ppt.
NPDES	National Pollutant Discharge Elimination System is the permit for wastewater treatment and discharge.
NZSSD	North Zumbro Sanitary Sewer District.
ORP	Oxidation Reduction Potential measures chemical reactivity.
PF	Peaking Factor is the ratio between PHWW : AVG flows.
PHWW	Peak Hourly Wet Weather is the maximum flow received during one (1) hour when the groundwater is high, runoff is occurring from the 5-year storm, and the domestic, commercial and industrial flows are at their peak.
PIWW	Peak Instantaneous Wet Weather Flow is the maximum flow received during one (1) hour when the groundwater is high, runoff is occurring from the 25-year storm, and the domestic, commercial and industrial flows are at their peak.
POP EQ	Population Equivalent. Equivalent number of people needed to produce a flow or load.
PPCPD	Pounds per Capita per Day is a measure of load produced by each person on a per capita basis.
PPD	Pounds Per Day. Measures the load, in pounds, in a 24-hour period. [Concentration mg/L]*[Flow MGD]*8.34 = [Load PPD].
RBC	Rotating Biological Contactor.
RO	Reverse Osmosis
SCADA	Supervisory Control and Data Acquisition. Computerized system for lift stations and treatment plant that provides monitoring, data recording, alarming, and control for the mechanical elements of the facility.
SO_4	Sulfate
SU	Standard Units measures pH.
TKN	Total Kjeldahl Nitrogen is the sum of ammonia and organic nitrogen. TKN = NH3 species + Organic N.
TMDL	Total Maximum Daily Load

TN	Total Nitrogen (TN) is the sum of all nitrogen loads received at the plant. TN = TKN +NO2+ NO3 + N2 (gas).
TP	Total Phosphorus. Organic and inorganic phosphorus.
TSS	Total Suspended Solids is the solids load received at the plant. It includes all particles retained on a 45-micron filter. It excludes dissolved solids.
ug/L	ug/L or µg/L micrograms per liter equivalent to 1 part per billion or 1 ppb.
UV	Ultraviolet. UV disinfection is used to inactivate pathogens in water.
WQS	Water Quality Standard
WWTF	Wastewater Treatment Facility. WWTF is preferred acronym for this report.
WWTP	Wastewater Treatment Plant.
YTD	Year to Date is a cumulative measure of load over a continuous 12-month period.

11. Appendices

Appendix A. NZSSD PEL Letter 01/11/2024

Appendix B. MN0071901 Phos Zumbro R Watershed Memo v1.1 03-03-2021

Appendix C. MN0071901 Phos Discharge Memo 10-25-2023

Appendix D. MN0071901 Streeter Phelps DO Sag Analysis Packet

Appendix E. MN0071901 Ammonia Limit Calcs 10-31-2023

Appendix A. NZSSD PEL Letter 01/11/2024

MINNESOTA POLLUTION CONTROL AGENCY

520 Lafayette Road North | St. Paul, Minnesota 55155-4194 | 651-296-6300

800-657-3864 | Use your preferred relay service | info.pca@state.mn.us | Equal Opportunity Employer

January 11, 2024

SENT VIA EMAIL

Glenn Gustafson
WHKS
2905 Broadway Avenue South
Rochester, MN 55904

Elizabeth Howard, Joint Powers Chair
North Zumbro Sanitary Sewer District
280 South Main Street
Pine Island, MN 55963

RE: Preliminary Effluent Limits for North Zumbro Sanitary Sewer Wastewater Treatment Plant
NPDES/SDS Permit MN0071901

Dear Glenn Gustafson and Elizabeth Howard:

This letter is in response to your request for preliminary effluent limits received September 25, 2023, for the discharge of treated effluent from the proposed North Zumbro Sanitary Sewer District (NZSSD) Wastewater Treatment Plant (WWTP). It summarizes the preliminary effluent limits for the proposed WWTP options. The preliminary limits are draft values. Usually, effluent limits only become final after the National Pollutant Discharge Elimination System (NPDES) permit and Antidegradation Assessment have undergone a complete review, been public noticed, the public's comments considered and either our commissioner or a delegated representative signs the permit.

Please be aware that receiving the preliminary effluent limits in the table below does not mean that your proposed facility has been approved. As part of the permitting process, your project must comply with antidegradation requirements (see the Antidegradation Requirements section below for important details). You must demonstrate that the chosen project alternative is the least degrading prudent and feasible alternative. In many cases, the least degrading prudent and feasible alternative may not be one of the options discussed in this letter.

The NZSSD has requested effluent limits for two potential WWTP options that would replace the Goodhue, Pine Island, Wanamingo and Zumbrota WWTPs with a new mechanical plant with an overall flow increase. The combined average wet weather (AWW) design flow of the four facilities is 2.326 million gallons per day (mgd). The AWW for the proposed facility is 4.1 mgd.

There are two options for the proposal. Both are on the same stretch of the North Fork Zumbro River. SD001 is approximately 0.2 miles downstream of the existing Zumbrota WWTP discharge. SD002 is approximately 2.5 miles downstream of the existing Zumbrota WWTP discharge. The receiving water at both locations has been assigned use classifications 2Bg, 3, 4A, 4B, 5 and 6 (Minn. R. 7050.0415).

Antidegradation Requirements

Antidegradation is one of the fundamental protections in the Clean Water Act, and all newly issued or re-issued wastewater permits must comply with both state and federal antidegradation rules. The goal of antidegradation is to preserve waters of high quality and to ensure that they are not degraded unless balanced by important economic or social development. See Minn. R. 7050.0250 to 7050.0335. The antidegradation assessment process may result in more restrictive effluent limits than are included in this letter.

For wastewater permitting, antidegradation concerns are triggered when a new discharge is proposed or when an existing discharger is proposing to increase the loading of any parameter of concern in its discharge.

An antidegradation assessment is a substantial evaluation that must consider all beneficial uses of the receiving water, potential economic impacts, all possible treatment options and the potential environmental degradation for every pollutant that triggers the need for an antidegradation assessment. The applicant must demonstrate that the chosen project alternative is the least degrading, prudent, and feasible alternative. The applicant must also examine the socioeconomic impacts of the project as compared to the environmental changes in water quality. The environmental degradation must be offset by the socioeconomic benefit.

New and expanded NPDES permits that result in net increases in pollutant loading to surface waters are required to undergo an antidegradation review (Minn. R. 7050.0280). When applied to a proposed activity that is not regulated by an existing control document (i.e., permit), any loading or other causes of degradation resulting from the proposed activity constitute a net increase (Minn. R. 7050.0255 subp. 26). In this situation, the proposed new treatment system constitutes a net increase in loading; and therefore, an antidegradation review must be completed and approved in order for the effluent limitations to be final for the selected option. When applied to expanded permits, the need for an antidegradation assessment, for some pollutants of concern, may be avoided by accepting frozen mass limits for that specific pollutant. The frozen or capped mass limit would prevent the net increase in authorized loading, and thereby prevent the need for an antidegradation assessment for that increase.

The applicant must submit the antidegradation assessment to the Minnesota Pollution Control Agency (MPCA). The MPCA staff will review the assessment to determine if it satisfies state and federal rules. The MPCA has developed a guidance document for developing antidegradation assessments that you may find helpful.

Antidegradation assessments frequently require applicants to perform additional water quality monitoring to ensure that appropriate water quality evaluations are performed. The water quality monitoring required for an antidegradation assessment is permit-specific and is intended to fill gaps in existing water quality knowledge. Filling these water quality gaps could require additional monitoring of receiving waters upstream and downstream of the discharger or significant industrial users permitted by the discharger. The MPCA can provide water quality monitoring data that is currently available for the receiving water upon request.

Preliminary Effluent Limits

Table 1: Proposed design flows and preliminary effluent limits

SD Station/Receiving Water	SD001 North Fork Zumbro River	SD002 North Fork Zumbro River
Discharge Type	Continuous	Continuous
Treatment Type	Mechanical Plant, UV disinfection	Mechanical Plant, UV Disinfection
Average Wet Weather Design Flow (mgd)	4.1	4.1
Antidegradation Review Needed	Yes	Yes
Environmental Review Needed[1]	Yes	Yes
Pollutant/Parameter (calendar month average unless noted)	**Effluent Limits**	**Effluent Limits**
CBOD5, mg/L (kg/day)	25 (387.5)	25 (387.5)
Solids, Total Suspended, mg/L (kg/day)	30 (464.9)	30 (464.9)
pH, Standard Units	6.0 - 9.0	6.0 - 9.0
Fecal coliform (April - October), # organisms/100 mL	200	200
Phosphorus, Total (Oct-May), mg/L (kg/year)	1.0 (15.5)	1.0 (15.5)
Phosphorus, Total (Jun-Sept), mg/L (kg/day)	0.4 (6.2)	0.4 (6.2)
Ammonia-N (Jun-Sep), mg/L (kg/year)[2]	6.2 (96.1)	6.2 (96.1)
Ammonia-N (Oct-Nov), mg/L (kg/year)[2]	19.1 (260.0)	19.1 (260.0)
Ammonia-N (Dec-Mar), mg/L (kg/year[2]	32.5 (503.7)	32.5 (503.7)
Ammonia-N (Apr-May), mg/L (kg/year)[2]	19.7 (305.3)	19.7 (305.3)
Sulfate, Total, Calendar Month Average, mg/L (kg/day)	15.9 (246.8)	15.9 (246.8)

1 - Additional environmental review may be necessary based on the funding source for the project.
2 - The MPCA is currently developing new and/or revised water quality standards for nitrate and/or ammonia. Once this process has been completed, additional nitrate and/or ammonia effluent limits may be applied to this facility. This should be taken into account when designing a wastewater treatment facility.

Additional Permit Monitoring Requirements

Monitoring for the parameters listed in Table 2 below will be required in addition to the monitoring requirements for the effluent limitations in Table 1.

Table 2: Additional Permit Monitoring

		SD001 North Fork Zumbro River		SD002 North Fork Zumbro River	
		Continuous		Continuous	
		Mechanical Plant		Mechanical Plant	
Analyte	Units	Freq	Influent/ Effluent	Freq	Influent/ Effluent
Flow	mgd	1/day	E	1/day	E
Mercury, Dissolved	ng/L	2/year	E	2/year	E
Mercury, Total	ng/L	2/year	E	2/year	E

Solids, Total Suspended (for mercury)	mg/L	2/year	E	2/year	E
Nitrite+Nitrate Nitrogen	mg/L	1/month	E	1/month	E
Total Kjeldahl Nitrogen	mg/L	1/month	E	1/month	E
Total Nitrogen	mg/L	1/month	E	1/month	E
Oxygen, Dissolved	mg/L	1/day	E	1/day	E
Solids, Total Dissolved	mg/L	1/month	E	1/month	E
Chloride, Total	mg/L	1/month	E	1/month	E
Specific Conductance	umhos /cm	1/month	E	1/month	E
Sulfate, Total	mg/L	1/month	E	1/month	E
Copper, Total	ug/L	1/quarter	E	1/quarter	E
Zinc, Total	ug/L	1/quarter	E	1/quarter	E
CBOD5	mg/L	2/week	I	2/week	I
Flow	mgd	1/day	I	1/day	I
Nitrite+Nitrate Nitrogen	mg/L	1/month	I	1/month	I
Total Kjeldahl Nitrogen	mg/L	1/month	I	1/month	I
Total Nitrogen	mg/L	1/month	I	1/month	I
pH	SU	1/day	I	1/day	I
Phosphorus, Total	mg/L	1/week	I	1/week	I
Solids, Total Suspended	mg/L	2/week	I	2/week	I

Monitoring frequency may change depending on the class of the facility.

Whole Effluent Toxicity (WET) testing Requirement

This facility will have to perform a chronic WET test each year. The test is a 7-day growth test with Fathead minnows and a 7-day reproductive test with *Ceriodaphnia dubia*. The chronic WET test is a monitoring requirement. Each test must not exceed 6.4 Toxic Unit chronic (TUc) at the end of either outfall SD001 or outfall SD002. If the WET tests fail at any point, the permittee must perform two complete WET tests back-to-back and not fail either test. If either retest fails, the permittee must enter into a Toxic Reduction Evaluation (TRE) program to find and remove the toxic components in the final effluent.

Total Maximum Daily Load (TMDL) Requirements/Waste Load Allocation (WLA)

The proposed facility will discharge to the North Fork Zumbro River, which is in the Zumbro River Watershed. Currently there are no WLAs for this facility. However, there are four TMDLs that may be

applicable to this proposed facility: Zumbro River Watershed TMDL, Zumbro River Turbidity TMDL, Lower Mississippi River Basin Regional Fecal Coliform TMDL and the Statewide Mercury TMDL.

There are 21 impairments downstream of this discharge, including the following parameters: aluminum, benthic macroinvertebrates bioassessments, fecal coliform, mercury in fish tissue, turbidity, Escherichia coli (E. coli), PCBs in fish tissue, and sulfate.

Wetlands

If construction activities impact a natural wetland, the applicant should contact Mark Gernes at 651-757-2387 or via email at mark.gernes@state.mn.us. Wetland mitigation is required if construction within any part of an existing wetland results in that wetland's physical alteration (Minn. R. 7050.0186). Wetland sequencing from the construction impacts requires consideration of alternatives that avoid, minimize and replace lost wetland designated uses.

If you have any questions, comments, or concerns, please email me at bruce.henningsgaard@state.mn.us.

Sincerely,

Bruce P. Henningsgaard

This document has been electronically signed.
Bruce P. Henningsgaard, P.E.
Principal Engineer
Environmental Analysis and Outcomes Division

BPH:kj

Appendix B. MN0071901 Phos Zumbro R Watershed Memo v1.1 03-03-2021

DATE : March 03, 2021

TO : File

FROM : Dennis Wasley
Effluent Limits Unit
Environmental Analysis and Outcomes Division

PHONE : 612-749-9569

SUBJECT : Phosphorus Effluent Limit Review: Zumbro River Watershed

Version 1.1 (Updated Tables 1 and 9 to reflect single phase construction of the Oronoco WWTF instead of multiple phases)

Table of contents

Executive summary 2
Eutrophication standards 6
Current Condition 6
Wastewater facilities 10
Phosphorus limit determination 10
Summary 17
References 19
Appendix A: Lake Zumbro BATUTUB model for 2017 and 2018. Model was run for 1996-2018. 20
Appendix B: Zumbro River HSPF reaches. 27

Executive summary

The purpose of this memorandum is to determine total phosphorus (TP) effluent limits for National Pollutant Discharge Elimination System (NPDES) wastewater treatment facilities (WWTF) in the Zumbro River Watershed (ZRW) (Figure 1), which is a portion of Minnesota's Lower Mississippi River Basin. This memorandum will review applicable state discharge requirements (SDR) and modeled TP reduction strategies to determine effluent limits necessary to protect downstream waters and meet water quality standards. Although Lake Zumbro has been listed as impaired for nutrients since 2002, recent monitoring data suggest that it may no longer be impaired based on the site specific eutrophication standard approved by EPA in 2018. If Lake Zumbro no longer exceeds lake eutrophication standards (LES) and a total maximum daily load (TMDL) will not be required, implementation of the wasteload allocations and effluent limits established in this document will prevent Lake Zumbro from returning to an impaired status in the future. The South Branch (SB) Middle Fork (MF) Zumbro River is impaired for river eutrophication standards (RES) and is located in the Lake Zumbro watershed. The wasteload allocations and limits necessary for Lake Zumbro are sufficient for achieving RES in the SB MF Zumbro River.

Algae are an important part of the food web of lakes and reservoirs, but too many algae can result in offensive algal blooms. Recreational uses on lakes such as boating, canoeing and swimming are impacted by the smelly and scummy conditions during algae blooms. High levels of the nutrient phosphorus are needed to produce large algal blooms. In 2008, the Minnesota Pollution Control Agency (MPCA) adopted rules, which included numeric standards (targets) for TP and algae in deep and shallow lakes. In 2002, Lake Zumbro (Lake ID 55-0004) was placed on the federal Clean Water Act Section 303(d) list of impaired waters due to excess nutrients. In 2018, MPCA developed a site-specific standard for the second and third segments of Lake Zumbro (Bouchard et al., 2017). The MPCA has extensive experience in developing effluent limits to meet the phosphorus standards for lakes. When TP levels and algal levels are too high in lakes, the MPCA is required by law to develop a plan to reduce levels of TP, which will reduce algae to desirable levels. Seventeen WWTFs in the ZRW discharge upstream of Lake Zumbro. The MPCA used a combination of computer models to estimate the appropriate TP loads from WWTFs and nonpoint sources in the ZRW to achieve LES in Lake Zumbro.

Algae are also an important part of the food web of rivers, but too much is not good. When algal levels are high, only the toughest species of fish and aquatic insects can survive. In addition, the smelly and murky water makes canoeing and swimming on the river unpleasant. High levels of the nutrient phosphorus are needed to produce large algal blooms. In 2015, the MPCA adopted rules, which included numeric standards (targets) for TP and algae in rivers. The MPCA worked with the U.S. Environmental Protection Agency (EPA) for over two years on developing its procedures for implementing effluent limits to meet the phosphorus standards for rivers. Now, when TP levels and algal levels are too high in rivers, the MPCA is required by law to develop a plan to reduce levels of TP, which will reduce algae to desirable levels. The TP reductions needed for Lake Zumbro are sufficient to achieve RES in the SB MF Zumbro River. All the other rivers in ZRW with sufficient monitoring for assessment do not respond to elevated TP. The TP reductions for Lake Zumbro and TP reductions from implementing the total suspended solids TMDLs will reduce TP levels in rivers and streams throughout the ZRW further reducing the likelihood of streams responding to TP.

Several of the NPDES wastewater treatment facilities (WWTFs) located in the ZRW currently have TP limits from historical efforts to protect Lake Zumbro while the majority of the facilities not upstream of Lake Zumbro only have monitoring requirements in their permits. **A review of applicable SDR and eutrophication standards for receiving waters determined that TP effluent limits are needed for some of the WWTFs in the ZRW at this time to protect downstream waters (Table 1)**. High levels of TP and excessive algal growth in Lake Zumbro and the SB MF Zumbro River warrant WWTF TP limits.

Figure 1. Eutrophication impaired waters and NPDES WWTFs in the Zumbro River Watershed. Lake Zumbro is 2 miles south of Camp Victory WWTP. The SB MF Zumbro River is the only red reach on the map.

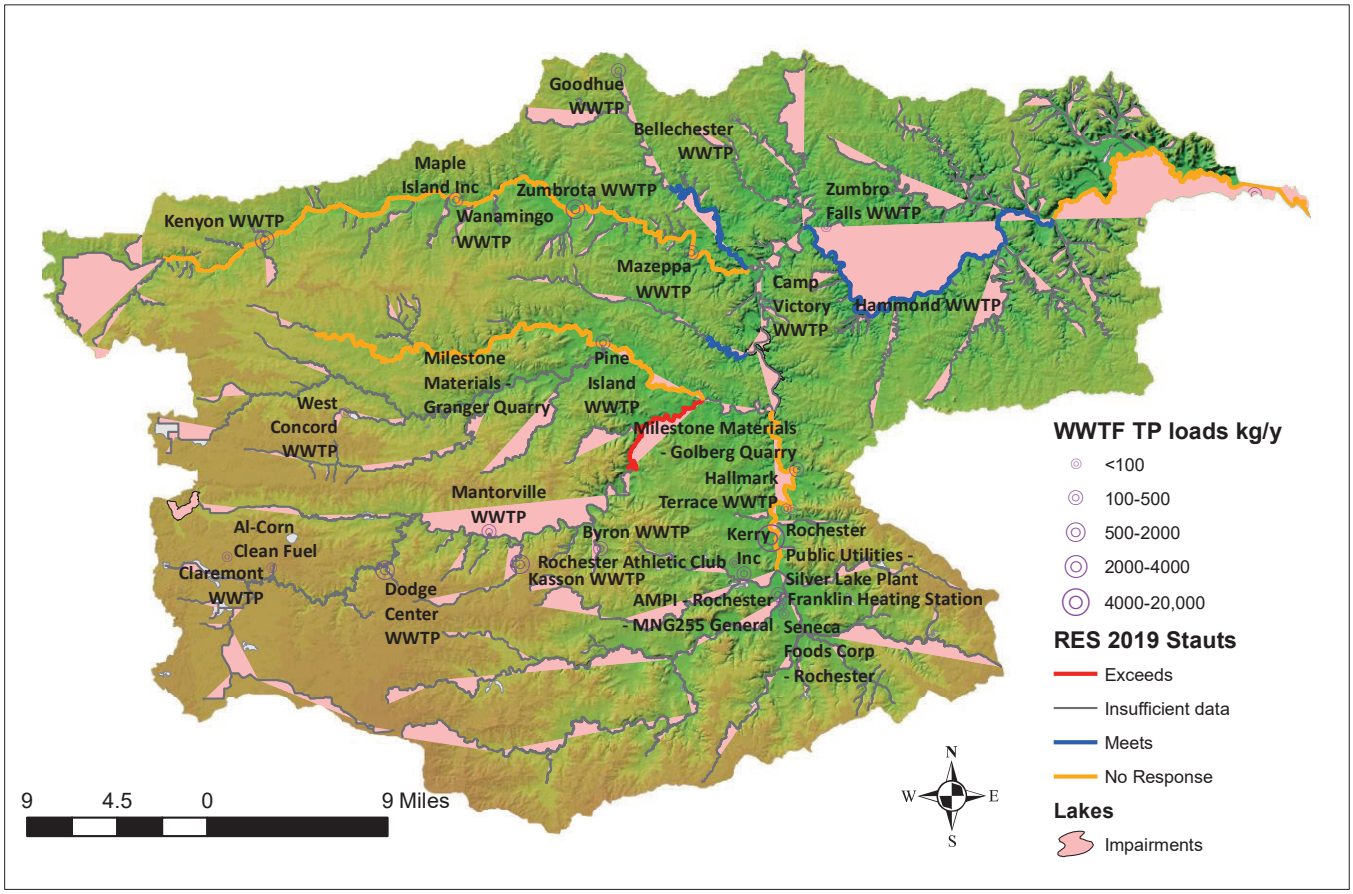


Table 1. NPDES WWTFs in the Zumbro River Watershed and recommended phosphorus limits.

Facility name	Permit ID	Design Flow (mgd)[1]	Flow type	Upstream of Nutrient Impaired Waterbody	Industrial or Domestic	CalMoAvg Concentration limit (mg/L)	Existing and Proposed annual mass limits (kg/yr)	Existing and Proposed daily mass limits (kg/d)
AMPI - Rochester - MNG255 General	MNG255051	0.64	Continuous	Lake Zumbro	Industrial		442[2]	
Bellechester WWTP	MN0022764	0.025	Controlled	NA	Domestic			
Byron WWTP	MN0049239	1.4	Continuous	Lake Zumbro/ 07040004-978	Domestic	1.0[3]	1,547[2]	8.9[4]
Camp Victory WWTP	MN0067032	0.027	Continuous	NA	Domestic			
Claremont WWTP	MN0022187	0.206	Continuous	Lake Zumbro/ 07040004-978	Domestic	1.0[3]	285[2]	1.6[4]
Dodge Center WWTP	MN0021016	0.973	Continuous	Lake Zumbro/ 07040004-978	Domestic		1,344[2]	7.7[4]
Franklin Heating Station	MN0041271	1.356	Continuous	Lake Zumbro	Industrial		937[2]	
Goodhue WWTP	MN0020958	0.099	Continuous	NA	Domestic			
Hallmark Terrace WWTP	MN0030368	0.018	Controlled	Lake Zumbro	Domestic		50[2]	
Hammond WWTP	MN0066940	0.023	Continuous	NA	Domestic			
Hayfield WWTP	MN0023612	0.78	Continuous	Lake Zumbro/ 07040004-978	Domestic		566[2]	
Kasson WWTP	MN0050725	0.968	Continuous	Lake Zumbro/ 07040004-978	Domestic	1.0[5]	1,658[2]	4.4[4]
Kellogg WWTP	MNG580027	0.06	Controlled	NA	Domestic			
Kenyon WWTP	MN0021628	0.357	Continuous	NA	Domestic			
Kerry Inc	MNG250047	0.9	Continuous	Lake Zumbro	Industrial		124[2]	
Mazeppa WWTP	MN0046752	0.073	Continuous	NA	Domestic			
Milestone Materials - Golberg Quarry	MN0062227	16.45	Continuous	Lake Zumbro	Industrial		Monitor only	
Milestone Materials - North Quarry	MN0069523	11	Periodic/ Seasonal	Lake Zumbro	Industrial		Monitor only	
Oronoco WWTP	MN0071421	0.638	Continuous	Lake Zumbro	Domestic	0.4[3]	128[2,6]	
Pine Island WWTP	MN0024511	0.705	Continuous	Lake Zumbro	Domestic	1.0[3]	974[2]	

Facility name	Permit ID	Design Flow (mgd)[1]	Flow type	Upstream of Nutrient Impaired Waterbody	Industrial or Domestic	CalMoAvg Concentration limit (mg/L)	Existing and Proposed annual mass limits (kg/yr)	Existing and Proposed daily mass limits (kg/d)
Rochester Athletic Club	MN0062537	0.02	Periodic/ Seasonal	Lake Zumbro	Industrial		55[2]	
Rochester WWTP/Water Reclamation Plant	MN0024619	23.85	Continuous	Lake Zumbro	Domestic	1.0[3]	25,035[2]	129[4]
Wanamingo WWTP	MN0022209	0.458	Continuous	NA	Domestic			
West Concord WWTP	MN0025241	0.473	Continuous	Lake Zumbro	Domestic	1.0[3]	653[2]	
Zumbro Falls WWTP	MN0051004	0.03	Controlled	NA	Domestic			
Zumbro Ridge Estates Mobile Home Park	MN0038661	0.025	Continuous	Lake Zumbro	Domestic		121[2]	
Zumbrota WWTP	MN0025330	1.11	Continuous	NA	Domestic			

1 Domestic = average wet weather design flow; Industrial = maximum daily flow
2 12 month moving total, January – December
3 Calendar month average, January - December
4 Calendar month average, June – September
5 12 month moving average, January – December
6 128 kg/yr TP limit is based on maximum estimated wastewater flows during the initial permit cycle of 0.232 mgd at 0.4 mg/L. The permit limit may be adjusted to 353 kg/year during subsequent permit cycles based on the facility's AWWDF of 0.638 at 0.4 mg/L

Eutrophication standards

Minnesota has numeric LES and RES (Table 2). The river reaches in the ZRW are in the Central and South River Nutrient Regions (RNR). Lakes in the ZRW are in the Driftless Area Forest and Western Corn Belt Plains ecoregions. There are no lake standards for the Driftless Area Ecoregion since there are so few natural lakes. All of the facilities in the watershed ultimately discharge to the Zumbro River, which flows to the Mississippi River. The RES for the Mississippi River is comprised of a causal variable (phosphorus) and a single response variable chlorophyll-a (chl-*a*). Since the chl-*a* criterion of 35 µg/L is not exceeded in the Mississippi River on average, Minnesota has not listed the Mississippi River downstream of Lake Pepin to the Iowa border as impaired for eutrophication. However, the state of Wisconsin has listed the Mississippi River as impaired for RES.

The RES for both RNRs in the ZRW are comprised of a causal variable (phosphorus) and several response variables, including chl-*a*, five-day biochemical oxygen demand (BOD_5), and dissolved oxygen ([DO] flux). Table 2 shows the nutrient (causal) variable and the associated stressor (response) variables specific to each RNR (Minn. R. 7050.0222, Heiskary et al., 2013). In order for lakes or rivers to exceed eutrophication standards, both the causal variable (TP) and at least one response variable need to exceed their respective numeric values.

Table 2. Minnesota's River and lake eutrophication criteria. Bold criteria are applicable in ZRW.

River Nutrient Region	TP (µg/L)	Chl–*a* (µg/L)	DO flux (mg/L)	BOD_5 (mg/L)
	Causal	Response		
South	**≤ 150**	**≤ 40**	**≤ 5.0**	**≤ 3.5**
North	≤ 50	≤ 7	≤ 3.0	≤ 1.5
Central	**≤ 100**	**≤ 18**	**≤ 3.5**	**≤ 2.0**

Lake Ecoregion	TP (µg/L)	Chl–*a* (µg/L)	Secchi depth (meters)
	Causal	Response	
WCBP[2] Lakes	**65**	**22**	**≥0.9**
WCBP[2] Shallow Lakes	**90**	**30**	**≥0.7**
Lake Zumbro site-specific segment 2	**≤ 105**	**≤ 48**	**≥1.1**
Lake Zumbro site-specific segment 3	**≤ 75**	**≤ 40**	**≥1.4**

[1]Western Corn Belt Plains

There are relatively few lakes in the ZRW and Lake Zumbro is the only lake downstream of WWTFs with a residence time greater than 14 days. Minnesota rules specify that a site-specific standards (SSS) can be developed when available information demonstrates that a site-specific modification to statewide or ecoregion standards is appropriate (Minn. R. 7050.0220 subp. 7, Bouchard et al., 2017). The SSS are based on a demonstration that modifications to the LES, which apply to this waterbody, will still result in attainment of Class 2 designated beneficial uses (aquatic life and recreation). Minnesota's eutrophication standards are comprised of a casual variable (phosphorus) and response variables, which are direct or indirect measures of suspended algae (Table 2). The segment 3 site-specific standard for Lake Zumbro is lower than segment 2 reflecting typical downstream settling of TP in reservoirs.

Current Condition

Monitored TP and chl-*a* from the Zumbro River at the outlet of the Zumbro watershed (i.e. reach 07040004-501) exceeds the TP criterion but does not exceed the chl-a criterion (Tables 2 and 3, Minn. R. 7050.0222, Heiskary, 2013). Again, the RES is exceeded if the causal variable (TP) and a response variable chl-a, BOD_5, or dissolved oxygen flux (DO flux) is exceeded (MPCA, 2015). The outlet of the Zumbro River fits a common pattern for several rivers and streams in the ZRW. The TP is low during average to low flows when conditions are optimal for algal growth, and TP is high when conditions for algal growth are not optimal due to high turbulence and turbidity (Figure 2). The low TP at average to low flows is likely due to the following factors: good baseflow of

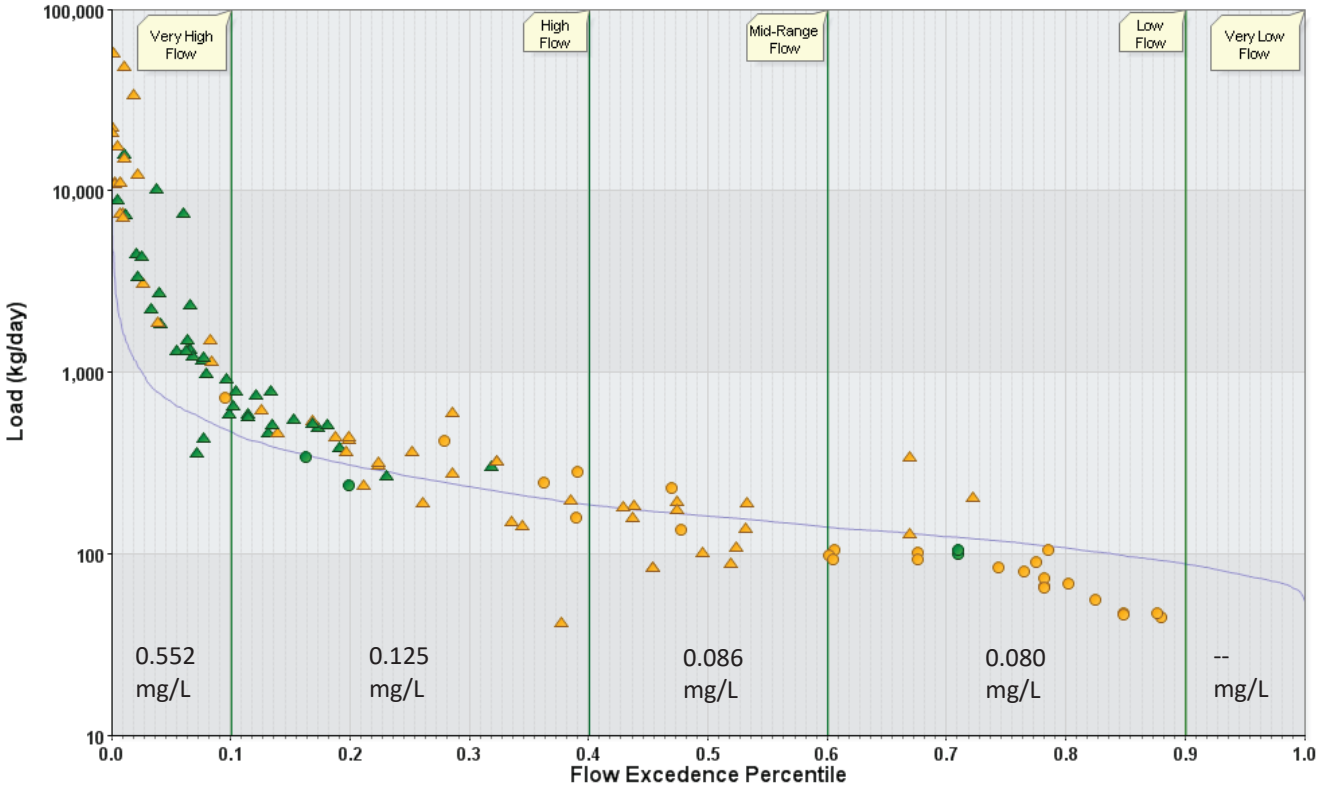
low TP groundwater from the karst areas of the ZRW, relatively low TP loads from point sources from historical efforts to protect Lake Zumbro, and transport losses in Lake Zumbro and other river segments. The South Branch (SB) Middle Fork (MF) Zumbro River (WID 07040004-978) exceeded both TP and chl-*a* on average from 2010-2019. It was listed as impaired for RES in 2016 and is the only river in the ZRW that exceeds RES. The headwaters of the SB MF Zumbro River is Rice Lake, which exceeds LES. An excess nutrients TMDL for Rice Lake was included in the Zumbro River Watershed TMDL report approved by EPA in 2018.

Table 3. Monitored summer (June-September) average concentration of total phosphorus and chlorophyll-of rivers in the Zumbro River Watershed from 2010-2019. Bolded text indicates river reaches that exceed applicable eutrophication standards.

WID	Name	RES region	Phosphorus		Chlorophyll-a	
			Average (µg/L)	Count	Average (µg/L)	Count
07040004-501	Zumbro River at Kellogg	Central	340	140	11.5	21
07040004-502	Zumbro River at Hammond	Central	83	16	6.1	16
07040004-507	SF Zumbro near Rochester	Central	227	323	7.7	218
07040004-515	Trout Brook at Mazeppa	Central	145	19	4.2	9
07040004-576	Dry Run Creek near Oronoco	Central	278	9	4.1	9
07040004-971	NF Zumbro R. near Zumbrota	Central	175	21	7.2	16
07040004-992	MF Zumbro River	Central	284	100	5.4	15
07040004-975	MF Zumbro River	South	195	31	3.7	27
07040004-978	**S BR MF Zumbro River**	**South**	**372**	**89**	**43.0**	**15**

*None of the stations had BOD samples in the past 10 years.

Figure 2. Monitored summer total phosphorus of the Zumbro River at Kellogg station S004-384 from 2008-2017. Flow exceedance percentile based on flows from 1975 to 2017 (station H41043001). Green symbols represent samples from June. Yellow symbols are from July to September. Average concentration listed by flow zone. The blue line represent the load at 0.100 mg/L for the corresponding flow.



Lake Zumbro is a narrow rapidly flushed reservoir north of the city of Rochester on the Zumbro River (Figure 3). The residence time of Lake Zumbro is greater than 14 days during the 122Q10 summer flow. Thus, Lake Zumbro

is a lake which is subject to Minnesota's LES. As stated earlier, the lake was listed as impaired for excess nutrients in 2002. In the 1970s and 1980s, Lake Zumbro had higher levels of TP and chl-*a*. Some of the larger WWTFs were issued 1 mg/L TP effluent limits and conditions in Lake Zumbro and its watershed began to improve. In recent years, TP and chl-*a* monitoring data suggest that Lake Zumbro is close the applicable SSS for segments 2 and 3 (Table 5). This document is not going to examine the impairment status of the Lake Zumbro. Rather, this document will focus on determination of the maximum WWTF TP discharge levels protective of, and consistent with, attainment of the lake's site specific eutrophication standards in the future. Additional water quality information describing water quality conditions in the watershed can be found at: https://www.pca.state.mn.us/water/watersheds/zumbro-river and in the ZRW TMDL (MPCA, 2017).

Figure 3. Map and BATHTUB model segments used for BATHTUB modelling of Lake Zumbro.



Lake Zumbro BATHTUB Segments

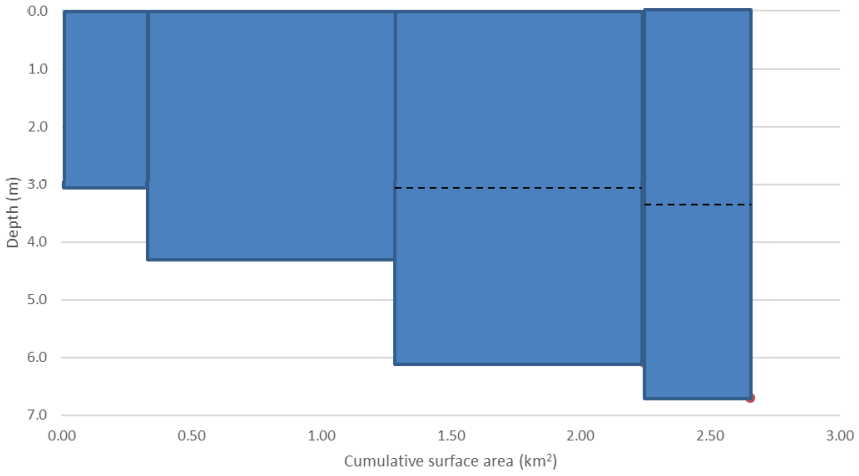


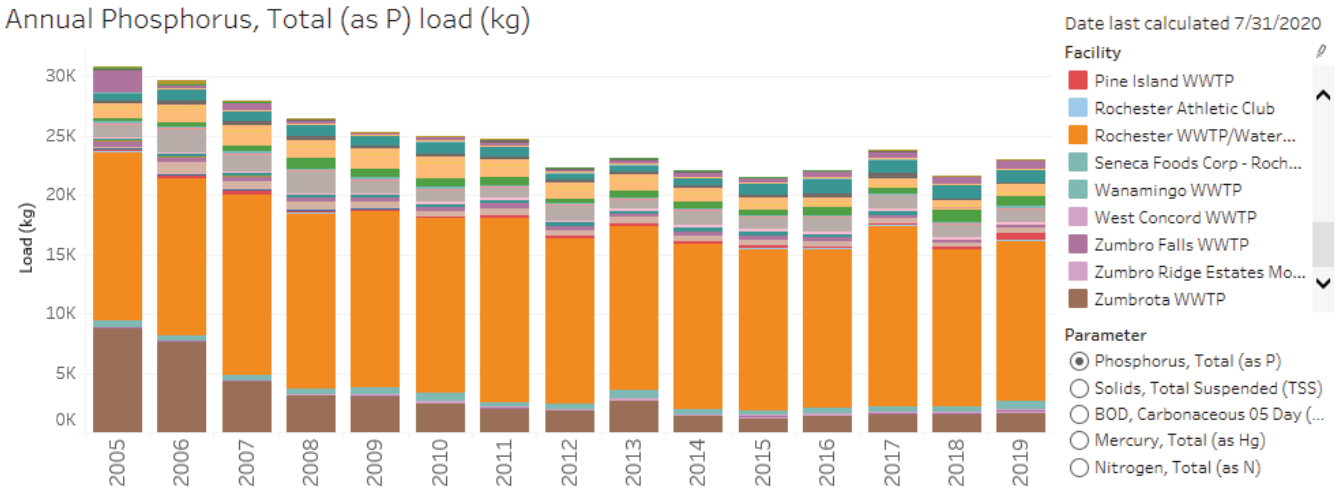
Table 4. Monitored summer average TP, chlorophyll-a (chl-a) and secchi depth for the 3 segments of Lake Zumbro in 1998, 2000, 2003, 2007, 2008, 2017 and 2018. All samples above the 85th percentile flow (960 cfs at L. Zumbro outlet) were removed.

Segment	Description/year	Nutrient (Causal)	Stressor (Response)	
		TP (mg/L)	Chl – a (µg/L)	Secchi depth (m)
Segment 1	**Standards**	**NA**	**NA**	**NA**
Segment 1	**Overall average**	**0.149**	**37**	**0.6**
Segment 1	1998	0.139	25	0.6
Segment 1	2000	0.126	11	0.7
Segment 1	2003	0.180	108	0.4
Segment 1	2007	0.136	57	0.4
Segment 1	2008	0.107	16	0.6
Segment 1	2017			
Segment 1	2018	0.204	6	0.5
Segment 2	**Standards**	**≤ 0.105**	**≤ 48**	**≥ 1.1**
Segment 2	**Overall average**	**0.105**	**40**	**1.0**
Segment 2	1998	0.124	42	0.6
Segment 2	2000	0.125	66	0.7
Segment 2	2003	0.094	19	1.3
Segment 2	2007	0.118	61	0.9
Segment 2	2008	0.084	48	1.1
Segment 2	2017	0.077	19	1.2
Segment 2	2018	0.114	22	1.0
Segment 3	**Standards**	**≤ 0.075**	**≤ 40**	**≥ 1.4**
Segment 3	**Overall average**	**0.072**	**34**	**1.6**
Segment 3	1998	0.085	37	1.6
Segment 3	2000	0.085	52	0.9
Segment 3	2003	0.058	29	2.2
Segment 3	2007	0.078	45	1.4
Segment 3	2008	0.071	46	1.3
Segment 3	2017	0.059	16	1.9
Segment 3	2018	0.069	11	1.8

Wastewater facilities

There are currently 26 active NPDES surface water discharges in the ZRW (Table 1). Nonmetallic mining facilities (MNG49 permittees) are not covered in this review since they typically discharge low TP concentration water. As stated earlier many of the facilities discharge upstream of Lake Zumbro (Figure 1). Table 1 lists the proposed TP effluent limits. The largest current phosphorus load contributor of the ZRW facilities is the Rochester WWTF/Water Reclamation Plant (Figure 4).

Figure 4. Zumbro River Watershed facility annual phosphorus-loading trends.



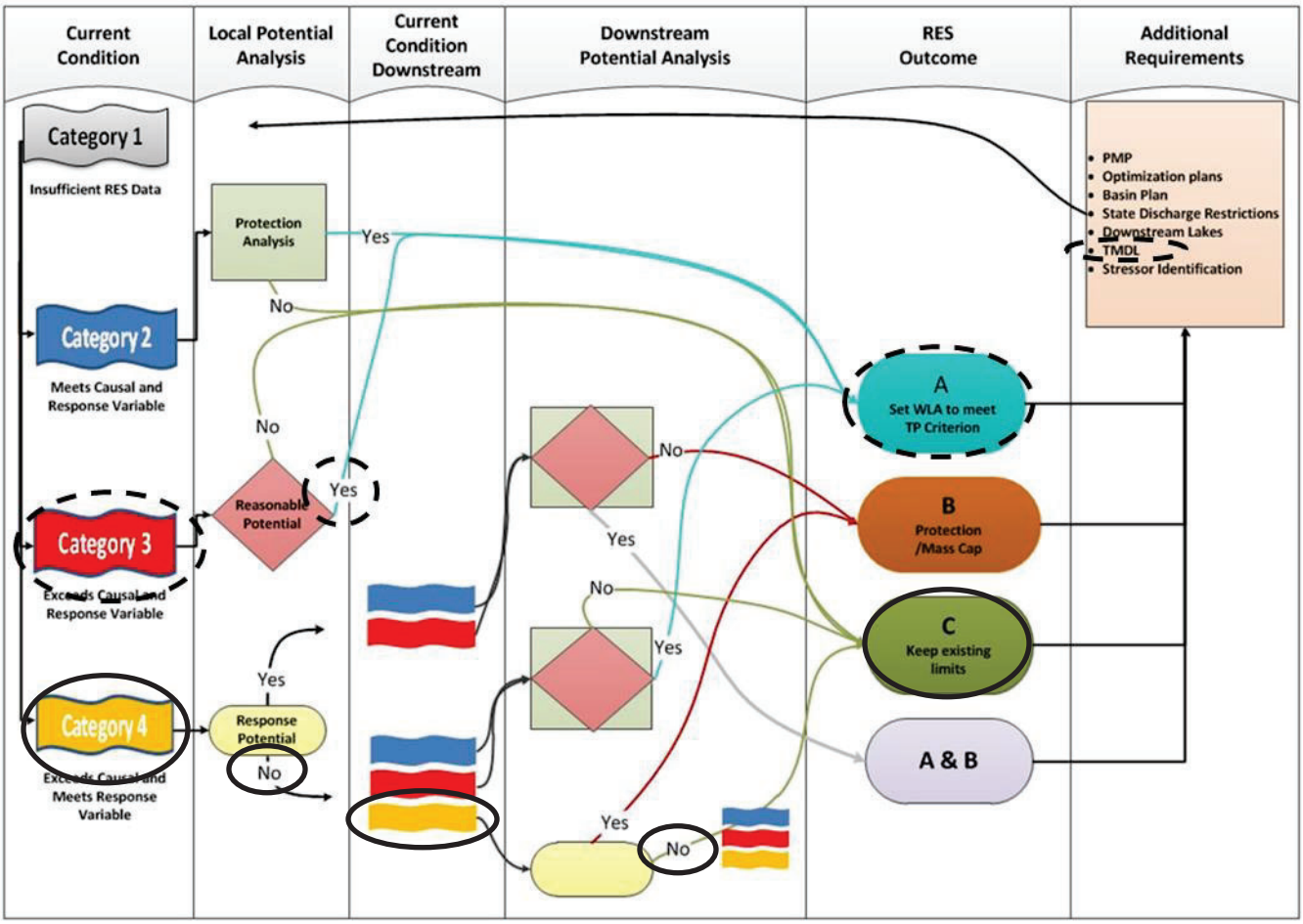
Phosphorus limit determination

Using the analysis and procedures outlined in *Procedures for implementing RES in NPDES wastewater permits in Minnesota* (MPCA, 2015) and modeling outputs from the ZRW TMDL water quality based effluent limits were established for the WWTFs in the ZRW. The limit review process considers all waters downstream of facilities in the watershed. The review process not only determines if current conditions are causing or contributing to an exceedance, but it evaluates the impact of the facility at design flows to protect water resources for years to come. Figure 5 shows the evaluation process and the potential outcomes. The appropriate choices for the ZRW have been circled.

Federal regulations (40 CFR § 122.44) require that all discharges with the reasonable potential (RP) to cause or contribute to the exceedance of a state water quality standard are required to have Water Quality Based Effluent Limits (WQBELs). Facilities are considered to potentially cause or contribute to a downstream impairment if, while operating at capacity, they: 1) discharge at TP concentrations higher than the applicable eutrophication standard, and 2) if the calculated TP concentration of the water of interest exceeds the TP criterion and there is no boundary condition preventing TP from arriving at the water of interest. Several of the WWTFs in the ZRW do have RP since the TP concentration in the effluent is higher than the applicable TP eutrophication criterion and there are eutrophication impaired waters downstream of their outfall locations.

The WWTFs in the ZRW fall into three general groupings: the facilities upstream of Lake Zumbro, the facilities upstream of the SB MF Zumbro River which is also upstream of Lake Zumbro and the facilities that are not upstream of Lake Zumbro. Many of the existing limits for WWTFs in the ZRW are equivalent to those needed to protect downstream waters (Table 1). The summer wasteload allocation for Rochester WWTF is a 15% reduction compared to their existing annual average mass limit of 72.2 kg/d.

Figure 5. General process for reviewing phosphorus effluent limits for RES in Minnesota with the process path circled. Dashed ovals for facilities upstream of Lake Zumbro and the South Branch MF Zumbro River. Solid ovals for facilities downstream of Lake Zumbro.



Discharges upstream of Lake Zumbro

The following section will discuss the process of establishing wasteload allocations for the WWTFs upstream of Lake Zumbro. A series of Hydrologic Simulation Program-FORTRAN (HSPF) scenarios were completed to estimate the flow-weighted mean concentrations for the tributaries to Lake Zumbro (Tables 5 and 6). LimnoTech (2020) has extensive details regarding the calibration of the ZRW HSPF model including calibration and scenario results. The top 15% of flows were eliminated from the FWMC consistent with the site-specific standard for Lake Zumbro. The SSS excludes high flow events that are quickly flushed through the lake and have limited impact on the lake during average to low flows when the lake grows algae. The FWMC were entered into a calibrated BATHTUB model for Lake Zumbro.

Table 5. HSPF predicted overall summer flow-weighted mean concentration (FWMC) of the tributaries to Lake Zumbro from 1996 to 2018. Top 15% of flows were excluded from calculations.

	Baseline scenario				Non-point & WLA1				Non-point & WLA2			
Year	**Seg 1 fwmc (mg/L)**	**Seg. 1 flow (hm^3)**	**Seg 3 fwmc (mg/L)**	**Seg. 3 flow (hm^3)**	**Seg 1 fwmc (mg/L)**	**Seg. 1 flow (hm^3)**	**Seg 3 fwmc (mg/L)**	**Seg. 3 flow (hm^3)**	**Seg 1 fwmc (mg/L)**	**Seg. 1 flow (hm^3)**	**Seg 3 fwmc (mg/L)**	**Seg. 3 flow (hm^3)**
1996	0.077	310	0.030	11.4	0.104	335	0.027	11.4	0.086	325	0.027	11.4
1997	0.102	381	0.039	13.8	0.111	402	0.035	13.8	0.098	396	0.035	13.9
1998	0.075	386	0.060	19.2	0.099	407	0.053	19.3	0.083	397	0.053	19.3
1999	0.086	522	0.036	16.5	0.092	539	0.033	16.4	0.081	532	0.033	16.5
2000	0.087	366	0.034	12.0	0.113	389	0.030	11.8	0.097	379	0.030	11.8
2001	0.086	402	0.031	12.8	0.107	421	0.028	12.7	0.092	415	0.028	12.8
2002	0.100	426	0.063	21.3	0.113	450	0.056	21.4	0.100	444	0.061	22.0
2003	0.081	266	0.026	8.9	0.111	292	0.025	9.0	0.091	282	0.025	9.0
2004	0.097	501	0.045	19.0	0.102	520	0.040	19.0	0.090	511	0.040	19.0
2005	0.086	313	0.103	14.4	0.110	334	0.088	14.1	0.093	324	0.088	14.1
2006	0.086	431	0.026	10.7	0.101	452	0.024	10.7	0.088	443	0.024	10.7
2007	0.103	404	0.057	14.1	0.113	420	0.047	13.7	0.099	415	0.047	13.9
2008	0.080	327	0.027	10.4	0.103	352	0.024	10.4	0.086	342	0.024	10.4
2009	0.103	264	0.038	5.3	0.126	285	0.036	5.3	0.106	275	0.036	5.3
2010	0.091	385	0.320	17.8	0.107	402	0.184	17.4	0.091	392	0.184	17.4
2011	0.075	416	0.031	13.6	0.095	440	0.028	13.7	0.080	430	0.028	13.7
2012	0.089	249	0.037	10.3	0.119	269	0.033	10.2	0.097	259	0.033	10.2
2013	0.068	452	0.031	13.9	0.089	478	0.028	14.0	0.076	468	0.028	14.0
2014	0.078	441	0.030	13.6	0.096	465	0.027	13.5	0.082	455	0.027	13.5
2015	0.080	375	0.026	10.7	0.103	396	0.023	10.5	0.087	386	0.023	10.5
2016	0.091	552	0.056	15.9	0.103	569	0.049	15.7	0.092	563	0.049	15.7
2017	0.079	431	0.032	13.6	0.096	450	0.029	13.6	0.083	447	0.029	13.7
2018	0.088	546	0.036	15.7	0.098	555	0.031	15.4	0.089	552	0.032	15.6
Average	**0.086**	**398**	**0.053**	**13.7**	**0.105**	**418**	**0.043**	**13.6**	**0.090**	**410**	**0.043**	**13.7**

Table 6. Description of HSPF scenarios. Output from shaded scenarios served as input for BATHTUB model.

No.	Scenario	Description
1	Baseline	Historic non-point and point source conditions
2	Non-point only	WRAPS BMPs
3	Non-point & WLA1	WRAPS BMPs; Rochester WRP at AWWDF & 0.8 mg-P/L; Other point sources at AWWDF and existing limits or historic concentrations if no limits
4	Non-point & WLA2	WRAPS BMPs; Rochester WRP at 70% AWWDF & 0.8 mg-P/L; Other point sources at AWWDF and existing limits or historic concentrations if no limits
5	Non-point & WLA3	WRAPS BMPs; Rochester WRP at 70% AWWDF & 0.6 mg-P/L; Other point sources at 70% AWWDF and existing limits or historic concentrations if no limits
6	Non-point & WLA4	WRAPS BMPs; Rochester WRP at 70% AWWDF & 0.4 mg-P/L; Other point sources at 70% AWWDF and existing limits or historic concentrations if no limits

The updated BATHTUB model with inputs from the ZRW HSPF model is an improved tool for calculating wasteload allocations for WWTFs compared to previous modeling efforts for Lake Zumbro. The HSPF model was used to predict the overall summer (June-September) flow-weighted mean concentration (FWMC) total phosphorus concentration of the tributaries to Lake Zumbro (LimnoTech 2020). Reaches 15, 16, 300 and 600 of the HSPF model are direct tributaries to segment 1 of Lake Zumbro, and HSPF reach 13 is a direct tributary to segment 3 of Lake Zumbro(Figures 3 and 6). A series of individual summer BATHTUB models were completed in a spreadsheet to determine the long-term summer inputs to achieve the SSS in segments 2 and 3 of Lake Zumbro. The model was calibrated on baseline HSPF inputs and monitored lake data from 1998, 2000, 2003, 2007, 2008, 2017, and 2018 (Table 7), excluding the top 15% of flows. Once the top 15% of flows were removed, the extreme differences in-lake response and processing from wet years like 2007 and dry years like 2003 are reduced. Thus, it was possible to use the same calibration for internal loading and TP settling in all years

(Appendix A). The residence time of segment 1 is approximately 1 day on average. Higher than expected monitored TP in segment 1 of Lake Zumbro based on modeled concentration inputs from HSPF required the use of simulated internal loading in Segment 1 to match observed lake concentrations (Figure 7). The internal loading factor is greater than conventional model assumptions for deep lake internal loading. It reflects antecedent high concentration events excluded with the top 15% of flows, resuspension of sediment due to relatively shallow nature of Segment 1, phosphorus release from sediments and other factors that contribute to internal loading.

Figure 6. Zumbro River HSPF reaches near Lake Zumbro. Note flow path is from 600 and 300 north through 110 (Lake Zumbro) to reach 109. Reaches 15, 16 and 13 are tributaries to Lake Zumbro.

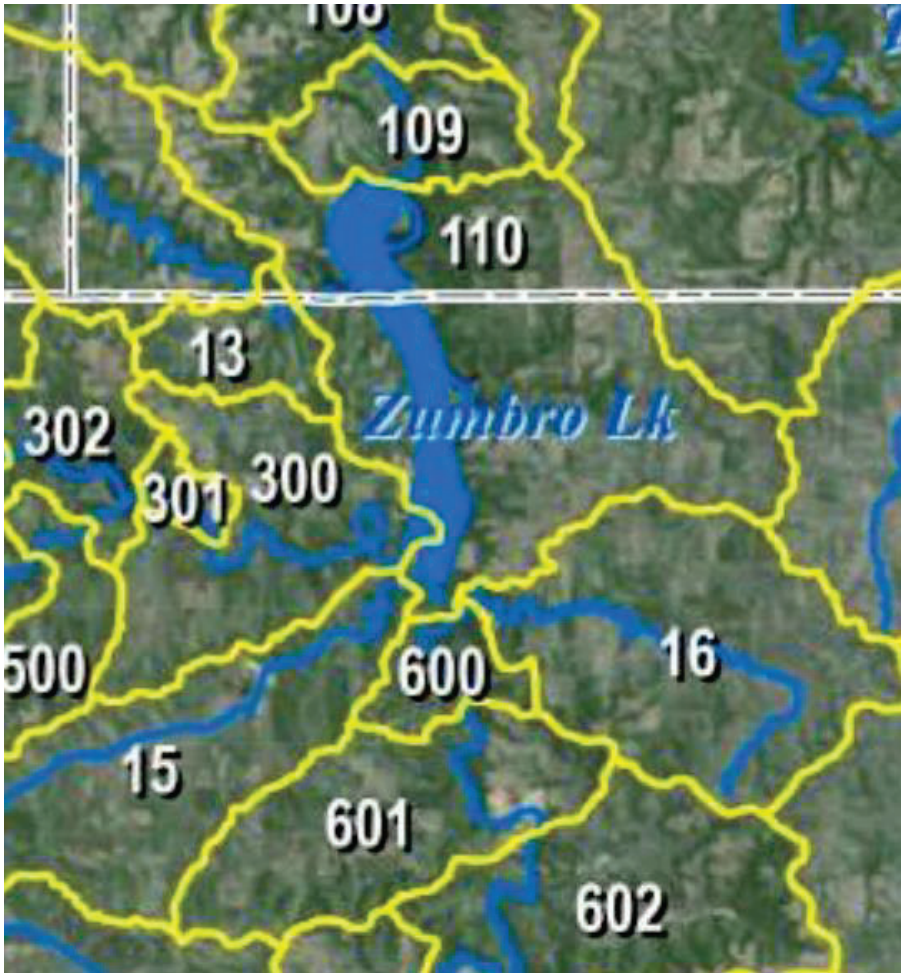
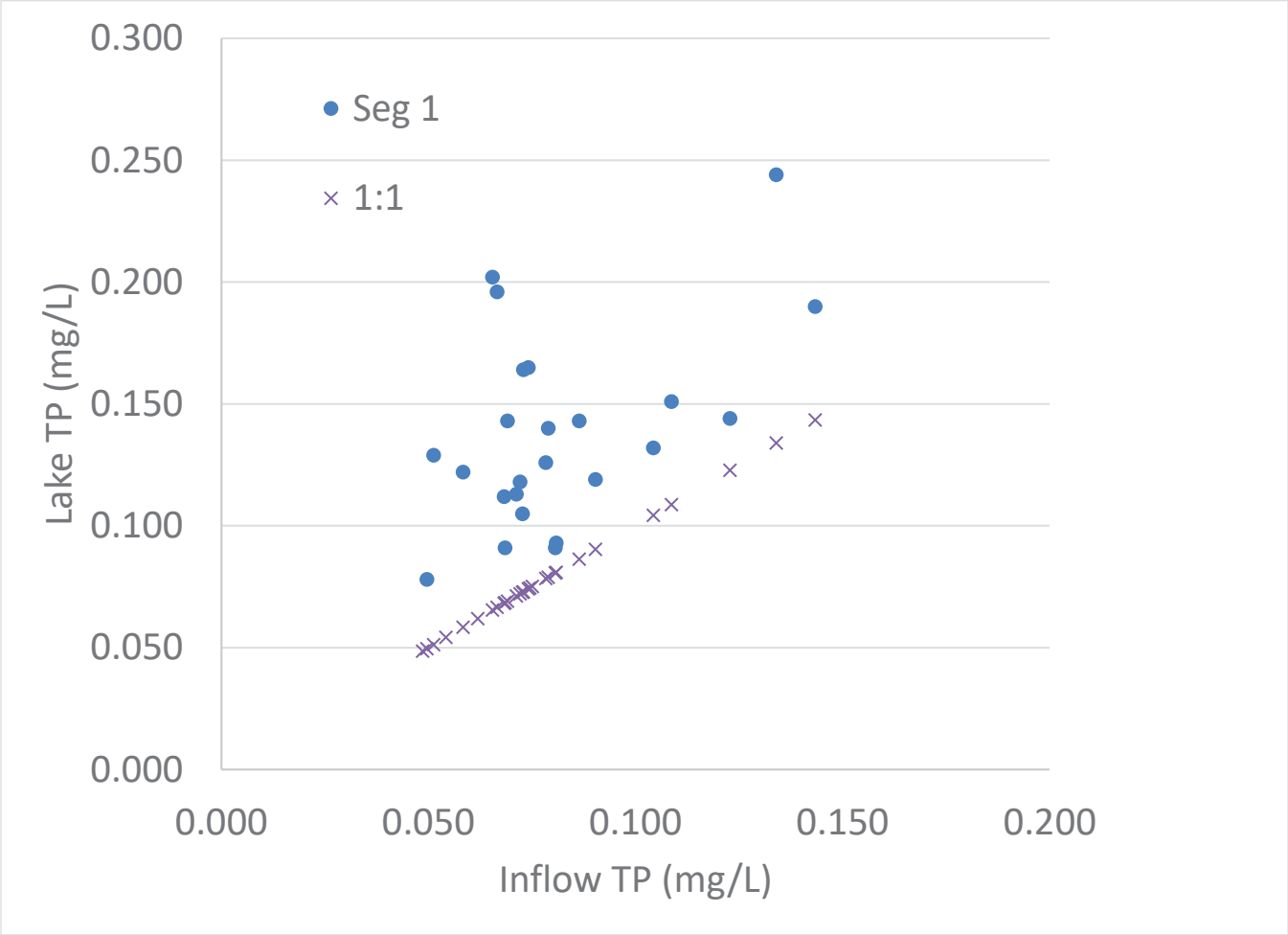


Table 3. Average summer model output for 1998, 2000, 2003, 2007, 2008, 2017 and 2018 along with monitored overall average for the same 7 years. Top 15% of flows excluded from model inputs and monitored results. TP = total phosphorus, Chl-*a* = chlorophyll-a, and Secchi = Secchi depth.

Segment	TP (µg/L)	Chl-a (µg/L)	Secchi (m)	% Chl-a >60 (µg/L)
BATHTUB Model Results				
Segment 1 model	148	37	0.5	12
Segment 2 model	105	47	1.0	23
Segment 3 model	72	41	1.5	17
Monitoring Results				
Segment 1 monitored	149	37	0.6	8
Segment 2 monitored	105	40	1.0	26
Segment 3 monitored	72	34	1.6	21

Figure 7. HSPF estimated TP inflow concentration versus monitored concentration of segment 1 in Lake Zumbro. All samples are above the 1:1 line demonstrating that the lake concentration was higher than the estimated inflow concentration on all dates the lake was sampled.



The combination of HSPF and BATHTUB were used to determine wasteload allocations for the facilities upstream of Lake Zumbro (Table 8). The HSPF model included non-point reductions to estimate the impact of actions called for in the ZRW Watershed Restoration and Protection Strategies (WRAPS, Wotzka and Watkins 2017) report along with a series of wasteload allocation assumptions for WWTFs upstream of the Lake Zumbro. Ultimately, the combination of WRAPS and wasteload allocation "1.5" are sufficient to meet the site-specific standard for segments 2 and 3 of Lake Zumbro. This solution scenario assumes a 24.3% reduction of internal loading consistent with the annual TP loading reduction to the lake. In practical terms for WWTFs, the city of Rochester saw a 15 % reduction of TP load during summer from the 72.2 kg/d in its current permit limit to a wasteload allocation of 61.4 kg/day. If necessary, any margin of safety for a future TMDL will be taken from the load allocation. Facilities can be confident their wasteload allocations will not be reduced if a TMDL for Lake Zumbro is completed in the future.

Table 8. Average summer model output for 1996-2018 for baseline and 3 management scenarios. Top 15% of flows excluded from model inputs. TP = total phosphorus, chl-*a* = chlorophyll-a, and Secchi = Secchi depth.

Segment	TP (µg/L)	Chl-a (µg/L)	Secchi (m)	% chl-a >60 (µg/L)	Rochester summer TP load (kg/d)
Historic baseline scenario					
Segment 1 model	159	40	0.5	19	41.6
Segment 2 model	109	50	1.0	30	
Segment 3 model	73	42	1.4	17	
WRAPS + WLA1 (current limits)					
Segment 1 model	156	39	0.5	18	72.2
Segment 2 model	109	49	1.0	29	
Segment 3 model	73	42	1.4	17	
WRAPS + WLA2 (Rochester only reduction)					
Segment 1 model	144	36	0.5	14	50.6
Segment 2 model	101	45	1.1	23	
Segment 3 model	69	38	1.6	13	
WRAPS + WLA1.5 (Linear interpolation of WLA1 and WLA2)					
Segment 1 model	150	38	0.5	16	61.4
Segment 2 model	105	47	1.1	26	
Segment 3 model	71	40	1.5	15	
Site-specific standard					
Segment 1 model	NA	NA	NA	NA	NA
Segment 2 model	105	48	1.1	NA	
Segment 3 model	75	40	1.4	NA	

A dredging project for Lake Zumbro in 2018 and 2019 removed 500,000 cubic yards of sediment from the inflow segment of the lake. The BATHUB baseline model was calibrated on based on the historical depth conditions for Segment 1. The depth in segment 1 of the BATHTUB model was increased by 1.3 meters for the management scenarios to approximate the volume of the lake after the dredging project. The average predicted impact of the dredging project in the summer of a year like 2003 or 2009 is a 1.1 µg/L decrease in TP in the near-dam segment and 0.65-day increase in residence time of Lake Zumbro. The dredging project is expected to have minimal impact on years with higher flows. For example, the dredging project would increase the summer residence time of a year like 2008 from 11.7 to 12.0 days.

The total phosphorus wasteload allocations are annual for the smaller facilities upstream of Lake Zumbro and daily for Rochester WWTF (Table 9). The facilities that discharge to the SB MF Zumbro River also have daily WLAs. Several of the smaller facilities upstream of Lake Zumbro have annual limits where the daily WLA was multiplied by 365 days. This is the same process that was utilized for smaller facilities upstream of Lake Byllesby in the Cannon River Watershed. The 25,035 kg/yr annual mass limit for Rochester WWTF is based on 72.2 kg/d from October - May and 61.4 kg/d from June - September. The standard 2.1 monthly limit multiplier was applied to all the seasonal mass limits (MPCA 2015). For example, the summer (June to September) 61.4 kg/day WLA for Rochester WWTF was converted to a calendar month average limit of 129 kg/day.

Table 9. Wasteload allocations and applicable TP limits for WWTFs in the ZRW.

Facility name	Permit ID	Design Flow (mgd)[1]	Flow type	Zumbro R, Middle Fork, South Branch WLA (kg/d)	Lake Zumbro WLA (kg/yr)	CalMoAvg Concentration limit (mg/L)	Existing and Proposed annual mass limits (kg/yr)	Existing and Proposed daily mass limits (kg/d)
AMPI - Rochester - MNG255 General	MNG255051	0.64	Continuous		442		442[2]	
Byron WWTP	MN0049239	1.4	Continuous	4.2	1,547	1.0[3]	1,547[2]	8.9[4]
Claremont WWTP	MN0022187	0.206	Continuous	0.8	285	1.0[3]	285[2]	1.6[4]
Dodge Center WWTP	MN0021016	0.973	Continuous	3.7	1,344		1,344[2]	7.7[4]
Franklin Heating Station	MN0041271	1.356	Continuous		937		937[2]	
Hallmark Terrace WWTP	MN0030368	0.018	Controlled		50		50[2]	
Hayfield WWTP	MN0023612	0.78	Continuous	1.6	566		566[2]	3.4
Kasson WWTP	MN0050725	0.968	Continuous	2.1	1,658	1.0[5]	1,658[2]	4.4[4]
Kerry Inc	MNG250047	0.9	Continuous		124		124[2]	
Milestone Materials - Golberg Quarry	MN0062227	16.45	Continuous		568		Monitor only	
Milestone Materials - North Quarry	MN0069523	11	Periodic/ Seasonal		380		Monitor only	
Oronoco WWTP	MN0071421	0.638	Continuous		353	0.4[3]	128[2,6]	
Pine Island WWTP	MN0024511	0.705	Continuous		974	1.0[3]	974[2]	
Rochester Athletic Club	MN0062537	0.02	Periodic/ Seasonal		55		55[2]	
Rochester WWTP/Water Reclamation Plant	MN0024619	23.85	Continuous	61.4[7]	25,035	1.0[3]	25,035[2]	129[4]
West Concord WWTP	MN0025241	0.473	Continuous		653	1.0[3]	653[2]	
Zumbro Ridge Estates Mobile Home Park	MN0038661	0.025	Continuous				121[2]	

1 Domestic = average wet weather design flow; Industrial = maximum daily flow
2 12 month moving total, January – December
3 Calendar month average, January - December
4 Calendar month average, June – September
5 12 month moving average, January – December
6 128 kg/yr TP limit is based on maximum estimated wastewater flows during the initial permit cycle of 0.232 mgd at 0.4 mg/L. The permit limit may be adjusted to 353 kg/year during subsequent permit cycles based on the facility's AWWDF of 0.638 at 0.4 mg/L.
7 Daily wasteload allocation for Lake Zumbro, Rochester is not upstream of SB MF Zumbro River

South Branch Middle Fork Zumbro River

The SB MF Zumbro River exceeds RES. The historical monitoring for the SB MF Zumbro River was biased high by high flow event sampling which increased average concentration of all sample dates. The HSPF baseline is an average of all summer flow conditions from 1996 to 2018 and provides a better estimate of an unbiased long-term summer average TP concentration than an average based on a large proportion of high flow event samples (Table 10). The HSPF model predicts that WRAPS + WLA1 scenario is sufficient to meet the long-term summer average TP criterion of 150 µg/L in the SB MF Zumbro River (Table 10). The outputs of HSPF scenarios WRAPS + WLA1 and WRAPS + WLA2 for the SB MF Zumbro River are the same since Rochester WWTF is the only point source load changed in these two scenarios and Rochester WWTF is not upstream of the SB MF Zumbro River. The WLAs for facilities directly to or upstream of the SB MF Zumbro River were converted to calendar month average limits with the standard 2.1 monthly limit multiplier. Basically, if the WWTFs meet the calendar month limit every month they will average at or below the WLA as a long-term summer average (MPCA 2015).

Table 10. HSPF predicted long-term summer average TP for sections of the S. Branch Middle Fork Zumbro R. Modeled years include 1996 through 2018.

HSPF reach	WID	River	Baseline Summer average TP (µg/L)	WRAPS + WLA1 (current limits) TP (µg/L)	WRAPS + WLA2 (Rochester only reduction)
500	07040004-978	S. Branch Middle Fork Zumbro R.	138.5	111.6	111.6
501	07040004-978	S. Branch Middle Fork Zumbro R.	137.0	111.0	111.0
502	07040004-978 (partial)	S. Branch Middle Fork Zumbro R.	140.7	114.9	114.9
	07040004-978 TP criterion	**S. Branch Middle Fork Zumbro R.**	**150**	**150**	**150**

Discharges to other rivers and streams in the Zumbro River Watershed

The majority of rivers in the ZRW do not respond to elevated TP. Response potential is completed for rivers with high TP that do not currently respond (Figure 5). The HSPF model predicts that long-term summer average TP concentration will be reduced in all rivers once the WRAPs and wasteload allocations for Lake Zumbro are achieved (Table 11, Appendix B). Three factors contribute to the modeled reduction of TP levels in the ZRW rivers. First, the BMPs recommended in the WRAPS reduce concentration of TP during above average to high flows. Second, Rochester WWTF has a reduced allocation during summer and the other facilities upstream of Lake Zumbro must continue to meet existing limits. Third, facilities downstream of Lake Zumbro are assumed to maintain existing TP concentration.

Table 11. HSPF predicted long-term summer average total phosphorus (TP) for 5 river reaches not upstream of Lake Zumbro in the Zumbro River Watershed. Modeled years include 1996 through 2018.

HSPF reach	WID	River	Baseline Summer average TP (mg/L)	WRAPS + WLA1 (current limits) TP (µg/L)	WRAPS + WLA2 (Rochester only reduction)
20	07040004-515	Trout Brook	88.5	77.0	77.0
201	07040004-971	N. Fork Zumbro R.	227.3	194.5	194.5
12	07040004-510	Cold Creek	89.6	77.1	77.1
104	07040004-502	Zumbro River	171.3	145.9	140.6
100	07040004-501	Zumbro River	174.4	142.2	138.0

The HSPF modeling for reach 07070004-501 of the Zumbro River predicts a long-term summer average TP concentration above Wisconsin's 100 µg/L P standard for the Mississippi River. Wisconsin has yet to develop a TMDL for the Mississippi River. As stated earlier, the TP concentration of the Zumbro River is below 100 µg/L at average and low flows indicating additional point source reductions will not be needed in the future. Comparing the WRAPs + WLA 1 and WRAPs + 2 scenarios demonstrates that reducing the Rochester WWTF load by 15% only results in a 3.0% reduction in reach 07070004-501 of the Zumbro River. Clearly additional non-point reductions would be needed during high flow conditions to meet 100 µg/L as a long-term summer average.

Summary

Historical reductions from WWTFs upstream of Lake Zumbro have improved water-quality in Lake Zumbro. The existing TP limits for most WWTFs upstream of Lake Zumbro are sufficient for achieving LES in Lake Zumbro. This document establishes wasteload allocations for facilities upstream of Lake Zumbro to protect the lake for the foreseeable future even if facilities discharge closer to their respective design flows. These wasteload allocations were mostly equivalent to existing limits except for the Rochester WWTF where there was a 15% reduction in desired long-term summer performance. This conclusion was reached after extensive modeling of total phosphorus loading to streams and rivers in the ZRW with special emphasis given to the river reaches upstream of Lake Zumbro. The wasteload allocations and non-point reductions needed for Lake Zumbro are also sufficient to meet RES in the SB MF Zumbro River.

The WWTFs in the ZRW downstream of Lake Zumbro do not need any new TP limits. The Zumbro River at the outlet of the watershed meets the 100 µg/L TP criterion at average to low flows when WWTFs have the most impact. Nonpoint sources contribute to high TP at flows above average flows. The BMPSs needed for total suspended solids TMDLS will help to reduce TP at high flows. The WWTFs not upstream of Lake Zumbro will continue to be required to monitor for TP and complete Phosphorus Management Plans (PMPs).

References

Bouchard, W., Jr., D. Wasley and J. Watkins. 2017. Technical Justification for Draft Lake Zumbro (55-0004-00) Site-Specific Eutrophication Standard. MPCA St. Paul 41 pp

Heiskary, S., W. Bouchard Jr., and H. Markus. 2013. Minnesota Nutrient Criteria Development for Rivers. MPCA St. Paul 176 pp

Heiskary, S. and D. Wasley. 2012. Mississippi River Pools 1 through 8: Developing River, Pool and Lake Pepin Eutrophication Criteria. MPCA St. Paul 83 pp.

LimnoTech, 2020. Zumbro River Watershed HSPF Model Extension 2018. Prepared for MPCA. Oakdale, MN. 73 pp.

Minnesota Pollution Control Agency (MPCA). 2015. Implementing river and lake eutrophication standards for NPDES wastewater permits. MPCA St. Paul 25 pp

Minnesota Pollution Control Agency (MPCA), LimnoTech and Zumbro Watershed Partnership. 2017. Zumbro River Watershed Total Maximum Daily Load Report. MPCA Rochester 118 pp

Wotzka, P. and J. Watkins. 2017. Zumbro River Watershed Restoration and Protection Strategies Report. Prepared for MPCA. 185 pp

Appendix A: Lake Zumbro BATUTUB model for 2017 and 2018. Model was run for 1996-2018.

CNET.XLS - LAKE/RESERVOIR Modeling Worksheet	Baseline with <85%tile flows				Baseline with <85%tile flows			
Simplified BATHTUB / PONDNET - DRAFT 55-0004								
Zumbro Reservoir	2017	2017	2017	2017	2018	2018	2018	2018
VARIABLE	1	2	3A	3B	1	2	3A	3B
model based primarily on real data (i.e. RD)								
PROBLEM TITLE	2017	2017	2017	2017	2018	2018	2018	2018
LAKE or RESERVOIR CHARACTERISTICS...								
Surface Area	0.32	0.96	0.96	0.41	0.32	0.96	0.96	0.41
Mean Depth	3.0	4.3	6.10	6.71	3.0	4.3	6.10	6.71
Mean Depth of Mixed Layer	3.0	4.3	3.0	3.4	3.0	4.3	3.0	3.4
Volume	0.97	4.94	7.20	3.82	0.97	4.94	7.20	3.82
Surface Elevation	920	920	920	920	920	920	920	920
Mean Depth of Hypolimnion	0.0	0.0	2	3	0.0	0.0	2	3
Observed Phosphorus								
Observed Phosphorus - min								
Observed Phosphorus - max								
Observed Chl-a								
Observed Secchi								
TP Standard		105	75	75		105	75	75

INTERNAL LOAD								
Release Rate	700	13	8	8	700	13	8	8
Anoxic Factor	122	122	122	122	122	122	122	122
Total P Load	27,660	1,530	934	399	27,660	1,530	934	399
POINT SOURCE								
Inflow								
Total P Load								
Total P FWMC								
Ortho P Load								
INFLUENT SEGMENT								
Inflow	0	431	430	444	0	546	546	562
Total P Load	0	61,826	44,807	33,198	0	75,567	57,798	44,597
Ortho P Load	0	0	0	0	0	0	0	0
NONPOINT SOURCE	June -September				June -September			
Precipitation	0.315	0.315	0.315	0.315	0.510	0.510	0.510	0.510
Evaporation	0.675	0.675	0.675	0.675	0.589	0.589	0.589	0.589
Runoff								
Influent Stream Loading based on HSPF	all tributaries				all tributaries			
Stream Total P Conc.	0.079		0.032		0.088		0.036	
Stream Total P Mass	34,190	-	429		47,928	-	560	
Stream Ortho P Conc.								
Stream Flow	431		14		546		16	
Atmospheric Total P Load	30	30	30	30	30	30	30	30
Atmospheric Ortho P Load	15	15	15	15	15	15	15	15

MODEL PARAMETERS. (See Documentation for Windows Version of BATHTUB)…								
BATHTUB Total P Model Number	1	1	1	1	1	1	1	1
BATHTUB Total P Model Name	AVAIL P	AVAIL P	AVAIL P	AVAIL P	AVAIL P	AVAIL P	AVAIL P	AVAIL P
Consider Ortho P Loads (1=yes, 0=no-recommended)	0	0	0	0	0	0	0	0
P Decay Calibration (normally =1)	0.01	2.1	1.95	1.95	0.01	2.1	1.95	1.95
BATHTUB Chl-a Model Number	4	5	5	5	4	5	5	5
BATHTUB Chl-a Model Name	P-LIN	JONES	JONES	JONES	P-LIN	JONES	JONES	JONES
Include Flushing Term in Chla Model (0 or 1)	1	1	1	1	1	1	1	1
Chlorophyll-a Calib (normally = 1)	0.9	0.65	0.98	0.98	0.9	0.65	0.98	0.98
Chla Temporal Coef. of Variation	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Chla Nuisance Criterion	60	60	60	60	60	60	60	60
BATHTUB Secchi Model Number	4	1	1	1	4	1	1	1
BATHTUB Secchi Model Name	Carlson	Chla & Turb	Chla & Turb	Chla & Turb	Carlson	Chla & Turb	Chla & Turb	Chla & Turb
Alpha = Non-Algal Turbidity	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Beta = 1/S vs. Chla Slope	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
Secchi Calib (normally = 1)	1.5	1.3	1.6	1.6	1.5	1.3	1.6	1.6
PREDICTION SUMMARY...								
P Retention Coefficient	0.001	0.293	0.281	0.153	0.000	0.251	0.248	0.134
Mean Phosphorus	144	104	75	64	138	106	79	69
+ CV	172	125	90	77	166	127	95	83
- CV	115	83	60	51	111	85	64	56
+/- CV	29	21	15	13	28	21	16	14
Mean Chlorophyll-a	36.2	46.5	43.2	34.6	34.9	47.6	47.2	38.7
Algal Nuisance Frequency	10%	22%	18%	9%	9%	24%	23%	13%
Mean Secchi Depth	0.50	1.05	1.38	1.70	0.52	1.02	1.27	1.53

Hypol. Oxygen Depletion A	1443.5	1635.7	1578.3	1410.8	1417.4	1655.8	1648.2	1493.7
Hypol. Oxygen Depletion V	#N/A	#N/A	789.2	470.3	#N/A	#N/A	824.1	497.9
Organic Nitrogen	987.8	1222.1	1149.1	950.9	958.2	1248.3	1238.3	1046.2
Non Ortho Phosphorus	62.2	80.5	74.8	59.3	59.9	82.5	81.7	66.7
Chl-a x Secchi	18.1	48.6	59.6	58.6	18.1	48.7	59.9	59.1
PC-1	3.24	3.12	2.99	2.80	3.20	3.15	3.07	2.90
PC-2	0.95	1.27	1.35	1.35	0.95	1.27	1.34	1.35
Carlson TSI P	75.8	71.2	66.4	64.2	75.3	71.4	67.3	65.3
Carlson TSI Chl-a	65.8	68.3	67.6	65.4	65.5	68.5	68.4	66.5
Carlson TSI Secchi	69.9	59.3	55.4	52.4	69.4	59.7	56.5	53.9
WATER BALANCE...								
Precipitation Flow	0.10	0.30	0.30	0.13	0.17	0.49	0.49	0.21
Influent Segment Flow	0	431	430	444	0	546	546	562
NonPoint Flow	431	0	14	0	546	0	16	0
Point Flow								
Total Inflow	431	431	444	444	546	546	562	562
Evaporation	0.22	0.65	0.65	0.28	0.19	0.57	0.56	0.24
Outflow	431	430	444	443	546	546	562	562
AVAILABLE P BALANCE (TOTAL P if P Model 1 >1)								
Precipitation Load	10	29	29	12	10	29	29	12
Influent Segment Load	0	61826	44807	33198	0	75567	57798	44597
Internal Load	27660	1530	934	399	27660	1530	934	399
NonPoint Load	34190	0	429	0	47928	0	560	0
Point Load								
Total Load	61860	63385	46199	33609	75598	77126	59321	45007
Sedimentation	34	18578	13001	5150	31	19328	14724	6037
Outflow	61826	44807	33198	28459	75567	57798	44597	38971

OBSERVED / PREDICTED RATIOS...								
Phosphorus	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Chlorophyll-a	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Secchi	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
OBSERVED / PREDICTED T-STATISTICS (FOR CE RESERVOIR MODELS ONLY)...								
Secchi	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Phosphorus	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Chlorophyll-a	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
RESPONSE CALCULATIONS...								
Reservoir Volume	0.97	4.94	7.20	3.82	0.97	4.94	7.20	3.82
Hydraulic Residence Time	0.0023	0.0115	0.0162	0.0086	0.0018	0.0091	0.0128	0.0068
	1	4	6	3	1	3	5	2
Overflow Rate	1329.7	446.0	463.3	1086.0	1685.7	565.8	586.6	1375.2
Total P Availability Factor	1	1	1	1	1	1	1	1
Ortho P Availability Factor	0	0	0	0	0	0	0	0
Inflow Ortho P/Total P	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Inflow P Conc	143.6	147.3	104.2	75.8	138.5	141.3	105.6	80.2
P Reaction Rate - Model 1	0.0	0.6	0.5	0.2	0.0	0.4	0.4	0.2
P Reaction Rate - Model 2	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
P Reaction Rate - Model 3	0.0	0.4	0.3	0.1	0.0	0.3	0.3	0.1
1-Rp Model 1 - Avail P	0.999	0.707	0.719	0.847	1.000	0.749	0.752	0.866
1-Rp Model 2 - Decay Rate	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
1-Rp Model 3 - 2nd Order Fixed	1.000	0.782	0.793	0.898	1.000	0.820	0.822	0.912
1-Rp Model 4 - Canfield & Bachman Reservoir	0.998	0.570	0.603	0.703	0.998	0.599	0.624	0.716
1-Rp Model 5 - Vollenweider 1976	1.000	0.816	0.801	0.847	1.000	0.833	0.819	0.861
1-Rp Model 6 - First Order Decay	1.000	0.976	0.969	0.983	1.000	0.981	0.976	0.987
1-Rp Model 7 - First Order Setting	1.000	0.995	0.996	0.998	1.000	0.996	0.997	0.999
1-Rp Model 8 - Canfield & Bachman Lake	0.999	0.771	0.779	0.852	0.999	0.796	0.799	0.864

1-Rp Model 9 - Canfield & Bachman Lake/Res	0.999	0.641	0.665	0.759	0.999	0.670	0.687	0.773
1-Rp - Used	0.999	0.707	0.719	0.847	1.000	0.749	0.752	0.866
Reservoir P Conc	143.6	104.1	74.8	64.2	138.4	105.9	79.4	69.4
Gp	6.155	2.371	2.735	4.546	7.650	2.790	3.155	5.417
Bp	184.8	119.0	75.7	61.3	175.8	121.8	82.1	68.3
Chla vs. P, Turb, Flushing	3.8	8.1	9.9	5.5	2.8	6.8	8.6	4.6
Chla vs. P Linear	36.2	18.9	20.5	17.6	34.9	19.3	21.8	19.0
Chla vs. P -Jones	102.8	46.5	43.2	34.6	97.5	47.6	47.2	38.7
Chla vs. P - Carlson	105.1	47.6	44.5	35.6	99.6	48.8	48.5	39.9
Chla Used	36.2	46.5	43.2	34.6	34.9	47.6	47.2	38.7
Bloom Frequency	10%	22%	18%	9%	9%	24%	23%	13%
ORTHO P LOADS...	0	0	0	0	0	0	0	0
Precipitation	5	14	14	6	5	14	14	6
Influent Segment	0	0	0	0	0	0	0	0
NonPoint Estimated	0	0	0	0	0	0	0	0
Point	0	0	0	0	0	0	0	0
Total	5	14	14	6	5	14	14	6
TOTAL P LOADS...								
Precipitation	10	29	29	12	10	29	29	12
Influent Segment	-	61,826	44,807	33,198	-	75,567	57,798	44,597
Internal	27,660	1,530	934	399	27,660	1,530	934	399
NonPoint	34,190	-	429	-	47,928	-	560	-
Point	-	-	-	-	-	-	-	-
Total	61,860	63,385	46,199	33,609	75,598	77,126	59,321	45,007

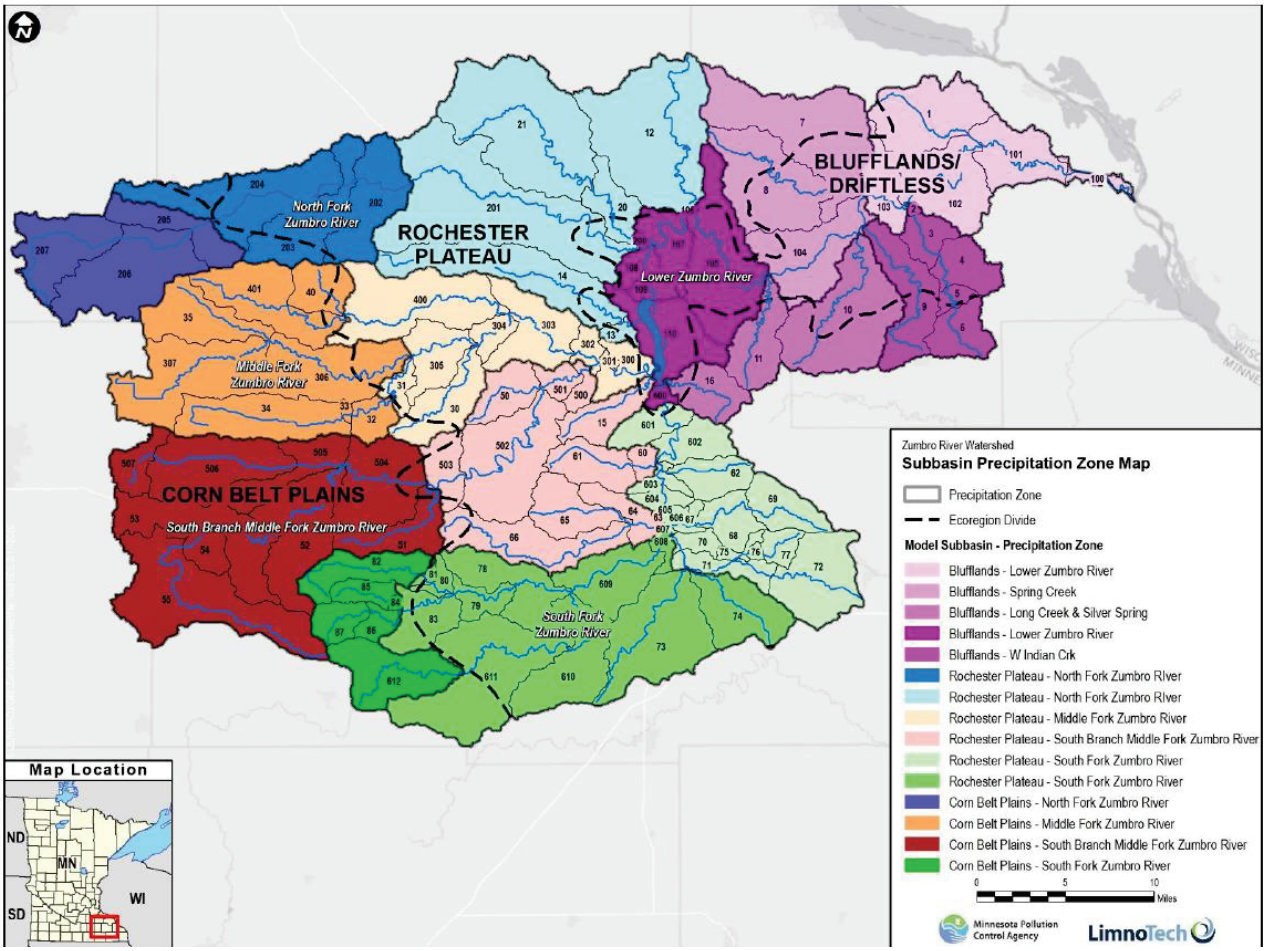
Overall inflow Concentration

TP
Chl-a
Secchi
Residence time

	Seg 1	Seg 2	Seg3		Seg 1	Seg 2	Seg3
TP	144	104	72	TP	138	106	76
Chl-a	36	46	41	Chl-a	35	48	45
Secchi	0.50	1.05	1.47	Secchi	0.52	1.02	1.35
overall residence time			14.1	overall residence time			11.1
Nus %	10%	22%	15%	Nus %	9%	24%	20%

All years	**(1996—2018)**			**98,00,03,07,08,17,18**			
ModelAvg	**1**	**2**	**3**	**ModelAvg**	**1**	**2**	**3**
TP	159	109	73	**TP**	148	105	72
Chla	40	50	41	**Chla**	37	47	41
Secchi	0.5	1.0	1.5	**Secchi**	0.5	1.0	1.5
% Nus.	19%	30%	17%	**% Nus.**	12%	23%	17%

Appendix B: Zumbro River HSPF reaches.



Appendix C. MN0071901 Phos Discharge Memo 10-25-2023

MINNESOTA POLLUTION CONTROL AGENCY

www.pca.state.mn.us

DATE: 10/25/2023

TO: File

FROM: Dennis Wasley
Effluent Limits Unit
Environmental Analysis and Outcomes Division

PHONE: 651-757-2676

SUBJECT: North Zumbro Sanitary Sewer District WWTF total phosphorus effluent limit review

VERSION: 1.0 Original Memorandum

Limit review

At this time, total phosphorus (TP) effluent limits of 0.4 mg/L (June –September) and 1.0 mg/L (October-May) are recommended for the proposed new discharge from North Zumbro Sanitary Sewer District WWTF. The 1.0 mg/L limit is required by state law for new and expanding facilities (MN rule 7053.0255, https://www.revisor.mn.gov/rules/7053.0255/). The proposed limits for the North Zumbro Sanitary Sewer District WWTF will result in less potential phosphorus discharged by the current Zumbrota and Wanamingo WWTFs that already discharge to the North Fork Zumbro River (Table 1). The 0.4 mg/L summer limit is consistent with limits for two other recent WWTF permits in the Zumbro River Watershed and will minimize the TP impact of a new discharge to the North Fork of the Zumbro River. The cities of Oronoco and Kasson in the Zumbro River Watershed both have 0.4 mg/L calendar month average TP limits. Oronoco was issued a permit for a new facility while Kasson was issued a permit for an expanded facility. Oronoco was also required to trade for TP credits since they were a new discharge upstream of a water impaired for eutrophication. North Zumbro Sanitary Sewer District WWTF is not upstream of a water impaired for eutrophication in the state of Minnesota so trading for TP credits is not needed.

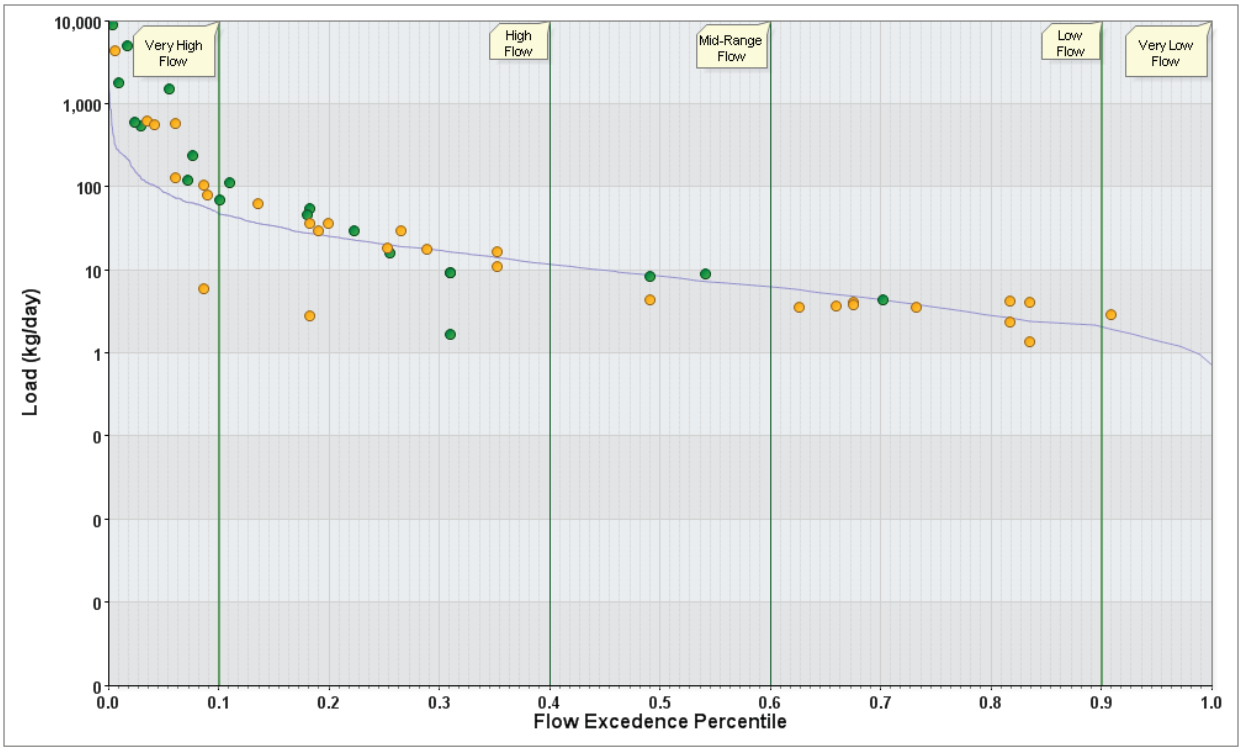
Table 1. Limits for proposed North Zumbro Sanitary Sewer District WWTF and anticipated maximum effluent loads.

LIMIT/PERFORMANCE	AWWDF (MGD)	CONCENTRATION (MG/L)	DAILY LOAD (KG/D)
OCTOBER – MAY LIMIT	4.1	1	15.5
JUNE –SEPTEMBER LIMIT	4.1	0.4	6.2
CURRENT LOAD POTENTIAL FROM ZUMBROTA AND WANAMINGO WWTFS	1.57	4.0	23.7

The proposed new discharge is to the North Fork Zumbro River. The existing Zumbrota and Wanamingo WWTFs already discharge to North Fork Zumbro River. With the proposed limits, there will be less TP discharged to the North Fork Zumbro River than currently allowed in the Zumbrota and Wanamingo WWTF permits. This essentially meets the anti-degradation requirements for total phosphorus.

Both the North Fork Zumbro River and the Zumbro River do not grow excessive levels of algae. The proposed North Zumbro Sanitary Sewer District WWTF with a 0.4 mg/L TP summer limit will discharge a relatively minor amount of TP during summer (June – September) relative to the average load of TP in the North Fork Zumbro and Zumbro Rivers. The North Fork Zumbro River near Wanamingo (AUID: 07040004-971) averaged 276 µg/L (n=90) during summer from 2009-2017, but chlorophyll-a only averaged 6.9 (n=24). This monitoring station is approximately 8 - 9 miles upstream of the proposed outfalls. This average TP at this station is likely biased high due to the higher sampling frequency during high flows (Figure 1). The North Fork Zumbro River does not currently exceed river eutrophication standards even though TP is well over the applicable criterion of 100 µg/L regardless of any high flow sampling bias. Algal production in the river is below the applicable chlorophyll-a criterion of 18 µg/L. The North Fork Zumbro River is a relatively small river which can limit light via shading from trees and has lower residence times for phytoplankton to grow to levels that exceed the criterion. Upstream efforts in the watershed will continue to maintain or reduce TP over all flows in the North Fork Zumbro River. There are TSS TMDLs which should help reduce high flow TP, and anti-degradation policies to maintain TP during lower flows in summer.

Figure 1. Monitored daily summer (June-September) total phosphorus load of the North Fork Zumbro River near Wanamingo (station S004-383) from 2007-2016. Percent exceeds flow based on 1998-2016 summer flows (North Fork Zumbro River at Wanamingo). Blue line represents load at RES (100 µg/L). Green dots = June. Yellow dots = July to September.



References

Heiskary, S., W. Bouchard Jr., and H. Markus. 2013. Minnesota Nutrient Criteria Development for Rivers. MPCA St. Paul 176 pp.

LimnoTech, 2020. Zumbro River Watershed HSPF Model Extension 2018. Prepared for MPCA. Oakdale, MN. 73 pp.

Minnesota Pollution Control Agency (MPCA). 2015. Implementing River and Lake Eutrophication Standards for NPDES Wastewater Permits. MPCA St. Paul, MN.

Appendix D. MN0071901 Streeter Phelps DO Sag Analysis Packet

FILEPATH: C:\Users\jpreston\WHKS & CO\North Zumbro Sanitary District - WHKS_9870 - WHKS_9870\041-Main Site Topo Survey\TEMP NZSD Main Site Topo Exhibit.dwg PLOT DATE: 12/31/2024 4:36 PM



SHEET: 1 OF 2	CHECKED BY: JP	DRAWN BY: ADM	WHKS PROJECT NO.: 9870

SCALE: AS SHOWN

NORTH ZUMBRO RIVER - CROSS SECTION

NORTH ZUMBRO SANITARY SEWER DISTRICT
ZUMBROTA, MN
2025

REVISIONS

NO.	DATE	DESCRIPTION

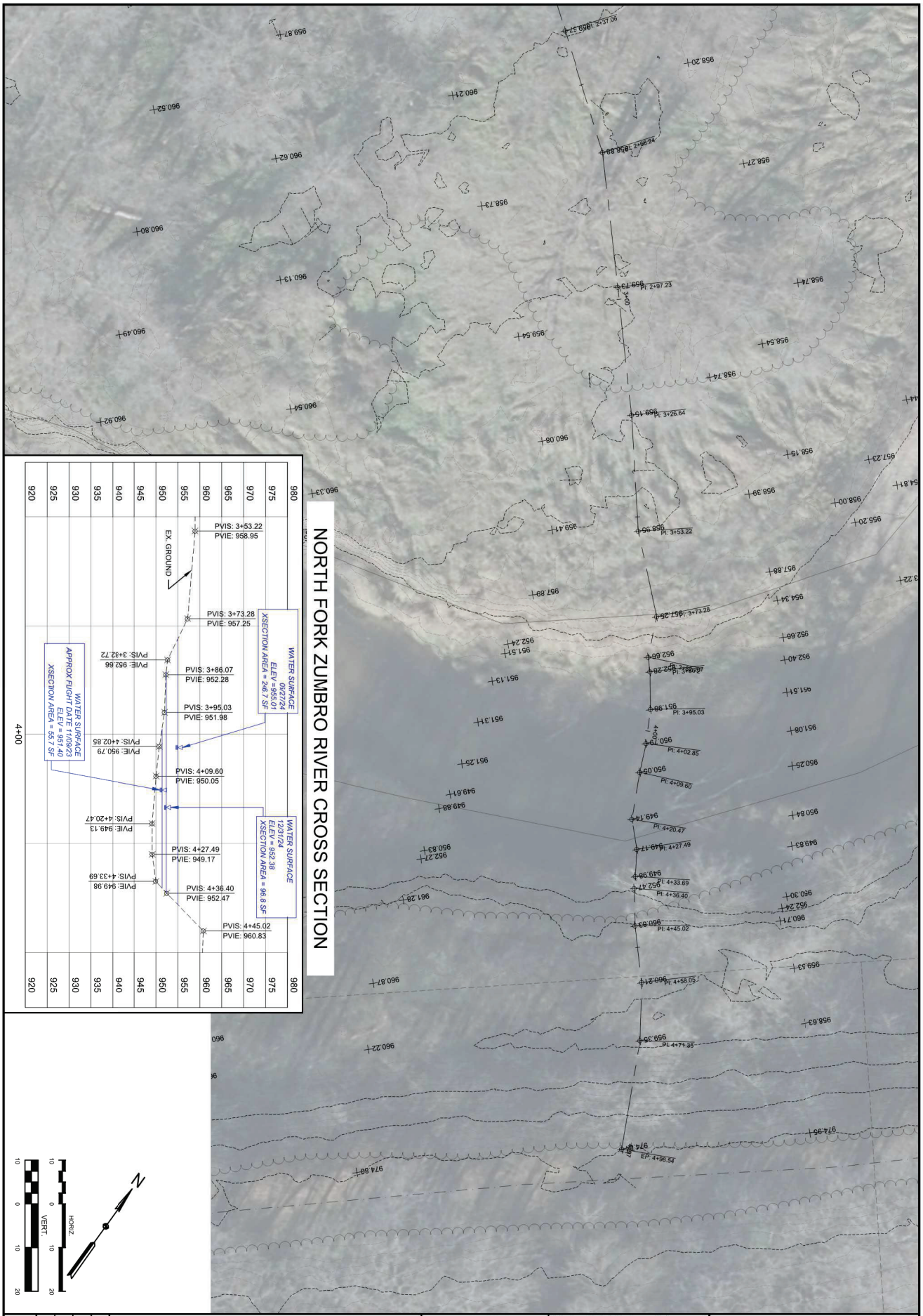
I hereby certify that this plan, specification or report was prepared by me or under my direct personal supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Angela C. Kolz

Date _____ License No. 47159

whks
engineers + planners + land surveyors

FILE PATH: C:\Users\jpreston\WHKS & CO\North Zumbro Sanitary District - WHKS_9870 - WHKS_9870041-Main Site Topo Survey\TEMP NZSD Main Site Topo Exhibit.dwg PLOT DATE: 12/31/2024 4:37 PM



NORTH ZUMBRO RIVER - CROSS SECTION

NORTH ZUMBRO SANITARY SEWER DISTRICT
ZUMBROTA, MN
2025

SHEET	CHECKED BY:	DRAWN BY:	WHKS PROJECT NO.	SCALE:
2 OF 2	JP	ADM	9870	AS SHOWN

REVISIONS

NO.	DATE	DESCRIPTION

I hereby certify that this plan, specification or report was prepared by me or under my direct personal supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Angela C. Kolz

Date _____ License No. 47159

whks
engineers + planners + land surveyors

Streeter Phelps DO Sag Analysis ADW 01-02-2024

		OXYGEN-SAG CURVE COMPUTATIONS						North Zumbro Sanitary Sewer District																		
		Streeter-Phelps Relations; see Box 10-6.						MN0071901 - 257297					This example uses ADW flow since the analysis is at 7Q10 river flow. At 7Q10 we typically expect												
								BPH - 1-2-2025					to see ADW flows from the WWTP. This also includes 0.0 mg/L DO in the effluent as worst case												
		Input Data			Computed Values								scenario. The graph on the Graph tab shows a DO sag down to about 6.7 mg/L which is above the												
Stream	Discharge, qu =	0.65695	m^3/s	BOD, Bu =	2.3	mg/L	BOD data is from EQUIS, watershed wide. See longer note below.																			
	Width, B =	10.2	m	DO =	10.9	mg/L	DO river data is from EQUIS, 2009 - 2013, 61 data points. See spreadsheet for data.																			
	Depth, Y =	0.69	m	Tu =	19.4	C	Summer stream temperature and summer 7Q10																			
	Velocity, U =	0.09	m/s																							
STP	Discharge, qw =	0.11053	m^3/s	BOD, Bw =	30	mg/L	BOD/CBOD conversion: CBOD/0.834 = BOD so 25/0.834 = 30																			
	Tw =	23.2	C	DO =	0	mg/L	Summer effluent temperature and ADW design flow since doing analysis at 7Q10																			
Parameters	$B(0)$ =	6.29	mg/L	$T(0)$ =	19.947248	C																				
	$k1$ =	2.21	1/day	$k2$ =	1.92	1/day																				
	$k1$ =	2.55E-05	1/s	$k2$ =	2.23E-05	1/s																				
Oxygen Sag Curve																										
							Assuming a BOD of 0.0 mg/L seems very low and assumes no organic component to the river water which is not reasonable. All BOD river data for the																			
$xmin$ =	4050	m	cs =	9.09	mg/L		receiving water is pre-1966. Pre-1966 data is not representative of all the changes that have occurred to wastewater treatment due to the Clean Water Act																			
$cmin$ =	6.71	mg/L					and the federal grants program. Therefore, I pulled BOD data from the whole watershed and used that data starting in 1985. The 2.3 mg/L value is the																			

x	$c(x)$	cs
m	mg/L	mg/L
0	9.33	9.09
1000	7.95	9.09
2000	7.18	9.09
3000	6.81	9.09
4000	6.71	9.09
5000	6.77	9.09
6000	6.92	9.09
7000	7.13	9.09
8000	7.35	9.09
9000	7.57	9.09
10000	7.78	9.09
11000	7.97	9.09
12000	8.14	9.09
13000	8.29	9.09
14000	8.43	9.09
15000	8.54	9.09
16000	8.63	9.09
17000	8.71	9.09
18000	8.78	9.09
19000	8.84	9.09
20000	8.89	9.09
25000	9.02	9.09
30000	9.07	9.09
35000	9.08	9.09
40000	9.09	9.09
42000	9.09	9.09
44000	9.09	9.09
46000	9.09	9.09
48000	9.09	9.09
50000	9.09	9.09
60000	9.09	9.09
70000	9.09	9.09
80000	9.09	9.09
90000	9.09	9.09
100000	9.09	9.09

From ammonia limits spreadsheet:

			Jun-Sep	Oct-Nov	Dec-Mar	Apr-May	Apr-Mar		
Tw	Effluent Temp (C)		23.2	6.4	0.0	12.6			
Tu	Headwater Temp (C)		19.4	9.0	0.0	10.3		basin data	Zumbro River data
qu		7Q10	23.20	25.90	22.00	36.20	20.80		

Used these values since they are the worst case scenario

Streeter Phelps DO Sag Analysis ADW 01-02-2024



Streeter Phelps DO Sag Analysis ADW 01-02-2024
conversion factors

m3/s		cfs		flow descri	units (nativ	flow native	flow m3s f	note
	1	35.3147		AWWDF	mgd	4.1	0.1798	
m3/s		mgd		ADWDF	mgd	2.52	0.1105	
	1		22.8	7q10	cfs	23.2	0.65695	Calculated by A. Mendez ~2022 - and it represents an annual value.
				50%ile	cfs	36.8	1.042059	based on streamstats
				temp C	june-sept		19.4	as listed in ammonia limits calc

See USGS reference below
https://pubs.usgs.gov/wdr/wdr-id-03-3/ID03v3-InsideBackCover.pdf

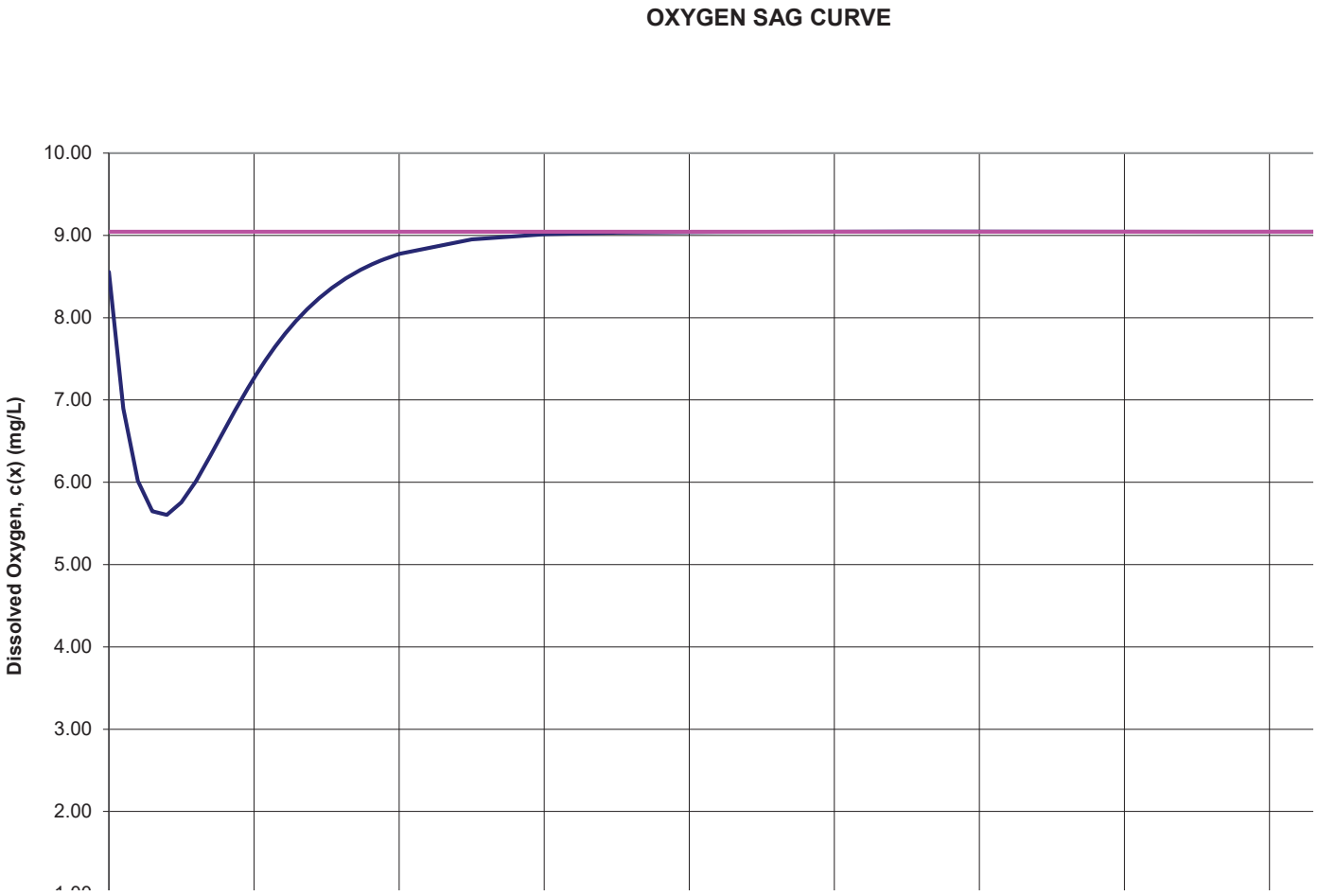
Width and depth are taken from cross-section work done by WHKS - See river crosse-section pdf dated 12-31-2024.
I have used the cross-section values from 11-9-2023 since they were at the lowest flow of the three cross-sections. This was probably not as low as it would be during the 7Q10 but it is as close as we are going to get.
Cross-section area - 55.7 square feet
Width - approximated based on the cross-section drawing that shows the width going from 4+00 to just past 4+33.47 which is 33.47 feet.
Depth - lowest river bed elevation is 949.13. Water surface elevation is 951.4. Difference is 2.27 feet. However, the depth is not constant across the whole cross-section so using the deepest value is the worst case so I used 2.27 feet.

		Feet	Meters	
Conversior	Width	33.47	10.20166	1 foot - 0.3048 meters
	Depth	2.27	0.691896	

Streeter Phelps DO Sag Analysis AWW 01-02-2024

		OXYGEN-SAG CURVE COMPUTATIONS						North Zumbro Sanitary Sewer District															
		Streeter-Phelps Relations; see Box 10-6.						MN0071901 - 257297															
								BPH - 1-2-2025															
		Input Data			Computed Values			This example uses AWW flow to simulate a situation where the river is at 7q10 but the WWTP is experiencing higher flows than would be expected. This also includes 0.0 mg/L DO in the effluent as worst case scenario. The graph on the Graph tab shows a DO sag down to about 5.6 mg/L which is above the WQS of 5.0 mg/L.												
Stream	Discharge, qu =	0.65695	m^3/s	BOD, Bu =	2.3	mg/L	BOD data is from EQUIS, watershed wide. See longer note below.																
	Width, B =	10.2	m	DO =	10.9	mg/L	DO river data is from EQUIS, 2009 - 2013, 61 data points. See spreadsheet for data.																
	Depth, Y =	0.69	m	Tu =	19.4	C	Summer stream temperature and summer 7Q10																
	Velocity, U =	0.09	m/s																				
STP	Discharge, qw =	0.17982	m^3/s	BOD, Bw =	30	mg/L	BOD/CBOD conversion: CBOD/0.834 = BOD so 25/0.834 = 30																
	Tw =	23.2	C	DO =	0	mg/L	Summer effluent temperature and ADW design flow since doing analysis at 7Q10																
Parameters	$B(0)$ =	8.25	mg/L	$T(0)$ =	20.21662754	C																	
	$k1$ =	2.23	1/day	$k2$ =	1.94	1/day																	
	$k1$ =	2.59E-05	1/s	$k2$ =	2.24E-05	1/s																	
Oxygen Sag Curve																							
							Assuming a BOD of 0.0 mg/L seems very low and assumes no organic component to the river water which is not reasonable. All BOD river data for the receiving water is pre-1966. Pre-1966 data is not representative of all the changes that have occurred to wastewater treatment due to the Clean Water Act and the federal grants program. Therefore, I pulled BOD data from the whole watershed and used that data starting in 1985. The 2.3 mg/L value is the												
$xmin$ =	3663	m	cs =	9.04	mg/L																		
$cmin$ =	5.59	mg/L																					
x	$c(x)$	cs									From ammonia limits spreadsheet:												
m	mg/L	mg/L												Jun-Sep	Oct-Nov	Dec-Mar	Apr-May	Apr-Mar					
0	8.56	9.04								Tw	Effluent Temp (C)			23.2	6.4	0.0	12.6						
1000	6.90	9.04								Tu	Headwater Temp (C)			19.4	9.0	0.0	10.3		basin data	Zumbro River data			
2000	6.02	9.04								qu		7Q10		23.20	25.90	22.00	36.20	20.80					
3000	5.65	9.04												Used these values since they are the worst case scenario									
4000	5.60	9.04																					
5000	5.76	9.04																					
6000	6.02	9.04																					
7000	6.33	9.04																					
8000	6.65	9.04																					
9000	6.97	9.04																					
10000	7.27	9.04																					
11000	7.54	9.04																					
12000	7.77	9.04																					
13000	7.98	9.04																					
14000	8.16	9.04																					
15000	8.31	9.04																					
16000	8.44	9.04																					
17000	8.55	9.04																					
18000	8.64	9.04																					
19000	8.71	9.04																					
20000	8.77	9.04																					
25000	8.95	9.04																					
30000	9.01	9.04																					
35000	9.03	9.04																					
40000	9.04	9.04																					
42000	9.04	9.04																					
44000	9.04	9.04																					
46000	9.04	9.04																					
48000	9.04	9.04																					
50000	9.04	9.04																					
60000	9.04	9.04																					
70000	9.04	9.04																					
80000	9.04	9.04																					
90000	9.04	9.04																					
100000	9.04	9.04																					

Streeter Phelps DO Sag Analysis AWW 01-02-2024



Streeter Phelps DO Sag Analysis AWW 01-02-2024
conversion factors

m3/s		cfs		flow descri	units (nativ	flow native	flow m3s f	note
	1	35.3147		AWWDF	mgd	4.1	0.1798	
m3/s		mgd		ADWDF	mgd	2.52	0.1105	
	1		22.8	7q10	cfs	23.2	0.65695	Calculated by A. Mendez ~2022 - and it represents an annual value
				50%ile	cfs	36.8	1.042059	based on streamstats
				temp C	june-sept		19.4	as listed in ammonia limits calc

See USGS reference below
https://pubs.usgs.gov/wdr/wdr-id-03-3/ID03v3-InsideBackCover.pdf

Width and depth are taken from cross-section work done by WHKS - See river crosse-section pdf dated 12-31-2024.
I have used the cross-section values from 11-9-2023 since they were at the lowest flow of the three cross-sections. This was probably not as low as it would be during the 7Q10 but it is as close as we are going to get.
Cross-section area - 55.7 square feet
Width - approximated based on the cross-section drawing that shows the width going from 4+00 to just past 4+33.47 which is 33.47 feet.

Depth - lowest river bed elevation is 949.13. Water surface elevation is 951.4. Difference is 2.27 feet. However, the depth is not constant across the whole cross-section so using the deepest value is the worst case so I used 2.27 feet.

		Feet	Meters	
Conversior	Width	33.47	10.20166	1 foot - 0.3048 meters
	Depth	2.27	0.691896	

Streeter Phelps DO Sag Analysis ADW Existing Plants

OXYGEN-SAG CURVE COMPUTATIONS

Streeter-Phelps Relations; see Box 10-6.

North Zumbro Sanitary Sewer District - **EXISTING CONDITIONS Wanamingo and Zumbrota plants**

MN0071901 - 257297

AK 1/29/2025

This example uses ADW flow since the analysis is at 7Q10 river flow. At 7Q10 we typically expect to see ADW flows from the WWTP. This also includes 0.0 mg/L DO in the effluent as worst case scenario. The graph on the Graph tab shows a DO sag down to about 8.1 mg/L which is above the

		Input Data			Computed Values		
Stream	Discharge, qu =	0.65695	m^3/s	BOD, Bu =	2.3	mg/L
	Width, B =	10.2	m	DO =	10.9	mg/L
	Depth, Y =	0.69	m	Tu =	19.4	C
	Velocity, U =	0.09	m/s			
STP	Discharge, qw =	0.03289	m^3/s	BOD, Bw =	30	mg/L
	Tw =	23.2	C	DO =	0	mg/L
Parameters	$B(0)$ =	3.62	mg/L	$T(0)$ =	19.58120014	C
	$k1$ =	2.17	1/day	$k2$ =	1.91	1/day
	$k1$ =	2.51E-05	1/s	$k2$ =	2.21E-05	1/s

BOD data is from EQUIS, watershed wide. See longer note below.

DO river data is from EQUIS, 2009 - 2013, 61 data points. See spreadsheet for data.

Summer stream temperature and summer 7Q10

BOD/CBOD conversion: CBOD/0.834 = BOD so 25/0.834 = 30

Summer effluent temperature and ADW design flow since doing analysis at 7Q10

Oxygen Sag Curve

$xmin$ =	5242	m	cs =	9.16 mg/L
$cmin$ =	8.15	mg/L		

Assuming a BOD of 0.0 mg/L seems very low and assumes no organic component to the river water which is not reasonable. All BOD river data for the receiving water is pre-1966. Pre-1966 data is not representative of all the changes that have occurred to wastewater treatment due to the Clean Water Act and the federal grants program. Therefore, I pulled BOD data from the whole watershed and used that data starting in 1985. The 2.3 mg/L value is the

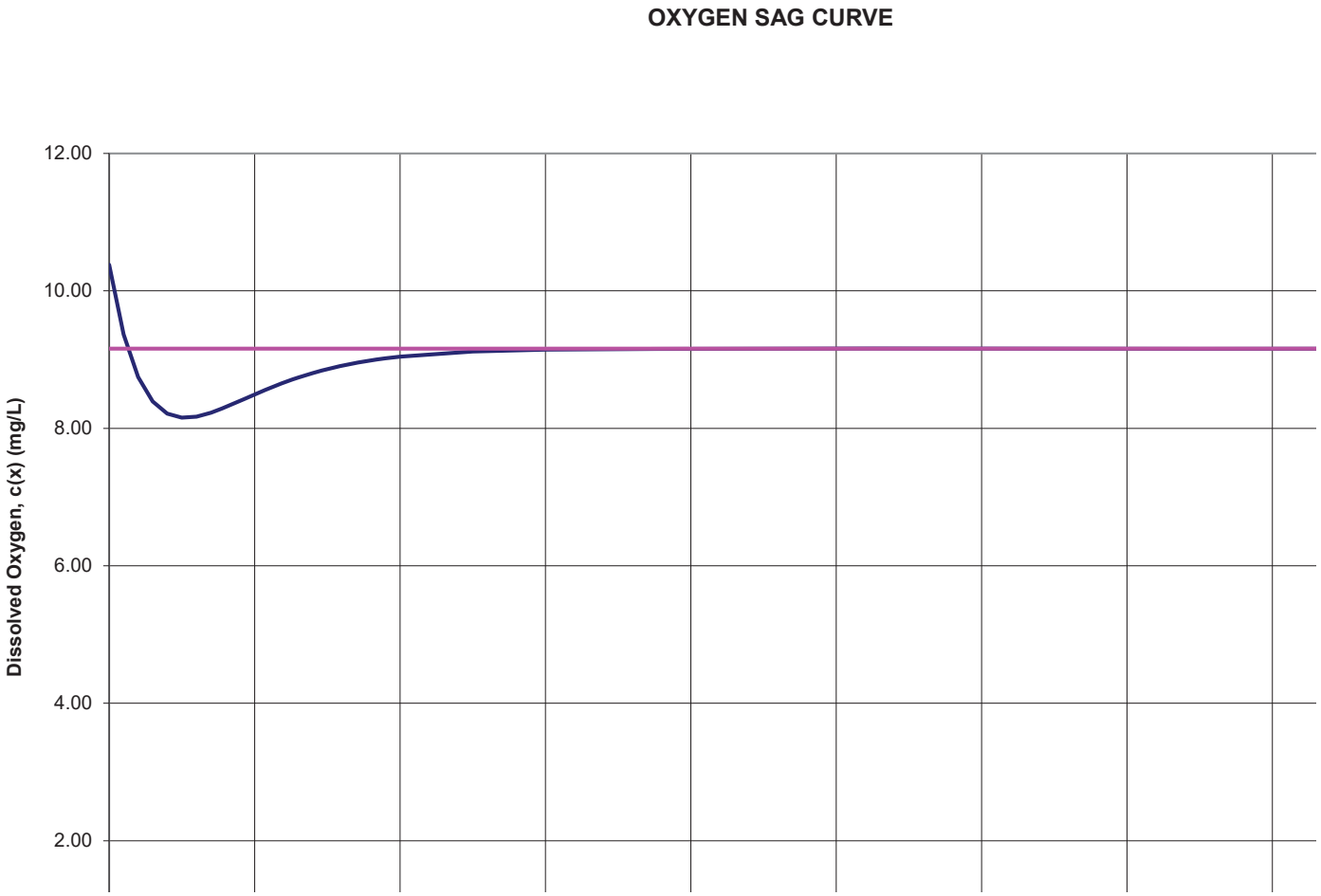
x	$c(x)$	cs
m	mg/L	mg/L
0	10.38	9.16
1000	9.37	9.16
2000	8.74	9.16
3000	8.39	9.16
4000	8.21	9.16
5000	8.16	9.16
6000	8.17	9.16
7000	8.23	9.16
8000	8.31	9.16
9000	8.40	9.16
10000	8.49	9.16
11000	8.58	9.16
12000	8.66	9.16
13000	8.74	9.16
14000	8.80	9.16
15000	8.86	9.16
16000	8.91	9.16
17000	8.95	9.16
18000	8.99	9.16
19000	9.02	9.16
20000	9.04	9.16
25000	9.12	9.16
30000	9.14	9.16
35000	9.15	9.16
40000	9.16	9.16
42000	9.16	9.16
44000	9.16	9.16
46000	9.16	9.16
48000	9.16	9.16
50000	9.16	9.16
60000	9.16	9.16
70000	9.16	9.16
80000	9.16	9.16
90000	9.16	9.16
100000	9.16	9.16

From ammonia limits spreadsheet:

			Jun-Sep	Oct-Nov	Dec-Mar	Apr-May	Apr-Mar	
Tw	Effluent Temp (C)		23.2	6.4	0.0	12.6		
Tu	Headwater Temp (C)		19.4	9.0	0.0	10.3		basin data Zumbro River data
qu		7Q10	23.20	25.90	22.00	36.20	20.80	

Used these values since they are the worst case scenario

Streeter Phelps DO Sag Analysis ADW Existing Plants



Streeter Phelps DO Sag Analysis ADW Existing Plants
conversion factors

m3/s	cfs
1	35.3147

m3/s	mgd
1	22.8

flow descri	units (nativ	flow native	flow m3s f	note
AWWDF	mgd	1.568	0.0688	Zumbrota AWW 1.11 MGD + Wanamingo AWW 0.458 MGD
ADWDF	mgd	0.75	0.0329	Zumbrota ADW 0.556 MGD + Wanamingo ADW 0.194 MGD
7q10	cfs	23.2	0.65695	Calculated by A. Mendez ~2022 - and it represents an annual value.
50%ile	cfs	36.8	1.042059	based on streamstats
temp C	june-sept		19.4	as listed in ammonia limits calc

See USGS reference below
https://pubs.usgs.gov/wdr/wdr-id-03-3/ID03v3-InsideBackCover.pdf

Width and depth are taken from cross-section work done by WHKS - See river crosse-section pdf dated 12-31-2024.
I have used the cross-section values from 11-9-2023 since they were at the lowest flow of the three cross-sections. This was probably not as low as it would be during the 7Q10 but it is as close as we are going to get.
Cross-section area - 55.7 square feet
Width - approximated based on the cross-section drawing that shows the width going from 4+00 to just past 4+33.47 which is 33.47 feet.
Depth - lowest river bed elevation is 949.13. Water surface elevation is 951.4. Difference is 2.27 feet. However, the depth is not constant across the whole cross-section so using the deepest value is the worst case so I used 2.27 feet.

		Feet	Meters	
Conversion	Width	33.47	10.20166	1 foot - 0.3048 meters
	Depth	2.27	0.691896	

Streeter Phelps DO Sag Analysis AWW Existing Plants

OXYGEN-SAG CURVE COMPUTATIONS

Streeter-Phelps Relations; see Box 10-6.

North Zumbro Sanitary Sewer District - **EXISTING CONDITIONS Wanamingo and Zumbrota plants**

MN0071901 - 257297

AK 1/29/2025

This example uses AWW flow to simulate a situation where the river is at 7q10 but the WWTP is experiencing higher flows than would be expected. This also includes 0.0 mg/L DO in the effluent as worst case scenario. The graph on the Graph tab shows a DO sag down to about 7.4 mg/L which is above the WQS of 5.0 mg/L.

		Input Data		Computed Values	
Stream	Discharge, qu =	0.65695	m^3/s	BOD, Bu =	2.3 mg/L
	Width, B =	10.2	m	DO =	10.9 mg/L
	Depth, Y =	0.69	m	Tu =	19.4 C
	Velocity, U =	0.09	m/s		
STP	Discharge, qw =	0.06877	m^3/s	BOD, Bw =	30 mg/L
	Tw =	23.2	C	DO =	0 mg/L
Parameters	$B(0)$ =	4.92	mg/L	$T(0)$ =	19.76010108 C
	$k1$ =	2.19	1/day	$k2$ =	1.92 1/day
	$k1$ =	2.53E-05	1/s	$k2$ =	2.22E-05 1/s

BOD data is from EQUIS, watershed wide. See longer note below.

DO river data is from EQUIS, 2009 - 2013, 61 data points. See spreadsheet for data.

Summer stream temperature and summer 7Q10

BOD/CBOD conversion: CBOD/0.834 = BOD so 25/0.834 = 30

Summer effluent temperature and ADW design flow since doing analysis at 7Q10

Oxygen Sag Curve

$xmin$ = 4497 m cs = 9.13 mg/L

$cmin$ = 7.47 mg/L

Assuming a BOD of 0.0 mg/L seems very low and assumes no organic component to the river water which is not reasonable. All BOD river data for the receiving water is pre-1966. Pre-1966 data is not representative of all the changes that have occurred to wastewater treatment due to the Clean Water Act and the federal grants program. Therefore, I pulled BOD data from the whole watershed and used that data starting in 1985. The 2.3 mg/L value is the

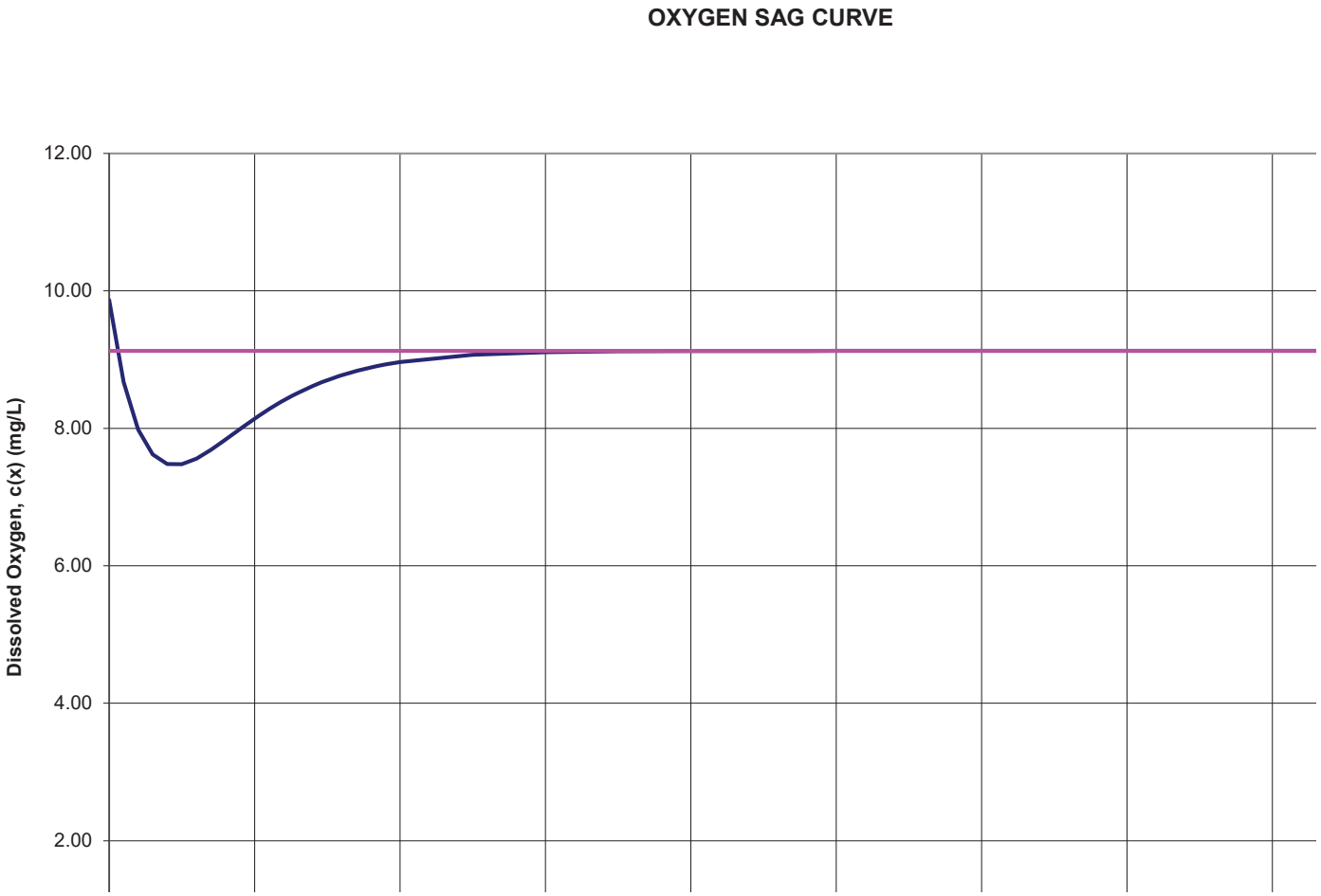
x	$c(x)$	cs
m	mg/L	mg/L
0	9.87	9.13
1000	8.67	9.13
2000	7.98	9.13
3000	7.62	9.13
4000	7.48	9.13
5000	7.48	9.13
6000	7.56	9.13
7000	7.69	9.13
8000	7.84	9.13
9000	7.99	9.13
10000	8.14	9.13
11000	8.28	9.13
12000	8.41	9.13
13000	8.52	9.13
14000	8.62	9.13
15000	8.70	9.13
16000	8.77	9.13
17000	8.83	9.13
18000	8.89	9.13
19000	8.93	9.13
20000	8.97	9.13
25000	9.07	9.13
30000	9.11	9.13
35000	9.12	9.13
40000	9.12	9.13
42000	9.13	9.13
44000	9.13	9.13
46000	9.13	9.13
48000	9.13	9.13
50000	9.13	9.13
60000	9.13	9.13
70000	9.13	9.13
80000	9.13	9.13
90000	9.13	9.13
100000	9.13	9.13

From ammonia limits spreadsheet:

			Jun-Sep	Oct-Nov	Dec-Mar	Apr-May	Apr-Mar	
Tw	Effluent Temp (C)		23.2	6.4	0.0	12.6		
Tu	Headwater Temp (C)		19.4	9.0	0.0	10.3		basin data Zumbro River data
qu		7Q10	23.20	25.90	22.00	36.20	20.80	

Used these values since they are the worst case scenario

Streeter Phelps DO Sag Analysis AWW Existing Plants



Streeter Phelps DO Sag Analysis AWW Existing Plants

conversion factors

m3/s		cfs		flow descri	units (nativ	flow native	flow m3s fo	note
	1	35.3147		AWWDF	mgd	1.568	0.0688	Zumbrota AWW 1.11 MGD + Wanamingo AWW 0.458 MGD
m3/s		mgd		ADWDF	mgd	0.75	0.0329	Zumbrota ADW 0.556 MGD + Wanamingo ADW 0.194 MGD
	1	22.8		7q10	cfs	23.2	0.65695	Calculated by A. Mendez ~2022 - and it represents an annual value.
				50%ile	cfs	36.8	1.042059	based on streamstats
				temp C	june-sept		19.4	as listed in ammonia limits calc

See USGS reference below
https://pubs.usgs.gov/wdr/wdr-id-03-3/ID03v3-InsideBackCover.pdf

Width and depth are taken from cross-section work done by WHKS - See river crosse-section pdf dated 12-31-2024.
I have used the cross-section values from 11-9-2023 since they were at the lowest flow of the three cross-sections. This was probably not as low as it would be during the 7Q10 but it is as close as we are going to get.
Cross-section area - 55.7 square feet
Width - approximated based on the cross-section drawing that shows the width going from 4+00 to just past 4+33.47 which is 33.47 feet.
Depth - lowest river bed elevation is 949.13. Water surface elevation is 951.4. Difference is 2.27 feet. However, the depth is not constant across the whole cross-section so using the deepest value is the worst case so I used 2.27 feet.

		Feet	Meters	
Conversior	Width	33.47	10.20166	1 foot - 0.3048 meters
	Depth	2.27	0.691896	

Streeter Phelps DO Sag Analysis ADW on Zumbro RIver-504

		OXYGEN-SAG CURVE COMPUTATIONS						North Zumbro Sanitary Sewer District - ANALYSIS on ZUMBRO RIVER-504
		Streeter-Phelps Relations; see Box 10-6.						MN0071901 - 257297
								AK 1/29/25
		Input Data			Computed Values			
Stream		Discharge, *qu* =	2.40976	m^3/s	BOD, *Bu* =	2.3	mg/L	BOD data is from EQUIS, watershed wide. See longer note below.
		Width, *B* =	10.2	m	DO =	9.97	mg/L	DO river data is from EQUIS, 2009 - 2013, 61 data points. See spreadsheet for data.
		Depth, *Y* =	0.69	m	*Tu* =	19.4	C	Summer stream temperature and summer 7Q10
		Velocity, *U* =	0.34	m/s				
STP		Discharge, *qw* =	0.11053	m^3/s	BOD, *Bw* =	30	mg/L	BOD/CBOD conversion: CBOD/0.834 = BOD so 25/0.834 = 30
		Tw =	23.2	C	DO =	0	mg/L	Summer effluent temperature and ADW design flow since doing analysis at 7Q10
Parameters		*B*(0) =	3.51	mg/L	*T*(0) =	19.56664764	C	
		*k*1 =	1.15	1/day	*k*2 =	4.75	1/day	
		*k*1 =	1.33E-05	1/s	*k*2 =	5.50E-05	1/s	
Oxygen Sag Curve								
xmin =	14012	m		*cs* =	9.16	mg/L		Assuming a BOD of 0.0 mg/L seems very low and assumes no organic component to the river water which is not reasonable. All BOD river data for the receiving water is pre-1966. Pre-1966 data is not representative of all the changes that have occurred to wastewater treatment due to the Clean Water Act and the federal grants program. Therefore, I pulled BOD data from the whole watershed and used that data starting in 1985. The 2.3 mg/L value is the
cmin =	8.67	mg/L						

x	*c*(*x*)	*cs*
m	mg/L	mg/L
0	9.53	9.16
1000	9.35	9.16
2000	9.21	9.16
3000	9.09	9.16
4000	8.99	9.16
5000	8.91	9.16
6000	8.84	9.16
7000	8.79	9.16
8000	8.75	9.16
9000	8.72	9.16
10000	8.70	9.16
11000	8.69	9.16
12000	8.68	9.16
13000	8.67	9.16
14000	8.67	9.16
15000	8.67	9.16
16000	8.67	9.16
17000	8.68	9.16
18000	8.69	9.16
19000	8.70	9.16
20000	8.71	9.16
25000	8.76	9.16
30000	8.82	9.16
35000	8.88	9.16
40000	8.93	9.16
42000	8.94	9.16
44000	8.96	9.16
46000	8.98	9.16
48000	8.99	9.16
50000	9.00	9.16
60000	9.05	9.16
70000	9.09	9.16
80000	9.11	9.16
90000	9.13	9.16
100000	9.14	9.16

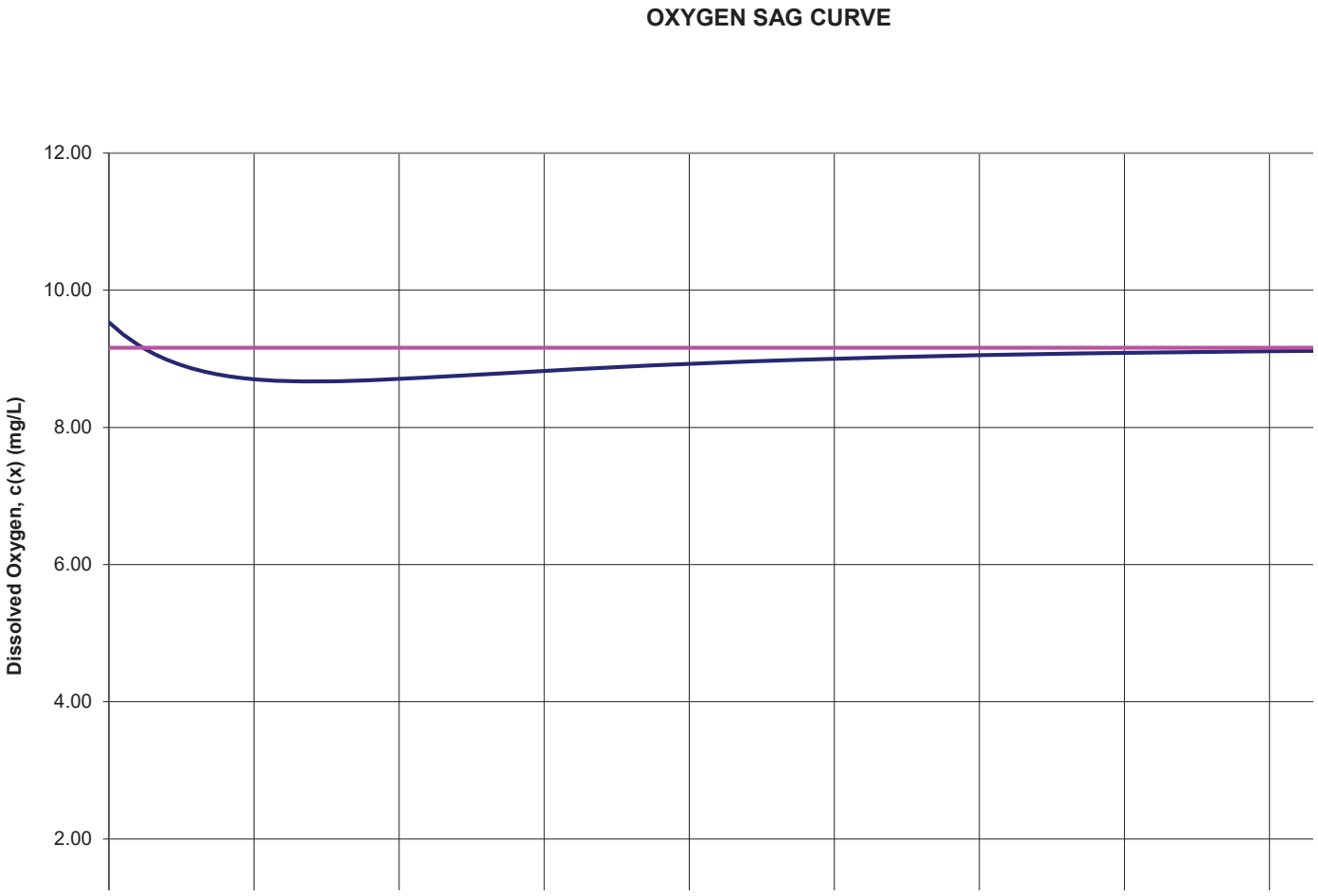
This example uses ADW flow since the analysis is at 7Q10 river flow. At 7Q10 we typically expect to see ADW flows from the WWTP. This also includes 0.0 mg/L DO in the effluent as worst case scenario. The graph on the Graph tab shows a DO sag down to about 8.7 mg/L which is above the

From ammonia limits spreadsheet:

			Jun-Sep	Oct-Nov	Dec-Mar	Apr-May	Apr-Mar		
Tw	Effluent Temp (C)		23.2	6.4	0.0	12.6			
Tu	Headwater Temp (C)		19.4	9.0	0.0	10.3		basin data	Zumbro River data
qu		7Q10	23.20	25.90	22.00	36.20	20.80		

Used these values since they are the worst case scenario

Streeter Phelps DO Sag Analysis ADW on Zumbro RIver-504



Streeter Phelps DO Sag Analysis ADW on Zumbro RIver-504
conversion factors

m3/s		cfs		flow descri	units (nativ	flow native	flow m3s f	note
	1	35.3147		AWWDF	mgd	4.1	0.1798	
m3/s		mgd		ADWDF	mgd	2.52	0.1105	
	1	22.8		7q10	cfs	85.1	2.409761	summer 7Q10 for Zumbro River-504 from MPCA 1/24/2025
				50%ile	cfs			
				temp C	june-sept		19.4	as listed in ammonia limits calc

See USGS reference below
https://pubs.usgs.gov/wdr/wdr-id-03-3/ID03v3-InsideBackCover.pdf

Streeter Phelps DO Sag Analysis ADW Existing Cities on Zumbro River

		OXYGEN-SAG CURVE COMPUTATIONS						North Zumbro Sanitary Sewer District - EXISTING 4 CITIES - ANALYSIS on ZUMBRO RIVER-504
		Streeter-Phelps Relations; see Box 10-6.						MN0071901 - 257297
								AK 1/29/25
		Input Data			Computed Values			
Stream		Discharge, *qu* =	2.40976	m^3/s	BOD, *Bu* =	2.3	mg/L	BOD data is from EQUIS, watershed wide. See longer note below.
		Width, *B* =	10.2	m	DO =	9.97	mg/L	DO river data is from EQUIS, 2009 - 2013, 61 data points. See spreadsheet for data.
		Depth, *Y* =	0.69	m	*Tu* =	19.4	C	Summer stream temperature and summer 7Q10
		Velocity, *U* =	0.34	m/s				
STP		Discharge, *qw* =	0.04947	m^3/s	BOD, *Bw* =	30	mg/L	BOD/CBOD conversion: CBOD/0.834 = BOD so 25/0.834 = 30
		Tw =	23.2	C	DO =	0	mg/L	Summer effluent temperature and ADW design flow since doing analysis at 7Q10
Parameters		*B*(0) =	2.86	mg/L	*T*(0) =	19.47644654	C	
		*k*1 =	1.14	1/day	*k*2 =	4.74	1/day	
		*k*1 =	1.32E-05	1/s	*k*2 =	5.49E-05	1/s	
Oxygen Sag Curve								
								Assuming a BOD of 0.0 mg/L seems very low and assumes no organic component to the river water which is not reasonable. All BOD river data for the
xmin =	15821	m	*cs* =	9.18	mg/L			receiving water is pre-1966. Pre-1966 data is not representative of all the changes that have occurred to wastewater treatment due to the Clean Water Act
cmin =	8.81	mg/L						and the federal grants program. Therefore, I pulled BOD data from the whole watershed and used that data starting in 1985. The 2.3 mg/L value is the

x	*c*(*x*)	*cs*
m	mg/L	mg/L
0	9.77	9.18
1000	9.58	9.18
2000	9.43	9.18
3000	9.30	9.18
4000	9.19	9.18
5000	9.10	9.18
6000	9.03	9.18
7000	8.97	9.18
8000	8.93	9.18
9000	8.89	9.18
10000	8.86	9.18
11000	8.84	9.18
12000	8.83	9.18
13000	8.82	9.18
14000	8.81	9.18
15000	8.81	9.18
16000	8.81	9.18
17000	8.81	9.18
18000	8.81	9.18
19000	8.81	9.18
20000	8.82	9.18
25000	8.86	9.18
30000	8.91	9.18
35000	8.95	9.18
40000	8.99	9.18
42000	9.00	9.18
44000	9.01	9.18
46000	9.03	9.18
48000	9.04	9.18
50000	9.05	9.18
60000	9.09	9.18
70000	9.12	9.18
80000	9.14	9.18
90000	9.15	9.18
100000	9.16	9.18

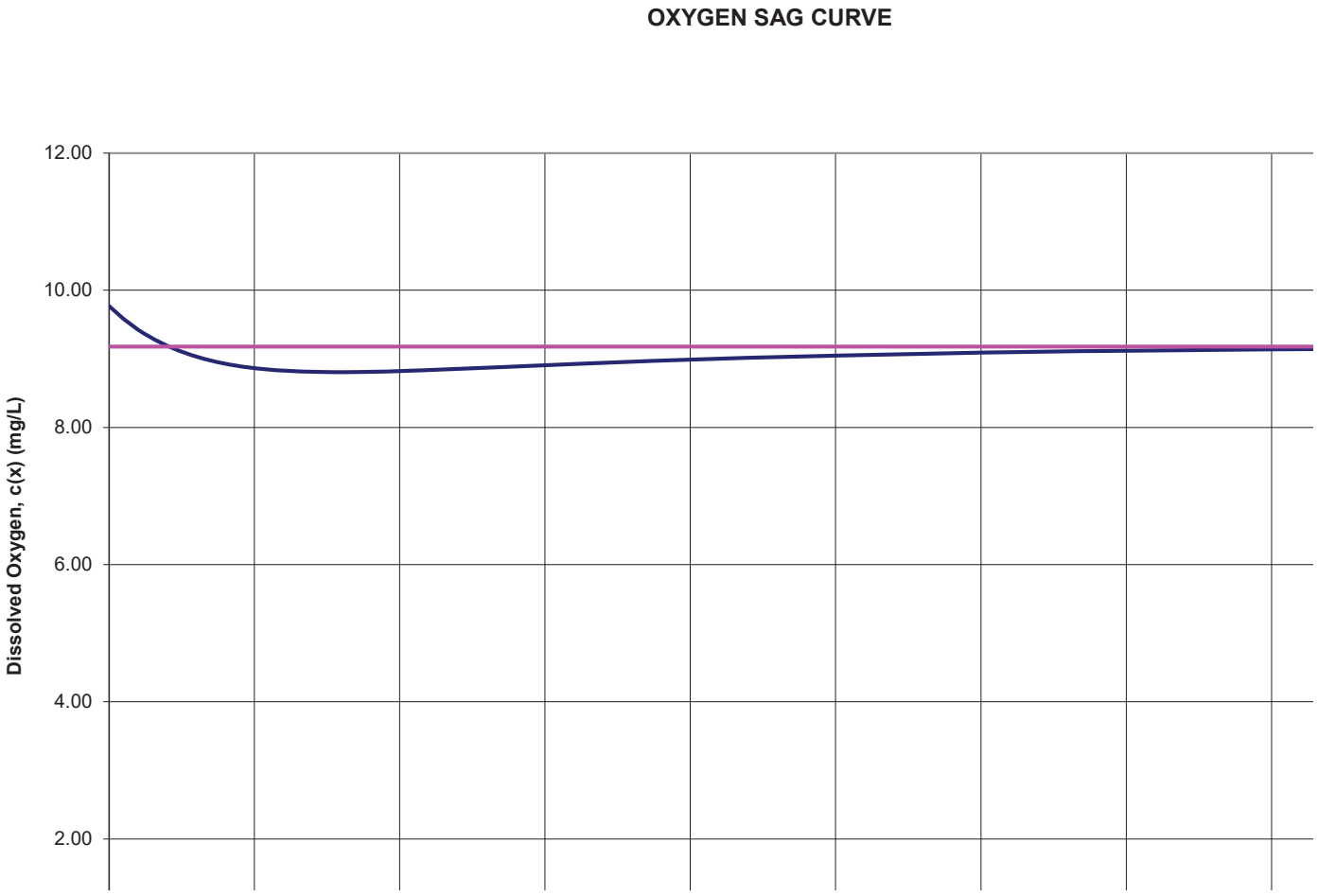
This example uses ADW flow since the analysis is at 7Q10 river flow. At 7Q10 we typically expect to see ADW flows from the WWTP. This also includes 0.0 mg/L DO in the effluent as worst case scenario. The graph on the Graph tab shows a DO sag down to about 8.8 mg/L which is above the

From ammonia limits spreadsheet:

			Jun-Sep	Oct-Nov	Dec-Mar	Apr-May	Apr-Mar		
Tw	Effluent Temp (C)		23.2	6.4	0.0	12.6			
Tu	Headwater Temp (C)		19.4	9.0	0.0	10.3		basin data	Zumbro River data
qu		7Q10	23.20	25.90	22.00	36.20	20.80		

Used these values since they are the worst case scenario

Streeter Phelps DO Sag Analysis ADW Existing Cities on Zumbro River



Streeter Phelps DO Sag Analysis ADW Existing Cities on Zumbro River
conversion factors

m3/s		cfs		flow descri	units (nativ	flow native	flow m3s f	note
	1	35.3147		AWWDF	mgd	2.372	0.1040	AWW flows for the 4 Existing City WWTPs
m3/s		mgd		ADWDF	mgd	1.128	0.0495	ADW flows for the 4 Existing City WWTPs
	1	22.8		7q10	cfs	85.1	2.409761	summer 7Q10 for Zumbro River-504 from MPCA 1/24/2025
				50%ile	cfs			
				temp C	june-sept		19.4	as listed in ammonia limits calc

See USGS reference below
https://pubs.usgs.gov/wdr/wdr-id-03-3/ID03v3-InsideBackCover.pdf

Appendix E. MN0071901 Ammonia Limit Calcs 10-31-2023

MN0071901 Ammonia Limit Calcs 10-31-2023

for Un-ionized Ammonia of 0.04 mg/L

BPH - 10-31-2023
SD001 and SD002

. Project :

Average Dry Weather (ADW)
ADW Design flow: 2.520
(or specify other design flow and why used) on industrial facilites use maximum design daily flow

. Design Data :

		Jun-Sep	Oct-Nov	Dec-Mar	Apr-May		
Headwater flow (cfs)	30Q10	25.70	28.10	23.20	45.00		
Headwater Temperature (C)		19.4	9.0	0.0	10.3	basin data	Zumbro River data
Headwater Ammonia (mg/l)		0.11	0.11	0.25	0.13	basin data	
Effluent Flow (cfs)		3.90	3.90	3.90	3.90		
Effluent Temperature (C)		23.20	6.40	0.00	12.60		
Downstream pH		8.07	8.00	8.00	8.10	basin data	Zumbro River data

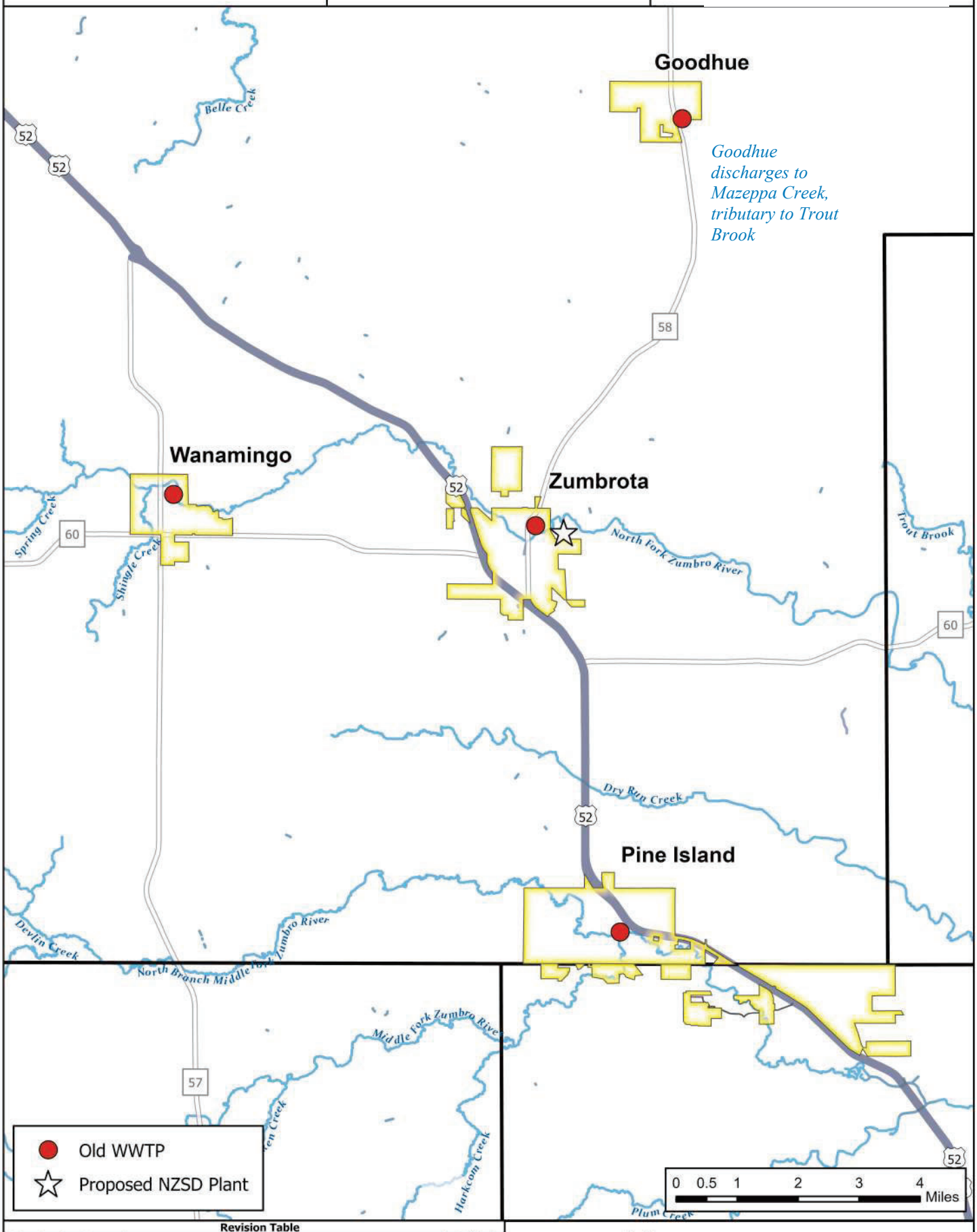
. Calculations :

	Jun-Sep	Oct-Nov	Dec-Mar	Apr-May
Mix Flow (cfs)	29.60	32.00	27.10	48.90
Mix Temperature (C)	19.9	8.7	0.0	10.5
Mix Ammonia (mg/l)	0.91	2.43	4.90	1.69
Calculated Effluent Limit (mg/l)	6.2	19.1	32.5	19.7

APPENDIX H

Existing and Proposed Drainage Areas

Appendix G	Receiving Waters	North Zumbro Sanitary District



Revision Table			
Number	Date		Initials

whks engineers + planners + land surveyors
WiDSETH
ISG

Appendix G	Discharge Point Location	North Zumbro Sanitary District



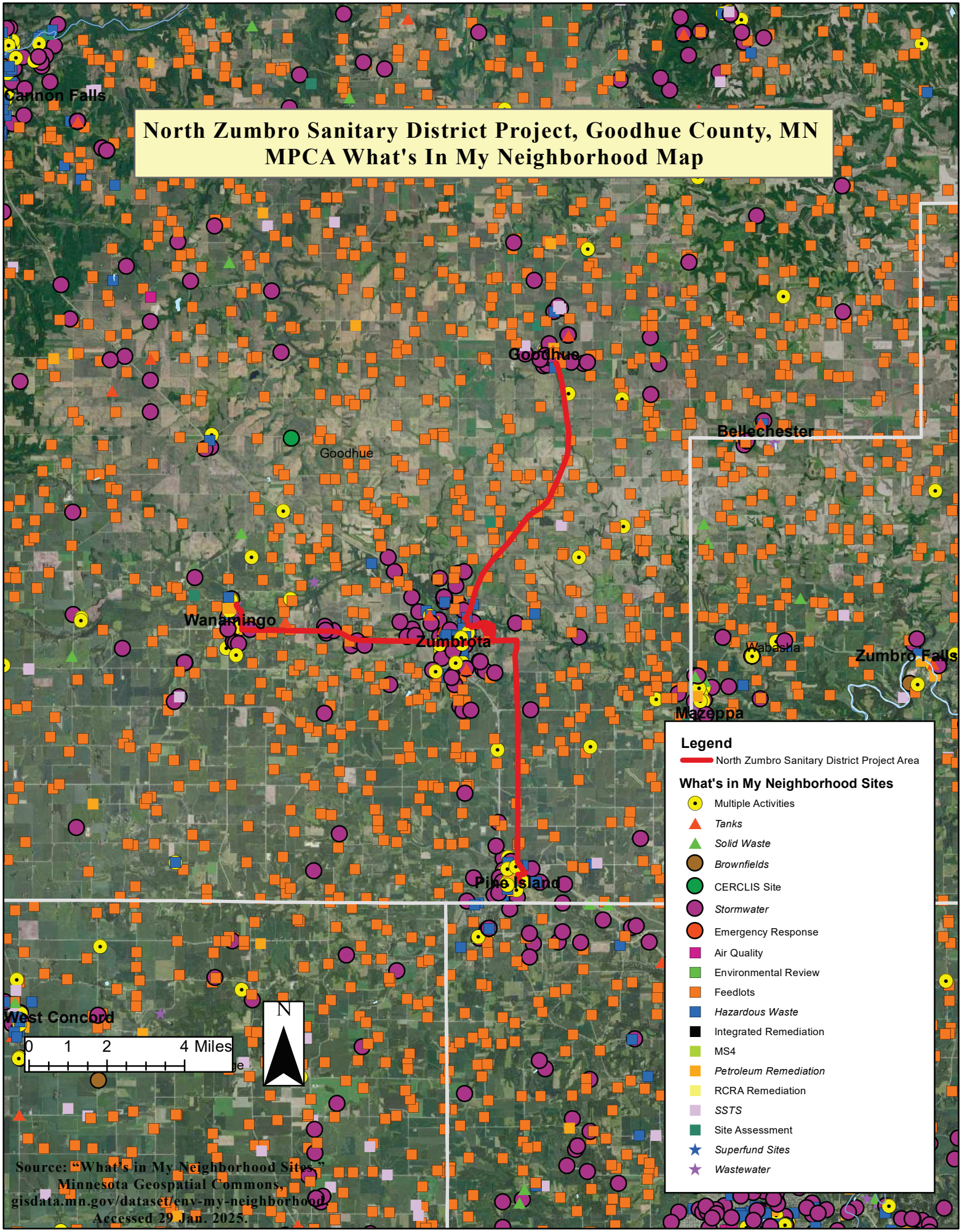
Revision Table

Number	Date		Initials

whks WIDSETH ISG

APPENDIX I

MPCA ‘What’s in My Neighborhood?’



Source: "What's in My Neighborhood Sites." Minnesota Geospatial Commons, gisdata.mn.gov/dataset/env-my-neighborhood. Accessed 29 Jan. 2025.

APPENDIX J

NHIS Review Letter

DEPARTMENT OF NATURAL RESOURCES

Minnesota Department of Natural Resources
Division of Ecological & Water Resources
500 Lafayette Road, Box 25
St. Paul, MN 55155-4025

October 9, 2025

Daniel McInnis
Widseth Smith and Nolting and Associates, Inc.

RE: Natural Heritage Review of the proposed **North Zumbro Sanitary District**,

County	Township	Range	Section
Goodhue	109N	15W	5, 8, 17, 20, 29, 32
Goodhue	110N	15W	4, 8, 9, 17, 19, 20, 30-32
Goodhue	110N	16W	30-36
Goodhue	111N	15W	28, 33

Dear Daniel McInnis,

For all correspondence regarding the Natural Heritage Review of this project please include the project ID **MCE-2025-00612** in the email subject line.

As requested, the Minnesota Natural Heritage Information System has been reviewed to determine if the proposed project has the potential to impact any rare species or other significant natural features. Based on the project details provided with the request, the following rare features may be impacted by the proposed project:

Ecologically Significant Areas

- A calcareous fen (Wanamingo 22, Fen ID#29025) was documented approximately 3 miles from the proposed project. A calcareous fen is a rare and distinctive peat-accumulating wetland that is legally protected in Minnesota. The Wetlands Conservation Act (WCA), authorized by Minnesota Statutes, section 103G.223, states that calcareous fens may not be filled, drained, or otherwise degraded, wholly or partially, by any activity, except as provided for in a management plan approved by the commissioner of the Department of Natural Resources. Many of the unique characteristics of calcareous fens result from the upwelling of groundwater through calcareous substrates. Because of this dependence on groundwater hydrology, calcareous fens can be affected by nearby activities or even those several miles away. For more information regarding calcareous fens, please see the Calcareous Fen Fact Sheet. To minimize stormwater impacts, please refer to the Minnesota Pollution Control Agency's General Principles for Erosion Prevention and Sediment Control in the Minnesota Stormwater Manual. Please note that calcareous fens are "Special Waters" and a buffer zone may be required.

  Calcareous fens may be impacted by activities within the fen, activities that affect surface water flows (e.g., stormwater flow, erosion), or activities that affect groundwater hydrology (e.g., groundwater

pumping, contamination, or discharge) even several miles away. Given the project details, impacts are not anticipated. **If the proposed project will alter the hydrological conditions in the surrounding area,** contact the Calcareous Fen Program Coordinator, Keylor Andrews (Keylor.Andrews@state.mn.us).

- The Minnesota Biological Survey (MBS) has identified several Sites of Biodiversity Significance (MBS Sites) within the vicinity of the proposed project. MBS Sites have varying levels of native biodiversity and are ranked based on the relative significance of this biodiversity at a statewide level. Factors taken into account during the ranking process include the number of rare species documented within the site, the quality of the native plant communities in the site, the size of the site, and the context of the site within the landscape.
    - **Pine Island 32**– *High* MBS Site – Sites ranked as *High* contain very good quality occurrences of the rarest species, high quality examples of the rare native plant communities, and/or important functional landscapes.
    - **Forest Mills Lowlands** and **Pine Island 8**– *Moderate* MBS Site – Sites ranked as Moderate contain occurrences of rare species and/or moderately disturbed native plant communities, and/or landscapes that have a strong potential for recovery.
    - **Pine Island 5**– *Below* – These areas were determined to be *Below* the minimum biodiversity threshold for statewide significance. These areas may have conservation value at the local level as habitat for native plants and animals, corridors for animal movements, buffers surrounding higher quality natural areas, or as areas with high potential for restoration of native habitat.

  Several DNR Native Plant Communities (NPC) are within the vicinity of the proposed project. NPCs are given a rank that reflects the relative rarity and endangerment of the community type in Minnesota. Ranks range from *critically imperiled* (S1) to *secure, common, widespread, and abundant* (S5). NPCs with a rank of S1, S2, or S3 are considered rare within Minnesota. As currently proposed, the following DNR NPCs have been delineated in the direct vicinity of the proposed project:
    - MHs39: Southern Mesic Maple-Basswood Forest - *imperiled* (S2)
    - FFs59c: Elm - Ash - Basswood Terrace Forest - *imperiled* (S2)
    - MHs39a: Sugar Maple - Basswood - (Bitternut Hickory) Forest - *imperiled* (S2)
    - MHs37a: Red Oak - White Oak Forest - *vulnerable to extirpation* (S3)

  The DNR recommends that the project be designed to avoid impacts to these ecologically significant areas. Actions to avoid or minimize disturbance include, but are not limited to, the following recommendations:
    - Confine construction activities to the opposite side of the road from the MBS Sites. If this is not feasible, confine construction activities to the existing road rights-of-way.
    - As much as possible, operate within already-disturbed areas.
    - Avoid MBS Sites and rare NPCs (ranked S1, S2, or S3).
    - Retain a buffer between proposed activities and the MBS Sites.
    - Directionally bore under MBS Sites.
    - Minimize vehicular disturbance in the MBS Sites (allow only vehicles/equipment necessary for construction activities).
    - Do not park equipment or stockpile supplies in the MBS Sites.
    - Do not place spoil in the MBS Sites or other sensitive areas.

- If possible, conduct the work under frozen ground conditions.
- Use effective erosion prevention and sediment control measures.
- Inspect and clean equipment prior to operation and follow recommendations to prevent the spread of invasive species.
- Revegetate disturbed soil with native species suitable to the local habitat as soon after construction as possible.
- Use only weed-free mulches, topsoils, and seed mixes. Of particular concern are birdsfoot trefoil (*Lotus corniculatus*) and crown vetch (*Coronilla varia*), two invasive species that are sold commercially and are problematic in prairies and disturbed open areas.

Construction in streambeds, lakes, and wetlands should be avoided whenever possible. We recommend either changing the alignment to avoid such areas or employing directional boring techniques to install pipe under the area. Additional actions to minimize disturbance may include, but are not limited to, the following recommendations:

- Work in watercourses should be conducted during low flow whenever possible.
- Winter construction in frozen soils is the preferred method for line placement in wetlands.
- Wetland basins, lake beds, and stream/riverbeds should be restored to preconstruction contours. The work should not promote wetland drainage.
- Appropriate wildlife friendly erosion control measures, such as fabric, straw bales, mulch, and silt fences should be used to prevent sedimentation of adjacent wetlands, lakes, or watercourses.
- Impacts to existing vegetation should be kept to a minimum. Disturbed soil areas should be reseeded with native species suitable to the local habitat immediately upon project completion.
- If boring is planned:
  - Bore pits should be placed at least 10 feet from the water's edge.
  - Wildlife friendly erosion control methods should be employed to prevent excavation material from entering the water.
  - Pits should be filled, graded to preconstruction contours, and re-vegetated with native species suitable to the local habitat upon completion.

Ecologically Significant Areas can be viewed using the Explore page in Minnesota Conservation Explorer (MCE) or their GIS shapefiles can be downloaded from the MN Geospatial Commons. Reference the MBS Site Biodiversity Significance and Native Plant Community websites for information on interpreting the data. To receive a list of Ecologically Significant Areas in the vicinity of your project, create a Conservation Planning Report using the Explore page in MCE.

- If the Wetland Conservation Act (WCA) is applicable to this project, please note that native plant communities with a Conservation Status Rank of S1 through S3 or wetlands within *High* or *Outstanding* MBS Sites of Biodiversity Significance may qualify as Rare Natural Communities (RNC) under WCA. Minnesota Rules, part 8420.0515, subpart 3 states that a wetland replacement plan for activities that modify a RNC must be denied if the local government unit determines the proposed activities will permanently adversely affect the RNC. If the proposed project includes a wetland replacement plan under WCA, please contact your DNR Regional Ecologist for further evaluation. Please visit WCA Program Guidance and Information for additional information, including the RNC Technical Guidance.

State-listed Species

- State-listed plant species have been documented in the vicinity of the proposed project. Midwest Natural Resources, Inc. (MNR) conducted a rare plant survey in May and August of 2024. No state-listed plant species were observed during survey efforts. Given that the survey results were negative, impacts to state-listed species are not anticipated and a permit to take is not needed.

- State-listed threatened mussels have been found in the North Fork Zumbro River near the proposed project. Ellipse (*Venustaconcha ellipsiformis*) was found near Wanamingo and fluted-shell (*Lasmigona costata*) was found near Zumbrota. Minnesota's Endangered Species Statute (Minnesota Statutes, section 84.0895) and associated Rules (Minnesota Rules, part 6212.1800 to 6212.2300 and 6134) prohibit the take of threatened or endangered species without a permit. **Please contact Review.NHIS@state.mn.us if the proposed project will include any disturbance to the riverbed or any downstream sedimentation in T110N R16W Section 30 or T110N R15W Section 29 or 30**, as a mussel survey and/or relocation may be required prior to construction. You will need to discuss potential surveyors, survey protocol, and other requirements before any survey work is initiated.

- Several other fish and mussel species of special concern have been documented in the North Fork Zumbro River and Middle Fork Zumbro River near the proposed project area. These species are particularly vulnerable to deterioration in water quality, especially increased siltation. As such, **effective erosion prevention and sediment control practices should be implemented and maintained near the river throughout the duration of the project and incorporated into any stormwater management plan.** The new treatment facility discharge site is likely to alter sedimentation patterns nearby and we recommend steps be taken to minimize this. We recommend you avoid work in the water from early May to late July to avoid impacts during spawning season for the fish species.

- The Natural Heritage Information System (NHIS) tracks bat roost trees and hibernacula plus some acoustic data, but this information is not exhaustive. Even if there are no bat records listed nearby, all seven of Minnesota's bats, including the federally endangered northern long-eared bat (*Myotis septentrionalis*), can be found throughout Minnesota. During the active season (approximately April-November) bats roost underneath bark, in cavities, or in crevices of both live and dead trees. Tree removal can negatively impact bats by destroying roosting habitat, especially during the pup rearing season when females are forming maternity roosting colonies and the pups cannot yet fly. To minimize these impacts, **the DNR recommends that tree removal be avoided from June 1 through August 15.**

- Please visit the DNR Rare Species Guide for more information on the habitat use of state-listed species and recommended measures to avoid or minimize impacts.

- Please report incidental sightings of state-listed species via the DNR Plant and Animal Observation Form.

Federally Protected Species

- The area of interest overlaps with a U.S Fish and Wildlife Service (USFWS) Rusty Patched Bumble Bee High Potential Zone. The rusty patched bumble bee *(Bombus affinis)* is federally listed as endangered and is likely to be present in suitable habitat within High Potential Zones. From April through October this species uses underground nests in upland grasslands, shrublands, and forest

edges, and forages where nectar and pollen are available. From October through April the species overwinters under tree litter in upland forests and woodlands. The rusty patched bumble bee may be impacted by a variety of land management activities including, but not limited to, prescribed fire, tree-removal, haying, grazing, herbicide use, pesticide use, land-clearing, soil disturbance or compaction, or use of non-native bees. If applicable, **the DNR recommends reseeding disturbed soils with native species of grasses and forbs using BWSR Seed Mixes or MnDOT Seed Mixes.**

To ensure compliance with federal law, please conduct a federal regulatory review using the U.S. Fish and Wildlife Service's online Information for Planning and Consultation (IPaC) tool. Please note that all projects, regardless of whether there is a federal nexus, are subject to federal take prohibitions. The IPaC review will determine if prohibited take is likely to occur and, if not, will generate an automated letter. The USFWS RPBB guidance provides guidance on avoiding impacts to rusty patched bumble bee and a key for determining if actions are likely to affect the species; the determination key can be found in the appendix.

Environmental Review and Permitting

- The Environmental Assessment Worksheet (EAW) should address whether the proposed project has the potential to adversely affect the above rare features and, if so, it should identify specific measures that will be taken to avoid or minimize disturbance. Sufficient information should be provided so the DNR can determine whether a takings permit will be needed for any of the above protected species.

- Please include a copy of this letter and the MCE-generated Final Project Report in any state or local license or permit application. Please note that measures to avoid or minimize disturbance to the above rare features may be included as restrictions or conditions in any required permits or licenses.

The Natural Heritage Information System (NHIS), a collection of databases that contains information about Minnesota's rare natural features, is maintained by the Division of Ecological and Water Resources, Department of Natural Resources. The NHIS is continually updated as new information becomes available and is the most complete source of data on Minnesota's native plant communities, rare species, and other rare features. However, the NHIS is not an exhaustive inventory and does not contain the locations of all rare features in the state. Therefore, ecologically significant features for which we have no records may exist within the project area. If additional information becomes available regarding rare features in the vicinity of the project, further review may be necessary.

For environmental review purposes, the results of this Natural Heritage Review are valid for one year; the results are only valid for the project location and project description provided with the request. **If project details change or the project has not occurred within one year, please resubmit the project for review within one year of initiating project activities.** Resubmit by selecting *Clone Project as Draft* on the project page in MCE.

The Natural Heritage Review does not constitute project approval by the Department of Natural Resources. Instead, it identifies issues regarding known occurrences of rare features and potential impacts to these rare features. Visit Natural Heritage Review for additional information regarding this process, survey guidance, and other related information. For information on the environmental review process or other natural resource concerns, please contact your DNR Regional Environmental Assessment Ecologist.

Thank you for consulting us on this matter and for your interest in preserving Minnesota's rare natural resources.

Sincerely,

Molly Barrett

Natural Heritage Review Specialist
molly.barrett@state.mn.us

Cc: Melissa Collins, Regional Environmental Assessment Ecologist, Central (Region 3)
Cc: Amanda Weise, Regional Ecologist, Central (Region 3)
Cc: Jennie Skancke, Wetlands Program Coordinator

APPENDIX K

Rare Plant Survey Report

MIDWEST NATURAL RESOURCES

Dan McInnis, Ph.D.
Environmental Scientist
Widseth
610 Fillmore Street
Alexandria, MN 56308

November 5, 2024

Dr. McInnis,

Midwest Natural Resources, Inc. (MNR) is pleased to provide the following rare plant survey report for the proposed North Zumbro Sanitary Sewer District Project, located on the eastern end of Zumbrota in Goodhue County, Minnesota (SESE and SWSW quarter-quarter sections in Section 30, Township 110 North Range 15 W; **Figure 1**).



Figure 1. Site Location

Project Limits and Existing Background Data

The 44.6-acre project site (**Figure 2;** two separate segments) is associated with a moderate Site of Biodiversity Significance (Forest Mills Lowlands), which includes a portion of the North Branch Zumbro River. The project area also includes two mapped native plant communities according to the Minnesota Department of Natural Resources (DNR) Native Plant Community data layer. Both mapped communities are identified as the Southern Mesic Maple-Basswood Forests (MHn39) community class. Lastly, according to the Natural Heritage Information System database, there are five documented populations of state-listed species near the project area (**Table 1**). Based on the assumed habitat, the primary target species included twinleaf (*Jeffersonia diphylla*) and snow trillium (*Trillium nivale*), along with glade mallow (*Napaea dioica*).



Figure 2. Project Area

Table 1. Target Plant Species

Scientific name	Common name	State status
Baptisia lactea var. lactea	White Wild Indigo	SPC
Jeffersonia diphylla	Twinleaf	SPC
Napaea dioica	Glade Mallow	THR
Platanthera flava var. herbiola	Tubercled Rein-Orchid	THR
Trillium nivale	Snow Trillium	SPC

Methods

Prior to conducting field surveys, MNR submitted a rare plant survey protocol to the DNR Endangered Species Coordinator (**Appendix A**). Survey efforts were implemented by the undersigned on May 16, 2024, and August 7, 2024. Meander surveys were focused throughout those areas with potential rare species habitat. A general species list of species observed was recorded as part of the survey effort. It should be noted that the species list represents only those species observed at the time of both field visits.

Results

Most of the proposed project area is actively under agricultural production, along with a small open field, mesic hardwood forests, and a floodplain associated with the North Branch Zumbro River. The open field is centrally located on the north end of the survey area. This field is associated with an electric transmission corridor and is primarily planted in turf grass. Overall, rare plant habitat is restricted to the forested portions of the project area, with the best habitat located in the northeastern portion of the survey area. This northeastern portion of the survey area includes a patchy canopy with basswood (*Tilia americana*), green ash (*Fraxinus pennsylvanica*), butternut hickory (*Carya cordiformis*), quaking aspen (*Populus tremuloides*), and black cherry (*Prunus serotina*), with very little leaf duff overall **(Image 1**). Common buckthorn (*Rhamnus cathartica*) cover is variable in the shrub layer but most prevalent on side slopes and tops of slopes. The ground layer is continuous in terms of cover and includes wild leek (*Allium tricoccum*), white trout lily (*Erythronium albidum*), false rue anemone (*Enemion biternatum*), Virginia waterleaf (*Hydrophyllum*

virginianum), blue phlox (*Phlox divaricata*), sister violet (*Viola sororia*), and other ephemeral species like Dutchman's breeches (*Dicentra cucullaria*) and cutleaf toothwort (*Cardamine concatenata*). This particular portion of the project area was most intact and suitable for rare species such as snow trillium and twin leaf. However, no state-listed species were identified in this portion of the survey area.



Image 1. Mesic hardwood community

Evidence of past cattle grazing (remnant electric fencing) is more obvious west of the northeastern portion. Vegetative quality also appears degraded, and prominent species in the ground layer include charming sedge (*Carex blanda*), white trout lily, cleavers (*Galium aparine*), and Virginia waterleaf. The shrub layer consists of common buckthorn, growing under a canopy of basswood, white oak (*Quercus alba*), and American elm (*Ulmus Americana*).

The floodplain, located in the northwest portion of the survey area has a patchy canopy of green ash and box elder (*Acer negundo*) with reed canary grass (*Phalaris arundinacea*) and tall coneflower (*Rudbeckia laciniata*) as well as angelica (*Angelica atropurpurea*), creeping charlie (*Glechoma hederacea*), and stinging nettle (*Urtica dioica*) in the ground layer.

In closing, no state-listed plant species were observed during survey efforts. With your approval, we will submit this report to the appropriate staff at the Natural Heritage Review Program, seeking concurrence with our findings. We appreciate the opportunity to assist you with this project and welcome any questions or comments.

Respectfully submitted,

Scott A. Milburn, MS
Principal Botanist/Founder
Midwest Natural Resources, Inc.
612-310-6260 (mobile)

APPENDIX A

Survey Protocol Document

MIDWEST NATURAL RESOURCES

Ms. Lisa Joyal
Endangered Species Env. Review Coordinator
Minnesota Department of Natural Resources
Ecological & Water Resources
500 Lafayette Road
St. Paul, MN 55155

May 10, 2024

Ms. Joyal,

Midwest Natural Resources, Inc. (MNR) will be conducting rare plant surveys in support of the North Zumbro Sanitary Sewer District Project, located on the eastern end of Zumbrota in Goodhue County, Minnesota (SESE and SWSW quarter-quarter sections in Section 30, Township 110 North Range 15 W; **Figure 1**).



Figure 1. Site Location

The NHIS database includes five state-listed near the project area (**Table 1**). The primary target species based on the anticipated habitat within the project area (**Figure 2**) appears to be glade mallow (*Napaea dioica*), but there also appears to be habitat for twinleaf (*Jeffersonia diphylla*) and snow trillium (*Trillium nivale*) as well in the eastern portion of the site.

Table 1. Target Plant Species

Scientific name	Common name	State status
Baptisia lactea var. lactea	White Wild Indigo	SPC

Scientific name	Common name	State status
Jeffersonia diphylla	Twinleaf	SPC
Napaea dioica	Glade Mallow	THR
Platanthera flava var. herbiola	Tubercled Rein-Orchid	THR
Trillium nivale	Snow Trillium	SPC



Figure 2. Project Area

Based on the anticipated habitat within the project area, surveys are slated for a site visit this month, and a second visit is scheduled for June. During field efforts, the Rare Species Survey Process and the Rare Plant Guidance will be followed as required by the DNR. Furthermore, the survey will be conducted by one or multiple staff members who have been approved to conduct rare plant surveys in the Eastern Broadleaf Forest Province. Any state-listed plant species observed within the survey area will be documented spatially using sub-meter GPS. The exterior extent of a given rare plant population will be delineated in most cases, and the number of individuals will be estimated as opposed to exact counts. Voucher specimens, if collected, will be made in accordance with our rare species collector's permit.

A summary report will be produced after field efforts pertaining to the rare plant survey effort. This document will include information pertaining to survey methods, survey results, report figures/graphics, and appendices (species lists and representative photos). The report, along with the GIS shapefile, associated spreadsheet, and notification that State Botanist Welby Smith has verified our photos or voucher specimens of any rare species documented.

Please let us know if you have any questions.

Best regards,

Scott A. Milburn, MS
Principal Botanist/Founder
Midwest Natural Resources, Inc.

APPENDIX B

Species List

Species List		
Acer negundo	*Lonicera morrowii*	*Zizia aurea*
Actaea rubra	*Maianthemum canadense*	
Adiantum pedatum	*Maianthemum racemosa*	
Ageratina altissima	*Mitella diphylla*	
Alliaria petiolata	*Nepeta cataria*	
Allium tricoccum	*Osmorhiza claytonii*	
Anemone quinquefolia	*Oxalis stricta*	
Angelica atropurpurea	*Parthenocissus cf. vitacea*	
Arctium minus	*Phalaris arundinacea*	
Arisaema triphyllum	*Phlox divaricata*	
Asarum canadense	*Pilea sp.*	
Athyrium filix-femina	*Poa pratensis*	
Barbarea vulgaris	*Polemonium reptans*	
Bromus inermis	*Polygonatum biflorum*	
Campanulastrum americanum	*Polymnia canadensis*	
Cardamine concatenata	*Populus tremuloides*	
Carex blanda	*Prunus pensylvanica*	
Carex pensylvanica	*Prunus serotina*	
Carex rosea	*Prunus virginiana*	
Carex sprengelii	*Quercus alba*	
Carya cordiformis	*Ranunculus abortivus*	
Caulophyllum thalictroides	*Rhamnus cathartica*	
Celtis occidentalis	*Ribes missouriense*	
Cerastium arvense	*Rubus occidentalis*	
Circaea canadensis	*Rudbeckia laciniata*	
Claytonia virginica	*Sambucus nigra*	
Cornus alternifolia	*Sanguinaria canadensis*	
Dicentra cucullaria	*Scrophularia lanceolata*	
Dioscorea villosa	*Sicyos angulatus*	
Elymus canadensis	*Solanum carolinense*	
Enemion biternatum	*Solanum dulcamara*	
Erythronium albidum	*Solidago flexicaulis*	
Fallopia convolvulus	*Symphyotrichum lateriflorum*	
Fallopia sp.	*Taraxacum officinale*	
Fraxinus pennsylvanica	*Thalictrum dasycarpum*	
Galium aparine	*Tilia americana*	
Geranium maculatum	*Trillium cernuum*	
Glechoma hederacea	*Trillium flexipes*	
Hackelia virginiana	*Ulmus americana*	
Hemerocallis fulva	*Urtica dioica*	
Hesperis matronalis	*Uvularia grandiflora*	
Hydrophyllum virginianum	*Verbascum thapsus*	
Impatiens pallida	*Viola pubescens*	
Laportea canadensis	*Viola sororia*	
Leersia virginica	*Vitis riparia*	
Leonurus cardiaca	*Xanthium strumarium*	

APPENDIX L

IPAC Species List and Review Letters

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Minnesota-Wisconsin Ecological Services Field Office
3815 American Blvd East
Bloomington, MN 55425-1659
Phone: (952) 858-0793

In Reply Refer To: February 09, 2024
Project code: 2024-0039163
Project Name: North Zumbro Sanitary District

Federal Nexus: no
Federal Action Agency (if applicable): Pine Island city (Goodhue County, MN; Olmsted County, MN)

Subject: Technical assistance for 'North Zumbro Sanitary District'

Dear Eleanor Brandt:

This letter records your determination using the Information for Planning and Consultation (IPaC) system provided to the U.S. Fish and Wildlife Service (Service) on February 09, 2024, for 'North Zumbro Sanitary District' (here forward, Project). This project has been assigned Project Code 2024-0039163 and all future correspondence should clearly reference this number. **Please carefully review this letter. Your Endangered Species Act (Act) requirements are not complete.**

Ensuring Accurate Determinations When Using IPaC

The Service developed the IPaC system and associated species' determination keys in accordance with the Endangered Species Act of 1973 (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and based on a standing analysis. All information submitted by the Project proponent into IPaC must accurately represent the full scope and details of the Project.

Failure to accurately represent or implement the Project as detailed in IPaC or the Northern Long-eared Bat Rangewide Determination Key (Dkey), invalidates this letter. ***Answers to certain questions in the DKey commit the project proponent to implementation of conservation measures that must be followed for the ESA determination to remain valid.***

Determination for the Northern Long-Eared Bat

Based upon your IPaC submission and a standing analysis, your project is not reasonably certain to cause incidental take of the northern long-eared bat. Unless the Service advises you within 15 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that the Action is not likely to result in unauthorized take of the northern long-eared bat.

Other Species and Critical Habitat that May be Present in the Action Area

The IPaC-assisted determination for the northern long-eared bat does not apply to the following ESA-protected species and/or critical habitat that also may occur in your Action area:

- Minnesota Dwarf Trout Lily *Erythronium propullans* Endangered
- Monarch Butterfly *Danaus plexippus* Candidate
- Prairie Bush-clover *Lespedeza leptostachya* Threatened
- Tricolored Bat *Perimyotis subflavus* Proposed Endangered
- Whooping Crane *Grus americana* Experimental Population, Non-Essential

You may coordinate with our Office to determine whether the Action may cause prohibited take of the animal species and/or critical habitat listed above. Note that if a new species is listed that may be affected by the identified action before it is complete, additional review is recommended to ensure compliance with the Endangered Species Act.

Next Steps

Coordination with the Service is complete. This letter serves as technical assistance. All conservation measures should be implemented as proposed. Thank you for considering federally listed species during your project planning.

We are uncertain where the northern long-eared bat occurs on the landscape outside of known locations. Because of the steep declines in the species and vast amount of available and suitable forest habitat, the presence of suitable forest habitat alone is a far less reliable predictor of their presence. Based on the best available information, most suitable habitat is now expected to be unoccupied. During the interim period, while we are working on potential methods to address this uncertainty, we conclude take is not reasonably certain to occur in areas of suitable habitat where presence has not been documented.

If no changes occur with the Project or there are no updates on listed species, no further consultation/coordination for this project is required for the northern long-eared bat. However, the Service recommends that project proponents re-evaluate the Project in IPaC if: 1) the scope, timing, duration, or location of the Project changes (includes any project changes or amendments); 2) new information reveals the Project may impact (positively or negatively) federally listed species or designated critical habitat; or 3) a new species is listed, or critical habitat designated. If any of the above conditions occurs, additional coordination with the Service should take place before project implements any changes which are final or commits additional resources.

If you have any questions regarding this letter or need further assistance, please contact the Minnesota-Wisconsin Ecological Services Field Office and reference Project Code 2024-0039163 associated with this Project.

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

North Zumbro Sanitary District

2. Description

The following description was provided for the project 'North Zumbro Sanitary District':

> Create a new regional sanitary district to serve the communities of Goodhue, Pine Island, Wanamingo, Zumbrota and the Prairie Island Indian Community. A new wastewater treatment facility (WWTF) will be built near the City of Zumbrota. Lift stations and piping will be installed to connect all communities. The new WWTF will treat wastewater from the cities of Goodhue, Pine Island, Wanamingo, Zumbrota and the Prairie Island Indian Community. The wastewater is municipal wastewater and includes two Significant Industrial Users.
>
> The new WWTF will include an overflow retention basin (250’ diameter circular tank), screening and grit removal (30’x50’ building), oxidation ditches (300’x125’ structure), two final clarifiers (80’ diameter each),UV disinfection (30’x50’ building), aerobic digestion tanks (60’x120’ structure), and biosolids storage (two 3-MG 160’-diameter circular tanks). The new WWTF will include an influent pump station (40’x60’ building), main process building housing RAS, WAS, and sludge storage pumps, chem feed, blowers, and main electrical (50’x120’), administration building (60’x80’), maintenance garage (50’x100’), storage building (50’x100’), and generator pad (20’x50’). The Design Year for this Facility is 2045.
>
> The new WWTF facility footprint will allow for future expansion on site beyond Design Year 2045, which could add the following additional units: a second overflow retention basin (250’ diameter circular tank), additional oxidation ditches (300’x125’ structure), two additional final clarifiers (80’ diameter each),additional aerobic digestion (60’x120’ structure), expansion of the main process building (adds 50’x120’), and additional biosolids storage (two additional 3-MG 160’-diameter circular tanks). These units would allow for doubling the WWTF capacity.
>
> The new WWTF will discharge to the North Fork Zumbro River. Biosolids will be land-applied onto agricultural fields nearby the proposed facility.
>
> The new WWTF has two potential alternative sites under consideration. Both alternative sites are located within 1-1/4 miles of each other along the North Fork Zumbro River, in Zumbrota Township east of the City of Zumbrota. WWTP Site 1 is the primary site under consideration. The site is 48 gross acres.

To bring wastewater to the new WWTF, new pumping stations and forcemains will be constructed and the old WWTFs will be demolished in all four cities.

The Zumbrota conveyance project will construct a new pump station (40'x60' building) at Zumbrota's existing WWTF, and construct a new forcemain from the pump station to the new centralized WWTF. The new WWTF Site 1 is located approximately one-half (1/2) mile directly east and across the North Fork Zumbro River from the existing Zumbrota WWTF site. The corridor for the forcemain alignment is ½ mile times 20' wide (1 acre).

The existing Zumbrota WWTF is located directly off of Highway 58, in the northeastern part of the City of Zumbrota. The WWTF is approximately ten (10) acres and includes trickling filters, activated sludge, aerobic sludge digestion, and sludge holding ponds. The existing WWTF process units, buildings, and ponds will be decommissioned and demolished. Driveway paving will remain. The new Zumbrota pump station will be built on this site.

Project construction should start in 2025 and be complete in 2026. A 1-year startup period will be in 2026-27. Demolition of the existing wastewater treatment facilities will follow in 2028.

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@44.3012599,-92.65655013360748,14z



DETERMINATION KEY RESULT

Based on the answers provided, the proposed Action is consistent with a determination of "may affect, but not likely to adversely affect" for the Endangered northern long-eared bat (*Myotis septentrionalis*).

QUALIFICATION INTERVIEW

1. Does the proposed project include, or is it reasonably certain to cause, intentional take of the northern long-eared bat or any other listed species?

   Note: Intentional take is defined as take that is the intended result of a project. Intentional take could refer to research, direct species management, surveys, and/or studies that include intentional handling/encountering, harassment, collection, or capturing of any individual of a federally listed threatened, endangered or proposed species?

   No

2. The action area does not overlap with an area for which U.S. Fish and Wildlife Service currently has data to support the presumption that the northern long-eared bat is present. Are you aware of other data that indicates that northern long-eared bats (NLEB) are likely to be present in the action area?

   Bat occurrence data may include identification of NLEBs in hibernacula, capture of NLEBs, tracking of NLEBs to roost trees, or confirmed NLEB acoustic detections. Data on captures, roost tree use, and acoustic detections should post-date the year when white-nose syndrome was detected in the relevant state. With this question, we are looking for data that, for some reason, may have not yet been made available to U.S. Fish and Wildlife Service.

   No

3. Does any component of the action involve construction or operation of wind turbines?

   Note: For federal actions, answer 'yes' if the construction or operation of wind power facilities is either (1) part of the federal action or (2) would not occur but for a federal agency action (federal permit, funding, etc.).

   No

4. Is the proposed action authorized, permitted, licensed, funded, or being carried out by a Federal agency in whole or in part?

   No

PROJECT QUESTIONNAIRE

IPAC USER CONTACT INFORMATION

Agency: Private Entity
Name: Eleanor Brandt
Address: 126 E Superior St
City: Duluth
State: MN
Zip: 55801
Email eleanor.brandt@widseth.com
Phone: 2184517087

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Pine Island city (Goodhue County, MN; Olmsted County, MN)

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Minnesota-Wisconsin Ecological Services Field Office
3815 American Blvd East
Bloomington, MN 55425-1659
Phone: (952) 858-0793

In Reply Refer To: February 22, 2024
Project code: 2024-0039163
Project Name: North Zumbro Sanitary District

Subject: Consistency letter for 'North Zumbro Sanitary District' for specified threatened and endangered species that may occur in your proposed project location consistent with the Minnesota-Wisconsin Endangered Species Determination Key (Minnesota-Wisconsin DKey).

Dear Eleanor Brandt:

The U.S. Fish and Wildlife Service (Service) received on **February 22, 2024** your effect determination(s) for the 'North Zumbro Sanitary District' (Action) using the Minnesota-Wisconsin DKey within the Information for Planning and Consultation (IPaC) system. You have submitted this key to satisfy requirements under Section 7(a)(2). The Service developed this system in accordance of with the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended; 16 U.S.C 1531 et seq.).

Based on your answers and the assistance of the Service's Minnesota-Wisconsin DKey, you made the following effect determination(s) for the proposed Action:

Species	Listing Status	Determination
Minnesota Dwarf Trout Lily (*Erythronium propullans*)	Endangered	No effect
Monarch Butterfly (*Danaus plexippus*)	Candidate	No effect
Prairie Bush-clover (*Lespedeza leptostachya*)	Threatened	No effect
Tricolored Bat (*Perimyotis subflavus*)	Proposed Endangered	No effect
Whooping Crane (*Grus americana*)	Experimental Population, Non-Essential	No effect

Determination Information

Thank you for informing the Service of your "No Effect" determination(s). No further coordination is necessary for the species you determined will not be affected by the Action.

Additional Information

Sufficient project details: Please provide sufficient project details on your project homepage in IPaC (Define Project, Project Description) to support your conclusions. Failure to disclose important aspects of your project that would influence the outcome of your effects determinations may negate your determinations and invalidate this letter. If you have site-specific information that leads you to believe a different determination is more appropriate for your project than what the Dkey concludes, you can and should proceed based on the best available information.

Future project changes: The Service recommends that you contact the Minnesota-Wisconsin Ecological Services Field Office or re-evaluate the project in IPaC if: 1) the scope or location of the proposed Action is changed; 2) new information reveals that the action may affect listed species or designated critical habitat in a manner or to an extent not previously considered; 3) the Action is modified in a manner that causes effects to listed species or designated critical habitat; or 4) a new species is listed or critical habitat designated. If any of the above conditions occurs, additional consultation with the Service should take place before project changes are final or resources committed.

For non-Federal representatives: Please note that when a project requires consultation under section 7 of the Act, the Service must consult directly with the Federal action agency unless that agency formally designates a non-Federal representative (50 CFR 402.08). Non-Federal representatives may prepare analyses or conduct informal consultations; however, the ultimate responsibility for section 7 compliance under the Act remains with the Federal agency. Please include the Federal action agency in additional correspondence regarding this project.

Species-specific information

Listed Plants: You have indicated that your Action has no effect (NE) on a threatened or endangered plant species, without a Federal nexus of any kind (i.e., the project is not on Federal land; no Federal funding, authorization, or permitting required; no Federal agency involvement in planning or implementation). Although your Endangered Species Act requirements are met, we recommend you contact the Minnesota or Wisconsin Department of Natural Resources regarding compliance with state law. **You may need a state permit if your Action will harm state listed plants. We encourage landowners to maintain habitat for listed plant species and avoid disturbing listed plants to the extent possible.**

Bald and Golden Eagles: Bald eagles, golden eagles, and their nests are protected under the Bald and Golden Eagle Protection Act (54 Stat. 250, as amended, 16 U.S.C. 668a-d) (Eagle Act). The Eagle Act prohibits, except when authorized by an Eagle Act permit, the “taking” of bald and golden eagles and defines “take” as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.” The Eagle Act’s implementing regulations define disturb as “… to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.”

If you observe a bald eagle nest in the vicinity of your proposed project, you should follow the National Bald Eagle Management Guidelines (May 2007). For more information on eagles and conducting activities in the vicinity of an eagle nest, please visit our regional eagle website or

contact Margaret at Margaret_Rheude@fws.gov. **If the Action may affect bald or golden eagles, additional coordination with the Service under the Eagle Act may be required.**

The following species and/or critical habitats may also occur in your project area and **are not** covered by this conclusion:

- Northern Long-eared Bat *Myotis septentrionalis* Endangered

Coordination with the Service is not complete if additional coordination is advised above for any species.

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

North Zumbro Sanitary District

2. Description

The following description was provided for the project 'North Zumbro Sanitary District':

> Create a new regional sanitary district to serve the communities of Goodhue, Pine Island, Wanamingo, Zumbrota and the Prairie Island Indian Community. A new wastewater treatment facility (WWTF) will be built near the City of Zumbrota. Lift stations and piping will be installed to connect all communities. The new WWTF will treat wastewater from the cities of Goodhue, Pine Island, Wanamingo, Zumbrota and the Prairie Island Indian Community. The wastewater is municipal wastewater and includes two Significant Industrial Users.
>
> The new WWTF will include an overflow retention basin (250’ diameter circular tank), screening and grit removal (30’x50’ building), oxidation ditches (300’x125’ structure), two final clarifiers (80’ diameter each),UV disinfection (30’x50’ building), aerobic digestion tanks (60’x120’ structure), and biosolids storage (two 3-MG 160’-diameter circular tanks). The new WWTF will include an influent pump station (40’x60’ building), main process building housing RAS, WAS, and sludge storage pumps, chem feed, blowers, and main electrical (50’x120’), administration building (60’x80’), maintenance garage (50’x100’), storage building (50’x100’), and generator pad (20’x50’). The Design Year for this Facility is 2045.
>
> The new WWTF facility footprint will allow for future expansion on site beyond Design Year 2045, which could add the following additional units: a second overflow retention basin (250’ diameter circular tank), additional oxidation ditches (300’x125’ structure), two additional final clarifiers (80’ diameter each),additional aerobic digestion (60’x120’ structure), expansion of the main process building (adds 50’x120’), and additional biosolids storage (two additional 3-MG 160’-diameter circular tanks). These units would allow for doubling the WWTF capacity.
>
> The new WWTF will discharge to the North Fork Zumbro River. Biosolids will be land-applied onto agricultural fields nearby the proposed facility.
>
> The new WWTF has two potential alternative sites under consideration. Both alternative sites are located within 1-1/4 miles of each other along the North Fork Zumbro River, in Zumbrota Township east of the City of Zumbrota. WWTP Site 1 is the primary site under consideration. The site is 48 gross acres.

To bring wastewater to the new WWTF, new pumping stations and forcemains will be constructed and the old WWTFs will be demolished in all four cities.

The Zumbrota conveyance project will construct a new pump station (40'x60' building) at Zumbrota's existing WWTF, and construct a new forcemain from the pump station to the new centralized WWTF. The new WWTF Site 1 is located approximately one-half (1/2) mile directly east and across the North Fork Zumbro River from the existing Zumbrota WWTF site. The corridor for the forcemain alignment is ½ mile times 20' wide (1 acre).

The existing Zumbrota WWTF is located directly off of Highway 58, in the northeastern part of the City of Zumbrota. The WWTF is approximately ten (10) acres and includes trickling filters, activated sludge, aerobic sludge digestion, and sludge holding ponds. The existing WWTF process units, buildings, and ponds will be decommissioned and demolished. Driveway paving will remain. The new Zumbrota pump station will be built on this site.

Project construction should start in 2025 and be complete in 2026. A 1-year startup period will be in 2026-27. Demolition of the existing wastewater treatment facilities will follow in 2028.

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@44.299764749999994,-92.65656184844298,14z



QUALIFICATION INTERVIEW

1. This determination key is intended to assist the user in evaluating the effects of their actions on Federally listed species in Minnesota and Wisconsin. It does not cover other prohibited activities under the Endangered Species Act (e.g., for wildlife: import/export, Interstate or foreign commerce, possession of illegally taken wildlife, etc.; for plants: import/export, reduce to possession, malicious destruction on Federal lands, commercial sale, etc.) or other statutes. Additionally, this key DOES NOT cover wind development, purposeful take (e.g., for research or surveys), communication towers that have guy wires or are over 450 feet in height, aerial or other large-scale application of any chemical (such as insecticide or herbicide), and approval of long-term permits or plans (e.g., FERC licenses, HCP's).

   Click **YES** to acknowledge that you must consider other prohibitions of the ESA or other statutes outside of this determination key.

   Yes
2. Is the action being funded, authorized, or carried out by a Federal agency?

   No
3. Are you the Federal agency or designated non-federal representative?

   No
4. Does the action involve the installation or operation of wind turbines?

   No
5. Does the action involve purposeful take of a listed animal?

   No
6. Does the action involve a new communications tower?

   No
7. Does the activity involve aerial or other large-scale application of ANY chemical, including pesticides (insecticide, herbicide, fungicide, rodenticide, etc)?

   No
8. Does the action occur near a bald eagle nest?

   Note: Contact the Minnesota or Wisconsin Department of Natural Resources for an up-to-date list of known bald eagle nests.

   No
9. Will your action permanently affect local hydrology?

   No
10. Will your action temporarily affect local hydrology?

    No

11. Will your project have any direct impacts to a stream or river (e.g., Horizontal Directional Drilling (HDD), hydrostatic testing, stream/road crossings, new stormwater outfall discharge, dams, other in-stream work, etc.)?

    No

12. Does your project have the potential to impact the riparian zone or indirectly impact a stream/river (e.g., cut and fill; horizontal directional drilling; construction; vegetation removal; pesticide or fertilizer application; discharge; runoff of sediment or pollutants; increase in erosion, etc.)?

    Note: Consider all potential effects of the action, including those that may happen later in time and outside and downstream of the immediate area involved in the action.

    Endangered Species Act regulation defines "effects of the action" to include all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action. (50 CFR 402.02).

    Yes

13. Will your action disturb the ground or existing vegetation?

    Note: This includes any off-road vehicle access, soil compaction (enough to collapse a rodent burrow), digging, seismic survey, directional drilling, heavy equipment, grading, trenching, placement of fill, pesticide application (herbicide, fungicide), vegetation management (including removal or maintenance using equipment or prescribed fire), cultivation, development, etc.

    Yes

14. Will your action include spraying insecticides?

    No

15. Does your action area occur entirely within an already developed area?

    Note: Already developed areas are already paved, covered by existing structures, manicured lawns, industrial sites, or cultivated cropland, AND do not contain trees that could be roosting habitat. Be aware that listed species may occur in areas with natural, or semi-natural, vegetation immediately adjacent to existing utilities (e.g. roadways, railways) or within utility rights-of-way such as overhead transmission line corridors, and can utilize suitable trees, bridges, or culverts for roosting even in urban dominated landscapes (so these are not considered "already developed areas" for the purposes of this question). If unsure, select NO..

    No

16. Does Minnesota dwarf trout lily occur in the action area?

    Yes

17. Did you conduct a survey to determine if Minnesota dwarf trout lily occurs in the action area?

    If yes, please upload survey results. A survey is not required, but is highly encouraged. Contact the Minnesota Department of Natural Resources for accepted survey methodology.

    No

18. Will the project indirectly alter the habitat or resources of Minnesota dwarf trout lily? (I.e., could your action result in a change in canopy cover, microclimate, humidity; increase in invasive species; soil compaction; hydrologic alterations, etc.?)
    If unsure, select yes.

    No

19. Could the action directly harm Minnesota dwarf trout lily?
    (I.e., does your action include prescribed fire, herbicide application, trampling, grazing, increase in erosion/siltation, cutting/clearing, cultivation, crushing by vehicle, reduce to possession, etc.?)

    No

20. Does prairie bush-clover occur in the action area?

    Yes

21. Did you conduct a survey to determine if prairie bush-clover (PBC) occurs in the action area? If yes, please upload survey results.

    No

22. Will the project indirectly alter the habitat or resources of prairie bush-clover?
    (I.e., could your action result in a change in canopy cover, microclimate, humidity, increase in invasive species, hydrologic alterations, etc.?)
    If unsure, select yes.

    No

23. Could the action directly harm prairie bush-clover?
    (I.e., does your action include prescribed fire, herbicide application, trampling, grazing, cutting/clearing, cultivation, crushing by vehicle, reduce to possession, etc.?)

    No

24. [Hidden Semantic] Does the action area intersect the monarch butterfly species list area?

    Automatically answered
    Yes

25. Under the ESA, monarchs remain warranted but precluded by listing actions of higher priority. The monarch is a candidate for listing at this time. The Endangered Species Act does not establish protections or consultation requirements for candidate species. Some Federal and State agencies may have policy requirements to consider candidate species in planning. We encourage implementing measures that will remove or reduce threats to these species and possibly make listing unnecessary.

    If your project will have no effect on monarch butterflies (for example, if your project won't affect their habitat or individuals), then you can make a "no effect" determination for this project.

    Are you making a "no effect" determination for monarch?

    Yes

26. [Hidden semantic] Does the action intersect the Tricolored bat species list area?

    Automatically answered

    Yes

27. The tricolored bat was proposed for listing as endangered on September 13, 2022. During winter, tricolored bats hibernate in caves, abandoned mines, and abandoned tunnels ranging from small to large in size. During spring, summer and fall months, they roost primarily among leaf clusters of live or recently dead deciduous/hardwood trees.

    What effect determination do you want to make for the tricolored bat (Only make a "may affect" determination if you think the project is likely to jeopardize the continued existence of the species)?

    1. "No effect"

IPAC USER CONTACT INFORMATION

Agency: Private Entity
Name: Eleanor Brandt
Address: 126 E Superior St
City: Duluth
State: MN
Zip: 55801
Email eleanor.brandt@widseth.com
Phone: 2184517087

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Minnesota-Wisconsin Ecological Services Field Office
3815 American Blvd East
Bloomington, MN 55425-1659
Phone: (952) 858-0793 Fax: (952) 646-2873

In Reply Refer To: January 22, 2024
Project Code: 2024-0039163
Project Name: North Zumbro Sanitary District

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

This response has been generated by the Information, Planning, and Conservation (IPaC) system to provide information on natural resources that could be affected by your project. The U.S. Fish and Wildlife Service (Service) provides this response under the authority of the Endangered Species Act of 1973 (16 U.S.C. 1531-1543), the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d), the Migratory Bird Treaty Act (16 U.S.C. 703-712), and the Fish and Wildlife Coordination Act (16 U.S.C. 661 *et seq.*).

Threatened and Endangered Species
The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and may be affected by your proposed project. The species list fulfills the requirement for obtaining a Technical Assistance Letter from the U.S. Fish and Wildlife Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

Consultation Technical Assistance
Please refer to refer to our Section 7 website for guidance and technical assistance, including step-by-step instructions for making effects determinations for each species that might be present and for specific guidance on the following types of projects: projects in developed areas, HUD, CDBG, EDA, USDA Rural Development projects, pipelines, buried utilities, telecommunications, and requests for a Conditional Letter of Map Revision (CLOMR) from FEMA.

We recommend running the project (if it qualifies) through our **Minnesota-Wisconsin Federal Endangered Species Determination Key (Minnesota-Wisconsin ("D-key"))**. A demonstration video showing how-to access and use the determination key is available. Please note that the Minnesota-Wisconsin D-key is the third option of 3 available d-keys. D-keys are tools to help Federal agencies and other project proponents determine if their proposed action has the potential to adversely affect federally listed species and designated critical habitat. The Minnesota-Wisconsin D-key includes a structured set of questions that assists a project proponent in determining whether a proposed project qualifies for a certain predetermined consultation outcome for all federally listed species found in Minnesota and Wisconsin (except for the northern long-eared bat- see below), which includes determinations of “no effect” or “may affect, not likely to adversely affect." In each case, the Service has compiled and analyzed the best available information on the species’ biology and the impacts of certain activities to support these determinations.

If your completed d-key output letter shows a "No Effect" (NE) determination for all listed species, print your IPaC output letter for your files to document your compliance with the Endangered Species Act.

For Federal projects with a “Not Likely to Adversely Affect” (NLAA) determination, our concurrence becomes valid if you do not hear otherwise from us after a 30-day review period, as indicated in your letter.

If your d-key output letter indicates additional coordination with the Minnesota-Wisconsin Ecological Services Field Office is necessary (i.e., you get a “May Affect” determination), you will be provided additional guidance on contacting the Service to continue ESA coordination outside of the key; ESA compliance cannot be concluded using the key for “May Affect” determinations unless otherwise indicated in your output letter.

Note: Once you obtain your official species list, you are not required to continue in IPaC with d-keys, although in most cases these tools should expedite your review. If you choose to make an effects determination on your own, you may do so. If the project is a Federal Action, you may want to review our section 7 step-by-step instructions before making your determinations.

Using the IPaC Official Species List to Make No Effect and May Affect Determinations for Listed Species

1. If IPaC returns a result of “There are no listed species found within the vicinity of the project,” then project proponents can conclude the proposed activities will have **no effect** on any federally listed species under Service jurisdiction. Concurrence from the Service is not required for **no effect** determinations. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records.
2. If IPaC returns one or more federally listed, proposed, or candidate species as potentially present in the action area of the proposed project – other than bats (see below) – then project proponents must determine if proposed activities will have **no effect** on or **may affect** those species. For assistance in determining if suitable habitat for listed, candidate, or proposed species occurs within your project area or if species may be affected by project activities, you can obtain Life History Information for Listed and Candidate Species on our office website. If no impacts will occur to a species on the IPaC species list (e.g., there is no habitat present in the project area), the appropriate determination is **no effect**. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records.

3. Should you determine that project activities **may affect** any federally listed, please contact our office for further coordination. Letters with requests for consultation or correspondence about your project should include the Consultation Tracking Number in the header. Electronic submission is preferred.

Northern Long-Eared Bats
Northern long-eared bats occur throughout Minnesota and Wisconsin and the information below may help in determining if your project may affect these species.

This species hibernates in caves or mines only during the winter. In Minnesota and Wisconsin, the hibernation season is considered to be November 1 to March 31. During the active season (April 1 to October 31) they roost in forest and woodland habitats. Suitable summer habitat for northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags ≥3 inches dbh for northern long-eared bat that have exfoliating bark, cracks, crevices, and/or hollows), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet (305 meters) of forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat and evaluated for use by bats. If your project will impact caves or mines or will involve clearing forest or woodland habitat containing suitable roosting habitat, northern long-eared bats could be affected.

Examples of unsuitable habitat include:

- Individual trees that are greater than 1,000 feet from forested or wooded areas,
- Trees found in highly developed urban areas (e.g., street trees, downtown areas),
- A pure stand of less than 3-inch dbh trees that are not mixed with larger trees, and
- A monoculture stand of shrubby vegetation with no potential roost trees.

If IPaC returns a result that northern long-eared bats are potentially present in the action area of the proposed project, project proponents can conclude the proposed activities **may affect** this species **IF** one or more of the following activities are proposed:

- Clearing or disturbing suitable roosting habitat, as defined above, at any time of year,
- Any activity in or near the entrance to a cave or mine,
- Mining, deep excavation, or underground work within 0.25 miles of a cave or mine,
- Construction of one or more wind turbines, or
- Demolition or reconstruction of human-made structures that are known to be used by bats based on observations of roosting bats, bats emerging at dusk, or guano deposits or stains.

If none of the above activities are proposed, project proponents can conclude the proposed activities will have **no effect** on the northern long-eared bat. Concurrence from the Service is not required for **No**

Effect determinations. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records.

If any of the above activities are proposed, and the northern long-eared bat appears on the user's species list, the federal project user will be directed to either the range-wide northern long-eared bat D-key or the Federal Highways Administration, Federal Railways Administration, and Federal Transit Administration Indiana bat/ Northern long-eared bat D-key, depending on the type of project and federal agency involvement. Similar to the Minnesota-Wisconsin D-key, these d-keys helps to determine if prohibited take might occur and, if not, will generate an automated verification letter.

Please note: On November 30, 2022, the Service published a proposal final rule to reclassify the northern long-eared bat as endangered under the Endangered Species Act. On January 26, 2023, the Service published a 60-day extension for the final reclassification rule in the Federal Register, moving the effective listing date from January 30, 2023, to March 31, 2023. This extension will provide stakeholders and the public time to preview interim guidance and consultation tools before the rule becomes effective. When available, the tools will be available on the Service's northern long-eared bat website (https://www.fws.gov/species/northern-long-eared-bat-myotis-septentrionalis). Once the final rule goes into effect on March 31, 2023, the 4(d) D-key will no longer be available (4(d) rules are not available for federally endangered species) and will be replaced with a new Range-wide NLEB D-key (range-wide d-key). For projects not completed by March 31, 2023, that were previously reviewed under the 4(d) d-key, there may be a need for reinitiation of consultation. For these ongoing projects previously reviewed under the 4(d) d-key that may result in incidental take of the northern long-eared bat, we recommend you review your project using the new range-wide d-key once available. If your project does not comply with the range-wide d-key, it may be eligible for use of the Interim (formal) Consultation framework (framework). The framework is intended to facilitate the transition from the 4(d) rule to typical Section 7 consultation procedures for federally endangered species and will be available only until spring 2024. Again, when available, these tools (new range-wide d-key and framework) will be available on the Service's northern long-eared bat website.

Whooping Crane

Whooping crane is designated as a non-essential experimental population in Wisconsin and consultation under Section 7(a)(2) of the Endangered Species Act is only required if project activities will occur within a National Wildlife Refuge or National Park. If project activities are proposed on lands outside of a National Wildlife Refuge or National Park, then you are not required to consult. For additional information on this designation and consultation requirements, please review "Establishment of a Nonessential Experimental Population of Whooping Cranes in the Eastern United States."

Other Trust Resources and Activities

Bald and Golden Eagles - Although the bald eagle has been removed from the endangered species list, this species and the golden eagle are protected by the Bald and Golden Eagle Act and the Migratory Bird Treaty Act. Should bald or golden eagles occur within or near the project area please contact our office for further coordination. For communication and wind energy projects, please refer to additional guidelines below.

Migratory Birds - The Migratory Bird Treaty Act (MBTA) prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Service. The Service has the responsibility under the MBTA to proactively prevent the

mortality of migratory birds whenever possible and we encourage implementation of recommendations that minimize potential impacts to migratory birds. Such measures include clearing forested habitat outside the nesting season (generally March 1 to August 31) or conducting nest surveys prior to clearing to avoid injury to eggs or nestlings.

Communication Towers - Construction of new communications towers (including radio, television, cellular, and microwave) creates a potentially significant impact on migratory birds, especially some 350 species of night-migrating birds. However, the Service has developed voluntary guidelines for minimizing impacts.

Transmission Lines - Migratory birds, especially large species with long wingspans, heavy bodies, and poor maneuverability can also collide with power lines. In addition, mortality can occur when birds, particularly hawks, eagles, kites, falcons, and owls, attempt to perch on uninsulated or unguarded power poles. To minimize these risks, please refer to guidelines developed by the Avian Power Line Interaction Committee and the Service. Implementation of these measures is especially important along sections of lines adjacent to wetlands or other areas that support large numbers of raptors and migratory birds.

Wind Energy - To minimize impacts to migratory birds and bats, wind energy projects should follow the Service's Wind Energy Guidelines. In addition, please refer to the Service's Eagle Conservation Plan Guidance, which provides guidance for conserving bald and golden eagles in the course of siting, constructing, and operating wind energy facilities.

State Department of Natural Resources Coordination
While it is not required for your Federal section 7 consultation, please note that additional state endangered or threatened species may also have the potential to be impacted. Please contact the Minnesota or Wisconsin Department of Natural Resources for information on state listed species that may be present in your proposed project area.

Minnesota
Minnesota Department of Natural Resources - Endangered Resources Review Homepage
Email: Review.NHIS@state.mn.us

Wisconsin
Wisconsin Department of Natural Resources - Endangered Resources Review Homepage
Email: DNRERReview@wi.gov

We appreciate your concern for threatened and endangered species. Please feel free to contact our office with questions or for additional information.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Minnesota-Wisconsin Ecological Services Field Office
3815 American Blvd East
Bloomington, MN 55425-1659
(952) 858-0793

PROJECT SUMMARY

Project Code: 2024-0039163
Project Name: North Zumbro Sanitary District
Project Type: Wastewater Facility - New Construction
Project Description: Create a new regional sanitary district to serve the communities of Goodhue, Pine Island, Wanamingo, Zumbrota and the Prairie Island Indian Community. A new wastewater treatment facility (WWTF) will be built near the City of Zumbrota. Lift stations and piping will be installed to connect all communities. The new WWTF will treat wastewater from the cities of Goodhue, Pine Island, Wanamingo, Zumbrota and the Prairie Island Indian Community. The wastewater is municipal wastewater and includes two Significant Industrial Users.

The new WWTF will include an overflow retention basin (250’ diameter circular tank), screening and grit removal (30’x50’ building), oxidation ditches (300’x125’ structure), two final clarifiers (80’ diameter each),UV disinfection (30’x50’ building), aerobic digestion tanks (60’x120’ structure), and biosolids storage (two 3-MG 160’-diameter circular tanks). The new WWTF will include an influent pump station (40’x60’ building), main process building housing RAS, WAS, and sludge storage pumps, chem feed, blowers, and main electrical (50’x120’), administration building (60’x80’), maintenance garage (50’x100’), storage building (50’x100’), and generator pad (20’x50’). The Design Year for this Facility is 2045.

The new WWTF facility footprint will allow for future expansion on site beyond Design Year 2045, which could add the following additional units: a second overflow retention basin (250’ diameter circular tank), additional oxidation ditches (300’x125’ structure), two additional final clarifiers (80’ diameter each),additional aerobic digestion (60’x120’ structure), expansion of the main process building (adds 50’x120’), and additional biosolids storage (two additional 3-MG 160’-diameter circular tanks). These units would allow for doubling the WWTF capacity.

The new WWTF will discharge to the North Fork Zumbro River. Biosolids will be land-applied onto agricultural fields nearby the proposed facility.

The new WWTF has two potential alternative sites under consideration. Both alternative sites are located within 1-1/4 miles of each other along the North Fork Zumbro River, in Zumbrota Township east of the City of Zumbrota. WWTP Site 1 is the primary site under consideration. The site is 48 gross acres.

To bring wastewater to the new WWTF, new pumping stations and forcemains will be constructed and the old WWTFs will be demolished in all four cities.

The Zumbrota conveyance project will construct a new pump station (40'x60' building) at Zumbrota's existing WWTF, and construct a new forcemain from the pump station to the new centralized WWTF. The new WWTF Site 1 is located approximately one-half (1/2) mile directly east and across the North Fork Zumbro River from the existing Zumbrota WWTF site. The corridor for the forcemain alignment is ½ mile times 20' wide (1 acre).

The existing Zumbrota WWTF is located directly off of Highway 58, in the northeastern part of the City of Zumbrota. The WWTF is approximately ten (10) acres and includes trickling filters, activated sludge, aerobic sludge digestion, and sludge holding ponds. The existing WWTF process units, buildings, and ponds will be decommissioned and demolished. Driveway paving will remain. The new Zumbrota pump station will be built on this site.

Project construction should start in 2025 and be complete in 2026. A 1-year startup period will be in 2026-27. Demolition of the existing wastewater treatment facilities will follow in 2028.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@44.3012599,-92.65655013360748,14z



Counties: Goodhue County, Minnesota

ENDANGERED SPECIES ACT SPECIES

There is a total of 6 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered
Tricolored Bat *Perimyotis subflavus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

BIRDS

NAME	STATUS
Whooping Crane *Grus americana* Population: U.S.A. (AL, AR, CO, FL, GA, ID, IL, IN, IA, KY, LA, MI, MN, MS, MO, NC, NM, OH, SC, TN, UT, VA, WI, WV, western half of WY) No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/758	Experimental Population, Non-Essential

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

FLOWERING PLANTS

NAME	STATUS
Minnesota Dwarf Trout Lily *Erythronium propullans* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/597	Endangered
Prairie Bush-clover *Lespedeza leptostachya* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4458	Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

BALD & GOLDEN EAGLES

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act[1] and the Migratory Bird Treaty Act[2].

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats[3], should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

---

1. The Bald and Golden Eagle Protection Act of 1940.
2. The Migratory Birds Treaty Act of 1918.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are bald and/or golden eagles in your project area.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE

SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Oct 15 to Aug 31
Golden Eagle *Aquila chrysaetos* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds elsewhere

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

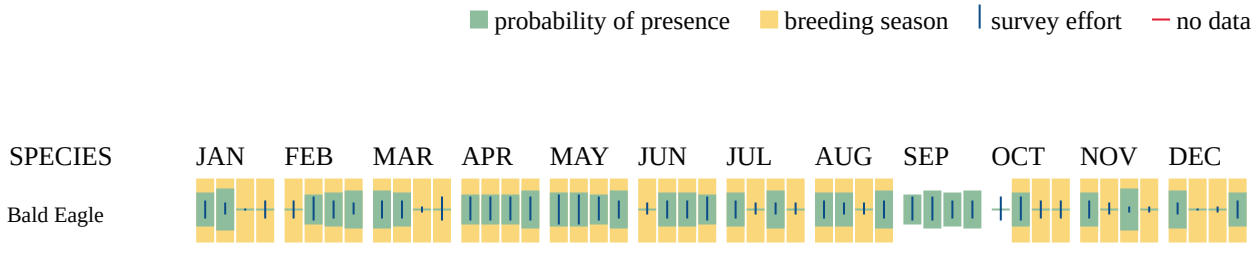
Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

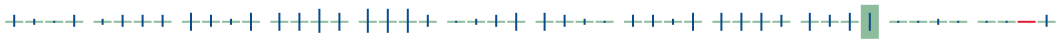
Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.



Non-BCC
Vulnerable

Golden Eagle
Non-BCC
Vulnerable



Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats[3] should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

---

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
American Golden-plover *Pluvialis dominica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10561	Breeds elsewhere

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Oct 15 to Aug 31
Bobolink *Dolichonyx oryzivorus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9454	Breeds May 20 to Jul 31
Chimney Swift *Chaetura pelagica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9406	Breeds Mar 15 to Aug 25
Golden Eagle *Aquila chrysaetos* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds elsewhere
Henslow's Sparrow *Ammodramus henslowii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3941	Breeds May 1 to Aug 31
King Rail *Rallus elegans* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8936	Breeds May 1 to Sep 5
Lesser Yellowlegs *Tringa flavipes* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Pectoral Sandpiper *Calidris melanotos* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9561	Breeds elsewhere
Red-headed Woodpecker *Melanerpes erythrocephalus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9398	Breeds May 10 to Sep 10
Rusty Blackbird *Euphagus carolinus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9478	Breeds elsewhere

NAME	BREEDING SEASON
Short-billed Dowitcher *Limnodromus griseus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9480	Breeds elsewhere

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

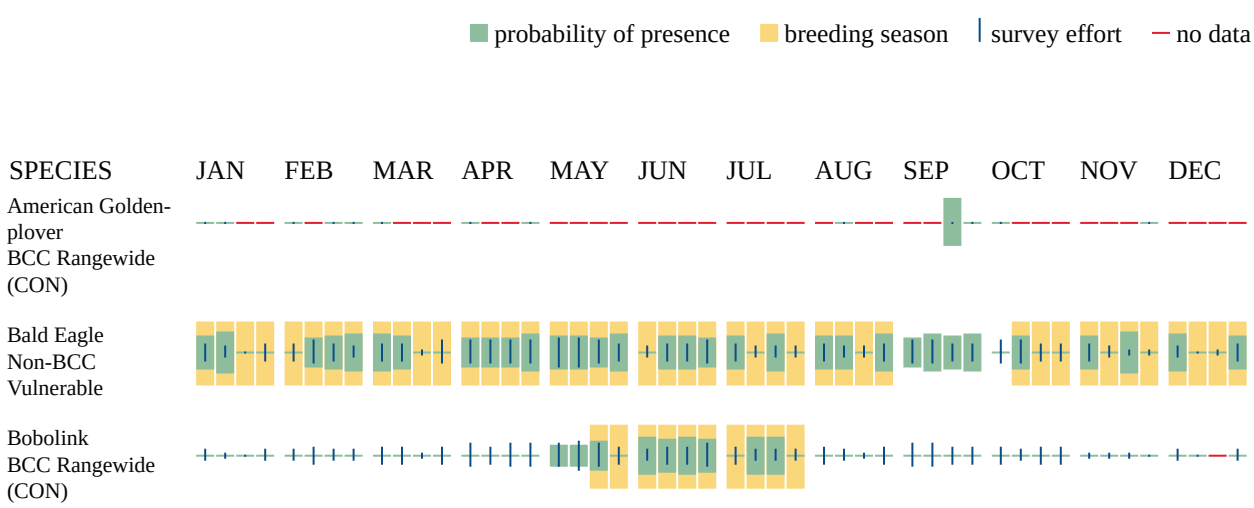
Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.





Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

WETLANDS

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

RIVERINE

- R2UBH
- R4SBC

FRESHWATER POND

- PUBHx
- PUBKx

FRESHWATER EMERGENT WETLAND

- PEM1Ad
- PEM1A

FRESHWATER FORESTED/SHRUB WETLAND

- PFO1A

IPAC USER CONTACT INFORMATION

Agency: Private Entity
Name: Eleanor Brandt
Address: 126 E Superior St
City: Duluth
State: MN
Zip: 55801
Email eleanor.brandt@widseth.com
Phone: 2184517087

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Pine Island city (Goodhue County, MN; Olmsted County, MN)

APPENDIX M

SHPO Letter

DEPARTMENT OF ADMINISTRATION
STATE HISTORIC PRESERVATION OFFICE

May 1, 2024

Danny Perrault
Widseth
610 Fillmore Street
Alexandria, MN 56308

RE: North Zumbro Sanitary District
Goodhue County
SHPO No 2024-1241

Dear Danny Perrault:

Thank you for initiating consultation on the above referenced project. According to your March 5, 2024, submission, the purpose of the project is to create a new regional sanitary district to serve the communities of Goodhue, Pine Island, Wanamingo, Zumbrota, and the Prairie Island Indian Community (Project). The Project includes the construction of a new wastewater treatment facility (WWTF) near the City of Zumbrota and the installation of lift stations and pipelines to connect the communities to the new WWTF. Four existing wastewater treatment facilities will be demolished once the new WWTF and associated infrastructure has been constructed. Your letter states that this project will "require a large investment in public infrastructure and district officials and consultants will investigate available sources for funding the capital expense." Possible funding sources for this project may include a combination of the following:

- Minnesota Legislative Capital Bonding Bill
- Congressionally Directed Spending (CDS)
- Minnesota Public Facilities Authority; Clean Water Revolving Fund, Green Project Reserve Fund, Point Source Implementation Grants
- Minnesota Water Infrastructure Grants
- Minnesota Department of Employment and Economic Development, Small Cities Development Program
- USDA Rural Development Water & Environmental Programs
- City Bonding and User Fees

Since the regulatory framework for this project is unclear, it is difficult to provide specific guidance on this project. If this project becomes an undertaking subject to review under Section 106 of the National Historic Preservation Act (NHPA), then review and consultation with our office will need to be initiated by the lead federal agency. Pursuant to 36 CFR 800.4-5 it is the responsibility of the federal agency to define the undertaking, determine the area of potential effect (APE) for the federal undertaking, identify and evaluate historic properties that may be affected by the proposed federal undertaking, and assess effects to any historic properties that are identified.

We recommend that a cultural resource consultant be hired to help the lead federal agency through the Section 106 review process. The consultant should be able to help the agency define an appropriate APE for the federal undertaking, identify historic properties within the APE, and assess the effects of the undertaking on any historic properties that are identified. To identify historic resources within the APE, we recommend that an architectural/history survey and an archaeological survey be completed meeting the requirements of the Secretary of the Interior's Standards for Identification and Evaluation. For a list of consultants who have expressed an interest in undertaking such surveys, please visit the website **www.mnhs.org/preservation/directory**, and select "Historians" and "Archaeologists" in the "Specialties" box.

Once the project is better defined, and the funding sources are identified, the lead federal agency should initiate consultation with our office. If the project does not become a federal undertaking, the lead state agency should initiate consultation with our office. Consultation under state statute differs from consultation under Section 106 of the NHPA. We look forward to continuing consultation on this project. If you have any questions regarding our comments, please contact me at 651-201-3285 or kelly.graggjohnson@state.mn.us.

Sincerely,

Kelly Gragg-Johnson

Kelly Gragg-Johnson
Environmental Review Program Specialist

APPENDIX N

Draft Phase 1 Archaeological Study

An Archaeological Reconnaissance Survey of the North Zumbro Sanitary District Project

Goodhue County, Minnesota

Stantec

Prepared for:
Widseth
610 Fillmore Street
Alexandria, MN 56308

Prepared by:
Claire Witt

January 28, 2025

Project/File:
227706915

Stantec Consulting Services Inc.

Disclaimer

The conclusions in the Report titled An Archaeological Reconnaissance Survey of the North Zumbro Sanitary District Project are Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

Stantec has assumed all information received from Widseth (the "Client") and third parties in the preparation of the Report to be correct. While Stantec has exercised a customary level of judgment or due diligence in the use of such information, Stantec assumes no responsibility for the consequences of any error or omission contained therein.

This Report is intended solely for use by the Client in accordance with Stantec's contract with the Client. While the Report may be provided by the Client to applicable authorities having jurisdiction and to other third parties in connection with the project, Stantec disclaims any legal duty based upon warranty, reliance or any other theory to any third party, and will not be liable to such third party for any damages or losses of any kind that may result.

Prepared by: _____
Signature

_____
Printed Name

Reviewed by: _____
Signature

_____
Printed Name

Approved by: _____
Signature

_____
Printed Name

Table of Contents

Management Summary ..... **iv**
Acronyms / Abbreviations **1**
1 Project Description **2**
2 Environmental Context **3**
2.1 Topography 3
2.2 Hydrology 3
2.3 Geology 3
2.4 Soils and Geomorphology 4
2.5 Vegetation and Land Use 5

3 Cultural Context **6**
3.1 Precontact Period (10,900 BCE – 1650 CE) 6
3.2 Contact and Post-Contact Periods (1650 – 1837 CE) 8
3.3 Goodhue County 9
3.4 Zumbrota 10

4 Research Design **10**
4.1 Objectives 10
4.2 Methods 10

5 Literature Search **11**
5.1 Previously Conducted Archaeological Surveys 11
5.2 Previously Recorded Archaeological Sites 12
5.3 Previously Identified Above-Ground Historic Resources 13
5.4 Previously Identified Cemeteries 14
5.5 Historic Maps, Atlases, and Aerial Photographs 15

6 Fieldwork Results **16**
6.1 Wastewater Facility 16
6.2 Forcemain Alignment: Zumbrota to Goodhue 21
6.3 Forcemain Alignment: Zumbrota to Wanamingo 29
6.4 Forcemain Alignment: Zumbrota to Pine Island 33

7 Conclusions and Recommendations **36**
8 References Cited **38**

List of Tables

Table 1. Legal Description of Project Area 2
Table 2. Soils Within Project Area 4
Table 3. Previously Conducted Surveys Within the Study Area 11
Table 4. Previously Recorded Archaeological Sites Within the Study Area 12
Table 6. Previously Identified Historic Cemeteries in the Study Area 14

List of Photos

Photo 1. Project Area Overview, Facing Southeast. 16
Photo 2. Project Area Overview, Facing Northwest. 16
Photo 3. Project Area Overview, Facing West. 17

Photo 4. Project Area Overview, Facing Southwest. 17
Photo 5. Field Drainage with Short Grasses in Project Area, Facing North. 17
Photo 6. Project Area Overview, Note Slope in Wooded Area, Facing North. 17
Photo 7. Forest Sloping to North Branch Zumbro River, Facing Northeast. 17
Photo 8. Forest Sloping to an Unnamed Tributary, Facing West. 17
Photo 9. Unnamed Tributary at Base of Slopes in Project Area, Facing North. 18
Photo 10. Project Area Overview Within Cattle Pasture, Facing North. 18
Photo 11. Large Man-Made Berm in Project Area, Facing West. 18
Photo 12. High Probability Area within Northwest Corner of Project Area, Facing East 19
Photo 13. High Probability Area within Northeast Corner of Project Area, Facing East. 19
Photo 14. Historic Material Concentration Overview, Facing Southeast. 19
Photo 15. Historic Material Concentration, Facing South. 19
Photo 16. Historic Material Concentration Overview, Facing Southwest. 20
Photo 17. Historic Material Downstream from Concentration, Pin Flags Note Material Location, Facing North. 20
Photo 18. XX-RRD-CSP-042 Overview, Facing West 21
Photo 19. Project Area Overview, Note Grassed Drainage, Facing South. 22
Photo 20. Project Area Overview, Note Agricultural Field and Grassed Drainage, Facing South. 22
Photo 21. Project Area Overview, Note Wetland Grasses, Facing Northeast. 22
Photo 22. Project Area Overview, Facing West. 22
Photo 23. Project Area Overview, Note Access Road, Facing North. 22
Photo 24. Project Area Overview, Note Buried Utilities in Residential Yard, Facing South. 22
Photo 25. Project Area Overview, Note Development, Facing Northeast. 23
Photo 26. Representative Overview of Herbaceous Areas Subject to Shovel Testing, Facing South. 23
Photo 27. ST A 02, Overview. 24
Photo 28. ST A 08, Overview. 24
Photo 29. XX-ROD-00073 Overview, Facing South. 24
Photo 30. XX-ROD-00073 Overview, Facing North. 24
Photo 31. GD-ZBT-00039 Overview, Facing Southeast 25
Photo 32. GD-ZBT-00038 Overview, Facing West 25
Photo 33. GD-ZBT-00022 Overview, Facing Southeast 26
Photo 34. GD-ZBT-00037 Overview, Facing Southwest 26
Photo 35. GD-ZBT-00025 Overview, Facing West 27
Photo 36. GD-ZBT-00031 Overview, Facing West 27
Photo 37. GD-GDT-00021 Overview, Facing Northwest. 28
Photo 38. XX-RRD-CGW005 Overview, Facing North. 28
Photo 39. GD-GDC-00023 Overview, Facing Northwest. 29
Photo 40. Representative Overview of the Project Area, Facing North. 29
Photo 41. Representative Overview of the Project Area, Facing West. 29
Photo 42. Representative Overview of Wetlands in the Project Area, Facing East. 30
Photo 43. Representative Overview of Slope to Wetlands in the Project Area, Facing East 30
Photo 44. Representative Overview of the Agricultural Fields in the Project Area, Facing West. 30
Photo 45. Representative Overview of the Project Area, Note Utilities, Facing East. 30
Photo 46. Representative Overview of the Access Road in the Existing Transmission Line in the Project Area, Facing East. 31
Photo 47. Representative Overview of a Residential Yard in the Project Area, Facing West. 31
Photo 48. ST 01, Overview. 31
Photo 49. Overview of 21GDac in Project Area, Facing South. 32
Photo 50. Overview of 21GDac in the Project Area, Facing East 32
Photo 51. GD-ZBC-00023 Overview, Facing South. 32
Photo 52. GD-ZBC-00023 Overview, Facing East. 32

Photo 53. XX-ROD-00042 Overview, Facing West. 33
Photo 54. XX-ROD-00042 Overview, Facing East. 33
Photo 55. GD-MNO-00033 Overview, Facing East. 33
Photo 56, Project Area Overview, Facing South. 34
Photo 57. Project Area Overview, Note Slopes, Facing South. 34
Photo 58. Project Area Overview, Facing North. 34
Photo 59. Overview of 21GDt in the Project Area, Facing Southeast. 35
Photo 60. XX-ROD-00042 Overview, Facing Southwest. 35

List of Appendices

Appendix A Figures
Appendix B Previously Identified Above-Ground Historic Resources
Appendix C Shovel Test Profiles

Management Summary

Widseth proposes the construction of a new wastewater facility with a lift station with forcemain aligments along Minnesota Department of Transportation and county road right-of-way (ROW) as part of the North Zumbro Sanitary District Project (Project). The Project is located in Goodhue County, Minnesota. The Project would create a new regional sanitary district to serve the communities of Goodhue, Pine Island, Wanamingo, and Zumbrota. The Project Area comprises x acres on private, county- and state-owned land. The Project is within the Southeast Riverine archaeological region.

In accordance with Minnesota Administrative Rule 4410.1500, the Phase I survey was conducted to fulfill the Environmental Assessment Worksheet requirements to identify measures that will be taken to avoid, minimize, or mitigate adverse effects to historic properties by identifying and evaluating cultural resources prior to construction activities. In anticipation of compliance with the requirements of Minnesota Administrative Rule 4410.1500, Widseth contracted with Stantec Consulting Services Inc. (Stantec) to conduct a Phase I archaeological reconnaissance survey of the x-acre Project Area.

A literature review conducted prior to fieldwork identified two previously recorded archaeological sites (21GDac and 21GDt) and twenty previously identified above-ground historic resources (XX-RRD-CGW005, XX-RRD-CGW006, XX-RRD-CNW045, XX-RRD-CSP-042, XX-ROD-00073, XX-ROD-00185, XX-ROD-00042, GD-GDC-00023, GD-GDT-00032, GD-GDT-00021, GD-ZBT-00025, GD-ZBT-00031, GD-ZBT-00037, GD-ZBT-00022, GD-ZBT-00038, GD-ZBT-00039, GD-ZBC-00023, GD-MNO-00033, GD-PIT-00042, GD-PIT-00043) within the Project Area. Stantec conducted a Phase I archaeological reconnaissance survey of the Project Area on April 21 to 23, 2024; August 27, 28, 30, 2024; and September 11, 2024, under Minnesota Archaeological Survey License Application 24-165. Survey methods include pedestrian survey and shovel testing. Angela Julin, MA, RPA served as the Principal Investigator. Ms. Julin exceeds the Secretary of the Interior's Professional Qualification Standards for Archaeology, as defined in 36 Code of Federal Regulations Section 61. Stantec applied industry best practices and adhered to the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (Tittle 48 Code of Federal Regulations Part 44716; National Park Service 1983) and the State Archaeologists Manual for Archaeological Projects in Minnesota (Anfinson 2011).

Based on the results of the investigation, Stantec recommends the eighteen previously identified above-ground historic resources in the Project Area previously determined not eligible for listing on the NRHP retain their eligibility determination (XX-RRD-CGW005, XX-RRD-CGW006, XX-RRD-CNW045, XX-RRD-CSP-042, XX-ROD-00073, XX-ROD-00185, XX-ROD-00042, GD-GDC-00023, GD-GDT-00032, GD-GDT-00021, GD-ZBT-00025, GD-ZBT-00031, GD-ZBT-00037, GD-ZBT-00038, GD-ZBT-00039, GD-MNO-00033, GD-PIT-00042, GD-PIT-00043).

GD-ZBC-00023 was not reidentified in the current investigation. The portions of the Project Area that intersect with GD-ZBC-00023 are heavily disturbed; as such, Stantec recommends GD-ZBC-00023 remain unevaluated for the NRHP. Stantec recommends a finding of No Historic Properties Affected for the portions of GD-ZBC-00023 within the Project Area.GD-ZBT-00022 was not reidentified during the current investigation in the Project Area. As the mile marker has been removed, Stantec recommends GD-ZBT-

00022 as not eligible for the NRHP. Stantec recommends a finding of No Historic Properties Affected for GD-ZBT-00022.

A historic material concentration occupying 850 square feet was identified in the Project Area, which was not assigned a site number per the State Archaeologist's Manual for Archaeological Projects In Minnesota (Anfinson 2011). No additional cultural resources were identified during the survey. Based on the results of the investigations, Stantec recommends that there are no properties listed in the National or State Registers of Historic Places and no known or suspected archaeological properties in the are that will be affected by the Project. No further work is recommended within the Project area subject to the current investigation should the Project proceed as planned. Stantec will survey the remaining Project area when weather conditions allow in Spring of 2025 and submit an addendum report to the Minnesota State Historic Preservation Office.

Acronyms / Abbreviations

Acronym / Abbreviation	Full Name
BCE	Before the Common Era
cm	centimeters
cmbs	centimeters below surface
DNR	Minnesota Department of Natural Resources
GLO	General Land Office
GSV	Ground surface visibility
Hwy	Highway
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
OSA	Office of the State Archaeologist
Project	North Zumbro Sanitary District Project
ROW	Rights-of-way
ST	shovel test
Stantec	Stantec Consulting Services Inc.
Study Area	Project Area plus a 1-mile buffer
TH	Trunk Highway
UMN	University of Minnesota

1 Project Description

Widseth proposes to construct a new wastewater facility outside of Zumbrota, Minnesota with forcemain alignments extending to Goodhue, Minnesota via Highway (Hwy) 58; Wanamingo, Minnesota via Hwy 60; and to Pine Island, Minnesota via County Road 10 and 195th Avenue. The proposed North Zumbro Sanitary District Project (Project) encompasses 280 acres in Goodhue County, Minnesota, hereafter referred to as the Project Area (see Table 1). Current land use consists of agricultural land, wooded lots, and road rights-of-way (ROW), which were largely herbaceous. The MnModel, available on the OSA online portal, shows that the Project is predominantly located within a poorly surveyed area with high and unknown site potential; small areas in the southern portion of the Project area by Pine Island are well surveyed and yield high site potential.

Table 1. Legal Description of Project Area

Township	Range	Section
109 North	15 West	5, 8, 17, 20, 29, 32
110 North	15 West	4, 8, 9, 17, 19, 20, 30, 31, 32
110 North	16 West	30, 31, 32, 33, 34, 35, 36
111 North	15 West	28, 33

In accordance with Minnesota Administrative Rule 4410.1500, the Phase I survey was conducted to fulfill the Environmental Assessment Worksheet's requirements to identify measures that will be taken to avoid, minimize, or mitigate adverse effects to historic properties by identifying and evaluating cultural resources prior to construction activities. In anticipation of compliance with Minnesota Administrative Rule 4410.1500, Widseth contracted with Stantec Consulting Services, Inc. (Stantec) to conduct a Phase I archaeological reconnaissance survey of the x-acre Project Area.

Stantec conducted a Phase I archaeological reconnaissance survey of the Project Area on April 21 to 23, 2024; August 27, 28, 30, 2024; and September 11, 2024, under Minnesota Archaeological Survey License Application 24-165. Stantec will survey the remaining Project area when weather conditions allow in Spring of 2025 and submit an addendum report to the Minnesota State Historic Preservation Office. Survey methods include pedestrian survey and shovel testing. Angela Julin, MA, RPA served as the Principal Investigator. Ms. Julin exceeds the Secretary of the Interior's Professional Qualification Standards for Archaeology, as defined in 36 Code of Federal Regulations Section 61. Stantec applied industry best practices and adhered to the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (Tittle 48 Code of Federal Regulations Part 44716; National Park Service 1983) and the State Archaeologists Manual for Archaeological Projects in Minnesota (Anfinson 2011).

2 Environmental Context

The Project Area is located within the Rochester Plateau and Blufflands subsections of the Paleozoic Plateau Section of the Eastern Broadleaf Forest Province (Minnesota Department of Natural Resources [DNR] 2024; University of Minnesota [UMN] 2024). The Paleozoic Plateau Section covers an area of southeastern Minnesota and consists of a rugged region of bluffs and valleys. The Rochester Plateau subsection is characterized by an old plateau covered by windblown silt in the east, pre-Wisconsin age glacial till in the central and west, and gently rolling glacial till plain in the west (DNR 2024). The Blufflands subsection is characterized by an old pleateau covered by windblown silt with highly dissected and extensively eroded landscapes around rivers and streams (DNR 2024). Current landcover within the Project Area consists of agricultural land, wooded lots, and road ROW, which were largely herbaceous.

2.1 Topography

Topography within the Rochester Plateau subsection is generally level to gently rolling till plains while topography within the Blufflands subsection is a loess-capped plateau which is deeply dissected by river valleys. Topography within both the Rochester Plateau and the Blufflands subsections area controlled by underlying glacial till in the west whereas topography in the east portion of the subsections are controlled by bedrock (DNR 2024). Topography within the Project Area was level to gently rolling.

2.2 Hydrology

Both the Rochester Plateau and the Blufflands subsections feature a well-developed drainage network that is dendritic in nature. The Mississippi River forms the eastern boundary of the Blufflands subsection and other major rivers like the Root, Whitewater, Zumbro, and Canon flow through both subsections (DNR 2024). Prehistoric hydrology of the Project Area consisted of wetlands and floodplains surrounding the waterways of the area (Minnesota Office of the State Archaeologist [OSA] 2024a). The Project Area traverses the North Branch Zumbro River, Dry Run Creek, and ten unnamed creeks/streams.

2.3 Geology

Bedrock geology of the Project Area is comprised of Lower, Middle, and Upper Ordovician-aged geologic units (Horton 2017). The Lower Ordovician is sandy to silty dolostone and sandstone and includes the Shakopee Formation and Oneota Dolomite of the Prairie du Chien Group. The Middle and Upper Ordovician unit includes shale, dolomitic limestone, and sandstone. Decorah Shale of the Galena Group, the Platteville and Glenwood Formations, and the St. Peter Sandstone comprise the Middle and Upper Ordovician (Jirsa et al. 2011). Within the Rochester Plateau subsection, bedrock varies from 100 to 200 feet in the west and 10 to 100 feet in the east. Depth to bedrock within the Blufflands subsection ranges from 0 to 50 feet (DNR 2024).

2.4 Soils and Geomorphology

The Natural Resources Conservation Service (NRCS) was used to determine soil types within the Project Area. Table 2 presents soil types found within the Project Area (NRCS 2024). Soils within the Project Area range from well drained to excessively drained. Many of the soils within the Project Area are considered eroded and flooded.

Table 2. Soils Within Project Area

Map Unit Name	Landform	Percent of Project Area
Kasson silt loam, 2 to 6 percent slopes	Hillslopes	29.0
Bassett-Kasson complex, 6 to 12 percent slopes, eroded	Interfluves	14.1
Mt. Carroll-Hersey complex, 2 to 6 percent slopes	Till plains	8.7
Kalmarville-Radford complex, 0 to 3 percent slopes, frequently flooded	Flood plains	6.0
Mt. Carroll-Hersey complex, 6 to 12 percent slopes, moderately eroded	Till plains	5.3
Dakota silt loam, 0 to 3 percent slopes	Stream terraces	5.1
Frontenac-Lacrescent complex, 20 to 45 percent slopes, rocky	Valley sides on loess hills	4.4
Downs-Hersey complex, 2 to 6 percent slopes	Ridges	3.7
Maxfield silt loam, 0 to 2 percent slopes	Interfluves	3.3
Barremills silt loam, drainageway, 1 to 5 percent slopes, occasionally flooded	Drainageways	2.5
Klinger silt loam, 1 to 4 percent slopes	Interfluves	2.5
Littleton silt loam, 0 to 2 percent slopes, occasionally flooded	Flood plains	2.5
Downs-Hersey complex, 6 to 12 percent slopes, moderately eroded	Ridges	2.1
Meridian, till substratum-Bassett complex, 6 to 12 percent slopes, moderately eroded	Till plains	1.8
Joy silt loam, 1 to 3 percent slopes	Loess hills	1.1
Bassett-Racine complex, 12 to 18 percent slopes, moderately eroded	Till plains	1.0
Joy-Ossian, occasionally flooded, complex, 1 to 5 percent slopes	Drainageways	1.0
Otter silt loam, 0 to 2 percent slopes, occasionally flooded	Flood plains	0.8
Dakota silt loam, 0 to 3 percent slopes	Stream terraces	0.6
Marquis silt loam, 2 to 6 percent slopes	Till plains	0.6
Maxfield silty clay loam, 0 to 2 percent slopes, occasionally flooded	Drainageways	0.5
Bassett-Racine complex, 18 to 25 percent slopes	Till plains	0.4
Kennebec-Lawson, channeled, complex, 0 to 3 percent slopes, flooded	Flood plains	0.4

Map Unit Name	Landform	Percent of Project Area
Vasa silt loam, 1 to 4 percent slopes	Loess hills	0.4
Water	-	0.4
Meridian, till substratum-Bassett complex, 12 to 18 percent slopes, moderately eroded	Till plains	0.3
Eleva sandy loam, 6 to 12 percent slopes, moderately eroded	Knolls on loess hills	0.2
Oak Center-Hersey complex, 6 to 12 percent slopes, moderately eroded	Loess hills	0.2
Richwood silt loam, 1 to 6 percent slopes	Terraces	0.2
Waucoma loam, 2 to 6 percent slopes	Hills	0.2
Coland, frequently flooded-Spillville, occasionally flooded complex, 0 to 2 percent slopes	Flood plains	0.1
Downs-Hersey complex, 12 to 18 percent slopes, moderately eroded	Ridges	0.1
Frontenac-Bellechester complex, 18 to 45 percent slopes	Valley sides	0.1
Hawick sandy loam, 12 to 18 percent slopes	Stream terraces	0.1
Hawick sandy loam, 18 to 45 percent slopes	Terraces	0.1
Malardi loam, 6 to 12 percent slopes, moderately eroded	Stream terraces	0.1
Meridian silt loam, 12 to 18 percent slopes, moderately eroded	Stream terraces	0.1
Otter silt loam, channeled upland, 1 to 2 percent slopes, frequently flooded	Drainageways	0.1

2.5 Vegetation and Land Use

Prior to Euro-American settlement, vegetation in the Rochester Plateau subsection included tall grass prairie and bur oak savannah. In the Blufflands subsection, vegetation was landform-dependent; tallgrass prairie and bur oak savannah were present on ridge tops and dry upper slopes, red oak-white oak-shagbark hickory-basswood forests were located on moister slopes, and red oak-basswood-black walnut forests were located on protected valleys (DNR 2024). Historic vegetation in the Project Area included prairie, deciduous savannah, and deciduous forest/woodland, with seasonally wet areas concentrated near waterways (OSA 2024a). The Trygg map, based on original General Land Office (GLO) surveyor notes from 1855, maps much of the Project Area as prairie (Trygg 1964). Current landcover in the Rochester Plateau subsection consists of cultivated land with few areas of oak openings and barrens, while landcover in the Blufflands subsection is split between cultivated land, pasture, and woodland. Current land cover within the Project Area consists of cultivated land, woodland, and herbaceous road ROW.

3 Cultural Context

Culturally, the Project Area is located within the Minnesota Archaeological Region 3: Southeast Riverine. This region includes all of Dodge, Fillmore, Goodhue, Houston, Mower, Olmsted, Wabasha, and Winona counties and portions of Dakota, Freeborn, Rice, and Waseca counties. Additionally, this region extends into the adjacent corners of Wisconsin and Iowa (Gibbon et al. 2002). The following culture history is presented as a context.

3.1 Precontact Period (10,900 BCE – 1650 CE)

The first inhabitants of Minnesota are known as Paleoindians (10,900 to 7,500 years Before the Common Era [BCE]). These people were highly nomadic hunter-gatherers moving in small bands in search of food and other subsistence resources in the Late Glacial and Early Holocene forests of Minnesota, Paleoindians likely relied on gathering and the hunting of a variety of large and small game. Paleoindian sites are small and relatively ephemeral and are commonly identified with the recovery of distinctive spear tips that occur across much of North America. Paleoindian components within the Southeast Riverine are rare and largely understood from surface collections of Paleoindian projectile points. Site location concentrations are understood from identified Plano points, which are concentrated away from the Mississippi River Valley (Gibbon et al. 2002).

The Paleoindian peoples were followed by Archaic Tradition hunter-gatherers. At the end of the Ice Age around 10,000 years BCE the climate became warmer and drier, which led to major changes in plant and animal communities. Spruce forests followed the retreating glacial ice northward and were replaced by a new landscape comprised of extensive lakes and rivers. Many large-game species became extinct. Archaic Tradition hunters-gatherers (6,500 to ca. 500 BCE) adapted to this new environment, shifting their focus to smaller game such as deer and elk, the abundant fish and shellfish in the numerous lakes and rivers, and wild plants such as nuts and berries (Gibbon et al. 2002).

The Archaic peoples appear to have been less nomadic and lived in smaller household groups. Archaic sites are identified by large notched and stemmed projectile points. Immense sedimentation during the early part of the Archaic, corresponding with the Early and Middle Holocene periods, resulted in many Archaic Tradition sites being deeply buried under river valley deposits; therefore, these sites are not usually evident in surficial contexts. Few Archaic period sites have been excavated in southeastern Minnesota and what is known has close similarities to complexes in Wisconsin. Southeastern Minnesota is included in the Riverine Archaic environmental adaption type, which is found along the lower Mississippi River and the deeply cut river valleys of southeastern Minnesota. One site, the King Coulee site, in Wabasha County has yielded the most complete information about the Late Archaic period, extending to almost two meters below the current surface. The artifact assemblage from this site includes stemmed projectile points, a slate gorget, mussel shells, buts, and squash seeds (Gibbon et al. 2002; OSA 2024b).

The Woodland Tradition followed the Archaic Tradition. While various aspects of Archaic culture continued (e.g., subsistence strategies and lithic technology), the Woodland period is noted for several major changes

including introduction of the bow and arrow, pottery manufacture, corn and squash agriculture, and burial mound construction (Perry 1996). The Woodland period is further divided into early, middle, and late periods. The transition from Archaic to Early Woodland exhibits considerable overlap in projectile point styles and settlement patterns with different groups adapting new technologies at different times and forming regional identities (Benchley et al. 1997).

The Early Woodland period generally coincides with the Sub-Boreal climatic episode, which approximated modern conditions although attenuated cycles of climatic change have been identified. The landscape began to stabilize with a mix of prairie and small swaths of forest similar to that described by early Euro-American settlers (Perry 1996). Distinguishing between Late Archaic and Early Woodland sites can be difficult since the transition between the two was not abrupt. Over time, though, larger sites with earthen burial mounds appeared as did a more sedentary settlement system. Associated with these changes is the presence of ceramic vessels, constructed burial mounds, and intentional cultivation of several native plants such as gourds, goosefoot, and sunflower (Mason 2002; Perry 1996).

The Early Woodland is one of the least known periods in the region (Heartfield, Price and Greene 1980). Evidence from other areas of the Midwest Region, including Illinois, indicates that the more sedentary lifestyle of the Early Woodland may have been caused by a variety of factors: increased population pressure; diminishing reserves of previously utilized food sources; climatic changes; and a new reliance on domesticated crops. This period marked the beginning of the shift from hunting and gathering to food production. Early Woodland regional archaeological cultures in southeastern Minnesota include La Moille, Howard Lake, Sorg, and Effigy Mound (Gibbon et al. 2002; Gibbon 2012).

The Middle Woodland period is not generally regarded as a distinct phase in Minnesota archaeology. The initial reason for dividing the Early from Middle Woodland was arbitrary in nature to accommodate a growing body of data, however the scarcity of sites in Minnesota never warranted this division (Benchley et al. 1997).

The Late Woodland period is characterized by a growing population, increased sedentism, and a heavier reliance on agricultural crops. These factors resulted in an increase of Late Woodland camp, village, and cemetery sites found throughout the Midwest (Mason 2002). Maize is known from Late Woodland sites in Minnesota such as the Nelson site (21BE0024) (Benchley et al. 1997). Maize became an important food source for many Midwestern groups by AD 800 but was likely known much earlier than AD 750 (O'Brien and Wood 1998). There are strong similarities to artifact types in Iowa, Wisconsin, and Minnesota including Nininger Cord-wrapped Stick Impressed and Bremer Triangular Punctate ceramics and small triangular lithics and scrappers. These lithics are presumed to be associated with the introduction of the bow and arrow during this time (Benchley et al. 1997).

The frequent surficial expression of Woodland site locations, coupled with burial mounds that frequently mark their place, has resulted in more frequent documentation and excavation of Woodland sites. Within the Southeast Riverine archaeological region, large Woodland village sites are rare in the western and interior section as Woodland habitation seems concentrated along the Mississippi River to the east. The largest and most visible sites within southeast Minnesota are in Red Wing, with horticultural villages and thousands of earthen burial mounds. Both the Woodland Effigy Mound and Mississippian traditions are concentrated in the Southeast River Region (Gibbon et al 2002).



Beginning around AD 1000, Middle Mississippian influences from the American Bottom began to appear in Minnesota groups. A direct link has never been established between these groups and the precise nature is not currently known (Benchley et al. 1997). Similar to the transition from Archaic to Early Woodland, the transition from Late Woodland to Mississippian periods exhibits considerable overlap in projectile point styles and settlement patterns with different groups adapting new technologies at different times. Some of the most recognizable changes included the shift to shell-tempered pottery and the appearance of fortified villages.

As stated above, the Southeast Riverine archaeological region has a concentration of sites dating within the Silvernale phase of the Mississippian tradition. Large Silvernale phase horticultural villages are located in the Red Wing area on terraces above the flood plain. As in the Woodland phase, Late Prehistoric sites are not common in the interior of the Southeast Riverine archaeological region, with the exception of later Orr phase Oneota village sites. These Orr phase sites in the southeast corner were occupied into the Contact period by the Iowa and possibly the Oto (Gibbon et al. 2002).

3.2 Contact and Post-Contact Periods (1650 – 1837 CE)

The contact period includes American Indian and Euro-American contexts. The OSA subdivides the Native American context into “Indeterminate” or “Eastern Dakota,” and the Euro-American context into “Indeterminate,” “French,” “British,” and “Initial US” (OSA 2024b). This section focuses on developing a context for the broader region. The remaining information provides a temporal framework as a context.

Euro-American fur traders and settlers encountered the Dakota (also known as Sioux) and Ojibwe (also known as Chippewa) Native American peoples when they moved into traditional lands in what is now Minnesota. Several other Native American tribes, including the Assiniboine, moved west in the early 1600s soon after the explorers and traders entered the region (Holmquist 1981). At the time of contact in the Southeast Riverine Region, the Ioway and possibly the Oto occupied the southern part of the region while the Santee Dakota occupied the northern part of the region (Gibbon et al. 2002).

The first written European accounts about the Ojibwe appeared in Jesuit diaries, published in collected form as the Jesuit Relations and Allied Documents 1610-1791 (Thwaites 1898). The documents are so detailed in their descriptions of Native Americans and their cultures, they are considered ethnographic accounts. Following the Jesuits, French explorers and trappers traveled portions of Minnesota in the seventeenth century and established a fur trading economy with local native populations, including the Dakota and Ojibwe. Early trading posts were established along the lower Mississippi River and the first French fort was established in 1700 near present day Mankato. The fur trade resulted in the Ojibwe becoming reliant on traded goods rather than the clothing, utensils, and weapons they had traditionally constructed.

In the early eighteenth century, the French began to move their fur trade north into Canada. Over the next 100 years, the Ojibwe and French established strong relationships and the French embraced Ojibwe culture, learned the language, and married into Ojibwe families. Territorial disputes, competition, and shifts in political alliances eventually led to the French and Indian War (1754 to 1763). The Ojibwe sided with the French against the British in the final Colonial War, fought between 1689 and 1763, which culminated with the French and Indian War. At the end of the French and Indian War, the 1763 Treaty of Paris resulted in



the French ceding all land east of the Mississippi River in the New World to the British (Fond du Lac Band of Lake Superior Chippewa 2018). The French had already ceded the land west of the Mississippi River to Spain with the 1762 Treaty of Fontainebleau, but the transfer was not publicly announced until 1764. The region was retroceded to France under the terms of the 1800 Third Treaty of San Ildefonso and the 1801 Treaty of Aranjuez, then was transferred to the United States in 1803 by the Louisiana Purchase (De Cesar and Page 2003). Although the United States purchased the land, the Dakota, Ojibwe, and several other Native American groups retained sovereignty, resulting in numerous subsequent treaties with the United States.

After the Treaty of Paris in 1763, the British quickly set up fur trading posts throughout Minnesota. The British fur trading economy was centered at Grand Portage, where traders would bring their furs and leave with other valuable trade goods. Jonathon Carver explored the upper Mississippi River in the 1760s. After the Revolutionary War of 1776, competition between the United States and British companies intensified throughout Minnesota. In 1803, the Louisiana land purchase established United States lands extending from the Atlantic to the Rocky Mountains. The War of 1812 saw a demise in the British fur traders due to the United States denying business licenses to British traders. Trading posts were constructed by both the French and English on larger water bodies within the region (Gibbon et al. 2002).

Early British and United States citizens conducted the first fully documented land survey of Minnesota in the mid-eighteenth and early nineteenth centuries. By 1806, Zebulon Pike had explored portions of the Mississippi River. Missionaries began to arrive in the early nineteenth century, primarily along the Minnesota River. The American Fur Company was founded by John Jacob Astor in 1811, after which numerous fur trading posts were quickly established throughout the state. At the confluence of the Minnesota and Mississippi River, Fort Snelling was constructed in 1819 to protect the new United States' investments in the area. Large-scale fur trade resulted in a major decline in the native beaver populations and, by 1842, the fur trade in Minnesota came to an end when the American Fur Company came to its demise (Dobbs 1989). After the passing of the fur trading industry, land was opened to Euro-American settlers.

3.3 Goodhue County

Goodhue County was created in 1853 by Minnesota's territorial legislature from the original Wabasha County and named for James Madison Goodhue who published the first newspaper in the territory, *The Minnesota Pioneer*. Red Wing is the county seat. Treaties from 1851 forced the removal of a Mdewakantan Dakota band, led by Tatanka Mani (Rising Buffalo, also known as Red Wing), out of the Red Wing area. Immigrants arrived first in Red Wing before settling west; most of the early farmers settled in the Red Wing area while later settlers stayed in Zumbrota, Pine Island, Cannon Falls, and Kenyon. By 1890 Goodhue County was one of Minnesota's leading wheat growing counties. The development of the railroad system by the 1870s boosted the population of the area, with small farming town springing up within the county. Additionally, the 1895 construction of the Red Wing wagon bridge connected the county to Wisconsin. Farming and dairying have remained important industries to Goodhue County throughout the twentieth century. However, by the end of the twentieth century, populations throughout the county were shrinking

as transportation became more accessible and job opportunities grew in larger cities outside of Goodhue County, such as the Twin Cities and Rochester (Johnson 2021).

3.4 Zumbrota

Zumbrota, located directly west of the Project Area, was first organized in 1858. The first settler in town was William Fiske in 1854; however, the initial tide of settlers into the area was in 1856 with the Strafford Emigration Company. The Strafford Emigration Company was an association of individuals from Connecticut interested in purchasing a township of land in the West. Arriving in Minnesota via Red Wing, the picturesque qualities of the Zumbro River Valley led them to settle in Zumbrota. The area was quick to develop as Frink and Walker's stage route was rerouted to service the village; churches and schools were built, and grain and forest mills were in operation and employing folks in the area. Notably, Minnesota's only remaining covered bridge is located within the city. The bridge was originally installed in 1869 and railroads arrived shortly after in 1870. Zumbrota provided a diverse industrial base to the county into the twentieth century, with clay-mining, electric-power plants, milling, and agriculture. Like other cities within Goodhue County, Zumbrota saw a population rise in the earlier half of the twentieth century and a population decrease in the latter half as large urban centers outside of the county grew (City of Zumbrota 2024; Johnson 2021; Wood, Alley, & Co 1878).

4 Research Design

4.1 Objectives

The objective of the literature search of the Project Area was to better understand what has been previously documented about the Project Area and Project vicinity. The literature search, supported by a review of the environmental context, aided in the evaluation of the Project Area to determine the necessity for a Phase I investigation. The purpose of the review of previously recorded archaeological site data, survey reports, and archival information, was to provide insight into the potential for significant intact archaeological resources within the Project Area, and to understand previous disturbances in the Project Area, to guide survey planning. Moreover, the historical context obtained from the literature search assisted in assessing the significance of potential sites and where they may be located based on known environmental variables.

The objective of this Phase I investigation was to ascertain whether archaeological sites are present within the Project Area, and to preliminarily delineate both the vertical and horizontal extent of the identified site limits, without impacting the integrity of identified sites. The results of the investigation will inform the final design of the proposed Project Area.

4.2 Methods

The literature search focused on previously recorded cultural resources (archaeological sites and architectural properties) within the literature search Study Area, defined as a 1-mile buffer around the Project Area. In addition, Stantec reviewed archival resources including GLO maps, county atlases, the

UMN Borchert Map Library, Trygg maps, and historical aerial imagery to identify potential unrecorded cultural features in the Project Area.

Pedestrian survey was conducted at 10- and 15-meter intervals in areas of ground surface visibility (GSV) was greater than 25 percent. Shovel testing was conducted in areas exhibiting less than 25 percent GSV without clear disturbance, or steep slopes, and with the potential to contain archaeological deposits. Shovel test (ST) exclusion areas include areas where slope exceeds 20 degrees (35 percent), areas with inundation, areas with mapped hydric soils, and areas with buried utilities. Shovel tests measured 30 to 40 centimeters (cm) in diameter, terminating at least 10 centimeters below surface (cmbs) into culturally sterile subsoil when possible. In areas of high to medium site potential where ground surface visibility was limited, systematic shovel test intervals did not exceed 15 m. Surface artifact finds were plotted, and shovel tests were excavated at the find's location. Radial shovel tests were placed at 5-meter intervals in cardinal directions around positive shovel tests until a sufficient number of negative shovel tests were plotted to delineate the site boundary.

The survey was geographically oriented using Geographic Information System data in conjunction with an EOS Arrow 100 Series GNSS receiver. Field observations, including vegetation, GSV, slope, general topography, and areas of soil disturbance or inundation, were described in field forms.

5 Literature Search

Stantec reviewed the Minnesota State Historic Preservation Office previous survey report data, the Minnesota Statewide Historic Inventory Portal, as well as the OSA Portal online in April 2024 (OSA 2024a; Minnesota State Historic Preservation Office 2024).

5.1 Previously Conducted Archaeological Surveys

One previously conducted archaeological survey overlaps with the proposed Project Area (see Table 3; Figure 2 in Appendix A). The previously conducted survey (GD-2021-03) overlaps the Project Area along Hwy 58. Four additional previously conducted archaeological surveys are located within the Study Area (see Table 3).

Table 3. Previously Conducted Surveys Within the Study Area

Report Number	Report Name	Report Author(s)	Year
GD-1990-02	A Phase I Archaeological Survey for the Zumbrota Covered Bridge Project at Zumbrota, Minnesota	Breakey	1990
GD-1992-01	A Phase I Archaeological Survey of the Proposed Covered Bridge Park, City of Zumbrota, Goodhue County, Minnesota	Johnson	1992
GD-1994-05	A Phase II Evaluation of a Woodland Site (IMA Field Number 92GD1), Zumbrota Covered Bridge Park, Goodhue County, Minnesota	Hagglund & Dobbs	1994

OL-2007-03	Cultural Resources Assessment for the Elk Run Alternative Urban Areawide Review, Pine Island, Olmstead County, Minnesota	Boden & Mark	2007
GD-2021-03*	Phase Ia Literature Search and Field Inspection Nuvera Communications 2020 Border to Border Grant, Goodhue Co West Broadband Project, Goodhue County, Minnesota	Cummings	2021
*Intersects with the Project Area			

5.2 Previously Recorded Archaeological Sites

Two previously recorded archaeological sites (21GDac and 21GDt) are located within the Project Area (see Table 4; Figure 3 in Appendix A). Alpha site 21GDac is a ghost town identified from historic documentation mapped at the section-level in Section 36 of Township 110N, Range 16W. Alpha site 21GDt is a mill site identified from historic documentation mapped at the section-level in Section 32 of Township 109N Range 15W. As an alpha site, these sites have either not been confirmed by a formal archaeological survey or have not had an official site form completed (Anfinson 2011). As such, both alpha sites are unevaluated for the National Register of Historic Places (NRHP). There are eight additional previously recorded archaeological sites within the Study Area; one archaeological site (21GDaa) borders the Project Area (see Table 4; Figure 3 in Appendix A). Alpha site 21GDaa correlates with a previously inventoried historic structure GD-ZBT-00014, the ruins of a flour mill. Of the eight archaeological sites in the Study Area, two are eligible for the NRHP while the remaining six are unevaluated.

Table 4. Previously Recorded Archaeological Sites Within the Study Area

Site No.	Site Name	Site Type	Cultural Affiliation	NRHP Eligibility
21GD0087	Lohnmann	Lithic scatter	Pre-Contact	Unevaluated
21GD0185	Zumbro River	Artifact scatter	Pre-Contact; Woodland	Considered Eligible
21GD0186	Zumbrota Covered Bridge Park	Lithic scatter	Pre-Contact	Unevaluated
21GD0248	Goodhue Good View	Lithic scatter	Pre-Contact: Riverine Archaic	Eligible
21GDaa	Forest Mill	-	-	Unevaluated
21GDab	Halbert Mill	-	-	Unevaluated
21GDac*	Minneola	Ghost town	-	Unevaluated
21GDs	Pine Island Mill	-	-	Unevaluated
21GDt*	Howard and Haggard Mill	-	-	Unevaluated
21GDz	Rice/White Willow	Ghost town	-	Unevaluated
*Intersects with Project Area				

5.3 Previously Identified Above-Ground Historic Resources

Twenty previously identified above-ground historic resources (XX-RRD-CGW005, XX-RRD-CGW006, XX-RRD-CNW045, XX-RRD-CSP-042, XX-ROD-00073, XX-ROD-00185, XX-ROD-00042, GD-GDC-00023, GD-GDT-00032, GD-GDT-00021, GD-ZBT-00025, GD-ZBT-00031, GD-ZBT-00037, GD-ZBT-00022, GD-ZBT-00038, GD-ZBT-00039, GD-ZBC-00023, GD-MNO-00033, GD-PIT-00042, GD-PIT-00043) are recorded within the Project Area (see Appendix B).

XX-RRD-CSP-042 is the linear non-extant railroad corridor Minnesota Midland Railway Company/Chicago Milwaukee and St. Paul Railway Company/Chicago Milwaukee St. Paul and Pacific Railroad Company. The line segments within the Project Area were abandoned in 1980. As there is no visible expression of the branch line, the Minnesota Mainland Railroad corridor is not eligible for listing in the NRHP. XX-ROD-00073 (Trunk Hwy [TH] 58) is a 23.5-mile roadway located in southeastern Minnesota, extending from the U.S. Highway 52/TH 60 intersection in Zumbrota to the U.S. Highway/TH 61 intersection in Red Wing. XX-ROD-00073 was determined to be not eligible for listing on the NRHP in 2022. XX-ROD-00185 (TH 52; Minnesota TH 20; Minnesota TH 3; Minnesota TH 64; I-94) is a roadway extending from the Minnesota-Iowa state line to the junction with I-90 near Marion, Minnesota. XX-ROD-00185 was determined to be not eligible for listing on the NRHP in 2022. XX-ROD-00042 (TH 60) is a 220-mile linear roadway across southern Minnesota, extending from the Iowa state line south of Worthington to the Wisconsin state line on the Mississippi River bridge in Wabasha. No portions of XX-ROD-00042 were determined to be not eligible for the listing on the NRHP in 2021.

XX-RRD-CGW005 is the non-extant railroad corridor Bellechester Branch Line, which extends for approximately 5.5 miles from Bellechester Junction on the Chicago Great Western in Red Wing to Rochester line to Bellechester in Goodhue County. The railroad was abandoned in 1952 and determined to be not eligible for listing on the NRHP in 2024. XX-RRD-CGW-006 is the non-extant railroad corridor Chicago Great Western: Rochester to Zumbrota, which extends for 21 miles from Rochester to Zumbrota. The railroad corridor was abandoned in phases in 1965 and 1972 and was determined to be not eligible for the NRHP in 2024. XX-RRD-CNW045 is the non-extant railroad corridor Rochester and Northern Minnesota Railway. The railroad corridor was abandoned in 1933 and was determined to be not eligible for listing on the NRHP in 2024.

GD-GDC-00023 (Culvert 97002), GD-GDT-00032 (Culvert 96841), and GD-ZBT-00037 (Culvert 96388), GD-ZBT-00038 (Culvert 97003), and GD-ZBT-00039 (Culvert 97004) are all prestress or precast box culverts located on TH 58 over streams. GD-GDC-00023, GD-ZBT-00038, and GD-ZBT-00039 were constructed in 1991 and GD-GDT-00032 and GD-ZBT-00037 were constructed in 1992. GD-MNO-00033 (Culvert 91306) is a prestress or precast pipe arch culvert located on MN 60 over a stream and constructed in 1973. All six culverts are not eligible for listing on the NRHP.

GD-GDT-00021 (Bridge 25002) and GD-ZBT-00031 (Bridge 25001) are concrete continuous slab span bridges located on TH 58 over a stream. Both bridges were constructed in 1992 and both were determined to be not eligible for listing on the NRHP in 2023. GD-ZBT-00025 (Bridge 6163) is a structure located on

TH 58 over Trout Brook. The structure was constructed in 1932. GD-ZBT-00025 remains unevaluated for listing on the NRHP. GD-PIT-00042 (Bridge L0739) is a steel pipe arch bridge located on 195th Avenue over a stream. The bridge was constructed in 1930. GD-PIT-00042 was determined to be not eligible for listing on the NRHP in 2023. GD-PIT-00043 (Bridge L0740) is a timber slab span bridge located on 195th Avenue over Dry Run Creek. The bridge was constructed in 1935. GD-PIT-00043 was determined to be not eligible for listing on the NRHP in 2023.

GD-ZBT-00022 is a milepost marker located off TH 58. The original milepost marker, constructed from limestone, has “18 M” inscribed on the side which likely indicated that the location is 18 miles from Red Wing. The limestone marker was moved to the Senior Citizens Center in Zumbrota in 1981 to ensure it was not vandalized. A new marker, fastened with a small sign stating “M18” replaced the original limestone marker. GD-ZBT-00022 remains unevaluated for listing on the NRHP. GD-ZBC-00023 corresponds to the ruins of a mill dam. GD-ZBC-00023 is unevaluated for listing on the NRHP. There are no resources listed in or eligible for listing in the NRHP within the Project Area.

A 1/4-mile buffer was used for previously identified above-ground historic resources; 28 previously identified above-ground resources are located within 1/4-mile of the Project Area (see Appendix B). Of which, 23 are unevaluated for the NRHP and 5 are not eligible for the NRHP.

5.4 Previously Identified Cemeteries

The Project Area is located within the boundary of one historic cemetery (Catholic Cemetery, MN Cemetery ID: 20716; see Table 6; Figure 2 in Appendix A). The Catholic Cemetery is mapped at the township level and there are no other notes available on the OSA Online Portal (OSA 2024a). Eight additional historic cemeteries are mapped within the Study Area, all of which are mapped at the 40-acre level (see Table 6; Figure 2 in Appendix A). The identified historic cemeteries in the Study Area are protected under the Private Cemeteries Act (MS 307.08).

Table 5. Previously Identified Historic Cemeteries in the Study Area

Cemetery ID	Name	Section	Township	Range	NRHP Eligibility
20677	Zumbrota Cemetery	25	110N	16W	Unevaluated
20678	Lands Church/Land Norwegian Lutheran Cemetery	25	110N	16W	Unevaluated
20679	St. Pauls Catholic Cemetery	25	110N	16W	Unevaluated
20703	Evergreen Cemetery	21	111N	15W	Unevaluated
20712	United Cemetery	25	110N	16W	Unevaluated
20713	Unknown	25	110N	16W	Unevaluated
20715	Village/Pine Island Cemetery	32	109N	15W	Unevaluated
20716*	Catholic Cemetery	-	109N	15W	Unevaluated
20734	Synod Cemetery	35	110N	16W	Unevaluated

*Intersects with the Project Area

5.5 Historic Maps, Atlases, and Aerial Photographs

Stantec reviewed original GLO surveys, atlas maps, topographic maps, and historic aerial imagery of the Project Area was reviewed. For clarity, the proposed wastewater facility and forcemain alignments will be discussed separately.

The proposed wastewater facility is located in the SE1/4 of Section 30 and the NE1/4 of Section 31, Township 110N, Range 15W. The original GLO patents for the E1/2 of the SE1/4 of Section 30 was issued to Daniel R. Goddard in 1859 and the W1/2 of the SE1/4 of Section 30 was issued Ira Perry in 1980 (GLO 1859a, 1980). The original GLO patents for the NE1/4 of Section 31 was issued to Joseph A. Thacker in 1859 (GLO 1859b). Original surveys from 1855 of Goodhue County map the North Branch of the Zumbro River in the southern half of Section 30. No other features are mapped (GLO 1855a).

Two railroad lines are mapped within the proposed wastewater facility on plat maps from 1894.One rail line, mapped directly south of the North Branch of the Zumbro River in Section 30, is labeled “Chicago Milwaukee & St. Paul”. The other rail line crosses the NE 1/4 of Section 31 and is labeled “Chicago Northwestern”. A road following the current alignment of East 4th St is depicted. Two houses are located between the rail line and the road in the NE 1/4 of Section 31, outside of the Project Area (C.M. Foote & Co. 1894). In 1914 another railroad line, labeled ‘Chicago Great Northwestern’, is depicted extending southeast from Zumbrota through the NE 1/4 of Section 31 (Webb Publishing Co. 1914). Plat maps from 1916, 1925, 1933, and 1954 depict these same rail lines and road (Ray Johnson Printing Company 1954; Rhame 1925, 1933; State of Minnesota 1916).

Historic aerial imagery of the proposed wastewater facility location from 1938 to the present was reviewed. Land cover within this portion of the Project Area has remained relatively unchanged since 1938. The land is primarily row crop agricultural land with some lightly wooded areas delimiting the North Branch of the Zumbro River. One railroad corridor bisects the agricultural field and appears to be in use in 1938; however, by 1980 the railroad line is covered with short grasses and no longer in use. East 4th Street and a house on the north side of the street, also depicted on plat maps, are present on all aerial images outside the Project Area. In 2003 the residential development directly west of the Project Area is first present. Within the surrounding area, the City of Zumbrota to the west is developed in 1938 and scattered farmsteads are located to the east. This remains relatively consisted to the present (Nationwide Environmental Title Research, LLC 2024; UMN 2015).

A road labeled “Road to St. Paul from Dubuque” is mapped on the original 1855 GLO maps bisecting the Project Area in Section 4 of Township 110N Range 15W and extending in a northwest direction (GLO 1855a, 1855b). The trail is also indicated on the Trygg map (Trygg 1964). The original GLO maps also map bur oaks, aspen and red oak grove and thickets intersecting with the Project Area (GLO 1855a, 1855b, 1855c, 1855d). On reviewed plat maps, roads following the approximate current route of Hwy 58, Hwy 60, and 195th Avenue are present starting in 1894, with the exception of TH 58 as it approaches the limits of Goodhue, where TH 58 extends to the northeast (C.M. Foote & Co. 1894; Rhame 1925; Rham 1933; State of Minnesota 1916). The current alignment of TH 58 as it approaches the limits of Goodhue first appears in

1933 (Rhame 1933). A review of aerial imagery shows little change to Project Area constituting the forcemain alignment since 1965, with aerial imagery showing road ROW surrounded by cultivated land and rural farmsteads (Nationwide Environmental Title Research, LLC 2024).

6 Fieldwork Results

The Phase I archaeological survey was conducted between April 21 to 23, 2024; August 27, 28, 30, 2024; September 11, 2024.

6.1 Wastewater Facility

The Project Area for the proposed wastewater facility predominantly consisted of rolling hills in agricultural fields with forests that sloped to the North Branch Zumbro River and an unnamed tributary (see Photos 1 to 9). GSV throughout the Project Area ranged between 0 to 90 percent, obscured by young corn plants, hay, short grasses, and forest duff. A small portion of the Project Area consisted of rolling hills in a cattle pasture, yielding no GSV (see Photo 10). Hilltops within the Project Area, all of which had great GSV (80 percent), appeared to be plowed to till and eroded. Two large man-made berms were constructed on a north facing slope within the agricultural field surrounding an unnamed drainage of the North Zumbro River, likely to aid in flood prevention (see Photo 11).



Photo 1. Project Area Overview, Facing Southeast.



Photo 2. Project Area Overview, Facing Northwest.



Photo 3. Project Area Overview, Facing West.



Photo 4. Project Area Overview, Facing Southwest.



Photo 5. Field Drainage with Short Grasses in Project Area, Facing North.



Photo 6. Project Area Overview, Note Slope in Wooded Area, Facing North.



Photo 7. Forest Sloping to North Branch Zumbro River, Facing Northeast.



Photo 8. Forest Sloping to an Unnamed Tributary, Facing West.



Photo 9. Unnamed Tributary at Base of Slopes in Project Area, Facing North.



Photo 10. Project Area Overview Within Cattle Pasture, Facing North.



Photo 11. Large Man-Made Berm in Project Area, Facing West.

No subsurface tests were excavated in the Project Area for the proposed wastewater facility due to either great ground surface visibility or eroded slopes. While some areas in the Project Area for the proposed wastewater facility were identified as having a moderate to high potential for cultural resources due to their proximity to the North Branch Zumbro River, no subsurface testing was conducted in these areas due to eroded slope (see Photos 12 and 13).

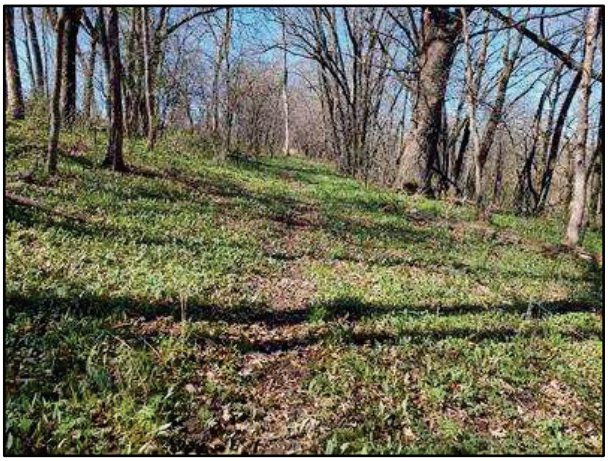


Photo 12. High Probability Area within Northwest Corner of Project Area, Facing East.



Photo 13. High Probability Area within Northeast Corner of Project Area, Facing East.

A historic material concentration was observed in the northeastern corner of the Project Area on a side slope within an unnamed drainage to the North Branch Zumbro River (see Photos 14 to 17). Additional materials were identified downstream from the concentration. The assemblage consisted of a mix of building materials, domestic artifacts, and metal farming equipment. The building materials consisted of red brick fragments and concrete slab fragments. Domestic artifacts included large metal oil cans, a water pump with black electrical tap wrapped around, aluminum cans, aerosol cans, a metal screen, an aluminum package, rubber wiring, glass container bottles, flat clear glass, curved clear glass, and a porcelain mason jar liner. Modern trash was intermixed with the historic materials.



Photo 14. Historic Material Concentration Overview, Facing Southeast.



Photo 15. Historic Material Concentration, Facing South.



Photo 16. Historic Material Concentration Overview, Facing Southwest.



Photo 17. Historic Material Downstream from Concentration, Pin Flags Note Material Location, Facing North.

Of the materials identified in the historic concentration, the porcelain mason jar liner provides the earliest date with the late nineteenth century. The liner was invented in 1869 but the design was used by many companies and present in-home canning operations into the twentieth century (Beaupre 2021). The glass container bottles were all machine-made, evidenced by vertical side mold seams, which has an early production date in the early twentieth century. Additionally, the glass bottles were predominantly external threaded screw caps, some with metal and plastic caps still present, which was the most common bottle closure of the twentieth century (Lindsey 2024).

According to the State Archaeologist's Manual for Archaeological Projects In Minnesota (Anfinson 2011), sites older than 50 years old that are located within a project area should still be examined through literature searches and field surveys however inventory forms for post-contact historical archaeological sites will only be filed out if the site needs additional and justifiable archaeological work, subjected to intensive survey, clearly eligible for the NRHP, or burial sites not located in well documented cemeteries (Anfinson 2011). No structure is depicted on any reviewed historic map and the concentration does not appear on any aerial photographs. Ownership information from historic maps identified individuals from two families owned the SE1/4 of Section 30; 'Thatcher' in 1874 and 1894 and 'Schliep' in 1914, 1916, 1925, 1933, and 1954 (C.M. Foote & Co. 1894; Nationwide Environmental Title Research, LLC 2024; Ray Johnson Printing Company 1954; Rhame 1933; State of Minnesota 1916; UMN 2015; Webb Publishing Co. 1914). Outside of census records, little information could be found on the individuals listed on the maps. The historic material concentration cannot be associated with any mapped structure and the materials were found in an eroded setting along a side-slope with modern trash; therefore, the historic concentration was not assigned a site number as it does not fall into the requirements for additional archaeological work.

The northern border of the Project Area for the proposed wastewater facility follows and intersects with XX-RRD-CSP-042. XX-RRD-CSP-042 is currently an active two-track access road on an eroded hill that slopes down to the North Branch Zumbro River (see Photo 18). No evidence of materials associated with the railroad corridor were identified within the Project Area. As no features of the railroad corridor were present

in the Project Area, Stantec recommends XX-RRD-CSP-042 retain its previous determination of not eligible for the NRHP. Stantec recommends a finding of No Historic Properties Affected for XX-RRD-CSP-042.



Photo 18. XX-RRD-CSP-042 Overview, Facing West.

XX-RRD-CGW006 (Chicago and Great Western Railway Company, Rochester to Zumbrota) and XX-RRD-CNW045 (Rochester and Northern Minnesota Railway Company) bisect the proposed wastewater facility boundary in the southern portion. Identified surficial remnants of the railroad corridor included a bermed linear corridor extending through the Project Area and no cultural resources were identified. Stantec recommends both resources retain their previously determination of not eligible for the NRHP. Stantec recommends a finding of No Historic Properties Affected for resources XX-RRD-CGW006 and XX-RRD-CNW045.

6.2 Forcemain Alignment: Zumbrota to Goodhue

The Project Area for the forcemain alignment from Zumbrota to Goodhue extends from the proposed wastewater facility in Zumbrota to X in Goodhue. The Project Area follows the eastern road ROW of TH 58 for approximately X miles. The Project Area consisted of grassed road ditches/drainages, wetlands, agricultural fields, access roads for the agricultural fields and existing overhead transmission lines, and residential yards (see Photos 19 to 25). Prior disturbance for road construction, utility installation, and residential/urban development was observed throughout the Project Area. GSV throughout a majority of the Project Area for the forcemain alignment from Zumbrota to Goodhue was minimal (0 percent), obscured by tall grasses. GSV within the agricultural fields, which included soybeans, corn, and alfalfa, ranged from 25 to 90 percent. Pedestrian survey was conducted in the agricultural fields at 5 to 10 m intervals.



Photo 19. Project Area Overview, Note Grassed Drainage, Facing South.



Photo 20. Project Area Overview, Note Agricultural Field and Grassed Drainage, Facing South.



Photo 21. Project Area Overview, Note Wetland Grasses, Facing Northeast.



Photo 22. Project Area Overview, Facing West.



Photo 23. Project Area Overview, Note Access Road, Facing North.



Photo 24. Project Area Overview, Note Buried Utilities in Residential Yard, Facing South.



Photo 25. Project Area Overview, Note Development, Facing Northeast.

A total of twenty shovel tests were excavated within the Project Area for the forcemain alignment from Zumbrota to Goodhue. While GSV was minimal in most of the Project Area, additional testing was not conducted due to the presence of utilities, wetlands, slope, and obvious disturbance from road and utility installation and maintenance. Areas that were subject to shovel testing were large, flat herbaceous areas (see Photo 26). Observed soil profiles generally did not align with what is mapped and described by the NRCS (NRCS 2024). Shovel tests in the northern-most area (ST A01 to A12) were heavily disturbed, evidenced by mottled profiles that varied across the landform, and asphalt, plastic, and glass was observed in the Bt horizon (see Photos 27 and 28; Table 1 in Appendix C). Shovel tests in the central area (ST 01 to 03) were disturbed, evidenced by profiles that varied from test to test, redoximorphic features in the subsoil, and glass in a mottled/disturbed context (see Table 1 in Appendix C). Shovel tests in the southern-most area (ST 04 to 08) were also disturbed, evidenced by truncated profiles, buried plastic, and common redoximorphic features in the subsoil (see Table 1 in Appendix C). The identified disturbances are likely due to road installation. No cultural resources were identified in the Project Area for the forcemain alignment from Zumbrota to Goodhue.



Photo 26. Representative Overview of Herbaceous Areas Subject to Shovel Testing, Facing South.



Photo 27. ST A 02, Overview.



Photo 28. ST A 08, Overview.

The Project Area extends along XX-ROD-00073 (Trunk Hwy 58) (see Photo 29 and 30). XX-ROD-00073 was previously determined not eligible for listing on the NRHP; Stantec recommends it retains its previous eligibility determination. Stantec recommends a finding of No Historic Properties Affected for XX-ROD-00073.



Photo 29. XX-ROD-00073 Overview, Facing South.



Photo 30. XX-ROD-00073 Overview, Facing North.

GD-ZBT-00039 (Bridge 97004) was reidentified on TH 58 (see Photo 31). GD-ZBT-00039 was previously determined not eligible for listing on the NRHP; Stantec recommends it retains its previous eligibility determination. Stantec recommends a finding of No Historic Properties Affected for GD-ZBT-00039.



Photo 31. GD-ZBT-00039 Overview, Facing Southeast.

GD-ZBT-00038 (Culvert 97003) was reidentified in the Project Area on TH 58 over a stream (see Photo 32). GD-ZBT-00038 was previously determined not eligible for listing on the NRHP; Stantec recommends it retains its previous eligibility determination. Stantec recommends a finding of No Historic Properties Affected for GD-ZBT-00038.



Photo 32. GD-ZBT-00038 Overview, Facing West.

GD-ZBT-00022 was not reidentified during the current investigation in the Project Area (see Photo 33). Available information indicates the original mile marker was removed in 1981 (Minnesota State Historic Preservation Office 2024). As the mile marker has been removed, Stantec recommends GD-ZBT-00022 as not eligible for the NRHP. Stantec recommends a finding of No Historic Properties Affected for GD-ZBT-00022.



Photo 33. GD-ZBT-00022 Overview, Facing Southeast.

GD-ZBT-00037 (Culvert 96388) was reidentified in the Project Area on TH 58 over a stream. The culvert was heavily vegetated over (see Photo 34). GD-ZBT-00037 was previously determined not eligible for listing on the NRHP; Stantec recommends it retains its previous eligibility determination. Stantec recommends a finding of No Historic Properties Affected for GD-ZBT-00037.



Photo 34. GD-ZBT-00037 Overview, Facing Southwest

GD-ZBT-00025 (Bridge 6163) was reidentified in the Project Area on TH 58 over a stream (see Photo 35). GD-ZBT-00025 was previously determined not eligible for listing on the NRHP; Stantec recommends it retains its previous eligibility determination. Stantec recommends a finding of No Historic Properties Affected for GD-ZBT-00025.



Photo 35. GD-ZBT-00025 Overview, Facing West.

GD-ZBT-00031 (Bridge 25001) was reidentified in the Project Area on TH 58 over a stream (see Photo 36). GD-ZBT-00025 was previously determined not eligible for listing on the NRHP; Stantec recommends it retains its previous eligibility determination. Stantec recommends a finding of No Historic Properties Affected for GD-ZBT-00025.



Photo 36. GD-ZBT-00031 Overview, Facing West.

GD-GDT-00021 (Bridge 25002) was reidentified on TH 58 over a stream (see Photo 37). GD-GDT-00021 was previously determined not eligible for listing on the NRHP; Stantec recommends it retains its previous eligibility determination. Stantec recommends a finding of No Historic Properties Affected for GD-GDT-00021.



Photo 37. GD-GDT-00021 Overview, Facing Northwest.

XX-RRD-CGW005 (Chicago Great Western Railway Company, Bellechester Branch) bisects the Project Area on TH 58 south of Goodhue (see Photo 38). XX-RRD-CGW005 was previously determined not eligible for listing on the NRHP: Stantec recommends it retain its previous eligibility determination. Stantec recommends a finding of No Historic Properties Affected for XX-RRD-CGW005.



Photo 38. XX-RRD-CGW005 Overview, Facing North.

GD-GDT-00032 (Culvert 96841) was previously determined not eligible for listing on the NRHP; Stantec recommends it retain its previous eligibility determination. Stantec recommends a finding of No Historic Properties Affected for GD-GDT-00032.

GD-GDC-00023 (Culvert 97002) was reidentified in the Project Area on TH 58 over a stream (see Photo 31). GD-GDC-00023 was previously determined not eligible for listing on the NRHP; Stantec recommends it retains its previous eligibility determination. Stantec recommends a finding of No Historic Properties Affected for GD-GDC-00023.



Photo 39. GD-GDC-00023 Overview, Facing Northwest.

6.3 Forcemain Alignment: Zumbrota to Wanamingo

The Project Area for the forcemain alignment from Zumbrota to Wanamingo extends from the proposed wastewater facility in Zumbrota to X in Wanamingo. The Project Area follows the northern road ROW of Highway 60 for approximately x miles. The Project Area consisted of grassed road ditches, wetlands, access roads for the existing overhead transmission line, agricultural fields, and residential yards (see Photos X to X). GSV through a majority of the Project Area for the forcemain alignment from Zumbrota to Wanamingo was minimal (0 to 10 percent), obscured by tall grasses. GSV within the agricultural fields ranged from 40 percent to 80 percent; therefore, pedestrian survey was conducted at 2- to 10-meter intervals.



Photo 40. Representative Overview of the Project Area, Facing North.



Photo 41. Representative Overview of the Project Area, Facing West.



Photo 42. Representative Overview of Wetlands in the Project Area, Facing East.



Photo 43. Representative Overview of Slope to Wetlands in the Project Area, Facing East.



Photo 44. Representative Overview of the Agricultural Fields in the Project Area, Facing West.



Photo 45. Representative Overview of the Project Area, Note Utilities, Facing East.





Photo 46. Representative Overview of the Access Road in the Existing Transmission Line in the Project Area, Facing East.

Photo 47. Representative Overview of a Residential Yard in the Project Area, Facing West.

A total of three shovel tests were excavated in the Project Area for the forcemain alignment from Zumbrota to Wanamingo. While GSV was minimal in most of the Project Area, additional testing was not conducted due to the presence of utilities, wetlands, slope, and obvious disturbance from road and utility installation and maintenance. The representative soil profile consists of a 10YR 3/2 very dark grayish brown silt loam with gravels extending to an average depth of 27 cmbs above a 10YR 4/4 dark yellowish brown silty clay loam with gravels excavated to an average depth of 44 cmbs (see Photo X; Table 2 in Appendix C). When compared to what is mapped and described by the NRCS, the observed soil profiles featured similar colors and textures, but were truncated, likely due to disturbances from road construction and maintenance (NRCS 2024). No cultural resources were identified in the Project Area for the forcemain alignment from Zumbrota to Wanamingo.



Photo 48. ST 01, Overview.

21GDac, a ghost town, was not reidentified in the current investigation within the Project Area. The portions of the Project Area that intersect with alpha site 21GDac are heavily disturbed by road construction and utility installation (see Photos X and X). As such, Stantec recommends alpha site 21GDac retain its current designation as an alpha site. As only a small portion of alpha site 21GDac is located in the Project Area, Stantec recommends site 21GDac remain unevaluated for the NRHP. Stantec recommends a finding of No Historic Properties Affected for the portions of alpha site 21GDac within the Project Area.



Photo 49. Overview of 21GDac in Project Area, Facing South.



Photo 50. Overview of 21GDac in the Project Area, Facing East.

GD-ZBC-00023, ruins of a mill dam, was not reidentified in the current investigation within the Project Area. The portions of the Project Area that intersect with GD-ZBC-00023 are heavily disturbed by road construction and installation of utilities (see Photos X and X). As such, Stantec recommends GD-ZBC-00023 remain unevaluated for the NRHP. Stantec recommends a finding of No Historic Properties Affected for the portions of GD-ZBC-00023 within the Project Area.



Photo 51. GD-ZBC-00023 Overview, Facing South.



Photo 52. GD-ZBC-00023 Overview, Facing East.

The Project Area extends along XX-ROD-00185 (TH 52). XX-ROD-00185 was previously determined not eligible for listing on the NRHP; Stantec recommends it retains its previous eligibility determination. Stantec recommends a finding of No Historic Properties Affected for XX-ROD-00185.

The Project Area extends along XX-ROD-00042 (TH 60) (see Photo X and X). XX-ROD-00042 was previously determined not eligible for listing on the NRHP; Stantec recommends it retains its previous eligibility determination. Stantec recommends a finding of No Historic Properties Affected for the portions of XX-ROD-00042 within the Project Area.



Photo 53. XX-ROD-00042 Overview, Facing West.



Photo 54. XX-ROD-00042 Overview, Facing East.

GD-MNO-00033 (Culvert 91306) was reidentified in the Project Area on TH 60 over a stream (see Photo X). GD-MNO-00033 was previously determined not eligible for listing on the NRHP; Stantec recommends it retains its previous eligibility determination. Stantec recommends a finding of No Historic Properties Affected for GD-MNO-00033.



Photo 55. GD-MNO-00033 Overview, Facing East.

6.4 Forcemain Alignment: Zumbrota to Pine Island

The Project Area for the forcemain alignment from Zumbrota to Pine Island extends from the proposed wastewater facility in Zumbrota to X in Pine Island. The Project Area follows the western road ROW of 195th Avenue for x miles before crossing the road and following the eastern road ROW of 195 Avenue for x miles. The Project Area consisted of grassed road ditches, the gravel road, and residential yards (see Photo X). GSV throughout the Project Area was 0 percent, obscured by grasses. No shovel testing was conducted due to slope and buried utilities. No cultural resources were identified in the Project Area for the forcemain alignment from Zumbrota to Pine Island. The Project Area for the forcemain alignment from Zumbrota to

Pine Island is located within the boundaries of Catholic Cemetery (MN Cemetery ID 20716). The historic cemetery is known from archival resources only. The Catholic Cemetery was not reidentified in the Project area. The portion of the Catholic Cemetery that intersect with the Project area is heavily disturbed by road construction. As the cemetery was not identified in the Project area and only a small portion was surveyed, Stantec recommends the Catholic Cemetery remain unevaluated for the NRHP. Stantec recommends a finding of No Historic Properties Affected for the portions of the Catholic Cemetery within the Project Area.



Photo 56, Project Area Overview, Facing South.



Photo 57. Project Area Overview, Note Slopes, Facing South.



Photo 58. Project Area Overview, Facing North.

21GDt, the Howard and Haggard Mill, was not reidentified in the current investigation within the Project Area. The portions of the Project Area that intersect with alpha site 21GDt are heavily disturbed by road construction and utility installation (see Photo X). As such, Stantec recommends alpha site 21GDt retain its current designation as an alpha site. As only a small portion of alpha site 21GDt is located in the Project Area, Stantec recommends site 21GDt remain unevaluated for the NRHP. Stantec recommends a finding of No Historic Properties Affected for the portions of alpha site 21GDt within the Project Area.



Photo 59. Overview of 21GDt in the Project Area, Facing Southeast.

Resource GD-PIT-00042 (Bridge L0739) was previously determined not eligible for listing on the NRHP; Stantec recommends it retains its previous eligibility determination. Stantec recommends a finding of No Historic Properties Affected for Resource GD-PIT-00042.

XX-ROD-00042 (TH 60) intersects the Project Area on 195th Avenue (see Photo X). XX-ROD-00042 was previously determined not eligible for listing on the NRHP; Stantec recommends it retains its previous eligibility determination. Stantec recommends a finding of No Historic Properties Affected for XX-ROD-00042.

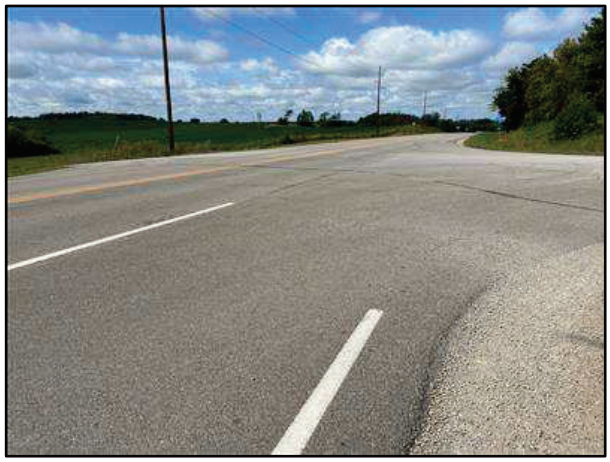


Photo 60. XX-ROD-00042 Overview, Facing Southwest.

Resource GD-PIT-00043 (Bridge L0740) was previously determined not eligible for listing on the NRHP; Stantec recommends it retains its previous eligibility determination. Stantec recommends a finding of No Historic Properties Affected for Resource GD-PIT-00043.

XX-RRD-CGW006 (Chicago and Great Western Railway Company, Rochester to Zumbrota) and XX-RRD-CNW045 (Rochester and Northern Minnesota Railway Company) bisect the forcemain alignment from

Zumbrota to Pine Island. No surficial remnants were identified. Stantec recommends both resources retain their previously determination of not eligible for the NRHP. Stantec recommends a finding of No Historic Properties Affected for resources XX-RRD-CGW006 and XX-RRD-CNW045.

7 Conclusions and Recommendations

Between April 21 to 23, 2024; August 27, 28, 30, 2024; September 11, 2024, Stantec completed a Phase I archaeological survey for the Project under Minnesota Archaeological Survey License Application 24-165. A literature review conducted prior to fieldwork identified two previously recorded archaeological sites (21GDac and 21GDt) within the Project Area. Neither site was reidentified within the Project Area during the current investigation; the portions of each site within the Project Area were heavily disturbed by road construction and utility installation. As only a small portion of each alpha site intersects with the Project Area, Stantec recommends alpha sites 21GDac and 21GDt retains their current designation as alpha sites and remains unevaluated for the NRHP.

The literature review identified twenty previously identified above-ground historic resources (XX-RRD-CGW005, XX-RRD-CGW006, XX-RRD-CNW045, XX-RRD-CSP-042, XX-ROD-00073, XX-ROD-00185, XX-ROD-00042, GD-GDC-00023, GD-GDT-00032, GD-GDT-00021, GD-ZBT-00025, GD-ZBT-00031, GD-ZBT-00037, GD-ZBT-00022, GD-ZBT-00038, GD-ZBT-00039, GD-ZBC-00023, GD-MNO-00033, GD-PIT-00042, GD-PIT-00043) within the Project Area. Of the twenty previously identified above-ground historic resources, eighteen (XX-RRD-CGW005, XX-RRD-CGW006, XX-RRD-CNW045, XX-RRD-CSP-042, XX-ROD-00073, XX-ROD-00185, XX-ROD-00042, GD-GDC-00023, GD-GDT-00032, GD-GDT-00021, GD-ZBT-00025, GD-ZBT-00031, GD-ZBT-00037, GD-ZBT-00038, GD-ZBT-00039, GD-MNO-00033, GD-PIT-00042, GD-PIT-00043) were previously determined not eligible for listing on the NRHP. Based on the results of the investigation, Stantec recommends these eighteen resources retain their previous eligibility determination.

GD-ZBC-00023 was not reidentified in the Project Area in the current investigation. The portions of the Project Area that intersect with GD-ZBC-00023 are heavily disturbed; as such, Stantec recommends GD-ZBC-00023 remain unevaluated for the NRHP. Stantec recommends a finding of No Historic Properties Affected for the portions of GD-ZBC-00023 within the Project Area.GD-ZBT-00022 was not reidentified during the current investigation in the Project Area. As the mile marker has been removed, Stantec recommends GD-ZBT-00022 as not eligible for the NRHP. Stantec recommends a finding of No Historic Properties Affected for GD-ZBT-00022.

A historic material concentration occupying 850 square feet was identified in the Project Area, which was not assigned a site number per the State Archaeologist's Manual for Archaeological Projects In Minnesota (Anfinson 2011). No additional cultural resources were identified during the survey. Based on the results of the investigations, Stantec recommends that there are no properties listed in the National or State Registers of Historic Places and no known or suspected archaeological properties in the are that will be affected by the Project. No further work is recommended within the Project area subject to the current investigation should the Project proceed as planned. Stantec will survey the remaining Project area when weather

conditions allow in Spring of 2025 and submit an addendum report to the Minnesota State Historic Preservation Office.

8 References Cited

Anfinson, Scott. 2011. State Archaeologist's Manual for Archaeological Projects in Minnesota. Office of the State Archaeologist, St. Paul, Minnesota. https://mn.gov/admin/assets/OSAmanual_tcm36-186982.pdf.

Beaupre, Dr. Andrew R. 2021. Boyd's Porcelain Lined Canning Jar Lid. University of Arkansas System, Arkansas Archaeological Survey, https://archeology.uark.edu/artifacts/canning-jar-lid/, accessed April 2024.

Benchley, Elizabeth D. Blane Nansel, Clark A. Dobbs, Susan M. Thurston Myster, and Barbara H. O'Connell. 1997. *Archeology and Bioarcheology of the Northern Woodlands*. Arkansas Archeological Survey, Fayetteville.

C.M. Foote & Co. 1894. Plat Book of Goodhue County, Minnesota. C.M. Foote & Co, Minneapolis, Minnesota, https://historicmapworks.com/Atlas/US/32713/, accessed April 2024.

City of Zumbrota. 2024. History of Zumbrota, https://www.ci.zumbrota.mn.us/index.asp?SEC=EC5B48C9-61BD-4435-890C-7FD8D36C1E5D&Type=B_BASIC, accessed April 2024.

De Cesar, Wayne T. and Susan Page. 2003. Jefferson Buys Louisiana Territory, and the Nation Moves Westward. In Prologue Magazine, Vol. 35, No. 1, https://www.archives.gov/publications/prologue/2003/spring/louisiana-purchase.html, accessed November 2024.

Dobbs, CA. 1989. Historic Context Outlines: The Contact Period Contexts (ca 1630 A.D. – 1820 A.D.) Draft Reports of Investigations No. 39. Institute for Minnesota Archaeology, Minneapolis. Submitted to the State Historic Preservation Office, Minnesota Historical Society, Saint Paul.

Fond du Lac Band of Lake Superior Chippewa. 2018. Onigamiinsing Dibaajimowinan Duluth's Stories, http://www.duluthstories.net/index.html, accessed November 2024.

Gibbon, Guy E. 2012. Archaeology of Minnesota: The Prehistory of the Upper Mississippi River Region. University of Minnesota Press, Minneapolis.

Gibbon, Guy E., Craig M. Johnson, and Elizabeth Hobbs. 2002. *Minnesota's Environment and Native American Culture History.* Electronic document, https://www.dot.state.mn.us/mnmodel/P3FinalReport/chapter3.html#ch349, accessed April 2024.

General Land Office (GLO). 1855a. Original Survey, MN, 5th PM, T110N – R15W. U.S. Department of the Interior, Bureau of Land Management, https://glorecords.blm.gov/details/survey/default.aspx?dm_id=111088&sid=yaegzwlp.4bp#surveyDetailsTabIndex=0, accessed April 2024.

General Land Office (GLO). 1855b. Original Survey, MN, 5th PM, T111N – R15W. U.S. Department of the Interior, Bureau of Land Management,

https://glorecords.blm.gov/details/survey/default.aspx?dm_id=111090&sid=mnaet55d.hfo#surveyDetailsTabIndex=0, accessed April 2024.

General Land Office (GLO). 1855c. Original Survey, MN, 5th PM, T110N – R16W. U.S. Department of the Interior, Bureau of Land Management, https://glorecords.blm.gov/details/survey/default.aspx?dm_id=111117&sid=zuuv4bgo.y5a#surveyDetailsTabIndex=0, accessed April 2024.

General Land Office (GLO). 1855d. Original Survey, MN, 5th PM, T109N – R15W. U.S. Department of the Interior, Bureau of Land Management, https://glorecords.blm.gov/details/survey/default.aspx?dm_id=111086&sid=irlcimsk.fdv#surveyDetailsTabIndex=0, accessed April 2024.

General Land Office (GLO). 1859a. Original Patent, MN, 5th PM, T110N – R15W. U.S. Department of the Interior, Bureau of Land Management, https://glorecords.blm.gov/details/patent/default.aspx?accession=0199-325&docClass=MW&sid=rtn1trln.0c2, accessed April 2024.

General Land Office (GLO). 1859b. Original Patent, MN, 5th PM, T110N – R15W. U.S. Department of the Interior, Bureau of Land Management, https://glorecords.blm.gov/details/patent/default.aspx?accession=0196-143&docClass=MW&sid=nhex3m2l.1dw#patentDetailsTabIndex=0, accessed April 2024.

General Land Office (GLO). 1980. Original Patent, MN, 5th PM, T110N – R15W. U.S. Department of the Interior, Bureau of Land Management, https://glorecords.blm.gov/details/patent/default.aspx?accession=61-80-0085&docClass=SER&sid=rtn1trln.0c2#patentDetailsTabIndex=0, accessed April 2024.

Heartfield, Price and Greene, Inc. 1980. *A Cultural Resources Survey in the Grindstone-Lost-Muddy Creek Watershed, DeKalb County, Missouri*. Heartfield, Price and Greene, Inc., Monroe, Louisiana.

Holmquist, June D. 1981. They Chose Minnesota: A Survey of the State's Ethnic Groups. Chicago: Minnesota, Historical Society Press, Saint Paul.

Horton, J.D. 2017. The State Geologic Map Compilation (SGMC) geodatabase of the conterminous United States (ver. 1.1, August 2017): U.S. Geological Survey data release, https://doi.org/10.5066/F7WH2N65, accessed April 2024.

Jirsa, Mark A. Terrence J. Boerboom, V.W. Chandler, John H. Mossler, Anthony C. Runkel, and Dale R. Setterholm. 2011. *S-21 Geologic Map of Minnesota—Bedrock Geology.* Minnesota Geological Survey, University of Minnesota, Minneapolis, Minnesota. Electronic document: https://conservancy.umn.edu/handle/11299/101466, accessed April 2024.

Johnson, Frederick L. 2021. Goodhue County. MNopedia, the Minnesota Historical Society, https://www.mnopedia.org/goodhue-county, accessed April 2024.

Lindsey, Bill. 2024. Historic Glass Bottle Identification & Information Website, https://sha.org/bottle/index.htm, accessed April 2024.

Mason, Ronald J. 2002. *Great Lakes Archaeology*. The Blackburn Press, Caldwell, New Jersey.

Minnesota Department of Natural Resources (DNR). 2024. Ecological Classification System, https://www.dnr.state.mn.us/ecs/index.html, accessed April 2024.

Minnesota Office of the State Archaeologist (OSA). 2024a. Office of the State Archaeologist Portal, https://osaportal.gisdata.mn.gov/, accessed April 2024.

Minnesota Office of the State Archaeologist (OSA). 2024b. *Prehistoric Period.* Electronic document, https://mn.gov/admin/archaeologist/educators/mn-archaeology/prehistoric-period/, accessed February 2024.

Minnesota State Historic Preservation Office. 2024. Minnesota Statewide Historic Inventory Portal, https://mnship.gisdata.mn.gov/, accessed April 2024.

National Park Service. 1983. *Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation*. Federal Register 48(190):44716-44740.

Nationwide Environmental Title Research, LLC. 2024. Historic Aerial Viewer, https://historicaerials.com/, accessed April 2024.

Natural Resources Conservation Service (NRCS). 2024. *Web Soil Survey*. Electronic document, https://websoilsurvey.nrcs.usda.gov/app/, accessed April 2024.

O'Brien, Michael J., and W. Raymond Wood. 1998. *The Prehistory of Missouri.* University of Missouri Press, Columbia.

Perry, Michael J. 1996. Woodland Period. Office of the State Archaeologist. Electronic document, https://digital.lib.uiowa.edu/islandora/object/ui%3A29683, accessed December 2022.

Ray Johnson Printing Company. 1954. Goodhue County Plat Book. Bryan Land Agency, Red Wing, Minnesota, https://historicmapworks.com/Atlas/US/31469/Goodhue+County+1954/, accessed April 2024.

Rhame, A.E. 1925. Plat Book of Goodhue County, Minnesota. Bryan Land Agency, Red Wing, Minnesota, https://historicmapworks.com/Atlas/US/9569/Goodhue+County+1925/, accessed April 2024.

Rhame, A.E. 1933. Plat Book of Goodhue County, Minnesota. Bryan Land Agency, Red Wing, Minnesota, https://historicmapworks.com/Atlas/US/31475/Goodhue+County+1933/, accessed April 2024.

State of Minnesota. 1916. Minnesota Plat Book, https://geo.lib.umn.edu/collections/digitizedplatbooks/stateofmn1916.html, accessed April 2024.

Thwaites, Reuben G. (ed). 1898. The Jesuit Relations and Allied Documents 1610 to 1791. The Burrows Brothers, Cleveland, http://moses.creighton.edu/kripke/jesuitrelations/, accessed November 2024.

Trygg, J. William, Sr. 1964. Composite Map of United States Land Surveyors'' Original Plats and Field Notes – Sheets 2 and 7. Trygg Land Office, Ely, Minnesota.

University of Minnesota (UMN). 2024. ECS - Section. Minnesota Natural Resource Atlas Data. ECS – Sections Data Layer, https://mnatlas.org/resources/ecs-sections/, accessed April 2024.

University of Minnesota (UMN). 2015. Minnesota Historical Aerial Photographs Online. John R. Borchert Map Library, https://apps.lib.umn.edu/mhapo/, accessed April 2024.

Web Publishing Co. 1914. Atlas and Farmers' Directory of Goodhue County, Minnesota. The Farmer, Webb Publishing Co., Chicago, Illinois, https://historicmapworks.com/Atlas/US/16801/Goodhue+County+1914/, accessed April 2024.

Wood, Alley, & Co. 1878. History of Goodhue County. Wood, Alley, & Co, Red Wing, Minnesota, https://archive.org/details/historyofgoodhue00wood/page/n5/mode/2up, accessed April 2024.

Appendix A Figures

Appendix B Previously Identified Above-Ground Historic Resources

Appendix C Shovel Test Profiles

With every community, we redefine what's possible.

Stantec is a global leader in sustainable engineering, architecture, and environmental consulting. The diverse perspectives of our partners and interested parties drive us to think beyond what's previously been done on critical issues like climate change, digital transformation, and future-proofing our cities and infrastructure. We innovate at the intersection of community, creativity, and client relationships to advance communities everywhere, so that together we can redefine what's possible.

Stantec Consulting Services Inc.
One Carlson Parkway North, Suite 100
Plymouth MN 55447-4440
stantec.com

APPENDIX O

MIAC Review Letter

MINNESOTA INDIAN AFFAIRS COUNCIL

PROJECT REVIEW FORM

Instructions to complete the form –

Please ensure that all the fields listed with an asterisk (*) are completed before you submit your request as they are mandatory and comprise the minimum information needed for us to fulfill your request.

This is a fillable document. After completing this form, you can either save it and send it to us electronically, or you can print it, and then scan the completed form and send it to us electronically.
When you are about to send us the completed form, please feel free to add additional attachments like photos, documents etc. that are complimentary to this request.
After completing this form please send your request to: **MIAC.culturalresources@state.mn.us**

Data Dictionary of the form fields

Project Name – The user can add a project name for the requested review. Example: Mounds Review, Historic Property Review etc.
Project ID – The user can create a unique identifier by which MIAC &/or OSA can communicate back to the user regarding their submitted request. Example: Mounds123, HPP789 etc.
Reason for Review – The user can add the reason they are submitting the review request.
Review Type – What is the type of review you are requesting.
Funding – If there is any funding attached to your request, please mark the appropriate selection.
Organization Name – If you are associated with an organization on whose behalf you are sending this request.
Submitting Organization Type – Please select the organization type you are associated with.
Project Description – Please write a detailed description of the project you would like reviewed.
Site Numbers – If you consulted the State Archaeologist portal and your proposed project intersected any sites add the site numbers as part of your request.
County – Please add the County(s) where the project is located.
Background Research Done – If you consulted any of the systems before sending this request.
Known Resources Adjacent to Review Area – If you are aware of any known cultural resources adjacent to your project area, please mark the selection(s) appropriately.
Additional Information – If there is any other additional information, you want us to know for us to work on your request.
Location Information (PLSS) – Please add the Township, Range, Range Direction, Section for the project you are wanting us to review [Complete this or Location Information (Project Address) if PLSS is not known].
Location Information (Project Address) – If PLSS is not known for your project, enter the project's address here.
Requested By – Name of the person submitting this request [this will be used for communication purposes only].
Requestor's Email Address – Valid email of the person submitting the request [this will be used for communication purposes only].
Requestor's Phone Number – Phone number of the person submitting the request [this will be used for communication purposes only].
Requestor's Physical Address – Physical address of the person submitting the request [this will be used for communication purposes only].
Attachments - Please add any pertinent photos, maps, documents etc. to accompany your request.

MINNESOTA INDIAN AFFAIRS COUNCIL

REVIEW INFORMATION

1. **PROJECT NAME*:** North Zumbro Sanitary Sewer District
2. **PROJECT ID:** Click or tap here to enter text.
3. **REASON FOR REVIEW*:** EAW to be completed
4. **REVIEW TYPE*:** MIAC review to determine cultural resources within the area
5. **FUNDING*:** State Bonding Bill, Public Facilities Aurthority, State Revolving Fund
6. **ORGANIZATION NAME:** Widseth
7. **SUBMITTING ORGANIZATION TYPE:** Consultant

PROJECT INFORMATION

8. **PROJECT DESCRIPTION*:** See attached document for project description.
9. **SITE NUMBERS** (Can add multiples by separating numbers out with a comma)**:** See attached document for site numbers
10. **COUNTY*** (Add multiples by separating names out with a comma)**:** Goodhue
11. **BACKGROUND RESEARCH DONE:**
    - ☒ OSA Portal Query
    - ☐ MnDOT GIS
    - ☒ MnModel
    - ☐ Legacy Historic cemeteries
12. **KNOWN RESOURCES ADJACENT TO REVIEW AREA:**
    - ☒ Cemeteries
    - ☐ Burials
    - ☒ Archaeological Sites
13. **ADDITIONAL INFORMATION:** A Phase 1 Archeological Survey was completed for the project.

LOCATION INFORMATION* See attached document for location information

14. LOCATION INFORMATION (Complete this or Project Address if PLSS is not known):

PLSS - Township:	Range:	Range Direction (E or W):	Section:
PLSS - Township:	Range:	Range Direction (E or W):	Section:
PLSS - Township:	Range:	Range Direction (E or W):	Section:
PLSS - Township:	Range:	Range Direction (E or W):	Section:
PLSS - Township:	Range:	Range Direction (E or W):	Section:
PLSS - Township:	Range:	Range Direction (E or W):	Section:
PLSS - Township:	Range:	Range Direction (E or W):	Section:
PLSS - Township:	Range:	Range Direction (E or W):	Section:
PLSS - Township:	Range:	Range Direction (E or W):	Section:
PLSS - Township:	Range:	Range Direction (E or W):	Section:
PLSS - Township:	Range:	Range Direction (E or W):	Section:

15. ADDRESS (if PLSS is not known, please enter your project address):

Address Line 1: Click or tap here to enter text.
Address Line 2: Click or tap here to enter text.
City: Click or tap here to enter text.
State: Click or tap here to enter text.
Zip Code: Click or tap here to enter text.

REQUESTOR INFORMATION

16. REQUESTED BY*: Ella Kohls, Environmental Technician

17. REQUESTOR's EMAIL ADDRESS*: ella.kohls@Widseth.com

18. REQUESTOR's PHONE NUMBER: 651-358-2351

19. REQUESTOR's PHYSICAL ADDRESS:

Address Line 1: 5368 266th Street
Address Line 2: P.O. Box 730
City: Wyoming
State: Minnesota
Zip Code: 55092

ATTACHMENTS

Please add any pertinent photos, maps, or documents that are complimentary to the request which would assist us in fulfilling your request.

You can add attachments when you send this request electronically.

A new regional sanitary district is proposed to serve communities of Goodhue, Pine Island, Wanamingo, and Zumbrota. The proposed project includes construction of a new wastewater treatment facility (WWTF) near the City of Zumbrota, pump stations and conveyance lines to connect all four communities to the new WWTF. Wastewater from the cities of Goodhue, Pine Island, Wanamingo, and Zumbrota is treated at four separate WWTF sites within the individual communities. Each of the cities are facing similar issues with deterioration of facilities, which are nearing the end of their life cycles, and have elected to form a joint sanitary district – the NZSSD – to provide wastewater treatment for all four communities via a new centralized WWTF. After the new WWTF and permanent connections to the surrounding communities are operational, the old WWTFs will be removed from service and demolished.

The proposed WWTF site is on the outskirts of the City of Zumbrota, partially within the existing city limits and partially in Zumbrota Township. Pumping stations in Goodhue, Pine Island, and Wanamingo will convey wastewater through force mains to the new WWTF. Force mains will be in the public right-of-way (ROW) where possible and installed primarily by open trench methods, except at road or stream crossings, where horizontal directional drilling (HDD) will be used.

Site numbers:

Site No.	Site Name	Site Type	Cultural Affiliation	NRHP Eligibility
21GD0087	Lohnmann	Lithic scatter	Pre-Contact	Unevaluated
21GD0185	Zumbro River	Artifact scatter	Pre-Contact; Woodland	Considered Eligible
21GD0186	Zumbrota Covered Bridge Park	Lithic scatter	Pre-Contact	Unevaluated
21GD0248	Goodhue Good View	Lithic scatter	Pre-Contact: Riverine Archaic	Eligible
21GDaa	Forest Mill	-	-	Unevaluated
21GDab	Halbert Mill	-	-	Unevaluated
21GDac*	Minneola	Ghost town	-	Unevaluated
21GDs	Pine Island Mill	-	-	Unevaluated
21GDt*	Howard and Haggard Mill	-	-	Unevaluated
21GDz	Rice/White Willow	Ghost town	-	Unevaluated
*Intersects with Project Area				

Location information:

TOWN	RANG	SECT
111	15	28
111	15	33
110	15	4
110	15	8
110	15	9
110	15	17
110	15	19
110	15	20
110	16	30
110	16	29
110	16	28
110	15	30
110	16	31
110	16	32
110	16	33
110	16	34
110	16	35
110	16	36
110	15	31
110	15	32
109	15	5
109	15	8
109	15	17
109	15	20
109	15	29
109	15	32

Graham Goodwin

From: Graham Goodwin
Sent: Wednesday, August 27, 2025 1:32 PM
To: miac.culturalresources@state.mn.us
Cc: Ella Kohls
Subject: Request for Review
Attachments: Review_Form.pdf; NZSSD_WD_ProjectArea_240821.zip; Figures.pdf

Hello,

Please see attached for a completed request for review form as well as figures and shape files. Let me know if you have any questions or need additional information.

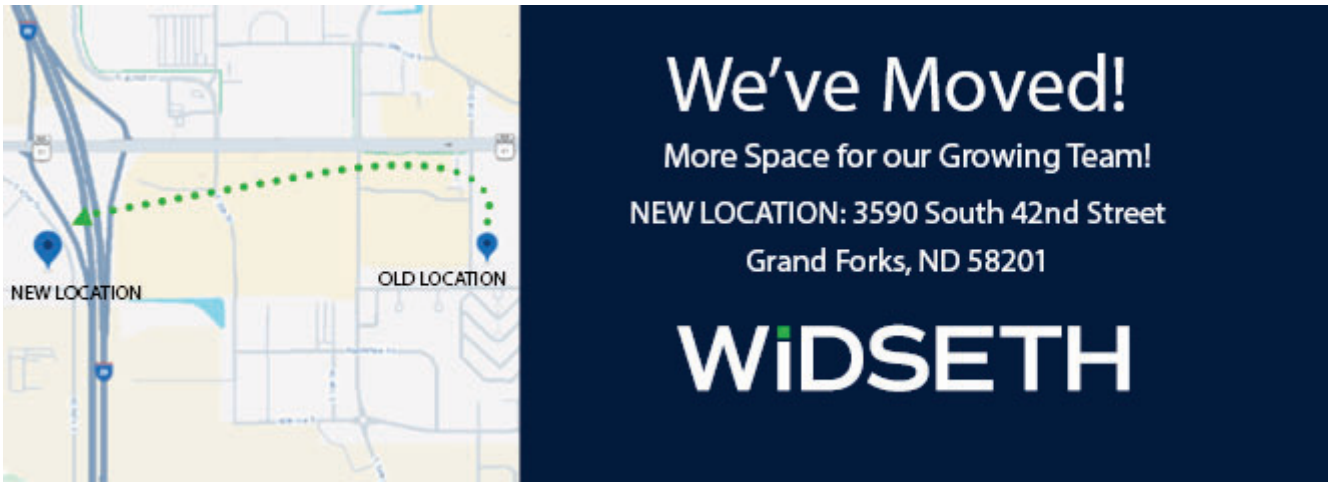
Best,

Graham Goodwin, PhD, RPA
Staff Archaeologist
701-765-8032
3590 S 42nd St
Grand Forks, ND 58201

WIDSETH CELEBRATING FIFTY YEARS EST. 1975

Widseth.com

50 Best Places to Work (*Prairie Business Magazine,* 2024)



Graham Goodwin

From: Graham Goodwin
Sent: Wednesday, August 27, 2025 1:40 PM
To: miac.culturalresources@state.mn.us
Subject: Review Turnaround Time

Hello,

I was just wondering what the typical turnaround time on project reviews was.

Thank you,

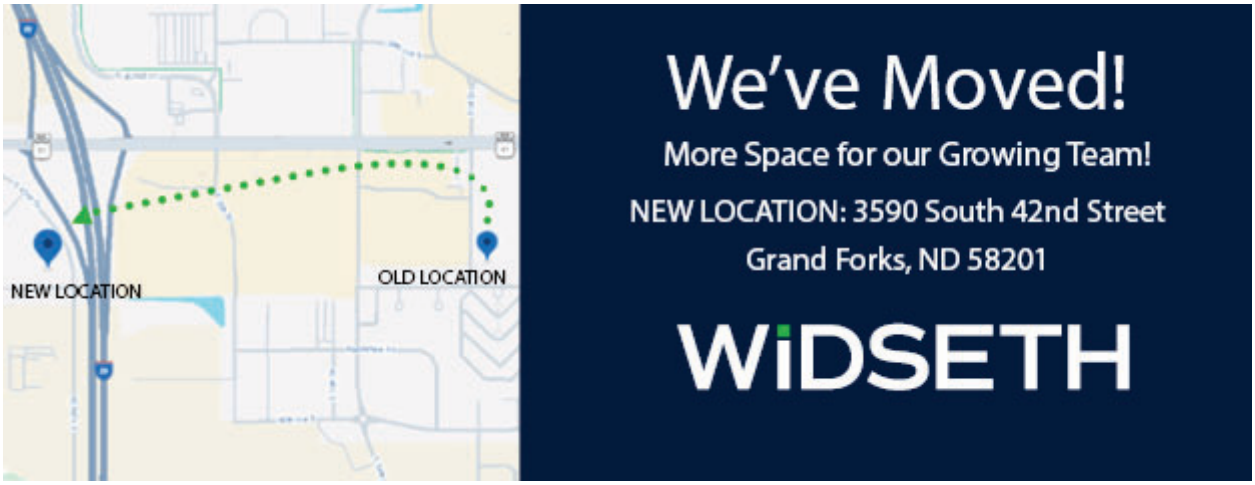
Graham Goodwin, PhD, RPA
Staff Archaeologist
701-765-8032
3590 S 42nd St
Grand Forks, ND 58201

WiDSETH CELEBRATING FIFTY YEARS EST. 1975

Widseth.com

50 Best Places to Work (*Prairie Business Magazine,* 2024)





From: archcenter@aol.com <archcenter@aol.com>
Sent: Thursday, August 28, 2025 8:42 AM
To: Graham Goodwin <Graham.Goodwin@widseth.com>
Subject: Re: Question about MIAC Review Submissions

Graham: That is the same experience I have had with MIAC reviews. All I can suggest is that you inquire as to the status of the review; trick is to keep from nagging/pressuring by inquiring too often or hard. I think it is better to call the reviewer rather than email but that may just be a personal preference.

Sorry I cannot be more helpful. Good luck!

Sue

On Wednesday, August 27, 2025 at 01:51:23 PM CDT, Graham Goodwin <graham.goodwin@widseth.com> wrote:

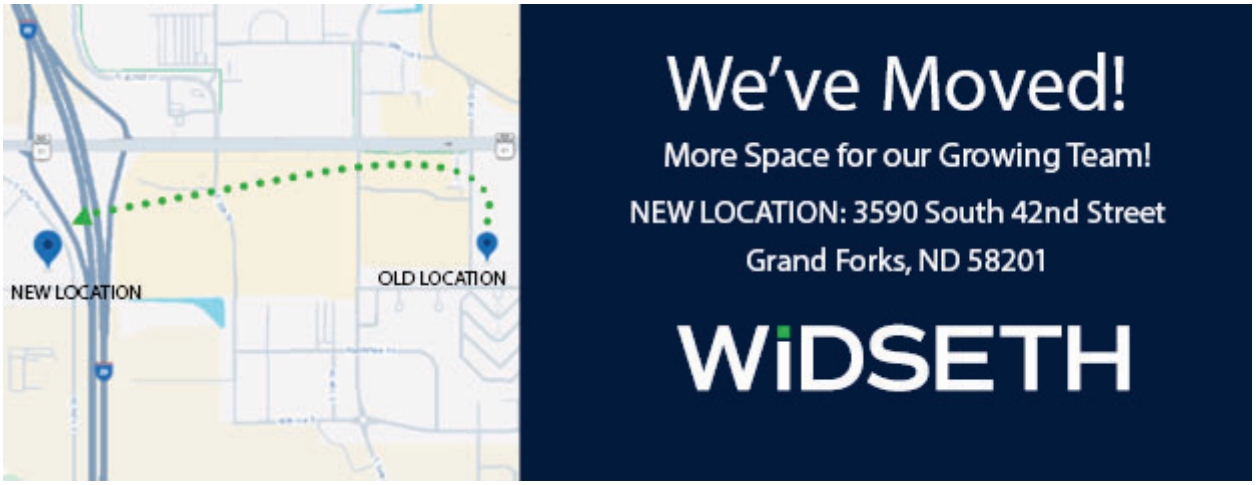
> Hi Sue,
>
> I had a quick question about your experience submitting cultural resource project reviews to the Minnesota Indian Affairs Council (MIAC). We haven't received any responses to our recent submissions—some of which were sent several months ago—and I was wondering if you might have any suggestions for how best to get in touch with them or encourage a response.
>
> Thanks so much for your time and any advice you can share!

Graham Goodwin, PhD, RPA
Staff Archaeologist
701-765-8032
3590 S 42nd St
Grand Forks, ND 58201

WiDSETH CELEBRATING FIFTY YEARS EST. 1975

Widseth.com

50 Best Places to Work (*Prairie Business Magazine,* 2024)



APPENDIX P

Air Assessment Report

WiDSETH

September 10, 2025

Rochester
3777 40th Avenue NW
Suite 200
Rochester MN 55901

507.292.8743
Rochester@Widseth.com
Widseth.com

Fiscal Services – 6th Floor
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

Subject: **North Zumbro Sanitary Sewer District Facility Air Permit Applicability Determination Request**

Dear Air Permitting Staff:

On behalf of the North Zumbro Sanitary Sewer District (NZSSD), Widseth Smith Nolting & Associates, Inc. submits the enclosed air permit applicability determination request for the NZSSD Wastewater Treatment Facility (WWTF) that will be located in Zumbrota, Minnesota.

The facility is currently completing an Environmental Assessment Worksheet (EAW) for the WWTF because the facility is a new municipal wastewater treatment facility with an average wet weather design flow capacity of 200,000 gallons per day or more. The proposed facility consists of liquid wastewater treatment, biological phosphorus removal, an emergency diesel generator engine, and natural gas heating units. An air permitting assessment was performed to determine whether the facility is required to obtain an air emissions permit. Based on the enclosed air permitting applicability assessment, the WWTF is not required to obtain a state or federal air emissions permit.

The applicable air permit applicability determination request forms, assessment documentation, and a check in the amount of $2,850 are enclosed. If you have any questions, please contact me at Dan.McInnis@widseth.com.

Regards,

Dan McInnis, Ph.D, Environmental Scientist
Widseth Smith Nolting & Assoc., Inc.

cc: Luke Taylor, Stantec

Enclosures: Air Permitting Applicability Assessment

Stantec

Memo

To:	Dan McInnis, Widseth Smith Nolting & Assoc., Inc.	From:	Sam Helal Cronister, Stantec Consulting Services Inc. Stephanie Kuphal, Stantec Consulting Services Inc.
Project/File:	227707080	Date:	September 10, 2025

Reference: North Zumbro Sanitary Sewer District Wastewater Treatment Facility Air Permit Applicability Assessment

This memorandum provides documentation of Stantec Consulting Services Inc's (Stantec's) air quality assessment for the North Zumbro Sanitary Sewer District (NZSSD) Wastewater Treatment Facility (WWTF) located in Zumbrota, Minnesota and the applicable permitting and/or notification requirements. NZSSD is seeking agreement from MPCA air permitting staff that an air permit is not required for construction and operation of the proposed WWTF.

1 Description/Summary of Assessment

A draft Environmental Assessment Worksheet (EAW) is being prepared for the proposed NZSSD WWTF proposed northeast of the city of Zumbrota. The project description submitted to MPCA's environmental review staff is attached for reference. The NZSSD is a regional system with a single treatment plant proposed in Zumbrota, MN and associated pumping stations located in Goodhue, Wanamingo, and Pine Island that will pump wastewater to the Zumbrota facility. The EAW is triggered because the WWTF is a new municipal wastewater treatment facility with an average wet weather design flow capacity of 200,000 gallons per day or more. The site will consist of liquid wastewater treatment, biological phosphorus removal, an emergency diesel generator engine, and natural gas heating units. The draft EAW will include a cumulative impacts analysis, criterial pollutant air dispersion modeling, and an air emissions risk analysis (AERA) based on expected air emissions for the facility.

Based on the expected emissions from the equipment at the proposed facility along with other factors discussed below, neither a Part 70 Operating Permit nor a Minnesota State Air Permit is required for the operation of the facility. A review of applicable federal regulations was also conducted, and the applicable requirements are described below.

2 40 CFR Part 70 Permit Review

Under Minn. R. 7007.0200 (Sources Required or Allowed to Obtain a Part 70 Permit), the following sources are required to obtain a Part 70 Permit:

1) Major Sources: Sources that directly emit of have the potential to emit (PTE) 100,000 tons/year of greenhouse gases on a CO_2e basis, 100 tons/year of any other Title V air pollutant, 10 tons/year or more of any hazardous air pollutant (HAP) which has been listed pursuant to section 112(b) of the 1990 Clean Air Act Amendments, or 25 tons/year or more of any combination of HAPs.

2) Affected Sources: An affected source is defined as a source that includes one or more affected units. An affected unit is defined as an emission unit that is subject to any acid rain emissions reduction requirement or acid rain emissions limitation under title IV of the act (Acid Deposition Control) and rules promulgated thereunder.

3) Solid Waste Incinerators, Waste Combustors: A solid waste incineration unit or waste combustor must obtain a permit under this part if it is a major source, required to obtain a permit under section 129(e) of the act (Solid Waste Combustion Permits) or a new or existing waste combustor for which a performance standard has been promulgated under section 129(a)(1) of the act.

The EPA defines the potential to emit as follows: “the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of fuel combusted, stored or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable.” No physical or operational limits apply to the source. Therefore, 8,760 hours was used as the maximum capacity of the source (i.e., 365 days at 24 hours per day) for all equipment, with the exception of the emergency generator. The EPA recommends using 500 hours of operation for emergency generators only used during emergencies and for routine testing of the generator operation, as described in EPA’s Sept. 6, 1995, guidance memorandum titled “Calculating Potential to Emit for Emergency Generators.” VOC emissions for wastewater treatment were calculated using the Technology Transfer Network Clearinghouse for Inventories and Emission Factors for SCC 50100701. HAPs are not speciated for wastewater treatment emissions in the Technology Transfer Network Clearinghouse. HAP emissions for water treatment were conservatively assumed to be equal to VOC emissions.

Based on the attached emission calculations, the facility-wide PTE is below all the major source thresholds listed above. Hydrogen sulfide (H_2S) emissions were also evaluated to determine if the Prevention of Significant Deterioration (PSD) threshold was exceeded. Based on the attached emission calculations, the H_2S PTE is below the PSD threshold. Additionally, the facility is not classified as an acid rain affected source, and there is no solid waste incinerator or combustor installed. For these reasons, a Part 70 Permit is not required for the operation of the facility.

The Supreme Court’s 2014 Utility Air Regulatory Group v. USEPA overturned the 100,000 ton/year CO_2e threshold, but the threshold remains in Minnesota rule. Regardless, the site’s greenhouse gas PTE is less than 100,000 ton/year CO_2e.

3 Minnesota State Air Permit Review

According to Minn. R. 7007.0250 (Sources Required to Obtain a State Permit), the following facilities need to obtain a State Permit for the operation of the equipment installed at their facility:

1) NSPS/NESHAP State Permits: The stationary source contains an affected facility that is subject to a standard under 40 CFR Part 60, as amended Standards of Performance for New Stationary Sources (NSPS) or the stationary source is subject to a standard under 40 CFR Part 61, as amended National Emission Standards for Hazardous Air Pollutants (NESHAP). Minn. R. 7007.0300 describes several exemptions from this requirement.

2) SIP Required State Permit: A stationary source must obtain a state permit if the agency notifies the source that a permit is needed as part of a state implementation plan to be submitted to the EPA to demonstrate attainment with a national ambient air quality standard.

3) PTE Threshold Required State Permit: A stationary source must obtain a state permit if it has the PTE any pollutant listed below at a rate equal to or greater than the following amounts, in tons per year, for:

    a. Lead: 0.5 tons/year

    b. SO2: 50 tons/year

    c. PM10: 25 tons/year

    d. VOCs: 100 tons/year

4) Part 70 State Permits: A stationary source that would otherwise be required to obtain a Part 70 permit may avoid that requirement by obtaining a state permit under this part which contains federally enforceable conditions to limit its emissions to levels below those that would trigger the requirement to obtain a Part 70 permit.

5) Waste Combustors: A waste combustor must obtain a permit under this part unless it is a Class IV waste combustor located at a hospital or a waste combustor subject to certain exemptions.

Applicable EPA emission standards do not trigger air permitting for the WWTF. This facility is not subject to any regulations under 40 CFR Part 61. The emergency generator at the facility will be constructed after June 12, 2006, so the generator is subject to 40 CFR 60, Subpart IIII. See Section 4 of this memorandum for additional NSPS/NESHAP discussion.

The WWTF is not part of a state implementation plan to be submitted to the EPA to demonstrate attainment with a National Ambient Air Quality Standard. Additionally, based on the calculations in Attachment B, the PTE at the facility is less than the state permit thresholds listed above. Lastly, an enforceable limit is not being proposed to keep the facility from requiring a Part 70 Permit, and there will be no waste combustors installed at the facility.

Minn. R. 7007.0300 outlines the sources that are not required to obtain an air permit. The two exemptions specific to the NZSSD WWTF are as follows:

1) Any stationary source that is not described in 7007.0200 (Sources Required or Allowed to Obtain a Part 70 Permit), subparts 2 to 5 or 7007.0250 (Sources Required to Obtain a State Permit). These are discussed in detail above.

2) Any stationary source that would be required to obtain a permit solely because it is subject to the following new source performance standard: Subpart IIII, if all engines subject to this standard at the stationary source each have a displacement less than 30 liters per cylinder and did not rely on performance testing of the affected unit to demonstrate compliance with the standard.

Based on the exemptions described above, the NZSSD WWTF is a stationary source that is not described in 7007.0200 or 7007.0250. Additionally, the generator is subject to 40 CFR 60, Subpart IIII and will have a displacement less than 30 liters per cylinder. The generator will not rely on performance testing to demonstrate compliance with the standard. Therefore, under Minn. R. 7007.0300 Subp. 1(B)(5), the applicable EPA emission standard does not trigger air permitting for the proposed emergency generator. For these reasons, a state air permit is not required for the operation of the WWTF facility.

4 NSPS/NESHAP Applicability Review

There are several standards that are potentially applicable to the emission units in operation at the facility. These standards are described in detail below.

40 CFR 60, Subpart Dc: Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units (NSPS Dc) is potentially applicable to the natural gas-fired heaters located at the facility. According to §60.40c (a), “the affected facility to which this subpart applies is each steam generating unit for which construction, modification or reconstruction is commenced after June 9, 1989 and that has a maximum design heat input capacity of 29 megawatts (100 million British thermal units per hour (MMBtu/hr)) or less, but greater than or equal to 2.9 MW (10 MMBtu/hr).” All the proposed heaters for the facility are rated at less than 10 MMBtu/hr; therefore, this subpart does not apply to the any natural gas-fired equipment located at the facility.

40 CFR 60, Subpart IIII: Standards of Performance for Stationary Reciprocating Internal Combustion Engines (NSPS IIII) applies to any compression-ignition reciprocating internal combustion engine where the engine original order date is after June 12, 2006. The emergency engine that will be installed at the NZSSD WWTF will be manufactured after June 12, 2006. Therefore, the engine is subject to NSPS IIII. The requirements are as follows for the emergency engine:

- Purchase certified engines that meet the emission standards for NSPS IIII.
- Use diesel fuel that meets the requirements of 40 CFR 1090.305 for nonroad diesel fuel only, including a sulfur concentration of less than 15 ppm.

- Install a non-resettable hour meter if one is not already installed.
- Operate and maintain the stationary RICE and after-treatment control device (if any) according to the manufacturer's emission-related written instructions.
- Limit maintenance checks and readiness testing of such units to 100 hours per year. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that Federal, State, or local standards require maintenance and testing of emergency RICE beyond 100 hours per year.
- Maintain records of operating hours and the reason for operation, maintenance completed, and specifications for diesel fuel purchased.

40 CFR 60, Subpart A: These provisions are generally applicable. However, Subpart A does not establish any additional reporting or monitoring requirements beyond those listed in Subp. IIII as discussed above.

40 CFR 63, Subpart ZZZZ and Subpart A: National Emission Standards for Hazardous Air Pollutants for Stationary Internal Combustion Engines (NESHAP ZZZZ), with Subpart A General Provisions, applies to all new and existing stationary internal combustion engines located at area and major sources of HAPs. The facility is considered to be an area source of HAPs with a combined HAP PTE less than 25 tons per year and each individual HAP PTE less than 10 tons per year. Therefore, NESHAP ZZZZ applies to the emergency engine. All requirements of NESHAP ZZZZ are met by complying with the requirements of NESHAP IIII.

40 CFR 63, Subpart JJJJJJ: National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources (NESHAP JJJJJJ) applies to water heaters located at area sources of HAPs. According to §63.11195(e & f), gas-fired water heaters at area sources are not subject to any requirements of the subpart. Because the proposed heaters only burn natural gas, they are not subject to the requirements of this subpart.

40 CFR 63, Subpart VVV: National Emission Standards for Hazardous Air Pollutants: Publicly Owned Treatment Works (NESHAP VVV) applies to publicly owned treatment works (POTW). According to §63.1580, POTW are only subject to NESHAP VVV requirements if the facility is a Group 1 POTW regardless of whether it is located at a major source of HAP or a Group 2 POTW located at a major source of HAP emissions. A Group 1 POTW is defined as a POTW that accepts a waste stream regulated by another NESHAP and provides treatment controls as an agent for the industrial user. A Group 2 POTW is defined as a POTW that does not meet the definition of a Group 1 POTW. The WWTF will potentially accept wastewater from the Dairy Farmers of America (DFA) facility in Zumbrota, MN and the Land O' Lakes (LOL) facility in Pine Island, MN. The DFA and LOL facilities operate under Option D air permits and are not subject to any major source NESHAPs. Therefore, the WWTF is a Group 2 POTW under this standard. Because the facility is not a major source of HAPs, the facility is not subject to the requirements of NESHAP VVV.

Reference: North Zumbro Sanitary Sewer District Wastewater Treatment Facility Air Permit Applicability Assessment

40 CFR 61, Subpart E: National Emission Standards for Mercury applies to sludge dryers or sludge incinerators at a wastewater treatment plant. The WWTF will not dry or incinerate sludge, and therefore is not subject to this standard.

Highlighted applicable requirements of the applicable rules (NSPS IIII and NESHAP ZZZZ) are included as Attachments C and D to this memorandum. Note that the emergency generator located at the facility will only be used during maintenance, testing, or power loss.

Regards,

Stantec Consulting Services Inc.

Sam Helal Cronister P.E. (MN)
Environmental Engineer
Phone: (651) 395-5215
sam.cronister@stantec.com

Stephanie Kuphal P.E. (MN)
Senior Associate, Senior Environmental Engineer
Phone: (763) 252-6864
stephanie.kuphal@stantec.com

Attachment: A – Applicability Determination Request Forms

B - Emission Unit Inventory and Emission Calculations

C – 40 CFR 60, Subpart A and Subpart IIII Highlighted Requirements

D – 40 CFR 63, Subpart A and Subpart ZZZZ Highlighted Requirements

E – Project Description

Attachment A

Applicability Determination Request Forms

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

SCP-01: Submittal cover page

Permit application/notification/ determination request fee submittal

Air Quality Permit Program

Doc Type: Permit Application

Instructions on page 5.

1a) AQ Facility ID number: NA 1b) Agency Interest ID number: 257297

2) Facility name: North Zumbro Sanitary Sewer District Wastewater Treatment Facility

3) Submittal is (choose from the following options and then complete the remainder of item 3 as directed):

- ☐ The final certified (or recertified) version of a previously-submitted permit application. **Complete Section 3A.**
- ☐ Additional or supplemental information requested by permit staff during the permit-writing process. **Complete Section 3A.**
- ☒ A request that the Minnesota Pollution Control Agency (MPCA) make an applicability determination. **Complete Section 3A.**
- ☐ An application for a new Individual Part 70 or State Permit. **Complete Section 3B.**
- ☐ An application for reissuance of an Individual Part 70 or State Permit. **Complete Section 3B.**

Note: Applications for reissuance must be submitted using the MPCA's e-Services website at https://www.pca.state.mn.us/data/e-services. Applications outside of the e-services website will only be accepted if there is a request for confidentiality.

- ☐ An application for an amendment to an existing Individual Part 70 or State Permit. **Complete Section 3B.**
- ☐ An application for a Registration Permit, Capped Permit, or General Permit. **Complete Section 3C.**
- ☐ An application for an administrative change to an existing Registration, Capped, or General Permit. **Complete Section 3C.**

Note: Once the e-Service is available, registration, Capped, and General permit holders can electronically apply for an administrative change to their permit through MPCA's e-Services website at https://www.pca.state.mn.us/data/e-services. At some point, permit holders will be required to use e-Services for administrative permit changes. After that, paper change requests submitted will be denied. Check the MPCA website for the current status.

- ☐ A notification required under Minn. R. 7007.1150(C); Minn. R. 7007.1250, subp. 4; Minn. R. 7007.1350; Minn. R. 7007.0800, subp. 10, item B. **Complete Section 3D.**
- ☐ A notification from a hot mix asphalt plant holding a Registration Permit of the intent to incorporate ground tear-off shingles and/or manufacturer scrap shingles in the hot mix asphalt. **Complete Section 3D.**

Section 3A – Request for applicability determination, recertification of a previously-submitted permit application, or supplement to a previously-submitted permit application

Use this section only if your submittal is one of the following:

- The final version of a previously submitted permit application, incorporating changes negotiated through the permitting process, or
- Submittal of additional or supplemental information requested by permit staff during the permit-writing process, or
- A request for the MPCA to make an applicability determination.

For final versions and supplemental information, enter the "tracking number" which can be obtained from the MPCA permit staff working on the permit.

Check one of the boxes below. Do not complete Sections 3B, 3C, or 3D. Continue with item 4 of the form.

Choose one of the following:	Quantity	Points	Total points
☐ Recertification of a previously-submitted permit application – tracking number:	NA	NA	NA
☐ Supplement to a previously-submitted permit application – tracking number:	NA	NA	NA
☒ An Applicability Determination Request	1	x 10 =	10

Section 3B – Application for an Individual Part 70 or State Permit, reissuance of an Individual Part 70 or State Permit, or amendment of an Individual Part 70 or State Permit

Choose one of the following:

- ☐ This is the original application or replacement for a denied or withdrawn application**.** Complete the table below.
- ☐ This is the replacement for an application returned as incomplete (not denied) **and** the scope is exactly the same as in the incomplete application**.** Enter the tracking number of the incomplete application being replaced: _____. A new fee is not required, so completion of the table below is not necessary.
- ☐ This is the replacement for an application returned as incomplete (not denied) **and** the scope is different than the incomplete application**.** Enter the tracking number of the incomplete application being replaced: _____. Complete the table below.

If your submittal includes notifications that do not require a permit application, also complete Section 3D.

Choose one of the following:	**Quantity**	**Points**	**Total points**
☐ Application for an Individual Part 70 Permit		x 75 =	
☐ Application for an Individual State Permit		x 50 =	
☐ Application for reissuance of an expiring Individual Part 70 or State Permit (does not include modifications to a permit that require an amendment) **Note:** Applications outside of the e-services website will only be accepted if there is a request for confidentiality.			
Expiration date: _____ *(mm/dd/yyyy)* Application due date (180 days prior to expiration): _____ *(mm/dd/yyyy)*	NA	NA	NA
☐ Application for a major amendment to an Individual State or Part 70 Permit ☐ Includes reconstruction or modification of a New Source Performance Standards (NSPS) Affected Facility not subject to New Source Review		x 25 =	
☐ Application for a moderate amendment to an Individual State or Part 70 Permit		x 15 =	
☐ Application for a minor amendment to an Individual State or Part 70 Permit		x 4 =	
☐ Application for an administrative amendment to an Individual State or Part 70 Permit. For administrative amendments to individual permits, use the MPCA's e-Services website at https://www.pca.state.mn.us/data/e-services. Administrative amendment applications outside of the e-services website will only be accepted if there is a request for confidentiality.		x 1 =	

Additional information (check all that apply):

- ☐ Submittal was preceded by pre-application work with the MPCA (for example: dispersion modeling or modeling protocol review, Air Emission Risk Analysis (AERA) review, environmental review). The tracking number associated with the preapplication work is: _____

Date preapplication work was submitted: _____

- ☐ Permit will replace an existing permit of a different type (e.g., replacing a Capped Permit with an Individual State Permit, or replacing a Part 70 General Permit with an Individual Part 70 Permit).
- ☐ Permit is for construction of a new facility.
- ☐ Permit is required because of a modification to an existing facility, making the facility subject for the first time for the requirement for an Air Emission Permit.
- ☐ Project is subject to Prevention of Significant Deterioration (PSD) (40 CFR § 52.21). Send a complete copy of the application to U.S. Environmental Protection Agency (EPA) Region V (see instructions).
- ☐ Permit is required because of installation or modification of a Part 61 National Emission Standards for Hazardous Air Pollutants (NESHAP) and/or a Part 60 NSPS Affected Facility at a Stationary Source with Potential-to-Emit below all permit thresholds (Minn. R. 7007.0500, subp. 2.C.(1)).

Section 3C – Application for a Registration, Capped, or General Permit

Choose one of the following:

- ☐ This is the original application or replacement for a denied or withdrawn application**.** Complete the table below.
- ☐ This is the replacement for an application returned as incomplete (not denied) **and** the scope is exactly the same as in the incomplete application**.** Enter the tracking number of the incomplete application being replaced: _____. A new fee is not required, so completion of the table below is not necessary.
- ☐ This is the replacement for an application returned as incomplete (not denied) **and** the scope is different than the incomplete application**.** Enter the tracking number of the incomplete application being replaced: _____. Complete the table below.

If your submittal includes notifications that do not require a permit application, also complete Section 3D.

Choose one of the following:	Quantity	Points	Total points
☐ Application for a Registration Permit ☐ Option A ☐ Option B ☐ Option C ☐ Option D		x 2 =	
☐ Application for a Capped Permit ☐ Option 1 ☐ Option 2		x 4 =	
☐ Application for a Part 70 General Permit ☐ Manufacturing General Permit		x 4 =	
☐ Application for a State General Permit ☐ Nonmetallic Mineral Processing General Permit		x 3 =	
☐ Application for an administrative change to an existing Registration, Capped, or General Permit (e.g., change of facility ownership)		x 1 =	

Additional information (check all that apply):

☐ Permit will replace an existing permit of a different type (e.g., replacing a Registration Permit with a Capped Permit; replacing an Option B Registration Permit with an Option D Registration Permit; etc.)

☐ Permit is required for construction of a new facility.

☐ Permit is required because of a modification to an existing facility, making the facility subject for the first time for the requirement for an Air Emission Permit.

☐ Permit is required because of a modification or change making the facility ineligible for its existing Air Emission Permit.

☐ Submittal was preceded by pre-application work with the MPCA (for example: dispersion modeling or modeling protocol review, Air Emission Risk Analysis (AERA) review, environmental review or the facility was notified of a petition for Environmental Review). The tracking number associated with the preapplication work is:

Section 3D – Notifications

If your submittal also includes a permit application, then also complete Section 3A, 3B, or 3C as applicable. Check all applicable boxes below, then continue with item 4 of the form.

☐ A notification of accumulated insignificant activities (Minn. R .7007.1250, subp. 4)

☐ A notification of installation of pollution control equipment (Minn. R. 7007.1150, item C)

☐ A notification of replacement of a unit (Minn. R. 7007.1150, item C)

☐ A notification of replacement of controls with listed controls (Minn. R. 7007.1150, item C)

☐ A notification of changes that contravene a permit term (Minn. R .7007.1350)

☐ A notification from a hot mix asphalt plant including a request to incorporate ground tear-off shingles and/or manufacturer scrap shingles in the hot mix asphalt (applies to Registration Permits) Minn. R. 7011.0913, subp. 3)

4) Total points ("total points" from Section 3A, 3B, or 3C)

10

5) Total application fee

10 (total points from item 4) x $285 = $ 2850 (fee amount)

The application fee amount is $285 per point, payable to the MPCA. Send your payment ("fee amount") with your submittal. The fee is not refundable, per Minn. R. 7002.0016, subp. 1. There may be additional fees assessed during processing of your request, as required by Minn. R. ch. 7002.

Note: If an application is resubmitted for a different type of amendment or permit, the original fee is not refundable nor transferable. The resubmitted application fee must be paid in full.

6a) Confidentiality statement

☒ This application does not contain material claimed to be confidential under Minn. Stat. §§ 13.37, subd. 1(b) and 116.075. Skip item 6b, go to item 7.

☐ This application contains material which is claimed to be confidential under Minn. Stat. §§ 13.37, subd. 1(b) and 116.075. Complete Item 6b. Your submittal must include both Confidential and Public versions of your application.

Registration Permit applicants may not claim any portion of their application as confidential. If applying for a Registration Permit or an administrative change to a Registration Permit, you must check the first box above ("This application does not contain…..").

☐ Confidential copy of application attached ☐ Public copy of application attached

6b) Confidentiality certification

To certify data for the confidential use of the MPCA, a responsible official must read the following, certify to its truth by filling in the signature block on the following page, and provide the stated attachments.

☐ I certify that the enclosed permit application(s) and all attachments have been reviewed by me and do contain confidential material. I understand that only specific data can be considered confidential and not the entire application or permit. I certify that I have enclosed the following to comply with the proper procedure for confidential material:

- ☐ I have enclosed a statement identifying which data contained in my application I consider confidential, and I have explained why I believe the information qualifies for confidential (or non-public) treatment under Minnesota Statutes.
- ☐ I have explained why the data for which I am seeking confidential treatment should not be considered "emissions data" which the MPCA is required to make available to the public under federal law.
- ☐ I have enclosed an application containing all pertinent information to allow for completion and issuance of my permit. This document has been clearly marked "confidential".
- ☐ I have enclosed a second copy of my application with the confidential data redacted (blacked out, not omitted or deleted entirely). It is evident from this copy that information was there, but that it is not for public review. This document has been clearly marked "public copy".

Owner responsible official:

Print name: _____

Title: _____

Signature: _____

Date (mm/dd/yyyy): _____

Operator responsible official (if applicable)

Print name: _____

Title: _____

Signature: _____

Date (mm/dd/yyyy): _____

Additional owner/operator responsible official (if applicable):

Check applicable: ☐ Owner ☐ Operator.

Print name: _____

Title: _____

Organization: _____

Signature: _____

Date (mm/dd/yyyy): _____

Additional owner/operator responsible official (if applicable)

Check applicable: ☐ Owner ☐ Operator.

Print name: _____

Title: _____

Organization: _____

Signature: _____

Date (mm/dd/yyyy): _____

7) Submittal certification

I certify under penalty of law that the enclosed documents and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

I also certify, in accordance with Minn. R. 7007.0500, subp. 2 (K)(2) and subp. 2 (K)(3), that I have reviewed the procedures implemented by my facility to maintain compliance and that those procedures are, to the best of my knowledge and belief, reasonable to maintain compliance with all applicable requirements, including those that will become applicable during the term of the permit.

I also certify, in accordance with Minn. R. 7007.1450, subp. 4(D), that if this application requests the use of the minor or moderate permit amendment procedures, the proposed change is not part of a larger project which, taken as a whole, would not qualify for treatment as a minor or moderate permit amendment.

Choose one of the following:

☐ I certify that no construction is associated with the permit action sought by this permit application.

☒ I certify that my project includes construction, but construction has not yet been started except as allowed under Minn. R. 7007.1110, subp. 10 or Minn. R. 7007.1250, subp. 4, and will not begin until the permit is issued except as allowed under Minn. R. 7007.1110, subp. 12; Minn. R. 7007.1142, subp. 2; Minn. R. 7007.1150, item C; or Minn. R. 7007.1450, subp. 7.

☐ My project includes construction, and construction other than what is allowed under Minnesota Rules has been started.

Choose one of the following:

☒ I certify that my Facility is or will be located **outside** of the cumulative levels and effects (CL&E) statute area in South Minneapolis (approximately 1.5 miles around Hiawatha Avenue and 28th Street intersection).

☐ I certify that my Facility is or will be located **inside** of the cumulative levels and effects (CL&E) statute area in South Minneapolis (approximately 1.5 miles around Hiawatha Avenue and 28th Street intersection). I understand that the CL&E process applies before a permit can be issued.

Owner responsible official

Print name: Elizabeth Howard

Title: Chair for North Zumbro Sanitary Sewer District, Governed by a Joint Powers Board

Signature: [signature]

Date (mm/dd/yyyy): 10/2/2025

Operator responsible official (if applicable)

Print name: _____

Title: _____

Signature: _____

Date (mm/dd/yyyy): _____

Additional owner/operator responsible official (if applicable)

Print name: _____

Title: _____

Organization: _____

Signature: _____

Date (mm/dd/yyyy): _____

Additional owner/operator responsible official (if applicable)

Print name: _____

Title: _____

Organization: _____

Signature: _____

Date (mm/dd/yyyy): _____

8) Package submittal

Applications, notifications, and/or requests that are submitted without authorized signature(s) (under submittal certification for all applications and under confidentiality certification if you are seeking confidential treatment of any information in the application); without required forms, and/or without the required application fee, will be returned. You must submit at least one SCP-01 that bears the original signature(s) (i.e., is not a photocopy of the signed signature page). Please make your check out to the Minnesota Pollution Control Agency. Send the complete application package and check to:

Fiscal Services – 6th Floor
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

You may choose to submit your application as a "pdf" file on an electronic media, such as a compact disc (CD) or USB drive. If you choose this option, you must still include a paper copy of any form that requires a signature.

Instructions for submittal cover page

1a) AQ Facility ID number -- Fill in your Air Quality (AQ) Facility Identification (ID) number. This is the first eight digits of the permit number for all permits issued under the operating permit program. If your facility has never been issued a permit under this program, leave this line blank.

1b) Agency Interest ID number -- Fill in your Agency Interest ID number. This is an ID number assigned to your facility through the Tempo database. If you have never had an air quality permit or don't know this number, leave this line blank.

2) Facility name -- Enter your facility name.

3) This submittal is for -- Check the appropriate box describing what you are submitting. Then proceed to the section indicated (Section 3A, 3B, 3C, or 3D) and follow the applicable instructions.

Section 3A

Complete this section if your submittal is a supplement to a previously-submitted permit application, a recertification of a previously-submitted permit application, or a request for the MPCA to make an applicability determination.

Don't use this section if you are resubmitting a new application, either for the first time or as a replacement for an incomplete or denied permit application.

- Check the "Recertification of a previously-submitted permit application" box only if your submittal is a final version of a previously submitted permit application, incorporating changes negotiated through the permitting process. Enter the

Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

CH-16

Applicability Determination Request

Air Quality Permit Program

Doc Type: Permit Application

Instructions on Page 2

Facility Information

1a) AQ Facility ID No.: NA **1b)** AQ File No.: 257297

2) Facility Name: North Zumbro Sanitary Sewer District Wastewater Treatment Facility

3) Date:

4) Current Air Quality Permit status for your facility:

- ☐ Part 70 Permit
- ☐ State Individual Permit
- ☐ Registration Permit
- ☐ General Permit
- ☐ Capped Permit
- ☒ No Current Facility Permit
- ☐ Other, describe:

5) Description of the proposed project/modification/rule interpretation that is subject of this request (use additional pages if needed):

The North Zumbro Sanitary Sewer District (NZSSD) Wastewater Treatment Facility (WWTF) is completing an Environmental Assessment Worksheet for the proposed WWTF. The EAW is triggered because the WWTF is a new municipal wastewater treatment facility with an average wet weather design flow capacity of 200,000 gallons per day or more. The site will consist of liquid wastewater treatment, biological phosphorus removal, an emergency diesel generator engine, and natural gas heating units. The NZSSD is seeking agreement from MPCA air permitting staff that an air permit is not required for the facility.

Potential emissions for criteria pollutants, hazardous air pollutants, and hydrogen sulfide are below the federal and state permitting thresholds. The facility is not a source required to obtain a Part 70 or State Permit in accordance with Minn. R. 7007.0200 or Minn. R. 7007.0250. The applicable 40 CFR 60 Subp. IIII requirements are allowed without an air permit under Minn. R. 7007.0300 Subp. 1B(5). The facility will purchase a certified engine to comply with this standard. The facility is not subject to any NESHAP and NSPS requirements that require the facility to obtain an air permit. Therefore, neither a Part 70 Operating Permit nor a Minnesota State Air Permit are required for the facility.

6) Complete and submit this form, Form CH-GI-01, Form SCP-01, and all other supporting forms, pertinent data, and discussion.

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

CH-GI-01

Facility information for permit changes

Air Quality Permit Program

Doc Type: Permit Application

Instructions on page 3.

1a) AQ Facility ID number: NA **1b)** Agency Interest ID number: 257297

2) **Facility name**: North Zumbro Sanitary Sewer District Wastewater Treament Facility

3a) **Facility location**

Street address: North of E 4th St, 0.5 mi East of Highway 58, South of North Fork Zumbro River

City: Zumbrota County: Goodhue Zip code: 55992

3b) Is your facility located in an area of environmental justice concern or within one mile of one?

Check your location here: https://arcg.is/vqaGa.

☒ No ☐ Yes

Note: If the facility is or will be located within the city limits of Minneapolis, attach a map showing the exact location. See instructions for additional information on projects within areas of environmental justice concern.

3c) Mailing address: 250 South Main Street (PO Box 280)

City: Pine Island State: MN Zip code: 55963

4) **Corporate/Company Owner**

Name: North Zumbrota Sanitary Sewer District

Mailing address: 250 South Main Street (PO Box 280)

City: Pine Island State: MN Zip code: 55963

Owner Classification: ☐ Private ☒ Local Govt. ☐ State Govt. ☐ Federal Govt. ☐ Utility

Legally responsible official:

Name: Elizabeth Howard Phone: 507-356-4591 Ext. 9

Title: Chair, North Zumbro Sanitary Sewer District, Governed by a Joint Powers Board Fax: Please call.

Mailing Address (if different than above):

City: State: Zip code:

Email address: elizabeth.howard@ci.pineisland.mn.us

Indicate ownership interest in percent: 100%

5) **Corporate/Company Operator (if different than owner)**

Name:

Mailing address:

City: State: Zip code:

Legally responsible official:

Name: Phone:

Title: Fax:

Mailing address:

City: State: Zip code:

Email address: _____

6) Additional Corporate/Company owners and operators (if applicable)

Check applicable: ☐ Owner ☐ Operator.

Name: _____

Mailing address: _____

_____

City: _____ State: _____ Zip code: _____

Legally responsible official:

Name: _____ Phone: _____

Title: _____ Fax: _____

Mailing address: _____

_____

City: _____ State: _____ Zip code: _____

Email address: _____

If owner, indicate ownership interest in percent: _____

7) Does the facility have more Corporate/Company owners and/or operators? ☐ Yes ☒ No

If yes, attach additional sheets with the information indicated in item 6 for each owner and/or operator not listed above.

8) Facility contact person for this permit

Name: Elizabeth Howard Phone: 507-356-4591 Ext. 9

Title: Chair Fax:

Organization name: North Zumbro Sanitary Sewer District, Governed by a Joint Powers Board

Mailing address: 250 South Main Street (PO Box 280)

_____

City: Pine Island State: MN Zip code: 55963

Email address: elizabeth.howard@ci.pineisland.mn.us

9) All billings for annual fees should be addressed to:

Name: Elizabeth Howard Phone: 507-356-4591 Ext. 9

Title: Chair Fax: Please call.

At (check one): ☒ Owner address ☐ Operator address ☐ Emission facility address

Organization name: North Zumbro Sanitary Sewer District, Governed by a Joint Powers Board

Mailing address: _____

_____

City: _____ State: _____ Zip code: _____

Email address: elizabeth.howard@ci.pineisland.mn.us

10) Standard Industrial Classification (SIC) Code and description**, and North American Industry Classification System (NAICS) code and description** for the facility:

Primary: 4952 / Sewerage Systems

Secondary (if applicable): _____ / _____

Tertiary (if applicable): _____ / _____

Primary NAICS code: _____ / _____

11) Primary product produced (or activity performed) at the facility is:

Municipal Wastewater Treatment

12) Facility is: ☒ Stationary ☐ Portable

13) (reserved for future use)

14) Is environmental review required (either an Environmental Assessment Worksheet (EAW) or an Environmental Impact Statement (EIS)) for this facility?

☐ No ☒ Yes -- You may also be required to perform a state air toxics review for your facility. Please call 800-657-3864 or locally 651-296-6300.

15) Are you (or will you be, if this is a new facility) required to submit a Toxics Release Inventory (Form R) under SARA Title 313 for this facility? Contact the Minnesota Emergency Planning and Community Right-to-Know Act (EPCRA) Program for more information, at 651-201-7400.

☐ Yes – Answer Question 15a. ☒ No – Go on to Question 16.

15a) Are you required to submit a Pollution Prevention Plan Progress Report in accordance with Minn. Stat. § 115D.08?

☐ No ☐ Yes, and the most recently required progress report has been submitted.

☐ Yes, but a progress report has not been submitted because (fill in reason below):

16) Is this facility within 50 miles of another state or the Canadian border?:

☒ Yes (specify which ones): WI ☐ No

17) Are you proposing any alternative operating or emissions trading scenarios in this application? (See Minn. R. 7007.0800, subp. 10 and 11)

☒ No ☐ Yes - Attach a description of your proposal, including a statement on how the proposal will meet all applicable requirements (specifically, please address any applicable New Source Review requirements - see Form CH-04).

18) Person preparing this permit application:

Name: Luke Taylor

Title: Sr. Principal, Environmental Compliance and Permitting

Organization: Stantec Consulting Services Inc.

Mailing address: One Carlson Parkway

Suite 100

City: Plymouth State: MN Zip code: 55447

Phone: 763-479-4291 Fax: Please call.

Email address: luke.taylor@stantec.com Date (mm/dd/yyyy): 09/10/2025

Instructions for form CH-GI-01

1a) **AQ Facility ID number --** Fill in your Air Quality (AQ) Facility Identification (ID) number. This is the first eight digits of the permit number for all permits issued under the Title V operating permit program. If your facility has never been issued a permit under this program, leave this line blank.

1b) **Agency Interest ID number --** Fill in your Agency Interest ID number. This is an ID number assigned to your facility through the Tempo database. If you don't know this number, leave this line blank.

2) **Facility name --** Enter your facility name as it will appear on your permit.

3a) **Facility location --** Fill in the facility's street address and the city and county where the facility is located. You may not use a P.O. Box number for the street address. If the facility is or will be located within the limits of the City of Minneapolis, include a map showing the exact location of the facility.

3b) **Areas of environmental justice concern --** To determine if your facility is in or within one mile of an area of environmental justice concern, use the MPCA's environmental justice screening tool, available here https://arcg.is/vqaGa.

To proactively consider actions for environmental improvement and community engagement, refer to this resource document https://www.pca.state.mn.us/sites/default/files/aq1-69.pdf.

The MPCA's screening tool will be used to determine if the facility's location is within or near an area of environmental justice (EJ) concern. For facilities within or near areas of environmental justice concern, the assigned permit engineer will set up a meeting to discuss environmental justice, if the facility is already incorporating actions to address environmental justice, and voluntary actions the facility could further take. The EPA's EJScreen tool is available here for additional information on environmental justice indices https://www.epa.gov/ejscreen.

If the facility is or will be located within the limits of the City of Minneapolis, include a map showing the exact location of the facility.

3c) **Facility mailing address --** Fill in the facility's mailing address. You may use a P.O. Box number for the mailing address, but not for the street address.

Note: All owners and operators must be listed on the permit application and are included on the permit. An owner or operator is a corporation, partnership, sole proprietorship, municipality, state, federal or other public agency who owns, leases,

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

CH-05
Applicability of NSPS
Air Quality Permit Program

Doc Type: Permit Application

Instructions on Page 3.

Complete this form to determine if the proposed change or modification results in new applicability of a New Source Performance Standard listed in Table 1.

1a) AQ Facility ID number: NA **1b)** Agency Interest ID number: 257297

2) Facility name: North Zumbro Sanitary Sewer District Wastewater Treatment Facility

3) Is there a New Source Performance Standards (NSPS) for a source category which includes the unit(s) you are installing, modifying, or reconstructing?

☒ Yes. Go to question 4

☐ No. Done with this Form. Answer "No" to question 3b) on Form CH-03.

4) Complete Question 4a) – 4c) for each new, modified, or reconstructed unit which may be subject to an NSPS following the proposed project. (Copy as necessary.)

4a) Unit	**4b)** NSPS Subpart(s) that may apply after project	**4c)** Do all of the NSPS listed in column 4b) for the unit listed in column 4a) currently apply (prior to the proposed project)? If this is a new unit, the answer is "no."	
Emergency Generator	NSPS IIII	☐ Yes – done with this unit	☒ No
		☐ Yes – done with this unit	☐ No
		☐ Yes – done with this unit	☐ No
		☐ Yes – done with this unit	☐ No
		☐ Yes – done with this unit	☐ No

5) Did you check "no" in column 4c) for **all** units in the table in question 4)?

☐ No. This indicates that NSPS currently applies to all units and there will be no newly applicable NSPS as a result of the proposed project. Answer "no" to question 3b on Form CH-03. Go on to question 11 of this form.

☒ Yes. Complete the remainder of this form for each unit for which you checked "no" in the last column of the table in question 4.

6) Installing a new unit to which the NSPS will apply?

☐ No. Go to Question 7).

☒ Yes Complete Questions 6a) – 6e) for each new unit. (Copy as necessary.)

6a) Emission Unit Number: NA

6b) Emission Unit/Equipment Description: Emergency Generator

6c) Stack/Vent Number: NA

6d) Date of Equipment Manufacture or Installation: TBD (mm/dd/yyyy)

6e) Attach a copy of the applicable 40 CFR pt. 60 subpart, and subpart A, with the applicable sections highlighted. Use Form CD-01 to document the proposed methods of compliance.

7) Reconstructing an existing unit to which an NSPS will apply?

☒ No. Go to Question 8).

☐ Yes Complete Questions 7a) – 7e) (next page) for each reconstructed unit. (Copy as necessary.)

7a) Emission Unit Number: _____

7b) Emission Unit/Equipment Description: _____

7c) Stack/Vent Number: _____

7d) Date of Reconstruction (expected): _____ (mm/dd/yyyy)

7e) Attach a copy of the applicable 40 CFR pt. 60 subpart, and subpart A, with the applicable sections highlighted. Use Form CD-01 to document the proposed methods of compliance.

8) Physical change or modification to an existing unit to which the NSPS might apply?

☒ No Go to Question 10).

☐ Yes – Complete Question 8a) for each modified unit. (Copy as necessary.)

8a) Emission Unit ID No.: _____

Pollutant(s) regulated by the NSPS	Emission Rate after change (lb/hr)	Emission Rate before change (lb/hr)	Change in Emission Rate (lb/hr)
☐ PM			
☐ PM_{10}			
☐ $PM_{2.5}$			
☐ NO_X			
☐ SO_2			
☐ CO			
☐ VOC			
☐ Lead			

9) Is there an increase in the hourly emission rate of any of the pollutants regulated by the NSPS?

☒ No. Go to Question 10).

☐ Yes – Complete Questions 9a) – 9d) for each modified unit. (Copy as necessary.)

9b) Emission Unit/Equipment Description _____

9b) Stack/Vent Number _____

9c) Date of Modification (expected) _____ (mm/dd/yyyy)

9d) Attach a copy of the applicable 40 CFR pt. 60 subpart, and subpart A, with the applicable sections highlighted. Use Form CD-01 to document the proposed methods of compliance.

10) Check all that apply

☐ If you answered either "yes" or "no" to question 6) **and** "no" to question 7) **and** "no" to question 8) or question 9), a major amendment is not needed under Minn. R. 7007.1500, subp. 3a. Answer "no" to Question 3b) on Form CH-03. Another type of permit amendment may still be required.

☐ If you answered "yes" or "no" to question 6), **and either** "yes" to question 7) **or** "yes" to questions 8) and 9), this change or modification requires a major amendment under Minn. R. 7007.1500, subp. 3a. Answer "yes" to Question 3b) on Form CH-03.

☒ If you answered "yes" to question 6), 7), or 9), **but the total facility potential-to-emit remains below all permit thresholds**, review Minn. R. 7007.0250 – 7007.0300 to determine if a permit is needed.

11) Have any incorporated NSPSs been amended since your permit was last issued? This applies even if the units affected by this permit action are not subject to the updated NSPS.

☒ No. Done with this form.

☐ Yes. Attach a copy of each applicable subpart of the NSPS, and highlight the applicable requirements in each applicable subpart. Also attach a copy of Subpart A with the applicable portions highlighted. Clearly indicate to which unit(s) the highlighted subparts apply; if the same subpart applies differently to different units, provide separate highlighted copies for those units.

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

Applicability of Part 63 NESHAP for amendments

Air Quality Permit Program

Doc Type: Permit Application

AQ Facility ID number: NA Agency Interest ID number: 257297

Facility name: North Zumbro Sanitary Sewer District Wastewater Treatment Facility

1) Are there or will there be Hazardous Air Pollutants (HAPs) emissions (listed on Table A) from any source affected by the proposed project?

   ☐ No. Done with this form. Answer "No" to question 3d on form *CH-03*.

   ☒ Yes. Go on to question 2 of this form.

2) Are you proposing to install new HAP-emitting sources, or reconstruct existing equipment that will emit HAPs following the reconstruction? (This specifically means "reconstruction" as defined at 40 CFR § 63.2 – if you are modifying existing equipment without meeting the definition of "reconstruction," you are not reconstructing existing equipment.)

   ☐ No. Answer "No" to question 3d on form *CH-03*. Go on to question 11 of this form.

   ☒ Yes. Go on to question 3 of this form.

3) Is the currently-permitted facility a major HAP source (considering potential emissions and all existing federally enforceable permit conditions)?

   ☒ No. Go on to question 4.

   ☐ Yes. Go to question 7.

4) Will the new or reconstructed unit(s) have the potential to emit 10 or more tons per year of any individual HAP, or 25 or more tons per year of total HAPs, before considering any limits the source may be subject to or limits you may propose later in this form?

   ☒ No. Go on to question 5.

   ☐ Yes. Go to question 6.

5) Will the facility as modified be a major source of HAP emissions after your proposed change, before considering any limiting conditions you may propose later in this form?

   ☒ No. Go to question 10.

   ☐ Yes. Go on to question 6.

6) It is possible to avoid becoming a major HAP source by proposing federally enforceable permit conditions to limit your potential HAP emissions from the entire facility (as modified) to less than 10 tons per year for each HAP and/or 25 tons per year for all HAPs combined. Do you want to accept permit limitations on HAPs to avoid becoming a major HAP source?

   ☐ No. Go on to question 7.

   ☐ Yes. **Briefly describe below the limitations** you would be willing to accept so that your facility-wide HAP emissions will be less than 10 tons per year for each HAP and less than 25 tons per year for all HAPs combined (use a separate sheet if needed). Description must include each hazardous air pollutant. Include your proposed limit, monitoring, recordkeeping, and reporting on form *CD-01*. You must answer "Yes" to question 6 on form *CH-03*. Then go to question 10 of this form.

7) Will any of the new or reconstructed items be subject to any of the standards for major source categories listed in Table B? If yes, list them below. Will any existing, non-modified parts of the facility, or the facility as a whole, become subject to one or more of the standards listed in Table B? If so, and the standard is not already included in your existing permit, list them below. Complete the table for each source listed.

☐ No. Go on to question 8 and answer "Yes."

☐ Yes. List the source categories applicable to each new, reconstructed, or existing HAP-emitting equipment.

Source	(N)ew, (R)econstructed, or (E)xisting? (Check one)	Applicable source category (subpart or title)	Compliance date (mm/dd/yyyy)
	☐ N ☐ R ☐ E		
	☐ N ☐ R ☐ E		
	☐ N ☐ R ☐ E		
	☐ N ☐ R ☐ E		

For each standard listed above, attach a copy of the standard with the applicable parts highlighted. Also attach a copy of Subpart A with the applicable portions highlighted. If the applicable standard offers more than one compliance option, make it clear which one you are choosing.
Go on to question 8.

8) Will any of the new or reconstructed items **not** be subject to any of the standards for major source categories listed in Table B?

☐ No. All of the new or reconstructed items are subject to a major source category and listed in Question 7. Go on to question 11.

☐ Yes. Some of the new or reconstructed items are not listed in Question 7. List them here. Go to Question 9.

HAP-emitting units with no applicable source category in Table B.

9) Will any new equipment or processes listed in Question 8 meet any of the following descriptions of constructing or reconstructing a major source?

Construct a major source means

(1) To fabricate, erect, or install at any greenfield site a stationary source or group of stationary sources which is located within a contiguous area and under common control and which emits or has the potential to emit 10 tons per year of any HAP's or 25 tons per year of any combination of HAP, or

(2) To fabricate, erect, or install at any developed site a new process or production unit which in and of itself emits or has the potential to emit 10 tons per year of any HAP or 25 tons per year of any combination of HAP, unless the process or production unit satisfies criteria in paragraphs (2) (i) through (vi) of the definition of "construct a major source" in 40 CFR § 63.41

Reconstruct a major source means the replacement of components at an existing process or production unit that in and of itself emits or has that potential to emit 10 tons per year of any HAP or 25 tons per year of any combination of HAP, whenever (1) The fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable process or production unit; and (2) It is technically and economically feasible for the reconstructed major source to meet the applicable maximum achievable control technology emission limitation for new sources established under subpart B of 40 CFR part 63.

☐ No. Answer "No" to question 3d on form *CH-03*. Go on to question 11 of this form.

☐ Yes. For those units, you must propose a case-by-case Maximum Achievable Control Technology (MACT) determination meeting the requirements of 40 CFR § 63.43. Contact MPCA for information about proposing a case-by-case MACT determination for approval. Answer "Yes" to question 3d on form *CH-03*. Go on to question 11 of this form.

10) Some non-major HAP sources will be subject to requirements of area source NESHAPs. Will the proposed new or reconstructed units belong to any of the area source categories listed below?

☐ No. Answer "No" to question 3d on Form CH-03. Go to question 11 of this form.

☒ Yes. Place a check in the box next to that category, and read the specified NESHAP for source categories to determine all applicable requirements for area sources. Attach a copy of each applicable subpart of the NESHAP for area source categories, and highlight the applicable requirements in each applicable subpart. Also attach a copy of Subpart A with the applicable portions highlighted. Answer "No" to question 3d on form *CH-03*. Go on to question 11 of this form.

- ☐ Acrylic and Modacrylic Fibers Production, 40 CFR § 63 subp. LLLLLL
- ☐ Asphalt Processing and Asphalt Roofing Manufacturing, 40 CFR § 63 subp. AAAAAAA
- ☐ Carbon Black Production, 40 CFR § 63 subp. MMMMMM
- ☐ Chemical Manufacturing Area Sources, 40 CFR § 63 subp. VVVVVV
- ☐ Chemical Manufacturing: Chromium Compounds, 40 CFR § 63 subp. NNNNNN
- ☐ Chemical Preparations Industry, 40 CFR § 63 subp. BBBBBBB
- ☐ Chromic acid anodizing (Chromium Electroplating), 40 CFR § 63 subp. N
- ☐ Clay Ceramics Manufacturing, 40 CFR § 63 subp. RRRRRR
- ☐ Commercial dry cleaning (Perc) transfer machines, 40 CFR § 63 subp. M
- ☐ Commercial sterilization facilities, 40 CFR § 63 subp. O
- ☐ Decorative chromium electroplating **(Chromium Electroplating)**, 40 CFR § 63 subp. N
- ☐ Electric Arc Furnace Steelmaking Facilities, 40 CFR § 63 subp. YYYYY
- ☐ Ferroalloys Production Facilities, 40 CFR § 63 subp. YYYYYY
- ☐ Flexible Polyurethane Foam Production and Fabrication, 40 CFR § 63 subp. OOOOOO
- ☐ Gasoline Dispensing Facilities, 40 CFR § 63 subp. CCCCCC
- ☐ Gasoline Distribution Bulk Terminals, Bulk Plants, and Pipeline Facilities, 40 CFR § 63 subp. BBBBBB
- ☐ Glass Manufacturing, 40 CFR § 63 subp. SSSSSS
- ☐ Gold Mine Ore Processing and Production, 40 CFR § 63 subp. EEEEEEE
- ☐ Halogenated solvent cleaners (Degreasing Organic Cleaners), 40 CFR § 63 subp. T
- ☐ Hard chromium electroplating (Chromium Electroplating), 40 CFR § 63 subp. N
- ☐ Hospital Sterilizers using Ethylene Oxides, 40 CFR § 63 subp. WWWWW
- ☐ Industrial, Commercial, and Institutional Boilers and Process Heaters – Area Sources. 40 CFR § 63 subp. JJJJJJ
- ☐ Iron and Steel Foundries Area Sources, 40 CFR § 63 subp. ZZZZZ
- ☐ Lead Acid Battery Manufacturing, 40 CFR § 63 subp. PPPPPP
- ☐ Metal Fabrication and Finishing Sources, 40 CFR § 63 subp. XXXXXX
- ☐ Nonferrous Foundries: Aluminum, Copper, and Other, 40 CFR § 63 subp. ZZZZZZ
- ☐ Oil and natural gas production, 40 CFR § 63 subp. HH
- ☐ Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources, 40 CFR § 63 subp. HHHHHH
- ☐ Paints and Allied Products Manufacturing, 40 CFR § 63 subp. CCCCCCC
- ☐ Plating and Polishing Operations, 40 CFR § 63 subp. WWWWWW
- ☐ Polyvinyl Chloride and Copolymers Production, 40 CFR § 63 subp. DDDDDD
- ☐ Prepared Feeds Manufacturing, 40 CFR § 63 subp. DDDDDDD
- ☐ Primary Copper Smelting, 40 CFR § 63 subp. EEEEEE
- ☐ Primary Nonferrous Metals: Zinc, Cadmium, and Beryllium, 40 CFR § 63 subp. GGGGGG
- ☒ Reciprocating Internal Combustion Engines, 40 CFR § 63 subp. ZZZZ
- ☐ Secondary aluminum processing, 40 CFR § 63 subp. RRR
- ☐ Secondary Copper Smelting, 40 CFR § 63 subp. FFFFFF
- ☐ Secondary Nonferrous Metals Processing (Brass, Bronze, Magnesium, Zinc), 40 CFR § 63 subp. TTTTTT
- ☐ Wood Preserving, 40 CFR § 63 subp. QQQQQQ

11) Have any incorporated NESHAPs been amended since your permit was last issued? This applies even if the units affected by this permit action are not subject to the updated NESHAP.

☒ No. Done with this form.

☐ Yes. Attach a copy of each applicable subpart of the NESHAP, and highlight the applicable requirements in each applicable subpart. Also attach a copy of Subpart A with the applicable portions highlighted. Clearly indicate to which unit(s) the highlighted subparts apply; if the same subpart applies differently to different units, provide separate highlighted copies for those units.

Attachment B

Emission Unit Inventory and Emission Calculations

North Zumbro Wastewater Treatment Plant Air Permitting Assessment
Potential to Emit Summary

Pollutant	Emergency Generator Emissions (tpy)	Wastewater Treatment Emissions (tpy)	Heating Unit Emissions (tpy)	Odor Control Units (tpy)	Biological Phosphorus Removal (tpy)	Totals (tpy)	Part 70 Permit Threshold	Part 70 Permit Required?	MN State Permit Threshold	MN Permit Required?	PSD Threshold	PSD Threshold Exceeded?
CRITERIA POLLUTANTS AND GREENHOUSE GASES												
PM	0.30	0	6.22E-02	0	0	0.36	NA	NA	NA	NA	≥ 250 tpy	No
PM_{10}	0.30	0	6.22E-02	0	0	0.36	≥ 100 tpy	No	≥ 25 tpy	No	≥ 250 tpy	No
$PM_{2.5}$	0.30	0	6.22E-02	0	0	0.36	≥ 100 tpy	No	≥ 100 tpy	No	≥ 250 tpy	No
SO_2	0.01	0	4.91E-03	0	0	0.01	≥ 100 tpy	No	≥ 50 tpy	No	≥ 250 tpy	No
NOx	9.66	0	0.82	0	0	10.48	≥ 100 tpy	No	≥ 100 tpy	No	≥ 250 tpy	No
VOC	0.58	8.12	4.50E-02	0	1.49	8.74	≥ 100 tpy	No	≥ 100 tpy	No	≥ 250 tpy	No
CO	5.29	0	0.69	0	0	5.97	≥ 100 tpy	No	≥ 100 tpy	No	≥ 250 tpy	No
CO_2e[a]	1051.96	1023.58	977.80	0	0	3053	NA	NA	≥ 100,000 tpy	No	NA	NA
Lead	0	0	4.09E-06	0	0	4.09E-06	≥ 10 tpy	No	≥ 0.50 tpy	No	≥ 250 tpy	No
H_2S	0	0	0	1.98	0.00	1.98	NA	NA	NA	NA	≥ 250 tpy	No
HAZARDOUS AIR POLLUTANTS												
Individual HAPs												
Acetaldehyde	1.62E-04	-	-	-	-	1.62E-04	≥ 10 tpy	No	≥ 10 tpy	No	NA	NA
Acrolein	5.07E-05	-	-	-	-	5.07E-05	≥ 10 tpy	No	≥ 10 tpy	No	NA	NA
Benzene	4.99E-03	-	1.72E-05	-	-	5.01E-03	≥ 10 tpy	No	≥ 10 tpy	No	NA	NA
Dichlorobenzene	-	-	9.82E-06	-	-	9.82E-06	≥ 10 tpy	No	≥ 10 tpy	No	NA	NA
Formaldehyde	5.07E-04	-	6.14E-04	-	-	1.12E-03	≥ 10 tpy	No	≥ 10 tpy	No	NA	NA
Hexane	-	-	1.47E-02	-	-	1.47E-02	≥ 10 tpy	No	≥ 10 tpy	No	NA	NA
Methanol	-	-	-	-	1.49	1.49	≥ 10 tpy	No	≥ 10 tpy	No	NA	NA
Naphthalene [b]	8.36E-04	-	4.99E-06	-	-	8.41E-04	≥ 10 tpy	No	≥ 10 tpy	No	NA	NA
POM [b]	1.03E-03	-	5.72E-06	-	-	1.03E-03	≥ 10 tpy	No	≥ 10 tpy	No	NA	NA
Acenaphthylene	1.19E-04	-	-	-	-	-	With POM Total					
Acenaphthene	6.02E-05	-	-	-	-	-	With POM Total					
Fluorene	1.65E-04	-	-	-	-	-	With POM Total					
Phenanthrene	5.25E-04	-	-	-	-	-	With POM Total					
Anthracene	1.58E-05	-	-	-	-	-	With POM Total					
Fluoranthene	5.18E-05	-	-	-	-	-	With POM Total					
Pyrene	4.77E-05	-	-	-	-	-	With POM Total					
Benz(a)anthracene	8.00E-06	-	-	-	-	-	With POM Total					
Chrysene	1.97E-05	-	-	-	-	-	With POM Total					
Benzo(b)fluoranthene	1.43E-05	-	-	-	-	-	With POM Total					
Methylnaphthalene	-	-	-	-	-	-	With POM Total					
Fluorene	-	-	-	-	-	-	With POM Total					
Phenanathrene	-	-	-	-	-	-	With POM Total					
Toluene	1.81E-03	-	2.78E-05	-	-	1.83E-03	≥ 10 tpy	No	≥ 10 tpy	No	NA	NA
Xylene	1.24E-03	-	-	-	-	1.24E-03	≥ 10 tpy	No	≥ 10 tpy	No	NA	NA
Metals												
Arsenic	-	-	1.64E-06	-	-	1.64E-06	≥ 10 tpy	No	≥ 10 tpy	No	NA	NA
Beryllium	-	-	9.82E-08	-	-	9.82E-08	≥ 10 tpy	No	≥ 10 tpy	No	NA	NA
Cadmium	-	-	9.01E-06	-	-	9.01E-06	≥ 10 tpy	No	≥ 10 tpy	No	NA	NA
Chromium	-	-	1.15E-05	-	-	1.15E-05	≥ 10 tpy	No	≥ 10 tpy	No	NA	NA
Cobalt	-	-	6.88E-07	-	-	6.88E-07	≥ 10 tpy	No	≥ 10 tpy	No	NA	NA
Manganese	-	-	3.11E-06	-	-	3.11E-06	≥ 10 tpy	No	≥ 10 tpy	No	NA	NA
Mercury	-	-	2.13E-06	-	-	2.13E-06	≥ 10 tpy	No	≥ 10 tpy	No	NA	NA
Nickel	-	-	1.72E-05	-	-	1.72E-05	≥ 10 tpy	No	≥ 10 tpy	No	NA	NA
Selenium	-	-	1.96E-07	-	-	1.96E-07	≥ 10 tpy	No	≥ 10 tpy	No	NA	NA
Total HAPs [b,c]	1.01E-02	8.12	1.55E-02	-	1.49	9.64	≥ 25 tpy	No	≥ 25 tpy	No	NA	NA

[a] The Title V CO2e permitting threshold of 100,000 tpy was overturned by the Supreme Court. However, the threshold remains in the MN state rules.

[b] Naphthalene is a HAP as both a POM and a separate pollutant. Naphthalene is included in the POM total, but is not double-counted in the total HAPs.

[c] Wastewater treatment total HAPs were conservatively assumed to be equal to VOC emissions.

North Zumbro Wastewater Treatment Plant Air Permitting Assessment
Emergency Generator

Fuel Type:	Diesel	
Number of Units:	1	
Fuel Consumption:	186.4	gal/hr
Fuel Heat Value:	138,000	Btu/gal, 40 CFR 98 Table C-1
Rated Heat Input:	25.72	MMBtu/hr, assuming 7000 Btu/hp-hr from AP-42, Table 3.3-1 Footnote a, Oct. 1996.
Brake-Specific Fuel Consumption:	7000	Btu/hp-hr, AP-42, Table 3.3-1 Footnote
Conversion Factor:	0.7457	kw/hp
Rated Mechanical Output:	3,674	bhp
Unrestricted Operating Hours:	500	hr/yr, maximum uncontrolled emissions
Potential Operating Hours:	500	hr/yr, Sept. 6, 1995, Memorandum "Calculating Potential to Emit (PTE) for Emergency Generators", from John Seitz, EPA OAQPS Director

Calculations Summary Generator

Pollutant	Emission Factor (lb/MMBtu)[a]	Emission Rate (lbs/hr)	Maximum Uncontrolled Emissions (tons/yr)	Pollution Control Efficiency (%)	Maximum Controlled Emissions (tons/yr)
Criteria Pollutants					
PM	4.70E-02	1.21	0.30	0%	3.02E-01
PM_{10}	4.70E-02	1.21	0.30	0%	3.02E-01
$PM_{2.5}$	4.70E-02	1.21	0.30	0%	3.02E-01
SO_x	1.5E-03	3.90E-02	9.74E-03	0%	9.74E-03
NO_x	1.50	38.66	9.66	0%	9.66
CO	0.82	21.14	5.29	0%	5.29
VOC	0.09	2.31	0.58	0%	0.58
Greenhouse Gases					
CO2-e		4207.83	1051.96	0%	1051.96
CO2	163.05	4193.44	1048.36	0%	1048.36
CH4	0.0066	1.70E-01	4.25E-02	0%	4.25E-02
N2O	0.0013	3.40E-02	8.50E-03	0%	8.50E-03
Hazardous Air Pollutants					
Acetaldehyde	2.52E-05	6.48E-04	1.62E-04	0%	1.62E-04
Acrolein	7.88E-06	2.03E-04	5.07E-05	0%	5.07E-05
Benzene	7.76E-04	2.00E-02	4.99E-03	0%	4.99E-03
Formaldehyde	7.89E-05	2.03E-03	5.07E-04	0%	5.07E-04
Naphthalene	1.30E-04	3.34E-03	8.36E-04	0%	8.36E-04
POM					
Acenaphthylene	9.23E-06	2.37E-04	5.93E-05	0%	5.93E-05
Acenaphthene	4.68E-06	1.20E-04	3.01E-05	0%	3.01E-05
Fluorene	1.28E-05	3.29E-04	8.23E-05	0%	8.23E-05
Phenanthrene	4.08E-05	1.05E-03	2.62E-04	0%	2.62E-04
Anthracene	1.23E-06	3.16E-05	7.91E-06	0%	7.91E-06
Fluoranthene	4.03E-06	1.04E-04	2.59E-05	0%	2.59E-05
Pyrene	3.71E-06	9.54E-05	2.39E-05	0%	2.39E-05
Benz(a)anthracene	6.22E-07	1.60E-05	4.00E-06	0%	4.00E-06
Chrysene	1.53E-06	3.93E-05	9.84E-06	0%	9.84E-06
Benzo(b)fluoranthene	1.11E-06	2.85E-05	7.14E-06	0%	7.14E-06
Toluene	2.81E-04	7.23E-03	1.81E-03	0%	1.81E-03
Xylenes	1.93E-04	4.96E-03	1.24E-03	0%	1.24E-03
Lead[b]	ND	N/A	N/A	N/A	N/A
Total HAPs					**1.01E-02**

[a] Emission factors for PM, NOx, and CO from Appendix I to Part 1039, Table 2 to Appendix I - Tier 2 Emission Standards for generator engines > 560 kW. PM10 and PM2.5 emission factors are assumed equal to PM. VOC and HAPs emission factors are from AP-42, Section 3.4 "Large Stationary Diesel and All Stationary Dual Fuel Engines", Tables 3.4-1 through 3.4-4 (10/96). POM factor is the total of all PAHs listed. The SO2 emission factor is from MN Rule 7011.2300. GHG emission factors and global warming potentials are based on 81 FR 89252, Dec. 9, 2016 for consistence with the MPCA engine calculator spreadsheet.

[b] ND = No Data Available in AP-42

[c] MPCA's Engine Air Emissions Calculator (aq-f13-ecs03) does not include generators with a capacity over 600hp. The proposed generator is 1500 hp. Therefore, the MPCA's calculator was not used to calculate emissions for the unit.

Appendix I to Part 1039, Table 2 - Tier 2 Emission Standards, kW > 560

Pollutant	Emission Standard (g/kW-hr)	Emission Standard (lb/MMBtu)
PM	0.2	0.047
NOx	6.4	1.50
CO	3.5	0.82

North Zumbro Wastewater Treatment Plant Air Permitting Assessment
Wastewater Processing VOC Emissions

Facility Information

Maximum Design Flow	5	Million Gallons/Day
	1825	Million Gallons/Year

Calculations Summary

Pollutant	CAS No	Emission Factor (lb/million gallons)[a]	Maximum Uncontrolled Emissions (tons/year)	Pollution Control Efficiency (%)	Maximum Controlled Emissions (tons/year)
VOC	--	8.9	8.12	0%	8.12

[a] Emission factor is from the Technology Transfer Network Clearinghouse for Inventories and Emission Factors for SCC 50100701. Emission factors are for the entire sewage treatment facility.
[b] No speciation information for VOCs was identified from EPA. No VOC speciation has been completed on existing wastewater influent streams.

Hydrogen Sulfide Emissions from Odor Control for Screening and Grit Removal Facilities

Source Description	H2S Concentration (ppb)	Source Flowrate (acfm)	Emission Rate (lb/hr)	Annual Emissions (tpy)
Odor Control	10000	8500	4.51E-01	1.98

Exhaust H2S concentration will be 4-10 ppm based on engineering design information. 10 ppm was used to conservatively estimate H2S emissions.

Calculation Parameters

24.04	L/gmol, Ideal gas volume, calculated from ideal gas constant of 0.06236 mmHg-m3/gmol-K (40 CFR 60 Appendices, Method 4) at EPA standard conditions of 760 mmHg and 293 K.
34.06	g/gmol, H_2S molecular weight
28.317	L/ft^3

North Zumbro Wastewater Treatment Plant Air Permitting Assessment
Wastewater Processing GHG Emissions

Facility Information

Maximum Design Flow	5	Million Gallons/Day
	1825	Million Gallons/Year
	789	m^3/Hour
Annual Average Flow	5	Million Gallons/Day
	18927059	Liters/Day
Peak Daily BOD5	6590	Pounds/Day
	2989173718	mg/Day
	158	**mg/liter (g/m^3)**
Nitrogen Content in Influent	1201	Pounds/Day
	544764436	mg/day
	29	**mg/liter (g/m^3)**
Oxygen Demand Removal Efficiency of Biological Treatment Unit	**85%**	40 CFR 133.102 requirement for secondary treatment

Default Values

MCF_{ww}	0	Methane Correction Factor for Well Managed Aerated Treatment Process
Biomass Yield	0.65	g C converted to biomass/g C consumed in the wastewater treatment process
CF_{CO2}	1.375	Correction Factor (ratio of molecular weights for CO2 vs O2)
CF_{CH4}	0.5	Correction Factor (ratio of molecular weights for CH4 vs O2)
BG_{CH4}	0.00	Fraction of carbon as methane. Methane generation is not expected from the North Zumbro aerobic processes.
EF_{N2O}	0.005	N_2O emission factor (g N emitted as N2O per g TKN in influent)

Reference: Default values and emission calculations below are taken from EPA's guidance document titled "Greenhouse Gas Emission Estimation Methodology for Biogenic Emissions from Selected Source Categories" Chapter 3: Wastewater Treatment (Dec. 2010). Note that the WWTP does not utilize anaerobic digestion in its process.

Wastewater Treatment Process Biogenic CO_2 Emissions

Mg/hr CO_2 Emissions (Equation 3.1) = (10^{-6}) x (Wastewater Flow Rate m^3/hr) x (BOD) x (O_2 Demand Removal Efficiency of Biological Treatment Unit) x (CF_{CO2}) x [(1-MCF_{ww} x BG_{CH4})(1-Biomass Yield)]
Mg CO_2/hr = (10^{-6}) x (789) x (158) x (.85) x (1.375) x [(1 - (0x0))(1-0.65)]
Mg CO_2/hr = 0.051
Mg CO_2/yr = 446.26
Ton CO_2/yr = 490.89
Ton CO_2e/yr = 490.89

Wastewater Treatment CH_4 Emissions: There are no methane emissions expected from the aereobic liquids and solids treatment processes.

Wastewater Treatment N_2O Emissions

Mg/hr N_2O Emissions (Equation 3.8) = (10^{-6}) x (Wastewater Flow Rate m^3/hr) x (Nitrogen Content in Influent) x (EF_{N2O}) x (44/28)
Mg/hr N_2O Emissions (Equation 3.8) = (10^{-6}) x (789) x (29) x (0.005) x (44/28)

Mg N_2O/hr = 0.00018
Mg N_2O/yr = 1.56
Ton N_2O/yr = 1.72
Ton CO_2e/yr = 532.69

Note: GHG emission factors and global warming potentials are based on 81 FR 89252, Dec. 9, 2016 for consistence with the MPCA emission calculation spreadsheets.

Total CO_2e/Year	**1023.58**

North Zumbro Wastewater Treatment Plant Air Permitting Assessment
Biological Phosphorus Removal

MicroC 2000 Dosage Rate:	80	gal/day
	816	lbs/day
MicroC 2000 Density:	10.2	lbs/gal

Calculations Summary

Pollutant	Content (%)	Maximum Uncontrolled Emissions (lb/hr)	Maximum Uncontrolled Emissions (ton/yr)
VOC	1%	0.34	1.49
HAP (Methanol)	1%	0.34	1.49

Micro-C 2000 provides an energy source for the microorganisms. All methanol is expected to be consumed. Additionally, methanol is hydrophilic. While all methanol is assumed to evaporate as a worst cae, this assumption may be updated for the Air Emissions Risk Analysis.

North Zumbro Wastewater Treatment Plant Air Permitting Assessment
Misc. Heaters Capacity

Fuel Type:	Natural Gas		
Estimated Square Footage:	31,774	ft^2	
Total Heater Capacity:	1.91	MMBtu/hr	60 Btu/ft2 estimate from: https://inspectapedia.com/heat/Heating-Cooling-Climate-Zone-BTU-Requirements.php#HeatingBTUs
Natural Gas Heat Value:	1020	Btu/scf	
Total Fuel Consumption Rate:	1.87E-03	MMscf/hr	

Natural Gas

EQUI ID	N/A
Heat Input (MMBtu/hr)	1.91
Fuel Usage (MMSCF/hr)	1.87E-03
Unlimited Operating Hours	8760
Limited Operating Hours	8760
Firing Type	Small, Uncontrolled

Pollutant	AP-42 Emission Factor (lb/MMSCF)	Other Emission Factor (lb/MMscf)	Control Efficiency (%)	Unrestricted Emission Rate (lb/hr)	Controlled Emission Rate (lb/hr)	Unrestricted Emissions (tpy)	Limited Emissions (tpy)
Particulate Matter	7.60E+00		0.00%	1.42E-02	1.42E-02	6.22E-02	6.22E-02
PM < 10 micron	7.60E+00		0.00%	1.42E-02	1.42E-02	6.22E-02	6.22E-02
PM < 2.5 micron	7.60E+00		0.00%	1.42E-02	1.42E-02	6.22E-02	6.22E-02
Nitrogen Oxides	1.00E+02		0.00%	1.87E-01	1.87E-01	8.19E-01	8.19E-01
Carbon Monoxide	8.40E+01		0.00%	1.57E-01	1.57E-01	6.88E-01	6.88E-01
Sulfur Dioxide	6.00E-01		0.00%	1.12E-03	1.12E-03	4.91E-03	4.91E-03
Volatile Organic Compounds	5.50E+00		0.00%	1.03E-02	1.03E-02	4.50E-02	4.50E-02
Lead Compounds	5.00E-04		0.00%	9.35E-07	9.35E-07	4.09E-06	4.09E-06
HAPs - Total	1.89E+00		0.00%	3.53E-03	3.53E-03	1.55E-02	1.55E-02
Carbon Dioxide	1.17E+02		0.00%	2.23E+02	2.23E+02	9.77E+02	9.77E+02
Methane	2.20E-03		0.00%	4.20E-03	4.20E-03	1.84E-02	1.84E-02
Nitrous Oxide	2.20E-04		0.00%	4.20E-04	4.20E-04	1.84E-03	1.84E-03
Carbon Dioxide Equivalent	1.17E+02		0.00%	2.23E+02	2.23E+02	9.78E+02	9.78E+02
1,4-Dichlorobenzene (para-)	1.20E-03		0.00%	2.24E-06	2.24E-06	9.82E-06	9.82E-06
Arsenic compounds	2.00E-04		0.00%	3.74E-07	3.74E-07	1.64E-06	1.64E-06
Benzene	2.10E-03		0.00%	3.93E-06	3.93E-06	1.72E-05	1.72E-05
Beryllium compounds	1.20E-05		0.00%	2.24E-08	2.24E-08	9.82E-08	9.82E-08
Cadmium compounds	1.10E-03		0.00%	2.06E-06	2.06E-06	9.01E-06	9.01E-06
Chromium compounds	1.40E-03		0.00%	2.62E-06	2.62E-06	1.15E-05	1.15E-05
Cobalt compounds	8.40E-05		0.00%	1.57E-07	1.57E-07	6.88E-07	6.88E-07
Formaldehyde	7.50E-02		0.00%	1.40E-04	1.40E-04	6.14E-04	6.14E-04
Hexane	1.80E+00		0.00%	3.36E-03	3.36E-03	1.47E-02	1.47E-02
Manganese compounds	3.80E-04		0.00%	7.10E-07	7.10E-07	3.11E-06	3.11E-06
Mercury	2.60E-04		0.00%	4.86E-07	4.86E-07	2.13E-06	2.13E-06
Naphthalene	6.10E-04		0.00%	1.14E-06	1.14E-06	4.99E-06	4.99E-06
Nickel compounds	2.10E-03		0.00%	3.93E-06	3.93E-06	1.72E-05	1.72E-05
Polycyclic organic matter (POM)	6.98E-04		0.00%	1.30E-06	1.30E-06	5.72E-06	5.72E-06
Selenium compounds	2.40E-05		0.00%	4.49E-08	4.49E-08	1.96E-07	1.96E-07
Toluene	3.40E-03		0.00%	6.35E-06	6.35E-06	2.78E-05	2.78E-05

Other Emission Factor and/or Control Efficiency Factor Notes:

Heat input is for all natural gas heaters to be installed at the facility. No control is proposed for the units.

Notes for AP-42, Section 1.4 Calculations:

Emission factors for CO2, CH4, and N2O are from 40 CFR Part 98, Subpart C, Table C-1 and C-2 (November 29, 2013). CO2e emissions are based on global warming potentials from 40 CFR Part 98, Subpart A, Table A-1 (CO2 = 1, CH4 = 25, and N2O = 298) (November 29, 2013).

Firing Options

Large, Uncontrolled, Pre-NSPS
Large, Uncontrolled, Post-NSPS
Large, Controlled, Low Nox
Large, Controlled, Flue Gas Recirculation
Small, Uncontrolled
Small, Controlled, Low NOx burners
Small, Controlled, Flue Gas Recirculation
Tangential Fired, Uncontrolled
Tangential Fired, Controlled, Flue Gas Recirculation
Residential, Uncontrolled

Attachment C

40 CFR 60, Subpart A and Subpart IIII Highlighted Requirements

This content is from the eCFR and is authoritative but unofficial.

Title 40 —Protection of Environment
Chapter I —Environmental Protection Agency
Subchapter C —Air Programs
Part 60 —Standards of Performance for New Stationary Sources

Authority: 42 U.S.C. 7401 *et seq.*

Source: 36 FR 24877, Dec. 23, 1971, unless otherwise noted.

Subpart A General Provisions

§ 60.1 Applicability.
§ 60.2 Definitions.
§ 60.3 Units and abbreviations.
§ 60.4 Address.
§ 60.5 Determination of construction or modification.
§ 60.6 Review of plans.
§ 60.7 Notification and record keeping.
§ 60.8 Performance tests.
§ 60.9 Availability of information.
§ 60.10 State authority.
§ 60.11 Compliance with standards and maintenance requirements.
§ 60.12 Circumvention.
§ 60.13 Monitoring requirements.
§ 60.14 Modification.
§ 60.15 Reconstruction.
§ 60.16 Priority list.
§ 60.17 Incorporations by reference.
§ 60.18 General control device and work practice requirements.
§ 60.19 General notification and reporting requirements.

Table 1 to Subpart A of Part 60
Detection Sensitivity Levels (grams per hour)

Subpart A—General Provisions

§ 60.1 Applicability.

(a) Except as provided in subparts B, Ba, and C of this part, the provisions of this part apply to the owner or operator of any stationary source which contains an affected facility, the construction or modification of which is commenced after the date of publication in this part of any standard (or, if earlier, the date of publication of any proposed standard) applicable to that facility.

(b) Any new or revised standard of performance promulgated pursuant to section 111(b) of the Act shall apply to the owner or operator of any stationary source which contains an affected facility, the construction or modification of which is commenced after the date of publication in this part of such new or revised standard (or, if earlier, the date of publication of any proposed standard) applicable to that facility.

(c) In addition to complying with the provisions of this part, the owner or operator of an affected facility may be required to obtain an operating permit issued to stationary sources by an authorized State air pollution control agency or by the Administrator of the U.S. Environmental Protection Agency (EPA) pursuant to Title V of the Clean Air Act (Act) as amended November 15, 1990 (42 U.S.C. 7661). For more information about obtaining an operating permit see part 70 of this chapter.

(d) ***Site-specific standard for Merck & Co., Inc.'s Stonewall Plant in Elkton, Virginia.***

(1) This paragraph applies only to the pharmaceutical manufacturing facility, commonly referred to as the Stonewall Plant, located at Route 340 South, in Elkton, Virginia ("site").

(2) Except for compliance with 40 CFR 60.49b(u), the site shall have the option of either complying directly with the requirements of this part, or reducing the site-wide emissions caps in accordance with the procedures set forth in a permit issued pursuant to 40 CFR 52.2454. If the site chooses the option of reducing the site-wide emissions caps in accordance with the procedures set forth in such permit, the requirements of such permit shall apply in lieu of the otherwise applicable requirements of this part.

(3) Notwithstanding the provisions of paragraph (d)(2) of this section, for any provisions of this part except for Subpart Kb, the owner/operator of the site shall comply with the applicable provisions of this part if the Administrator determines that compliance with the provisions of this part is necessary for achieving the objectives of the regulation and the Administrator notifies the site in accordance with the provisions of the permit issued pursuant to 40 CFR 52.2454.

[40 FR 53346, Nov. 17, 1975, as amended at 55 FR 51382, Dec. 13, 1990; 59 FR 12427, Mar. 16, 1994; 62 FR 52641, Oct. 8, 1997; 88 FR 80542, Nov. 17, 2023]

§ 60.2 Definitions.

The terms used in this part are defined in the Act or in this section as follows:

Act means the Clean Air Act (42 U.S.C. 7401 *et seq.*)

Administrator means the Administrator of the Environmental Protection Agency or his authorized representative.

Affected facility means, with reference to a stationary source, any apparatus to which a standard is applicable.

Alternative method means any method of sampling and analyzing for an air pollutant which is not a reference or equivalent method but which has been demonstrated to the Administrator's satisfaction to, in specific cases, produce results adequate for his determination of compliance.

Approved permit program means a State permit program approved by the Administrator as meeting the requirements of part 70 of this chapter or a Federal permit program established in this chapter pursuant to Title V of the Act (42 U.S.C. 7661).

Capital expenditure means an expenditure for a physical or operational change to an existing facility which exceeds the product of the applicable "annual asset guideline repair allowance percentage" specified in the latest edition of Internal Revenue Service (IRS) Publication 534 and the existing facility's basis, as defined by section 1012 of the Internal Revenue Code. However, the total expenditure for a physical or operational change to an existing facility must not be reduced by any "excluded additions" as defined in IRS Publication 534, as would be done for tax purposes.

Clean coal technology demonstration project means a project using funds appropriated under the heading 'Department of Energy-Clean Coal Technology', up to a total amount of $2,500,000,000 for commercial demonstrations of clean coal technology, or similar projects funded through appropriations for the Environmental Protection Agency.

Commenced means, with respect to the definition of *new source* in section 111(a)(2) of the Act, that an owner or operator has undertaken a continuous program of construction or modification or that an owner or operator has entered into a contractual obligation to undertake and complete, within a reasonable time, a continuous program of construction or modification.

Construction means fabrication, erection, or installation of an affected facility.

Continuous monitoring system means the total equipment, required under the emission monitoring sections in applicable subparts, used to sample and condition (if applicable), to analyze, and to provide a permanent record of emissions or process parameters.

Electric utility steam generating unit means any steam electric generating unit that is constructed for the purpose of supplying more than one-third of its potential electric output capacity and more than 25 MW electrical output to any utility power distribution system for sale. Any steam supplied to a steam distribution system for the purpose of providing steam to a steam-electric generator that would produce electrical energy for sale is also considered in determining the electrical energy output capacity of the affected facility.

Equivalent method means any method of sampling and analyzing for an air pollutant which has been demonstrated to the Administrator's satisfaction to have a consistent and quantitatively known relationship to the reference method, under specified conditions.

Excess Emissions and Monitoring Systems Performance Report is a report that must be submitted periodically by a source in order to provide data on its compliance with stated emission limits and operating parameters, and on the performance of its monitoring systems.

Existing facility means, with reference to a stationary source, any apparatus of the type for which a standard is promulgated in this part, and the construction or modification of which was commenced before the date of proposal of that standard; or any apparatus which could be altered in such a way as to be of that type.

Force majeure means, for purposes of § 60.8, an event that will be or has been caused by circumstances beyond the control of the affected facility, its contractors, or any entity controlled by the affected facility that prevents the owner or operator from complying with the regulatory requirement to conduct performance tests within the specified timeframe despite the affected facility's best efforts to fulfill the obligation. Examples of such events are acts of nature, acts of war or terrorism, or equipment failure or safety hazard beyond the control of the affected facility.

Isokinetic sampling means sampling in which the linear velocity of the gas entering the sampling nozzle is equal to that of the undisturbed gas stream at the sample point.

Issuance of a part 70 permit will occur, if the State is the permitting authority, in accordance with the requirements of part 70 of this chapter and the applicable, approved State permit program. When the EPA is the permitting authority, issuance of a Title V permit occurs immediately after the EPA takes final action on the final permit.

Malfunction means any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not malfunctions.

Modification means any physical change in, or change in the method of operation of, an existing facility which increases the amount of any air pollutant (to which a standard applies) emitted into the atmosphere by that facility or which results in the emission of any air pollutant (to which a standard applies) into the atmosphere not previously emitted.

Monitoring device means the total equipment, required under the monitoring of operations sections in applicable subparts, used to measure and record (if applicable) process parameters.

Nitrogen oxides means all oxides of nitrogen except nitrous oxide, as measured by test methods set forth in this part.

One-hour period means any 60-minute period commencing on the hour.

Opacity means the degree to which emissions reduce the transmission of light and obscure the view of an object in the background.

Owner or operator means any person who owns, leases, operates, controls, or supervises an affected facility or a stationary source of which an affected facility is a part.

Part 70 permit means any permit issued, renewed, or revised pursuant to part 70 of this chapter.

Particulate matter means any finely divided solid or liquid material, other than uncombined water, as measured by the reference methods specified under each applicable subpart, or an equivalent or alternative method.

Permit program means a comprehensive State operating permit system established pursuant to title V of the Act (42 U.S.C. 7661) and regulations codified in part 70 of this chapter and applicable State regulations, or a comprehensive Federal operating permit system established pursuant to title V of the Act and regulations codified in this chapter.

Permitting authority means:

(1) The State air pollution control agency, local agency, other State agency, or other agency authorized by the Administrator to carry out a permit program under part 70 of this chapter; or

(2) The Administrator, in the case of EPA-implemented permit programs under title V of the Act (42 U.S.C. 7661).

Proportional sampling means sampling at a rate that produces a constant ratio of sampling rate to stack gas flow rate.

Reactivation of a very clean coal-fired electric utility steam generating unit means any physical change or change in the method of operation associated with the commencement of commercial operations by a coal-fired utility unit after a period of discontinued operation where the unit:

(1) Has not been in operation for the two-year period prior to the enactment of the Clean Air Act Amendments of 1990, and the emissions from such unit continue to be carried in the permitting authority's emissions inventory at the time of enactment;

(2) Was equipped prior to shut-down with a continuous system of emissions control that achieves a removal efficiency for sulfur dioxide of no less than 85 percent and a removal efficiency for particulates of no less than 98 percent;

(3) Is equipped with low-NO_X burners prior to the time of commencement of operations following reactivation; and

(4) Is otherwise in compliance with the requirements of the Clean Air Act.

Reference method means any method of sampling and analyzing for an air pollutant as specified in the applicable subpart.

Repowering means replacement of an existing coal-fired boiler with one of the following clean coal technologies: atmospheric or pressurized fluidized bed combustion, integrated gasification combined cycle, magnetohydrodynamics, direct and indirect coal-fired turbines, integrated gasification fuel cells, or as determined by the Administrator, in consultation with the Secretary of Energy, a derivative of one or more of these technologies, and any other technology capable of controlling multiple combustion emissions simultaneously with improved boiler or generation efficiency and with significantly greater waste reduction relative to the performance of technology in widespread commercial use as of November 15, 1990. Repowering shall also include any oil and/or gas-fired unit which has been awarded clean coal technology demonstration funding as of January 1, 1991, by the Department of Energy.

Run means the net period of time during which an emission sample is collected. Unless otherwise specified, a run may be either intermittent or continuous within the limits of good engineering practice.

Shutdown means the cessation of operation of an affected facility for any purpose.

Six-minute period means any one of the 10 equal parts of a one-hour period.

Standard means a standard of performance proposed or promulgated under this part.

Standard conditions means a temperature of 293 K (68F) and a pressure of 101.3 kilopascals (29.92 in Hg).

Startup means the setting in operation of an affected facility for any purpose.

State means all non-Federal authorities, including local agencies, interstate associations, and State-wide programs, that have delegated authority to implement:

(1) The provisions of this part; and/or

(2) the permit program established under part 70 of this chapter. The term State shall have its conventional meaning where clear from the context.

Stationary source means any building, structure, facility, or installation which emits or may emit any air pollutant.

Title V permit means any permit issued, renewed, or revised pursuant to Federal or State regulations established to implement title V of the Act (42 U.S.C. 7661). A title V permit issued by a State permitting authority is called a part 70 permit in this part.

Volatile Organic Compound means any organic compound which participates in atmospheric photochemical reactions; or which is measured by a reference method, an equivalent method, an alternative method, or which is determined by procedures specified under any subpart.

[44 FR 55173, Sept. 25, 1979, as amended at 45 FR 5617, Jan. 23, 1980; 45 FR 85415, Dec. 24, 1980; 54 FR 6662, Feb. 14, 1989; 55 FR 51382, Dec. 13, 1990; 57 FR 32338, July 21, 1992; 59 FR 12427, Mar. 16, 1994; 72 FR 27442, May 16, 2007]

§ 60.3 Units and abbreviations.

Used in this part are abbreviations and symbols of units of measure. These are defined as follows:

(a) System International (SI) units of measure:

A—ampere

g—gram

Hz—hertz

J—joule

K—degree Kelvin

kg—kilogram

m—meter

m^3—cubic meter

mg—milligram—10^{-3} gram

mm—millimeter—10^{-3} meter

Mg—megagram—10^6 gram

mol—mole

N—newton

ng—nanogram—10^{-9} gram

nm—nanometer—10^{-9} meter

Pa—pascal

s—second

V—volt

W—watt

Ω—ohm

μg—microgram—10^{-6} gram

(b) Other units of measure:

Btu—British thermal unit

°C—degree Celsius (centigrade)

cal—calorie

cfm—cubic feet per minute

cu ft—cubic feet

dcf—dry cubic feet

dcm—dry cubic meter

dscf—dry cubic feet at standard conditions

dscm—dry cubic meter at standard conditions

eq—equivalent

°F—degree Fahrenheit

ft—feet

gal—gallon

gr—grain

g-eq—gram equivalent

hr—hour

in—inch

k—1,000

l—liter

lpm—liter per minute

lb—pound

meq—milliequivalent

min—minute

ml—milliliter

mol. wt.—molecular weight

ppb—parts per billion

ppm—parts per million

psia—pounds per square inch absolute

psig—pounds per square inch gage

°R—degree Rankine

scf—cubic feet at standard conditions

scfh—cubic feet per hour at standard conditions

scm—cubic meter at standard conditions

sec—second

sq ft—square feet

std—at standard conditions

(c) Chemical nomenclature:

CdS—cadmium sulfide

CO—carbon monoxide

CO_2—carbon dioxide

HCl—hydrochloric acid

Hg—mercury

H_2O—water

H_2S—hydrogen sulfide

H_2SO_4—sulfuric acid

N_2—nitrogen

NO—nitric oxide

NO_2—nitrogen dioxide

NO_X—nitrogen oxides

O_2—oxygen

SO_2—sulfur dioxide

SO_3—sulfur trioxide

SO_X—sulfur oxides

(d) Miscellaneous:

A.S.T.M.—American Society for Testing and Materials

[42 FR 37000, July 19, 1977; 42 FR 38178, July 27, 1977]

§ 60.4 Address.

(a) All requests, reports, applications, submittals, and other communications to the Administrator pursuant to this part shall be submitted in duplicate to the appropriate Regional Office of the U.S. Environmental Protection Agency to the attention of the Director of the Division indicated in the following table.

Table 1 to Paragraph (a)

Region	Address	State
I	Director, Enforcement and Compliance Assurance Division, U.S. EPA Region I, 5 Post Office Square—Suite 100 (04-2), Boston, MA 02109-3912, Attn: Air Compliance Clerk	Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont.
II	Director, Air and Waste Management Division, U.S. Environmental Protection Agency, Federal Office Building, 26 Federal Plaza (Foley Square), New York, NY	New Jersey, New York, Puerto Rico, Virgin Islands.

Region	Address	State
	10278	
III	Director, Air Protection Division, Mail Code 3AP00, 1650 Arch Street, Philadelphia, PA 19103-2029	Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia.
IV	Director, Air and Radiation Division, 61 Forsyth Street SW, Atlanta, Georgia 30303-8960	Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee.
V	Director, Air and Radiation Division, U.S. Environmental Protection Agency, 77 West Jackson Boulevard, Chicago, IL 60604-3590	Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin.
VI	Director; Enforcement and Compliance Assurance Division; U.S. Environmental Protection Agency, 1201 Elm Street, Suite 500, Mail Code 6ECD, Dallas, Texas 75270-2102	Arkansas, Louisiana, New Mexico, Oklahoma, Texas.
VII	Director, Air and Waste Management Division, 11201 Renner Boulevard, Lenexa, Kansas 66219	Iowa, Kansas, Missouri, Nebraska.
VIII	Director, Air and Toxics Technical Enforcement Program, Office of Enforcement, Compliance and Environmental Justice, Mail Code 8ENF-AT, 1595 Wynkoop Street, Denver, CO 80202-1129	Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming.
IX	Director, Enforcement and Compliance Assurance Division (ENF 2-1), U.S. Environmental Protection Agency Region IX, 75 Hawthorne	Arizona, California, Hawaii and Nevada; the territories of American Samoa and Guam; the Commonwealth of the Northern Mariana Islands; the territories of Baker Island, Howland Island, Jarvis Island, Johnston Atoll, Kingman Reef, Midway Atoll, Palmyra Atoll, and Wake Islands; and certain U.S. Government activities in the freely associated states of the

Region	Address	State
	Street, San Francisco, CA 94105	Republic of the Marshall Islands, the Federated States of Micronesia, and the Republic of Palau.
X	Director, Air and Waste Management Division, U.S. Environmental Protection Agency, 1200 Sixth Avenue, Seattle, WA 98101	Alaska, Oregon, Idaho, Washington.

(b) Section 111(c) directs the Administrator to delegate to each State, when appropriate, the authority to implement and enforce standards of performance for new stationary sources located in such State. All information required to be submitted to EPA under paragraph (a) of this section, must also be submitted to the appropriate State Agency of any State to which this authority has been delegated (provided, that each specific delegation may except sources from a certain Federal or State reporting requirement). The appropriate mailing address for those States whose delegation request has been approved is as follows:

(1) [Reserved]

(2) State of Alabama: Alabama Department of Environmental Management, P.O. Box 301463, Montgomery, Alabama 36130-1463.

(3) State of Alaska, Department of Environmental Conservation, Pouch O, Juneau, AK 99811.

(4) Arizona:

Arizona Department of Environmental Quality, Suite #160, 1110 West Washington Street, Phoenix, AZ 85007.

Maricopa County Air Quality Department, 301 West Jefferson Street, Phoenix, AZ 85003.

Pima County Department of Environmental Quality, 33 North Stone Avenue, Suite 700, Tucson, AZ 85701.

Pinal County Air Quality Department, 31 North Pinal Street, Building F, Florence, AZ 85132.

Note 1 to paragraph (b)(4): For tables listing the delegation status of agencies in Region IX, see paragraph (d) of this section.

(5) State of Arkansas: Chief, Division of Air Pollution Control, Arkansas Department of Pollution Control and Ecology, 8001 National Drive, P.O. Box 9583, Little Rock, AR 72209.

(6) California:

Amador Air District, 810 Court Street, Jackson, CA 95642.

Antelope Valley Air Quality Management District, 2551 W Avenue H, Lancaster, CA 93536.

Bay Area Air Quality Management District, 375 Beale Street, Suite 600, San Francisco, CA 94105.

Butte County Air Quality Management District, 629 Entler Avenue, Suite 15, Chico, CA 95928.

Calaveras County Air Pollution Control District, 891 Mountain Ranch Road, Building E, San Andreas, CA 95249.

Colusa County Air Pollution Control District, 100 Sunrise Blvd., Suite A, Colusa, CA 95932-3246.

El Dorado County Air Quality Management District, 330 Fair Lane, Placerville, CA 95667-4100.

Eastern Kern Air Pollution Control District, 2700 “M” Street, Suite 302, Bakersfield, CA 93301-2370.

Feather River Air Quality Management District, 541 Washington Avenue, Yuba City, CA 95991.

Glenn County Air Pollution Control District, 720 N Colusa Street, P.O. Box 351, Willows, CA 95988-0351.

Great Basin Unified Air Pollution Control District, 157 Short Street, Bishop, CA 93514-3537.

Imperial County Air Pollution Control District, 150 South Ninth Street, El Centro, CA 92243-2839.

Lake County Air Quality Management District, 2617 S Main St., Lakeport, CA 95453-5405.

Lassen County Air Pollution Control District, 720 South St., Susanville, CA 96130.

Mariposa County Air Pollution Control District, P.O. Box 5, Mariposa, CA 95338.

Mendocino County Air Quality Management District, 306 E Gobbi Street, Ukiah, CA 95482-5511.

Modoc County Air Pollution Control District, 202 W 4th Street, Alturas, CA 96101.

Mojave Desert Air Quality Management District, 14306 Park Avenue, Victorville, CA 92392-2310.

Monterey Bay Air Resources District, 24580 Silver Cloud Court, Monterey, CA 93940.

North Coast Unified Air Quality Management District, 707 L Street, Eureka, CA 95501-3327.

Northern Sierra Air Quality Management District, 200 Litton Drive, Suite 320, Grass Valley, CA 95945-2509.

Northern Sonoma County Air Pollution Control District, 150 Matheson Street, Healdsburg, CA 95448-4908.

Placer County Air Pollution Control District, 110 Maple Street, Auburn, CA 95603.

Sacramento Metropolitan Air Quality Management District, 777 12th Street, Suite 300, Sacramento, CA 95814-1908.

San Diego County Air Pollution Control District, 10124 Old Grove Road, San Diego, CA 92131-1649.

San Joaquin Valley Air Pollution Control District, 1990 E Gettysburg, Fresno, CA 93726.

San Luis Obispo County Air Pollution Control District, 3433 Roberto Court, San Luis Obispo, CA 93401-7126.

Santa Barbara County Air Pollution Control District, 260 North San Antonio Road, Suite A, Santa Barbara, CA 93110-1315.

Shasta County Air Quality Management District, 1855 Placer Street, Suite 101, Redding, CA 96001-1759.

Siskiyou County Air Pollution Control District, 525 So. Foothill Drive, Yreka, CA 96097-3036.

South Coast Air Quality Management District, 21865 Copley Drive, Diamond Bar, CA 91765-4182.

Tehama County Air Pollution Control District, P.O. Box 1169 (1834 Walnut Street), Red Bluff, CA 96080-0038.

Tuolumne County Air Pollution Control District, 2 South Green St., Sonora, CA 95370-4618.

Ventura County Air Pollution Control District, 4567 Telephone Road, 2nd Floor, Ventura, CA 93003-5417.

Yolo-Solano Air Quality Management District, 1947 Galileo Court, Suite 103, Davis, CA 95618.

Note 2 to paragraph (b)(6): For tables listing the delegation status of agencies in Region IX, see paragraph (d) of this section.

(7) State of Colorado, Department of Public Health and Environment, 4300 Cherry Creek Drive South, Denver, CO 80222-1530.

Note: For a table listing Region VIII's NSPS delegation status, see paragraph (c) of this section.

(8) State of Connecticut, Compliance Analysis and Coordination Unit, Bureau of Air Management, Department of Energy and Environmental Protection, 79 Elm Street, 5th Floor, Hartford, CT 06106-5127.

(9) State of Delaware, Department of Natural Resources & Environmental Control, 89 Kings Highway, P.O. Box 1401, Dover, Delaware 19903.

(10) District of Columbia, Department of Public Health, Air Quality Division, 51 N Street, NE., Washington, DC 20002.

(11) State of Florida: Florida Department of Environmental Protection, Division of Air Resources Management, 2600 Blair Stone Road, MS 5500, Tallahassee, Florida 32399-2400.

(12) State of Georgia: Georgia Department of Natural Resources, Environmental Protection Division, Air Protection Branch, 4244 International Parkway, Suite 120, Atlanta, Georgia 30354.

(13) Hawaii:

Clean Air Branch, Hawaii Department of Health, 2827 Waimano Home Road, #130 Pearl City, HI 96782.

Note 4 to paragraph (b)(13): For tables listing the delegation status of agencies in Region IX, see paragraph (d) of this section.

(14) State of Idaho, Department of Health and Welfare, Statehouse, Boise, ID 83701.

(15) State of Illinois: Illinois Environmental Protection Agency, 1021 North Grand Avenue East, Springfield, Illinois 62794.

(16) State of Indiana: Indiana Department of Environmental Management, Office of Air Quality, 100 North Senate Avenue, Indianapolis, Indiana 46204.

(17) State of Iowa: Iowa Department of Natural Resources, Environmental Protection Division, Air Quality Bureau, 7900 Hickman Road, Suite 1, Urbandale, IA 50322.

(18) State of Kansas: Kansas Department of Health and Environment, Bureau of Air and Radiation, 1000 S.W. Jackson, Suite 310, Topeka, KS 66612-1366.

(19) Commonwealth of Kentucky: Kentucky Department for Environmental Protection, Division for Air Quality, 300 Sower Boulevard, 2nd Floor, Frankfort, Kentucky 40601 or local agency, Louisville Metro Air Pollution Control District, 701 W. Ormsby Ave., Suite 303, Louisville, Kentucky 40203.

(20) State of Louisiana: Louisiana Department of Environmental Quality, P.O. Box 4301, Baton Rouge, Louisiana 70821-4301.

Note: For a list of delegated standards for Louisiana (excluding Indian country), see paragraph (e)(2) of this section.

(21) State of Maine, Maine Department of Environmental Protection, Bureau of Air Quality, 17 State House Station, Augusta, ME 04333-0017.

(22) State of Maryland, Department of the Environment, 1800 Washington Boulevard, Suite 705, Baltimore, Maryland 21230.

(23) Commonwealth of Massachusetts, Massachusetts Department of Environmental Protection, Division of Air and Climate Programs, One Winter Street, Boston, MA 02108.

(24) State of Michigan: Michigan Department of Natural Resources and Environment, Air Quality Division, P.O. Box 30028, Lansing, Michigan 48909.

(25) State of Minnesota: Minnesota Pollution Control Agency, Division of Air Quality, 520 Lafayette Road North, St. Paul, Minnesota 55155.

(26) State of Mississippi: Hand Deliver or Courier: Mississippi Department of Environmental Quality, Office of Pollution Control, Air Division, 515 East Amite Street, Jackson, Mississippi 39201, Mailing Address: Mississippi Department of Environmental Quality, Office of Pollution Control, Air Division, P.O. Box 2261, Jackson, Mississippi 39225.

(27) State of Missouri: Missouri Department of Natural Resources, Division of Environmental Quality, P.O. Box 176, Jefferson City, MO 65102.

(28) State of Montana, Department of Environmental Quality, 1520 E. 6th Ave., PO Box 200901, Helena, MT 59620-0901.

Note: For a table listing Region VIII's NSPS delegation status, see paragraph (c) of this section.

(29) State of Nebraska, Nebraska Department of Environmental Control, P.O. Box 94877, State House Station, Lincoln, NE 68509.

Lincoln-Lancaster County Health Department, Division of Environmental Health, 2200 St. Marys Avenue, Lincoln, NE 68502

(30) Nevada:

Nevada Division of Environmental Protection, 901 South Stewart Street, Suite 4001, Carson City, NV 89701-5249.

Clark County Division of Air Quality, 500 S Grand Central Parkway, 1st Floor, P.O. Box 555210, Las Vegas, NV 89155-5210.

Northern Nevada Public Health, Air Quality Management Division, 1001 E 9th Street, Building B, Reno, NV 89512.

Note 7 to paragraph (b)(30): For tables listing the delegation status of agencies in Region IX, see paragraph (d) of this section.

(31) State of New Hampshire, New Hampshire Department of Environmental Services, Air Resources Division, 29 Hazen Drive, P.O. Box 95, Concord, NH 03302-0095.

(32) State of New Jersey: New Jersey Department of Environmental Protection, Division of Environmental Quality, Enforcement Element, John Fitch Plaza, CN-027, Trenton, NJ 08625.

(1) The following table lists the specific source and pollutant categories that have been delegated to the states in Region II. The (X) symbol is used to indicate each category that has been delegated.

	Subpart	State			
		New Jersey	New York	Puerto Rico	Virgin Islands
D	Fossil-Fuel Fired Steam Generators for Which Construction Commenced After August 17, 1971 (Steam Generators and Lignite Fired Steam Generators)	X	X	X	X
Da	Electric Utility Steam Generating Units for Which Construction Commenced After September 18, 1978	X		X	
Db	Industrial-Commercial-Institutional Steam Generating Units	X	X	X	X
E	Incinerators	X	X	X	X
F	Portland Cement Plants	X	X	X	X
G	Nitric Acid Plants	X	X	X	X
H	Sulfuric Acid Plants	X	X	X	X
I	Asphalt Concrete Plants	X	X	X	X
J	Petroleum Refineries—(All Categories)	X	X	X	X
K	Storage Vessels for Petroleum Liquids Constructed After June 11, 1973, and prior to May 19, 1978	X	X	X	X
Ka	Storage Vessels for Petroleum Liquids Constructed After May 18, 1978	X	X	X	
L	Secondary Lead Smelters	X	X	X	X
M	Secondary Brass and Bronze Ingot Production Plants	X	X	X	X
N	Iron and Steel Plants	X	X	X	X
O	Sewage Treatment Plants	X	X	X	X
P	Primary Copper Smelters	X	X	X	X
Q	Primary Zinc Smelters	X	X	X	X
R	Primary Lead Smelters	X	X	X	X
S	Primary Aluminum Reduction Plants	X	X	X	X
T	Phosphate Fertilizer Industry: Wet Process Phosphoric Acid Plants	X	X	X	X
U	Phosphate Fertilizer Industry: Superphosphoric Acid Plants	X	X	X	X
V	Phosphate Fertilizer Industry: Diammonium Phosphate Plants	X	X	X	X
W	Phosphate Fertilizer Industry: Triple Superphosphate Plants	X	X	X	X
X	Phosphate Fertilizer Industry: Granular Triple Superphosphate	X	X	X	X
Y	Coal Preparation Plants	X	X	X	X
Z	Ferroally Production Facilities	X	X	X	X
AA	Steel Plants: Electric Arc Furnaces	X	X	X	X

	Subpart	State			
		New Jersey	New York	Puerto Rico	Virgin Islands
AAa	Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels in Steel Plants	X	X	X	
BB	Kraft Pulp Mills	X	X	X	
CC	Glass Manufacturing Plants	X	X	X	
DD	Grain Elevators	X	X	X	
EE	Surface Coating of Metal Furniture	X	X	X	
GG	Stationary Gas Turbines	X	X	X	
HH	Lime Plants	X	X	X	
KK	Lead Acid Battery Manufacturing Plants	X	X		
LL	Metallic Mineral Processing Plants	X	X	X	
MM	Automobile and Light-Duty Truck Surface Coating Operations	X	X		
NN	Phosphate Rock Plants	X	X		
PP	Ammonium Sulfate Manufacturing Plants	X	X		
QQ	Graphic Art Industry Publication Rotogravure Printing	X	X	X	X
RR	Pressure Sensitive Tape and Label Surface Coating Operations	X	X	X	
SS	Industrial Surface Coating: Large Appliances	X	X	X	
TT	Metal Coil Surface Coating	X	X	X	
UU	Asphalt Processing and Asphalt Roofing Manufacture	X	X	X	
VV	Equipment Leaks of Volatile Organic Compounds in Synthetic Organic Chemical Manufacturing Industry	X		X	
WW	Beverage Can Surface Coating Industry	X	X	X	
XX	Bulk Gasoline Terminals	X	X	X	
FFF	Flexible Vinyl and Urethane Coating and Printing	X	X	X	
GGG	Equipment Leaks of VOC in Petroleum Refineries	X		X	
HHH	Synthetic Fiber Production Facilities	X		X	
JJJ	Petroleum Dry Clearners	X	X	X	
KKK	Equipment Leaks of VOC from Onshore Natural Gas Processing Plants				
LLL	Onshore Natural Gas Processing Plants; SO_2 Emissions		X		
OOO	Nonmetallic Mineral Processing Plants		X	X	
PPP	Wool Fiberglass Insulation Manufacturing Plants		X	X	

(33) State of New Mexico: New Mexico Environment Department, P.O. Box 5469, Santa Fe, New Mexico 87502-5469. Note: For a list of delegated standards for New Mexico (excluding Bernalillo County and Indian country), see paragraph (e)(1) of this section.

(34) New York: New York State Department of Environmental Conservation, 50 Wolf Road Albany, New York 12233, attention: Division of Air Resources.

(35) State of North Carolina: North Carolina Department of Environmental Quality, Division of Air Quality, 1641 Mail Service Center, Raleigh, North Carolina 27699-1641 or local agencies, Forsyth County Office of Environmental Assistance and Protection, 201 North Chestnut Street, Winston-Salem, North Carolina 27101-4120; Mecklenburg County Land Use and Environmental Services Agency, Air Quality, 2145 Suttle Avenue, Charlotte, North Carolina 28208; Western North Carolina Regional Air Quality Agency, 125 S. Lexington Ave., Suite 101, Asheville, North Carolina 28801-3661.

(36) State of North Dakota, North Dakota Department of Environmental Quality, 918 East Divide Avenue, Bismarck, ND 58501-1947.

Note: For a table listing Region VIII's NSPS delegation status, see paragraph (c) of this section.

(37) State of Ohio:

(i) Medina, Summit and Portage Counties; Director, Akron Regional Air Quality Management District, 146 South High Street, Room 904, Akron, OH 44308.

(ii) Stark County; Director, Canton City Health Department, Air Pollution Control Division, 420 Market Avenue North, Canton, Ohio 44702-1544.

(iii) Butler, Clermont, Hamilton, and Warren Counties; Director, Hamilton County Department of Environmental Services, 250 William Howard Taft Road, Cincinnati, Ohio 45219-2660.

(iv) Cuyahoga County; Commissioner, Cleveland Department of Public Health, Division of Air Quality, 75 Erieview Plaza 2nd Floor, Cleveland, Ohio 44114.

(v) Clark, Darke, Greene, Miami, Montgomery, and Preble Counties; Director, Regional Air Pollution Control Agency, 117 South Main Street, Dayton, Ohio 45422-1280.

(vi) Lucas County and the City of Rossford (in Wood County); Director, City of Toledo, Division of Environmental Services, 348 South Erie Street, Toledo, OH 43604.

(vii) Adams, Brown, Lawrence, and Scioto Counties; Portsmouth Local Air Agency, 605 Washington Street, Third Floor, Portsmouth, OH 45662.

(viii) Allen, Ashland, Auglaize, Crawford, Defiance, Erie, Fulton, Hancock, Hardin, Henry, Huron, Marion, Mercer, Ottawa, Paulding, Putnam, Richland, Sandusky, Seneca, Van Wert Williams, Wood (Except City of Rossford), and Wyandot Counties; Ohio Environmental Protection Agency, Northwest District Office, Air Pollution Control, 347 North Dunbridge Road, Bowling Green, Ohio 43402.

(ix) Ashtabula, Caroll, Colombiana, Holmes, Lorain, and Wayne Counties; Ohio Environmental Protection Agency, Northeast District Office, Air Pollution Unit, 2110 East Aurora Road, Twinsburg, OH 44087.

(x) Athens, Belmont, Coshocton, Gallia, Guemsey, Harrison, Hocking, Jackson, Jefferson, Meigs, Monroe, Morgan, Muskingum, Noble, Perry, Pike, Ross, Tuscarawas, Vinton, and Washington Counties; Ohio Environmental Protection Agency, Southeast District Office, Air Pollution Unit, 2195 Front Street, Logan, OH 43138.

(xi) Champaign, Clinton, Highland, Logan, and Shelby Counties; Ohio Environmental Protection Agency, Southwest District Office, Air Pollution Unit, 401 East Fifth Street, Dayton, Ohio 45402-2911.

(xii) Delaware, Fairfield, Fayette, Franklin, Knox, Licking, Madison, Morrow, Pickaway, and Union Counties; Ohio Environmental Protection Agency, Central District Office, Air Pollution control, 50 West Town Street, Suite 700, Columbus, Ohio 43215.

(xiii) Geauga and Lake Counties; Lake County General Health District, Air Pollution Control, 33 Mill Street, Painesville, OH 44077.

(xiv) Mahoning and Trumbull Counties; Mahoning-Trumbull Air Pollution Control Agency, 345 Oak Hill Avenue, Suite 200, Youngstown, OH 44502.

(38) State of Oklahoma, Oklahoma State Department of Health, Air Quality Service, P.O. Box 53551, Oklahoma City, OK 73152.

(i) Oklahoma City and County: Director, Oklahoma City-County Health Department, 921 Northeast 23rd Street, Oklahoma City, OK 73105.

(ii) Tulsa County: Tulsa City-County Health Department, 4616 East Fifteenth Street, Tulsa, OK 74112.

(39) State of Oregon.

(i) Oregon Department of Environmental Quality (ODEQ), 811 SW Sixth Avenue, Portland, OR 97204-1390, *http://www.deq.state.or.us*.

(ii) Lane Regional Air Pollution Authority (LRAPA), 1010 Main Street, Springfield, Oregon 97477, *http://www.lrapa.org*.

(40)

(i) City of Philadelphia, Department of Public Health, Air Management Services, 321 University Avenue, Philadelphia, Pennsylvania 19104.

(ii) Commonwealth of Pennsylvania, Department of Environmental Protection, Bureau of Air Quality Control, P.O. Box 8468, 400 Market Street, Harrisburg, Pennsylvania 17105.

(iii) Allegheny County Health Department, Bureau of Environmental Quality, Division of Air Quality, 301 39th Street, Pittsburgh, Pennsylvania 15201.

(41) State of Rhode Island, Rhode Island Department of Environmental Management, Office of Air Resources, 235 Promenade Street, Providence, RI 02908.

(42) State of South Carolina: South Carolina Department of Health and Environmental Control, 2600 Bull Street, Columbia, South Carolina 29201.

(43) State of South Dakota, Air Quality Program, Department of Agriculture and Natural Resources, Joe Foss Building, 523 East Capitol, Pierre, SD 57501-3181.

(44) State of Tennessee: Tennessee Department of Environment and Conservation, Division of Air Pollution Control, William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 15th Floor, Nashville, Tennessee 37243, or local agencies, Knox County Air Quality Management—Department of Public Health, 140 Dameron Avenue, Knoxville, Tennessee 37917; Metro Public Health Department, Pollution Control Division, 2500 Charlotte Ave., Nashville, Tennessee 37209; Chattanooga-Hamilton

County Air Pollution Control Bureau, 6125 Preservation Drive, Chattanooga, Tennessee 37416; Shelby County Health Department, Pollution Control Section, 814 Jefferson Avenue, Memphis, Tennessee 38105.

(45) State of Texas, Texas Air Control Board, 6330 Highway 290 East, Austin, TX 78723.

(46) State of Utah, Division of Air Quality, Department of Environmental Quality, P.O. Box 144820, Salt Lake City, UT 84114-4820.

Note: For a table listing Region VIII's NSPS delegation status, see paragraph (c) of this section.

(47) State of Vermont, Agency of Natural Resources, Department of Environmental Conservation, Air Quality and Climate Division, Davis 2, One National Life Drive, Montpelier, VT 05620-3802.

(48) Commonwealth of Virginia, Department of Environmental Quality, 629 East Main Street, Richmond, Virginia 23219.

(49) ***State of Washington.***

(i) Washington State Department of Ecology (Ecology), P.O. Box 47600, Olympia, WA 98504-7600, *http://www.ecy.wa.gov/*

(ii) Benton Clean Air Authority (BCAA), 650 George Washington Way, Richland, WA 99352-4289, *http://www.bcaa.net/*

(iii) Northwest Air Pollution Control Authority (NWAPA), 1600 South Second St., Mount Vernon, WA 98273-5202, *http://www.nwair.org/*

(iv) Olympic Regional Clean Air Agency (ORCAA), 909 Sleater-Kinney Road S.E., Suite 1, Lacey, WA 98503-1128, *http://www.orcaa.org/*

(v) Puget Sound Clean Air Agency (PSCAA), 110 Union Street, Suite 500, Seattle, WA 98101-2038, *http://www.pscleanair.org/*

(vi) Spokane County Air Pollution Control Authority (SCAPCA), West 1101 College, Suite 403, Spokane, WA 99201, *http://www.scapca.org/*

(vii) Southwest Clean Air Agency (SWCAA), 1308 NE. 134th St., Vancouver, WA 98685-2747, *http://www.swcleanair.org/*

(viii) Yakima Regional Clean Air Authority (YRCAA), 6 South 2nd Street, Suite 1016, Yakima, WA 98901, *http://co.yakima.wa.us/cleanair/default.htm*

(ix) The following table lists the delegation status of the New Source Performance Standards for the State of Washington. An “X” indicates the subpart has been delegated, subject to all the conditions and limitations set forth in Federal law and the letters granting delegation. Some authorities cannot be delegated and are retained by EPA. Refer to the letters granting delegation for a discussion of these retained authorities. The dates noted at the end of the table indicate the effective dates of Federal rules that have been delegated. Authority for implementing and enforcing any amendments made to these rules after these effective dates are not delegated.

NSPS Subparts Delegated to Washington Air Agencies

Subpart [1]	Washington							
	Ecology 2	BCAA 3	NWAPA 4	ORCAA 5	PSCAA 6	SCAPCA 7	SWCAA 8	YRCAA 9
A General Provisions	X	X	X	X	X	X	X	X
B Adoption and Submittal of State Plans for Designated Facilities								
C Emission Guidelines and Compliance Times								
Cb Large Municipal Waste Combustors that are Constructed on or before September 20, 1994 (Emission Guidelines and Compliance Times)								
Cc Municipal Solid Waste Landfills (Emission Guidelines and Compliance Times)								
Cd Sulfuric Acid Production Units (Emission Guidelines and Compliance Times)								
Ce Hospital/Medical/Infectious Waste Incinerators (Emission Guidelines and Compliance Times)								
D Fossil-Fuel-Fired Steam Generators for which Construction is Commenced after August 17, 1971	X	X	X	X	X	X	X	X
Da Electric Utility Steam Generating Units for which Construction is Commenced after September 18, 1978	X	X	X	X	X	X	X	X
Db Industrial-Commercial-Institutional Steam Generating Units	X	X	X	X	X	X	X	X
Dc Small Industrial-Commercial-Institutional Steam Generating Units	X	X	X	X	X	X	X	X

[1] Any authority within any subpart of this part that is not delegable, is not delegated. Please refer to Attachment B to the delegation letters for a listing of the NSPS authorities excluded from delegation.

[2] Washington State Department of Ecology, for 40 CFR 60.17(h)(1), (h)(2), (h)(3) and 40 CFR part 60, subpart AAAA, as in effect on June 6, 2001; for 40 CFR part 60, subpart CCCC, as in effect on June 1, 2001; and for all other NSPS delegated, as in effect February 20, 2001.

[3] Benton Clean Air Authority, for 40 CFR 60.17(h)(1), (h)(2), (h)(3) and 40 CFR part 60, subpart AAAA, as in effect on June 6, 2001; for 40 CFR part 60, subpart CCCC, as in effect on June 1, 2001; and for all other NSPS delegated, as in effect February 20, 2001.

[4] Northwest Air Pollution Authority, for all NSPS delegated, as in effect on July 1, 2000.

[5] Olympic Regional Clean Air Authority, for 40 CFR 60.17(h)(1), (h)(2), (h)(3) and 40 CFR part 60, subpart AAAA, as in effect on June 6, 2001; for 40 CFR part 60, subpart CCCC, as in effect on June 1, 2001; and for all other NSPS delegated, as in effect February 20, 2001.

[6] Puget Sound Clean Air Authority, for all NSPS delegated, as in effect on July 1, 2002.

[7] Spokane County Air Pollution Control Authority, for 40 CFR 60.17(h)(1), (h)(2), (h)(3) and 40 CFR part 60, subpart AAAA, as in effect on June 6, 2001; for 40 CFR part 60, subpart CCCC, as in effect on June 1, 2001; and for all other NSPS delegated, as in effect February 20, 2001.

[8] Southwest Clean Air Agency, for all NSPS delegated, as in effect on July 1, 2000.

[9] Yakima Regional Clean Air Authority, for 40 CFR 60.17(h)(1), (h)(2), (h)(3) and 40 CFR part 60, subpart AAAA, as in effect on June 6, 2001; for 40 CFR part 60, subpart CCCC, as in effect on June 1, 2001; and for all other NSPS delegated, as in effect February 20, 2001.

[10] Subpart S of this part is not delegated to local agencies in Washington because the Washington State Department of Ecology retains sole authority to regulate Primary Aluminum Plants, pursuant to Washington Administrative Code 173-415-010.

[11] Subpart BB of this part is not delegated to local agencies in Washington because the Washington State Department of Ecology retains sole authority to regulate Kraft and Sulfite Pulping Mills, pursuant to Washington State Administrative Code 173-405-012 and 173-410-012.

Subpart [1]	Washington							
	Ecology 2	BCAA 3	NWAPA 4	ORCAA 5	PSCAA 6	SCAPCA 7	SWCAA 8	YRCAA 9
E Incinerators	X	X	X	X	X	X	X	X
Ea Municipal Waste Combustors for which Construction is Commenced after December 20, 1989 and on or before September 20, 1994	X	X	X	X	X	X	X	X
Eb—Large Municipal Waste Combustors		X		X	X	X		
Ec—Hospital/Medical/Infectious Waste Incinerators	X	X	X	X	X	X		
F Portland Cement Plants	X	X	X	X	X	X	X	X
G Nitric Acid Plants	X	X	X	X	X	X	X	X
H Sulfuric Acid Plants	X	X	X	X	X	X	X	X
I Hot Mix Asphalt Facilities	X	X	X	X	X	X	X	X
J Petroleum Refineries	X	X	X	X	X	X	X	X
K Storage Vessels for Petroleum Liquids for which Construction, Reconstruction, or Modification Commenced after June 11, 1973 and prior to May 19, 1978	X	X	X	X	X	X	X	X
Ka Storage Vessels for Petroleum Liquids for which Construction, Reconstruction, or Modification Commenced after May 18, 1978 and prior to July 23, 1984	X	X	X	X	X	X	X	X
Kb VOC Liquid Storage Vessels (including Petroleum Liquid Storage Vessels) for which Construction, Reconstruction, or Modification Commenced after July 23, 1984	X	X	X	X	X	X	X	X

[1] Any authority within any subpart of this part that is not delegable, is not delegated. Please refer to Attachment B to the delegation letters for a listing of the NSPS authorities excluded from delegation.

[2] Washington State Department of Ecology, for 40 CFR 60.17(h)(1), (h)(2), (h)(3) and 40 CFR part 60, subpart AAAA, as in effect on June 6, 2001; for 40 CFR part 60, subpart CCCC, as in effect on June 1, 2001; and for all other NSPS delegated, as in effect February 20, 2001.

[3] Benton Clean Air Authority, for 40 CFR 60.17(h)(1), (h)(2), (h)(3) and 40 CFR part 60, subpart AAAA, as in effect on June 6, 2001; for 40 CFR part 60, subpart CCCC, as in effect on June 1, 2001; and for all other NSPS delegated, as in effect February 20, 2001.

[4] Northwest Air Pollution Authority, for all NSPS delegated, as in effect on July 1, 2000.

[5] Olympic Regional Clean Air Authority, for 40 CFR 60.17(h)(1), (h)(2), (h)(3) and 40 CFR part 60, subpart AAAA, as in effect on June 6, 2001; for 40 CFR part 60, subpart CCCC, as in effect on June 1, 2001; and for all other NSPS delegated, as in effect February 20, 2001.

[6] Puget Sound Clean Air Authority, for all NSPS delegated, as in effect on July 1, 2002.

[7] Spokane County Air Pollution Control Authority, for 40 CFR 60.17(h)(1), (h)(2), (h)(3) and 40 CFR part 60, subpart AAAA, as in effect on June 6, 2001; for 40 CFR part 60, subpart CCCC, as in effect on June 1, 2001; and for all other NSPS delegated, as in effect February 20, 2001.

[8] Southwest Clean Air Agency, for all NSPS delegated, as in effect on July 1, 2000.

[9] Yakima Regional Clean Air Authority, for 40 CFR 60.17(h)(1), (h)(2), (h)(3) and 40 CFR part 60, subpart AAAA, as in effect on June 6, 2001; for 40 CFR part 60, subpart CCCC, as in effect on June 1, 2001; and for all other NSPS delegated, as in effect February 20, 2001.

[10] Subpart S of this part is not delegated to local agencies in Washington because the Washington State Department of Ecology retains sole authority to regulate Primary Aluminum Plants, pursuant to Washington Administrative Code 173-415-010.

[11] Subpart BB of this part is not delegated to local agencies in Washington because the Washington State Department of Ecology retains sole authority to regulate Kraft and Sulfite Pulping Mills, pursuant to Washington State Administrative Code 173-405-012 and 173-410-012.

Subpart [1]	Washington							
	Ecology 2	BCAA 3	NWAPA 4	ORCAA 5	PSCAA 6	SCAPCA 7	SWCAA 8	YRCAA 9
L Secondary Lead Smelters	X	X	X	X	X	X	X	X
M Secondary Brass and Bronze Production Plants	X	X	X	X	X	X	X	X
N Primary Emissions from Basic Oxygen Process Furnaces for which Construction is Commenced after June 11, 1973	X	X	X	X	X	X	X	X
Na Secondary Emissions from Basic Oxygen Process Steel-making Facilities for which Construction is Commenced after January 20, 1983	X	X	X	X	X	X	X	X
O Sewage Treatment Plants	X	X	X	X	X	X	X	X
P Primary Copper Smelters	X	X	X	X	X	X	X	X
Q Primary Zinc Smelters	X	X	X	X	X	X	X	X
R Primary Lead Smelters	X	X	X	X	X	X	X	X
S Primary Aluminum Reduction Plants [10]	X							
T Phosphate Fertilizer Industry: Wet Process Phosphoric Acid Plants	X	X	X	X	X	X	X	X
U Phosphate Fertilizer Industry: Superphosphoric Acid Plants	X	X	X	X	X	X	X	X
V Phosphate Fertilizer Industry: Diammonium Phosphate Plants	X	X	X	X	X	X	X	X
W Phosphate Fertilizer Industry: Triple Superphosphate Plants	X	X	X	X	X	X	X	X
X Phosphate Fertilizer Industry: Granular Triple Superphosphate Storage Facilities	X	X	X	X	X	X	X	X

[1] Any authority within any subpart of this part that is not delegable, is not delegated. Please refer to Attachment B to the delegation letters for a listing of the NSPS authorities excluded from delegation.

[2] Washington State Department of Ecology, for 40 CFR 60.17(h)(1), (h)(2), (h)(3) and 40 CFR part 60, subpart AAAA, as in effect on June 6, 2001; for 40 CFR part 60, subpart CCCC, as in effect on June 1, 2001; and for all other NSPS delegated, as in effect February 20, 2001.

[3] Benton Clean Air Authority, for 40 CFR 60.17(h)(1), (h)(2), (h)(3) and 40 CFR part 60, subpart AAAA, as in effect on June 6, 2001; for 40 CFR part 60, subpart CCCC, as in effect on June 1, 2001; and for all other NSPS delegated, as in effect February 20, 2001.

[4] Northwest Air Pollution Authority, for all NSPS delegated, as in effect on July 1, 2000.

[5] Olympic Regional Clean Air Authority, for 40 CFR 60.17(h)(1), (h)(2), (h)(3) and 40 CFR part 60, subpart AAAA, as in effect on June 6, 2001; for 40 CFR part 60, subpart CCCC, as in effect on June 1, 2001; and for all other NSPS delegated, as in effect February 20, 2001.

[6] Puget Sound Clean Air Authority, for all NSPS delegated, as in effect on July 1, 2002.

[7] Spokane County Air Pollution Control Authority, for 40 CFR 60.17(h)(1), (h)(2), (h)(3) and 40 CFR part 60, subpart AAAA, as in effect on June 6, 2001; for 40 CFR part 60, subpart CCCC, as in effect on June 1, 2001; and for all other NSPS delegated, as in effect February 20, 2001.

[8] Southwest Clean Air Agency, for all NSPS delegated, as in effect on July 1, 2000.

[9] Yakima Regional Clean Air Authority, for 40 CFR 60.17(h)(1), (h)(2), (h)(3) and 40 CFR part 60, subpart AAAA, as in effect on June 6, 2001; for 40 CFR part 60, subpart CCCC, as in effect on June 1, 2001; and for all other NSPS delegated, as in effect February 20, 2001.

[10] Subpart S of this part is not delegated to local agencies in Washington because the Washington State Department of Ecology retains sole authority to regulate Primary Aluminum Plants, pursuant to Washington Administrative Code 173-415-010.

[11] Subpart BB of this part is not delegated to local agencies in Washington because the Washington State Department of Ecology retains sole authority to regulate Kraft and Sulfite Pulping Mills, pursuant to Washington State Administrative Code 173-405-012 and 173-410-012.

Subpart [1]	Washington							
	Ecology 2	BCAA 3	NWAPA 4	ORCAA 5	PSCAA 6	SCAPCA 7	SWCAA 8	YRCAA 9
Y Coal Preparation Plants	X	X	X	X	X	X	X	X
Z Ferroalloy Production Facilities	X	X	X	X	X	X	X	X
AA Steel Plants: Electric Arc Furnaces Constructed after October 21, 1974 and on or before August 17, 1983	X	X	X	X	X	X	X	X
AAa Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels Constructed after August 7, 1983	X	X	X	X	X	X	X	X
BB Kraft Pulp Mills [11]	X							
CC Glass Manufacturing Plants	X	X	X	X	X	X	X	X
DD Grain Elevators	X	X	X	X	X	X	X	X
EE Surface Coating of Metal Furniture	X	X	X	X	X	X	X	X
GG Stationary Gas Turbines	X	X	X	X	X	X	X	X
HH Lime Manufacturing Plants	X	X	X	X	X	X	X	X
KK Lead-Acid Battery Manufacturing Plants	X	X	X	X	X	X	X	X
LL Metallic Mineral Processing Plants	X	X	X	X	X	X	X	X
MM Automobile and Light Duty Truck Surface Coating Operations	X	X	X	X	X	X	X	X
NN Phosphate Rock Plants	X	X	X	X	X	X	X	X

[1] Any authority within any subpart of this part that is not delegable, is not delegated. Please refer to Attachment B to the delegation letters for a listing of the NSPS authorities excluded from delegation.

[2] Washington State Department of Ecology, for 40 CFR 60.17(h)(1), (h)(2), (h)(3) and 40 CFR part 60, subpart AAAA, as in effect on June 6, 2001; for 40 CFR part 60, subpart CCCC, as in effect on June 1, 2001; and for all other NSPS delegated, as in effect February 20, 2001.

[3] Benton Clean Air Authority, for 40 CFR 60.17(h)(1), (h)(2), (h)(3) and 40 CFR part 60, subpart AAAA, as in effect on June 6, 2001; for 40 CFR part 60, subpart CCCC, as in effect on June 1, 2001; and for all other NSPS delegated, as in effect February 20, 2001.

[4] Northwest Air Pollution Authority, for all NSPS delegated, as in effect on July 1, 2000.

[5] Olympic Regional Clean Air Authority, for 40 CFR 60.17(h)(1), (h)(2), (h)(3) and 40 CFR part 60, subpart AAAA, as in effect on June 6, 2001; for 40 CFR part 60, subpart CCCC, as in effect on June 1, 2001; and for all other NSPS delegated, as in effect February 20, 2001.

[6] Puget Sound Clean Air Authority, for all NSPS delegated, as in effect on July 1, 2002.

[7] Spokane County Air Pollution Control Authority, for 40 CFR 60.17(h)(1), (h)(2), (h)(3) and 40 CFR part 60, subpart AAAA, as in effect on June 6, 2001; for 40 CFR part 60, subpart CCCC, as in effect on June 1, 2001; and for all other NSPS delegated, as in effect February 20, 2001.

[8] Southwest Clean Air Agency, for all NSPS delegated, as in effect on July 1, 2000.

[9] Yakima Regional Clean Air Authority, for 40 CFR 60.17(h)(1), (h)(2), (h)(3) and 40 CFR part 60, subpart AAAA, as in effect on June 6, 2001; for 40 CFR part 60, subpart CCCC, as in effect on June 1, 2001; and for all other NSPS delegated, as in effect February 20, 2001.

[10] Subpart S of this part is not delegated to local agencies in Washington because the Washington State Department of Ecology retains sole authority to regulate Primary Aluminum Plants, pursuant to Washington Administrative Code 173-415-010.

[11] Subpart BB of this part is not delegated to local agencies in Washington because the Washington State Department of Ecology retains sole authority to regulate Kraft and Sulfite Pulping Mills, pursuant to Washington State Administrative Code 173-405-012 and 173-410-012.

Subpart [1]	Washington							
	Ecology 2	BCAA 3	NWAPA 4	ORCAA 5	PSCAA 6	SCAPCA 7	SWCAA 8	YRCAA 9
PP Ammonium Sulfate Manufacture	X	X	X	X	X	X	X	X
QQ Graphic Arts Industry: Publication Rotogravure Printing	X	X	X	X	X	X	X	X
RR Pressure Sensitive Tape and Label Surface Coating Standards	X	X	X	X	X	X	X	X
SS Industrial Surface Coating: Large Appliances	X	X	X	X	X	X	X	X
TT Metal Coil Surface Coating	X	X	X	X	X	X	X	X
UU Asphalt Processing and Asphalt Roof Manufacture	X	X	X	X	X	X	X	X
VV Equipment Leaks of VOC in Synthetic Organic Chemical Manufacturing Industry	X	X	X	X	X	X	X	X
WW Beverage Can Surface Coating Industry	X	X	X	X	X	X	X	X
XX Bulk Gasoline Terminals	X	X	X	X	X	X	X	X
AAA New Residential Wood Heaters								
BBB Rubber Tire Manufacturing Industry	X	X	X	X	X	X	X	X
DDD VOC Emissions from Polymer Manufacturing Industry	X	X	X	X	X	X	X	X
FFF Flexible Vinyl and Urethane Coating and Printing	X	X	X	X	X	X	X	X
GGG Equipment Leaks of VOC in Petroleum Refineries	X	X	X	X	X	X	X	X
HHH Synthetic Fiber Production Facilities	X	X	X	X	X	X	X	X
III VOC Emissions from Synthetic Organic Chemical Manufacturing Industry Air Oxidation Unit Processes	X	X	X	X	X	X	X	X

[1] Any authority within any subpart of this part that is not delegable, is not delegated. Please refer to Attachment B to the delegation letters for a listing of the NSPS authorities excluded from delegation.

[2] Washington State Department of Ecology, for 40 CFR 60.17(h)(1), (h)(2), (h)(3) and 40 CFR part 60, subpart AAAA, as in effect on June 6, 2001; for 40 CFR part 60, subpart CCCC, as in effect on June 1, 2001; and for all other NSPS delegated, as in effect February 20, 2001.

[3] Benton Clean Air Authority, for 40 CFR 60.17(h)(1), (h)(2), (h)(3) and 40 CFR part 60, subpart AAAA, as in effect on June 6, 2001; for 40 CFR part 60, subpart CCCC, as in effect on June 1, 2001; and for all other NSPS delegated, as in effect February 20, 2001.

[4] Northwest Air Pollution Authority, for all NSPS delegated, as in effect on July 1, 2000.

[5] Olympic Regional Clean Air Authority, for 40 CFR 60.17(h)(1), (h)(2), (h)(3) and 40 CFR part 60, subpart AAAA, as in effect on June 6, 2001; for 40 CFR part 60, subpart CCCC, as in effect on June 1, 2001; and for all other NSPS delegated, as in effect February 20, 2001.

[6] Puget Sound Clean Air Authority, for all NSPS delegated, as in effect on July 1, 2002.

[7] Spokane County Air Pollution Control Authority, for 40 CFR 60.17(h)(1), (h)(2), (h)(3) and 40 CFR part 60, subpart AAAA, as in effect on June 6, 2001; for 40 CFR part 60, subpart CCCC, as in effect on June 1, 2001; and for all other NSPS delegated, as in effect February 20, 2001.

[8] Southwest Clean Air Agency, for all NSPS delegated, as in effect on July 1, 2000.

[9] Yakima Regional Clean Air Authority, for 40 CFR 60.17(h)(1), (h)(2), (h)(3) and 40 CFR part 60, subpart AAAA, as in effect on June 6, 2001; for 40 CFR part 60, subpart CCCC, as in effect on June 1, 2001; and for all other NSPS delegated, as in effect February 20, 2001.

[10] Subpart S of this part is not delegated to local agencies in Washington because the Washington State Department of Ecology retains sole authority to regulate Primary Aluminum Plants, pursuant to Washington Administrative Code 173-415-010.

[11] Subpart BB of this part is not delegated to local agencies in Washington because the Washington State Department of Ecology retains sole authority to regulate Kraft and Sulfite Pulping Mills, pursuant to Washington State Administrative Code 173-405-012 and 173-410-012.

Subpart [1]	Washington							
	Ecology 2	BCAA 3	NWAPA 4	ORCAA 5	PSCAA 6	SCAPCA 7	SWCAA 8	YRCAA 9
JJJ Petroleum Dry Cleaners	X	X	X	X	X	X	X	X
KKK Equipment Leaks of VOC from Onshore Natural Gas Processing Plants	X	X	X	X	X	X	X	X
LLL Onshore Natural Gas Processing: SO_2 Emissions	X	X	X	X	X	X	X	X
NNN VOC Emissions from Synthetic Organic Chemical Manufacturing Industry Distillation Operations	X	X	X	X	X	X	X	X
OOO Nonmetallic Mineral Processing Plants			X		X		X	
PPP Wool Fiberglass Insulation Manufacturing Plants	X	X	X	X	X	X	X	X
QQQ VOC Emissions from Petroleum Refinery Wastewater Systems	X	X	X	X	X	X	X	X
RRR VOCs from Synthetic Organic Chemical Manufacturing Industry Reactor Processes	X	X	X	X	X	X	X	X
SSS Magnetic Tape Coating Facilities	X	X	X	X	X	X	X	X
TTT Industrial Surface Coating: Surface Coating of Plastic Parts for Business Machines	X	X	X	X	X	X	X	X
UUU Calciners and Dryers in Mineral Industries	X	X	X	X	X	X	X	X
VVV Polymeric Coating of Supporting Substrates Facilities	X	X	X	X	X	X	X	X
WWW Municipal Solid Waste Landfills	X	X	X	X	X	X	X	X
AAAA Small Municipal Waste Combustion Units for which Construction is Commenced after August 30, 1999 or for which Modification or Reconstruction is Commenced after June 6, 2001	X	X		X	X	X		X
BBBB Small Municipal Waste Combustion Units Constructed on or before August 30, 1999 (Emission								

[1] Any authority within any subpart of this part that is not delegable, is not delegated. Please refer to Attachment B to the delegation letters for a listing of the NSPS authorities excluded from delegation.

[2] Washington State Department of Ecology, for 40 CFR 60.17(h)(1), (h)(2), (h)(3) and 40 CFR part 60, subpart AAAA, as in effect on June 6, 2001; for 40 CFR part 60, subpart CCCC, as in effect on June 1, 2001; and for all other NSPS delegated, as in effect February 20, 2001.

[3] Benton Clean Air Authority, for 40 CFR 60.17(h)(1), (h)(2), (h)(3) and 40 CFR part 60, subpart AAAA, as in effect on June 6, 2001; for 40 CFR part 60, subpart CCCC, as in effect on June 1, 2001; and for all other NSPS delegated, as in effect February 20, 2001.

[4] Northwest Air Pollution Authority, for all NSPS delegated, as in effect on July 1, 2000.

[5] Olympic Regional Clean Air Authority, for 40 CFR 60.17(h)(1), (h)(2), (h)(3) and 40 CFR part 60, subpart AAAA, as in effect on June 6, 2001; for 40 CFR part 60, subpart CCCC, as in effect on June 1, 2001; and for all other NSPS delegated, as in effect February 20, 2001.

[6] Puget Sound Clean Air Authority, for all NSPS delegated, as in effect on July 1, 2002.

[7] Spokane County Air Pollution Control Authority, for 40 CFR 60.17(h)(1), (h)(2), (h)(3) and 40 CFR part 60, subpart AAAA, as in effect on June 6, 2001; for 40 CFR part 60, subpart CCCC, as in effect on June 1, 2001; and for all other NSPS delegated, as in effect February 20, 2001.

[8] Southwest Clean Air Agency, for all NSPS delegated, as in effect on July 1, 2000.

[9] Yakima Regional Clean Air Authority, for 40 CFR 60.17(h)(1), (h)(2), (h)(3) and 40 CFR part 60, subpart AAAA, as in effect on June 6, 2001; for 40 CFR part 60, subpart CCCC, as in effect on June 1, 2001; and for all other NSPS delegated, as in effect February 20, 2001.

[10] Subpart S of this part is not delegated to local agencies in Washington because the Washington State Department of Ecology retains sole authority to regulate Primary Aluminum Plants, pursuant to Washington Administrative Code 173-415-010.

[11] Subpart BB of this part is not delegated to local agencies in Washington because the Washington State Department of Ecology retains sole authority to regulate Kraft and Sulfite Pulping Mills, pursuant to Washington State Administrative Code 173-405-012 and 173-410-012.

Subpart [1]	Washington							
	Ecology 2	BCAA 3	NWAPA 4	ORCAA 5	PSCAA 6	SCAPCA 7	SWCAA 8	YRCAA 9
Guidelines and Compliance Times)								
CCCC Commercial and Industrial Solid Waste Incineration Units for which Construction is Commenced after November, 30, 1999 or for which Modification or Reconstruction is Commenced on or after June 1, 2001	X	X		X	X	X		X
DDDD Commercial and Industrial Solid Waste Incineration Units that Commenced Construction on or before November 30, 1999 (Emission Guidelines and Compliance Times)								

[1] *Any authority within any subpart of this part that is not delegable, is not delegated. Please refer to Attachment B to the delegation letters for a listing of the NSPS authorities excluded from delegation.*

[2] *Washington State Department of Ecology, for 40 CFR 60.17(h)(1), (h)(2), (h)(3) and 40 CFR part 60, subpart AAAA, as in effect on June 6, 2001; for 40 CFR part 60, subpart CCCC, as in effect on June 1, 2001; and for all other NSPS delegated, as in effect February 20, 2001.*

[3] *Benton Clean Air Authority, for 40 CFR 60.17(h)(1), (h)(2), (h)(3) and 40 CFR part 60, subpart AAAA, as in effect on June 6, 2001; for 40 CFR part 60, subpart CCCC, as in effect on June 1, 2001; and for all other NSPS delegated, as in effect February 20, 2001.*

[4] *Northwest Air Pollution Authority, for all NSPS delegated, as in effect on July 1, 2000.*

[5] *Olympic Regional Clean Air Authority, for 40 CFR 60.17(h)(1), (h)(2), (h)(3) and 40 CFR part 60, subpart AAAA, as in effect on June 6, 2001; for 40 CFR part 60, subpart CCCC, as in effect on June 1, 2001; and for all other NSPS delegated, as in effect February 20, 2001.*

[6] *Puget Sound Clean Air Authority, for all NSPS delegated, as in effect on July 1, 2002.*

[7] *Spokane County Air Pollution Control Authority, for 40 CFR 60.17(h)(1), (h)(2), (h)(3) and 40 CFR part 60, subpart AAAA, as in effect on June 6, 2001; for 40 CFR part 60, subpart CCCC, as in effect on June 1, 2001; and for all other NSPS delegated, as in effect February 20, 2001.*

[8] *Southwest Clean Air Agency, for all NSPS delegated, as in effect on July 1, 2000.*

[9] *Yakima Regional Clean Air Authority, for 40 CFR 60.17(h)(1), (h)(2), (h)(3) and 40 CFR part 60, subpart AAAA, as in effect on June 6, 2001; for 40 CFR part 60, subpart CCCC, as in effect on June 1, 2001; and for all other NSPS delegated, as in effect February 20, 2001.*

[10] *Subpart S of this part is not delegated to local agencies in Washington because the Washington State Department of Ecology retains sole authority to regulate Primary Aluminum Plants, pursuant to Washington Administrative Code 173-415-010.*

[11] *Subpart BB of this part is not delegated to local agencies in Washington because the Washington State Department of Ecology retains sole authority to regulate Kraft and Sulfite Pulping Mills, pursuant to Washington State Administrative Code 173-405-012 and 173-410-012.*

(50) State of West Virginia, Department of Environmental Protection, Division of Air Quality, 601 57th Street, SE., Charleston, West Virginia 25304.

(51) State of Wisconsin: Wisconsin Department of Natural Resouces, 101 South Webster St., P.O. Box 7921, Madison, Wisconsin 53707-7921.

(52) State of Wyoming, Department of Environmental Quality, Air Quality Division, Herschler Building, 122 West 25th Street, Cheyenne, WY 82002.

Note: For a table listing Region VIII's NSPS delegation status, see paragraph (c) of this section.

(53) Territory of Guam: Guam Environmental Protection Agency, P.O. Box 22439 GMF, Barrigada, Guam 96921.

Note: For tables listing the delegation status of agencies in Region IX, see paragraph (d) of this section.

(54) Commonwealth of Puerto Rico: Commonwealth of Puerto Rico Environmental Quality Board, P.O. Box 11488, Santurce, PR 00910, Attention: Air Quality Area Director (see table under § 60.4(b)(FF)(1)).

(55) U.S. Virgin Islands: U.S. Virgin Islands Department of Conservation and Cultural Affairs, P.O. Box 578, Charlotte Amalie, St. Thomas, VI 00801.

(56) American Samoa: American Samoa Environmental Protection Agency, P.O. Box PPA, Pago Pago, American Samoa 96799.

Note: For tables listing the delegation status of agencies in Region IX, see paragraph (d) of this section.

(57) Commonwealth of the Northern Mariana Islands: CNMI Division of Environmental Quality, P.O. Box 501304, Saipan, MP 96950.

Note: For tables listing the delegation status of agencies in Region IX, see paragraph (d) of this section.

(c) The delegation status table for New Source Performance Standards for Region VIII can be found online at *http://www2.epa.gov/region8/air-program*.

(d) The following tables list the specific part 60 standards that have been delegated unchanged to the air pollution control agencies in Region IX. The (X) symbol is used to indicate each standard that has been delegated. The following provisions of this subpart are not delegated: §§ 60.4(b), 60.8(b), 60.9, 60.11(b), 60.11(e), 60.13(a), 60.13(d)(2), 60.13(g), 60.13(i).

(1) *Arizona.* The following table identifies delegations for Arizona:

Table 3 to Paragraph (d)(1)—Delegation Status for New Source Performance Standards for Arizona

	Subpart	Air pollution control agency			
		Arizona DEQ	Maricopa County	Pima County	Pinal County
A	General Provisions	X	X	X	X
D	Fossil-Fuel Fired Steam Generators Constructed After August 17, 1971	X	X	X	X
Da	Electric Utility Steam Generating Units Constructed After September 18, 1978	X	X	X	X
Db	Industrial-Commercial-Institutional Steam Generating Units	X	X	X	X
Dc	Small Industrial-Commercial-Institutional Steam Generating Units	X	X	X	X
E	Incinerators	X	X	X	X
Ea	Municipal Waste Combustors Constructed After December 20, 1989 and On or Before September 20, 1994	X	X	X	X
Eb	Large Municipal Waste Combustors Constructed After September 20, 1994	X	X	X	
Ec	Hospital/Medical/Infectious Waste Incinerators for Which Construction is Commenced After June 20, 1996	X	X	X	
F	Portland Cement Plants	X		X	X
G	Nitric Acid Plants	X	X	X	X
Ga	Nitric Acid Plants For Which Construction, Reconstruction or Modification Commenced After October 14, 2011		X	X	
H	Sulfuric Acid Plant	X	X	X	X
I	Hot Mix Asphalt Facilities	X	X	X	X
J	Petroleum Refineries	X		X	X
Ja	Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After May 14, 2007			X	
K	Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and Prior to May 19, 1978	X	X	X	X
Ka	Storage Vessels for Petroleum Liquids for Which	X	X	X	X

	Subpart	Air pollution control agency			
		Arizona DEQ	Maricopa County	Pima County	Pinal County
	Construction, Reconstruction, or Modification Commenced After May 18, 1978, and Prior to July 23, 1984				
Kb	Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984	X	X	X	X
L	Secondary Lead Smelters	X		X	X
M	Secondary Brass and Bronze Production Plants	X	X	X	X
N	Primary Emissions from Basic Oxygen Process Furnaces for Which Construction is Commenced After June 11, 1973	X	X	X	X
Na	Secondary Emissions from Basic Oxygen Process Steelmaking Facilities for Which Construction is Commenced After January 20, 1983	X	X	X	X
O	Sewage Treatment Plants	X	X	X	X
P	Primary Copper Smelters	X		X	X
Q	Primary Zinc Smelters	X		X	X
R	Primary Lead Smelters	X		X	X
S	Primary Aluminum Reduction Plants	X	X	X	X
T	Phosphate Fertilizer Industry: Wet Process Phosphoric Acid Plants	X	X	X	X
U	Phosphate Fertilizer Industry: Superphosphoric Acid Plants	X	X	X	X
V	Phosphate Fertilizer Industry: Diammonium Phosphate Plants	X	X	X	X
W	Phosphate Fertilizer Industry: Triple Superphosphate Plants	X	X	X	X
X	Phosphate Fertilizer Industry: Granular Triple Superphosphate Storage Facilities	X	X	X	X
Y	Coal Preparation and Processing Plants	X	X	X	X
Z	Ferroalloy Production Facilities	X	X	X	X
AA	Steel Plants: Electric Arc Furnaces Constructed After October 21, 1974 and On or Before August 17, 1983	X	X	X	X
AAa	Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels Constructed After August 7, 1983	X	X	X	X
BB	Kraft Pulp Mills	X	X	X	X
BBa	Kraft Pulp Mill Sources for which Construction,		X	X	

	Subpart	Air pollution control agency			
		Arizona DEQ	Maricopa County	Pima County	Pinal County
	Reconstruction or Modification Commenced after May 23, 2013				
CC	Glass Manufacturing Plants	X	X	X	X
DD	Grain Elevators	X	X	X	X
EE	Surface Coating of Metal Furniture	X	X	X	X
FF	(Reserved)				
GG	Stationary Gas Turbines	X	X	X	X
HH	Lime Manufacturing Plants	X	X	X	X
KK	Lead-Acid Battery Manufacturing Plants	X	X	X	X
LL	Metallic Mineral Processing Plants	X	X	X	X
MM	Automobile and Light Duty Trucks Surface Coating Operations	X	X	X	X
NN	Phosphate Rock Plants	X	X	X	X
PP	Ammonium Sulfate Manufacture	X	X	X	X
QQ	Graphic Arts Industry: Publication Rotogravure Printing	X	X	X	X
RR	Pressure Sensitive Tape and Label Surface Coating Operations	X	X	X	X
SS	Industrial Surface Coating: Large Appliances	X	X	X	X
TT	Metal Coil Surface Coating	X	X	X	X
UU	Asphalt Processing and Asphalt Roofing Manufacture	X	X	X	X
VV	Equipment Leaks of VOC in the Synthetic Organic Industry Chemicals Manufacturing	X	X	X	X
VVa	Equipment Leaks of VOC in the Synthetic Organic Industry for Which Construction, Reconstruction, or Chemicals Manufacturing Modification Commenced After November 7, 2006	X	X	X	
WW	Beverage Can Surface Coating Industry	X	X	X	X
XX	Bulk Gasoline Terminals	X	X	X	X
AAA	New Residential Wood Heaters	X	X	X	X
BBB	Rubber Tire Manufacturing Industry	X	X	X	X
CCC	(Reserved)				
DDD	Volatile Organic Compounds (VOC) Emissions from the Polymer Manufacturing Industry	X	X	X	X
EEE	(Reserved)				
FFF	Flexible Vinyl and Urethane Coating and Printing	X	X	X	X
GGG	Equipment Leaks of VOC in Petroleum Refineries	X		X	X
GGGa	Equipment Leaks of VOC in Petroleum Refineries	X		X	

	Subpart	Air pollution control agency			
		Arizona DEQ	Maricopa County	Pima County	Pinal County
	for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006				
HHH	Synthetic Fiber Production Facilities	X	X	X	X
III	Volatile Organic Compound (VOC) Emissions From the Synthetic Organic Chemical Manufacturing Industry (SOCMI) Air Oxidation Unit Processes	X	X	X	X
JJJ	Petroleum Dry Cleaners	X	X	X	X
KKK	Equipment Leaks of VOC From Onshore Natural Gas Processing Plants	X	X	X	X
LLL	Onshore Natural Gas Processing: SO_2 Emissions	X	X	X	X
MMM	(Reserved)				
NNN	Volatile Organic Compound (VOC) Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations	X	X	X	X
OOO	Nonmetallic Mineral Processing Plants	X	X	X	X
PPP	Wool Fiberglass Insulation Manufacturing Plants	X	X	X	X
QQQ	VOC Emissions From Petroleum Refinery Wastewater Systems	X		X	X
RRR	Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes	X	X	X	
SSS	Magnetic Tape Coating Facilities	X	X	X	X
TTT	Industrial Surface Coating: Surface Coating of Plastic Parts for Business Machines	X	X	X	X
UUU	Calciners and Dryers in Mineral Industries	X	X	X	
VVV	Polymeric Coating of Supporting Substrates Facilities	X	X	X	X
WWW	Municipal Solid Waste Landfills	X	X	X	
XXX	Municipal Solid Waste Landfills that Commenced Construction, Reconstruction, or Modification After July 17, 2014		X	X	
AAAA	Small Municipal Waste Combustion Units for Which Construction is Commenced After August 30, 1999 or for Which Modification or Reconstruction is Commended After June 6, 2001	X	X	X	
CCCC	Commercial and Industrial Solid Waste Incineration Units for Which Construction Is Commenced After November 30, 1999 or for	X	X	X	

	Subpart	Air pollution control agency			
		Arizona DEQ	Maricopa County	Pima County	Pinal County
	Which Modification or Reconstruction Is Commenced on or After June 1, 2001				
EEEE	Other Solid Waste Incineration Units for Which Construction is Commenced After December 9, 2004, or for Which Modification or Reconstruction is Commenced on or After June 16, 2006	X	X	X	
GGGG	(Reserved)				
HHHH	(Reserved)				
IIII	Stationary Compression Ignition Internal Combustion Engines	X	X	X	
JJJJ	Stationary Spark Ignition Internal Combustion Engines		X	X	
KKKK	Stationary Combustion Turbines	X	X	X	
LLLL	New Sewage Sludge Incineration Units			X	
MMMM	Emissions Guidelines and Compliance Times for Existing Sewage Sludge Incineration Units	X			
OOOO	Crude Oil and Natural Gas Production, Transmission, and Distribution		X	X	
OOOOa	Standards of Performance for Crude Oil and Natural Gas Facilities for Which Construction, Modification or Reconstruction Commenced After September 18, 2015		X	X	
QQQQ	Standards of Performance for New Residential Hydronic Heaters and Forced-Air Furnaces		X	X	
TTTT	Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units		X	X	

(2) ***California.*** The following tables identify delegations for each of the local air pollution control agencies of California.

(i) Delegations for Amador County Air Pollution Control District, Antelope Valley Air Quality Management District, Bay Area Air Quality Management District, and Butte County Air Quality Management District are shown in the following table:

Table 4 to Paragraph (d)(2)(i)—Delegation Status for New Source Performance Standards for Amador County APCD, Antelope Valley AQMD, Bay Area AQMD, and Butte County AQMD

	Subpart	Air pollution control agency			
		Amador County APCD	Antelope Valley AQMD	Bay Area AQMD	Butte County AQMD
A	General Provisions		X		
Ba	Adoption and Submittal of State Plans for Designated Facilities		X		
Cf	Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills		X		
D	Fossil-Fuel Fired Steam Generators Constructed After August 17, 1971		X	X	
Da	Electric Utility Steam Generating Units Constructed After September 18, 1978		X	X	
Db	Industrial-Commercial-Institutional Steam Generating Units		X	X	
Dc	Small Industrial-Commercial-Institutional Steam Generating Units		X	X	
E	Incinerators		X	X	
Ea	Municipal Waste Combustors Constructed After December 20, 1989 and On or Before September 20, 1994		X	X	
Eb	Large Municipal Waste Combustors Constructed After September 20, 1994		X		
Ec	Hospital/Medical/Infectious Waste Incinerators for Which Construction is Commenced After June 20, 1996		X		
F	Portland Cement Plants		X	X	
G	Nitric Acid Plants		X	X	
Ga	Nitric Acid Plants For Which Construction, Reconstruction or Modification Commenced After October 14, 2011		X		
H	Sulfuric Acid Plant		X	X	
I	Hot Mix Asphalt Facilities		X	X	
J	Petroleum Refineries		X	X	

	Subpart	Air pollution control agency			
		Amador County APCD	Antelope Valley AQMD	Bay Area AQMD	Butte County AQMD
Ja	Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After May 14, 2007		X		
K	Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and Prior to May 19, 1978		X	X	
Ka	Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and Prior to July 23, 1984		X	X	
Kb	Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984		X	X	
L	Secondary Lead Smelters		X	X	
M	Secondary Brass and Bronze Production Plants		X	X	
N	Primary Emissions from Basic Oxygen Process Furnaces for Which Construction is Commenced After June 11, 1973		X	X	
Na	Secondary Emissions from Basic Oxygen Process Steelmaking Facilities for Which Construction is Commenced After January 20, 1983		X	X	
O	Sewage Treatment Plants		X	X	
P	Primary Copper Smelters		X	X	
Q	Primary Zinc Smelters		X	X	
R	Primary Lead Smelters		X	X	
S	Primary Aluminum Reduction Plants		X	X	
T	Phosphate Fertilizer Industry: Wet Process Phosphoric Acid Plants		X		
U	Phosphate Fertilizer Industry: Superphosphoric Acid Plants		X	X	
V	Phosphate Fertilizer Industry: Diammonium Phosphate Plants		X	X	
W	Phosphate Fertilizer Industry: Triple Superphosphate Plants		X	X	
X	Phosphate Fertilizer Industry: Granular Triple Superphosphate Storage Facilities		X	X	
Y	Coal Preparation and Processing Plants		X	X	

	Subpart	Air pollution control agency			
		Amador County APCD	Antelope Valley AQMD	Bay Area AQMD	Butte County AQMD
Z	Ferroalloy Production Facilities		X	X	
AA	Steel Plants: Electric Arc Furnaces Constructed After October 21, 1974 and On or Before August 17, 1983		X	X	
AAa	Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels Constructed After August 7, 1983		X	X	
BB	Kraft Pulp Mills		X	X	
BBa	Kraft Pulp Mill Sources for which Construction, Reconstruction or Modification Commenced after May 23, 2013		X		
CC	Glass Manufacturing Plants		X	X	
DD	Grain Elevators		X	X	
EE	Surface Coating of Metal Furniture		X	X	
FF	(Reserved)				
GG	Stationary Gas Turbines		X	X	
HH	Lime Manufacturing Plants		X	X	
KK	Lead-Acid Battery Manufacturing Plants		X	X	
LL	Metallic Mineral Processing Plants		X	X	
MM	Automobile and Light Duty Trucks Surface Coating Operations		X	X	
NN	Phosphate Rock Plants		X	X	
PP	Ammonium Sulfate Manufacture		X	X	
QQ	Graphic Arts Industry: Publication Rotogravure Printing		X	X	
RR	Pressure Sensitive Tape and Label Surface Coating Operations		X	X	
SS	Industrial Surface Coating: Large Appliances		X	X	
TT	Metal Coil Surface Coating		X	X	
UU	Asphalt Processing and Asphalt Roofing Manufacture		X	X	
VV	Equipment Leaks of VOC in the Synthetic Organic Industry Chemicals Manufacturing		X	X	
VVa	Equipment Leaks of VOC in the Synthetic Organic Industry for Which Construction, Reconstruction, or Chemicals Manufacturing Modification Commenced After November 7, 2006		X		
WW	Beverage Can Surface Coating Industry		X	X	

	Subpart	Air pollution control agency			
		Amador County APCD	Antelope Valley AQMD	Bay Area AQMD	Butte County AQMD
XX	Bulk Gasoline Terminals				
AAA	New Residential Wood Heaters		X	X	
BBB	Rubber Tire Manufacturing Industry		X	X	
CCC	(Reserved)				
DDD	Volatile Organic Compounds (VOC) Emissions from the Polymer Manufacturing Industry		X	X	
EEE	(Reserved)				
FFF	Flexible Vinyl and Urethane Coating and Printing		X	X	
GGG	Equipment Leaks of VOC in Petroleum Refineries		X	X	
GGGa	Equipment Leaks of VOC in Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006		X		
HHH	Synthetic Fiber Production Facilities		X	X	
III	Volatile Organic Compound (VOC) Emissions From the Synthetic Organic Chemical Manufacturing Industry (SOCMI) Air Oxidation Unit Processes		X		
JJJ	Petroleum Dry Cleaners		X	X	
KKK	Equipment Leaks of VOC From Onshore Natural Gas Processing Plants		X	X	
LLL	Onshore Natural Gas Processing: SO_2 Emissions		X		
MMM	(Reserved)				
NNN	Volatile Organic Compound (VOC) Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations		X	X	
OOO	Nonmetallic Mineral Processing Plants		X	X	
PPP	Wool Fiberglass Insulation Manufacturing Plants		X	X	
QQQ	VOC Emissions From Petroleum Refinery Wastewater Systems		X		
RRR	Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes		X		
SSS	Magnetic Tape Coating Facilities		X	X	
TTT	Industrial Surface Coating: Surface Coating of Plastic Parts for Business Machines		X	X	
UUU	Calciners and Dryers in Mineral Industries		X	X	
VVV	Polymeric Coating of Supporting Substrates Facilities		X	X	
WWW	Municipal Solid Waste Landfills		X		

	Subpart	Air pollution control agency			
		Amador County APCD	Antelope Valley AQMD	Bay Area AQMD	Butte County AQMD
XXX	Municipal Solid Waste Landfills that Commenced Construction, Reconstruction, or Modification After July 17, 2014		X		
AAAA	Small Municipal Waste Combustion Units for Which Construction is Commenced After August 30, 1999 or for Which Modification or Reconstruction is Commended After June 6, 2001		X		
CCCC	Commercial and Industrial Solid Waste Incineration Units for Which Construction Is Commenced After November 30, 1999 or for Which Modification or Reconstruction Is Commenced on or After June 1, 2001		X		
DDDD	Emissions Guidelines and Compliance Times for Commercial and Industrial Solid Waste Incineration Units		X		
EEEE	Other Solid Waste Incineration Units for Which Construction is Commenced After December 9, 2004, or for Which Modification or Reconstruction is Commenced on or After June 16, 2006		X		
GGGG	(Reserved)				
HHHH	(Reserved)				
IIII	Stationary Compression Ignition Internal Combustion Engines		X		
JJJJ	Stationary Spark Ignition Internal Combustion Engines		X		
KKKK	Stationary Combustion Turbines		X		
LLLL	New Sewage Sludge Incineration Units		X		
MMMM	Emissions Guidelines and Compliance Times for Existing Sewage Sludge Incineration Units		X		
OOOO	Crude Oil and Natural Gas Production, Transmission, and Distribution		X		
OOOOa	Standards of Performance for Crude Oil and Natural Gas Facilities for Which Construction, Modification or Reconstruction Commenced After September 18, 2015		X		
TTTT	Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units		X		
UUUUa	Emission Guidelines for Greenhouse Gas Emissions From Existing Electric Utility Generating		X		

	Subpart	Air pollution control agency			
		Amador County APCD	Antelope Valley AQMD	Bay Area AQMD	Butte County AQMD
	Units				

(ii) [Reserved]

(iii) Delegations for Glenn County Air Pollution Control District, Great Basin Unified Air Pollution Control District, Imperial County Air Pollution Control District, and Kern County Air Pollution Control District are shown in the following table:

Delegation Status for New Source Performance Standards for Glenn County APCD, Great Basin Unified APCD, Imperial County APCD, and Kern County APCD

	Subpart	Air pollution control agency			
		Glenn County APCD	Great Basin Unified APCD	Imperial County APCD	Kern County APCD
A	General Provisions		X		X
D	Fossil-Fuel Fired Steam Generators Constructed After August 17, 1971		X		X
Da	Electric Utility Steam Generating Units Constructed After September 18, 1978		X		X
Db	Industrial-Commercial-Institutional Steam Generating Units		X		X
Dc	Small Industrial Steam Generating Units		X		X
E	Incinerators		X		X
Ea	Municipal Waste Combustors Constructed After December 20, 1989 and On or Before September 20, 1994		X		
Eb	Municipal Waste Combustors Constructed After September 20, 1994				
Ec	Hospital/Medical/Infectious Waste Incinerators for Which Construction is Commenced After June 20, 1996				
F	Portland Cement Plants		X		X

	Subpart	Air pollution control agency			
		Glenn County APCD	Great Basin Unified APCD	Imperial County APCD	Kern County APCD
G	Nitric Acid Plants		X		X
H	Sulfuric Acid Plants		X		
I	Hot Mix Asphalt Facilities		X		X
J	Petroleum Refineries		X		X
K	Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and Prior to May 19, 1978		X		X
Ka	Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and Prior to July 23, 1984		X		X
Kb	Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984		X		X
L	Secondary Lead Smelters		X		X
M	Secondary Brass and Bronze Production Plants		X		X
N	Primary Emissions from Basic Oxygen Process Furnaces for Which Construction is Commenced After June 11, 1973		X		X
Na	Secondary Emissions from Basic Oxygen Process Steelmaking Facilities for Which Construction is Commenced After January 20, 1983		X		X
O	Sewage Treatment Plants		X		X
P	Primary Copper Smelters		X		X
Q	Primary Zinc Smelters		X		X
R	Primary Lead Smelters		X		X
S	Primary Aluminum Reduction Plants		X		X
T	Phosphate Fertilizer Industry: Wet Process Phosphoric Acid Plants		X		X
U	Phosphate Fertilizer Industry: Superphosphoric Acid Plants		X		X
V	Phosphate Fertilizer Industry: Diammonium Phosphate Plants		X		X
W	Phosphate Fertilizer Industry: Triple Superphosphate Plants		X		X
X	Phosphate Fertilizer Industry: Granular Triple		X		X

	Subpart	Air pollution control agency			
		Glenn County APCD	Great Basin Unified APCD	Imperial County APCD	Kern County APCD
	Superphosphate Storage Facilities				
Y	Coal Preparation Plants		X		X
Z	Ferroalloy Production Facilities		X		X
AA	Steel Plants: Electric Arc Furnaces Constructed After October 21, 1974 and On or Before August 17, 1983		X		X
AAa	Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels Constructed After August 7, 1983		X		X
BB	Kraft pulp Mills		X		X
CC	Glass Manufacturing Plants		X		X
DD	Grain Elevators		X		X
EE	Surface Coating of Metal Furniture		X		X
FF	(Reserved)				
GG	Stationary Gas Turbines		X		X
HH	Lime Manufacturing Plants		X		X
KK	Lead-Acid Battery Manufacturing Plants		X		X
LL	Metallic Mineral Processing Plants		X		X
MM	Automobile and Light Duty Trucks Surface Coating Operations		X		X
NN	Phosphate Rock Plants		X		X
PP	Ammonium Sulfate Manufacture		X		X
QQ	Graphic Arts Industry: Publication Rotogravure Printing		X		X
RR	Pressure Sensitive Tape and Label Surface Coating Operations		X		X
SS	Industrial Surface Coating: Large Appliances		X		X
TT	Metal Coil Surface Coating		X		X
UU	Asphalt Processing and Asphalt Roofing Manufacture		X		X
VV	Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry		X		X
WW	Beverage Can Surface Coating Industry		X		X
XX	Bulk Gasoline Terminals				
AAA	New Residential Wool Heaters		X		X
BBB	Rubber Tire Manufacturing Industry		X		X
CCC	(Reserved)				
DDD	Volatile Organic Compounds (VOC) Emissions from the Polymer Manufacturing Industry		X		X

	Subpart	Air pollution control agency			
		Glenn County APCD	Great Basin Unified APCD	Imperial County APCD	Kern County APCD
EEE	(Reserved)				
FFF	Flexible Vinyl and Urethane Coating and Printing		X		X
GGG	Equipment Leaks of VOC in Petroleum Refineries		X		X
HHH	Synthetic Fiber Production Facilities		X		X
III	Volatile Organic Compound (VOC) Emissions From the Synthetic Organic Chemical Manufacturing Industry (SOCMI) Air Oxidation Unit Processes		X		X
JJJ	Petroleum Dry Cleaners		X		X
KKK	Equipment Leaks of VOC From Onshore Natural Gas Processing Plants		X		X
LLL	Onshore Natural Gas Processing: SO2 Emissions				X
MMM	(Reserved)				
NNN	Volatile Organic Compound (VOC) Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations		X		X
OOO	Nonmetallic Mineral Processing Plants		X		X
PPP	Wool Fiberglass Insulation Manufacturing Plants		X		X
QQQ	VOC Emissions From Petroleum Refinery Wastewater Systems		X		X
RRR	Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes				X
SSS	Magnetic Tape Coating Facilities		X		X
TTT	Industrial Surface Coating: Surface Coating of Plastic Parts for Business Machines		X	X	
UUU	Calciners and Dryers in Mineral Industries		X		X
VVV	Polymeric Coating of Supporting Substrates Facilities		X		X

	Subpart	Air pollution control agency			
		Glenn County APCD	Great Basin Unified APCD	Imperial County APCD	Kern County APCD
WWW	Municipal Solid Waste Landfills				X

(iv) Delegations for Lake County Air Quality Management District, Lassen County Air Pollution Control District, Mariposa County Air Pollution Control District, and Mendocino County Air Pollution Control District are shown in the following table:

Delegation Status for New Source Performance Standards for Lake County Air Quality Management District, Lassen County Air Pollution Control District, Mariposa County Air Pollution Control District, and Mendocino County Air Pollution Control District

	Subpart	Air pollution control agency			
		Lake County AQMD	Lassen County APCD	Mariposa County AQMD	Mendocino County AQMD
A	General Provisions	X			X
D	Fossil-Fuel Fired Steam Generators Constructed After August 17, 1971	X			X
Da	Electric Utility Steam Generating Units Constructed After September 18, 1978	X			X
Db	Industrial-Commercial-Institutional Steam Generating Units	X			
Dc	Small Industrial Steam Generating Units	X			X
E	Incinerators	X			X
Ea	Municipal Waste Combustors Constructed After December 20, 1989 and On or Before September 20, 1994	X			X
Eb	Municipal Waste Combustors Constructed After September 20, 1994				
Ec	Hospital/Medical/Infectious Waste Incinerators for Which Construction is Commenced After June 20, 1996				
F	Portland Cement Plants	X			X

	Subpart	Air pollution control agency			
		Lake County AQMD	Lassen County APCD	Mariposa County AQMD	Mendocino County AQMD
G	Nitric Acid Plants	X			X
H	Sulfuric Acid Plants	X			X
I	Hot Mix Asphalt Facilities	X			X
J	Petroleum Refineries	X			X
K	Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and Prior to May 19, 1978	X			X
Ka	Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and Prior to July 23, 1984	X			X
Kb	Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984	X			X
L	Secondary Lead Smelters	X			X
M	Secondary Brass and Bronze Production Plants	X			X
N	Primary Emissions from Basic Oxygen Process Furnaces for Which Construction is Commenced After June 11, 1973	X			X
Na	Secondary Emissions from Basic Oxygen Process Steelmaking Facilities for Which Construction is Commenced After January 20, 1983	X			X
O	Sewage Treatment Plants	X			X
P	Primary Copper Smelters	X			X
Q	Primary Zinc Smelters	X			X
R	Primary Lead Smelters	X			X
S	Primary Aluminum Reduction Plants	X			X
T	Phosphate Fertilizer Industry: Wet Process Phosphoric Acid Plants	X			X
U	Phosphate Fertilizer Industry: Superphosphoric Acid Plants	X			X
V	Phosphate Fertilizer Industry: Diammonium Phosphate Plants	X			X
W	Phosphate Fertilizer Industry: Triple Superphosphate Plants	X			X
X	Phosphate Fertilizer Industry: Granular Triple	X			X

	Subpart	Air pollution control agency			
		Lake County AQMD	Lassen County APCD	Mariposa County AQMD	Mendocino County AQMD
	Superphosphate Storage Facilities				
Y	Coal Preparation Plants	X			X
Z	Ferroalloy Production Facilities	X			X
AA	Steel Plants: Electric Arc Furnaces Constructed After October 21, 1974 and On or Before August 17, 1983	X			X
AAa	Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels Constructed After August 7, 1983	X			X
BB	Kraft Pulp Mills	X			X
CC	Glass Manufacturing Plants	X			X
DD	Grain Elevators	X			X
EE	Surface Coating of Metal Furniture	X			X
FF	(Reserved)				
GG	Stationary Gas Turbines	X			X
HH	Lime Manufacturing Plants	X			X
KK	Lead-Acid Battery Manufacturing Plants	X			X
LL	Metallic Mineral Processing Plants	X			X
MM	Automobile and Light Duty Trucks Surface Coating Operations	X			X
NN	Phosphate Rock Plants	X			X
PP	Ammonium Sulfate Manufacture	X			X
QQ	Graphic Arts Industry: Publication Rotogravure Printing	X			X
RR	Pressure Sensitive Tape and Label Surface Coating Operations	X			X
SS	Industrial Surface Coating: Large Appliances	X			X
TT	Metal Coil Surface Coating	X			X
UU	Asphalt Processing and Asphalt Roofing Manufacture	X			X
VV	Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry	X			X
WW	Beverage Can Surface Coating Industry	X			X
XX	Bulk Gasoline Terminals				
AAA	New Residential Wool Heaters	X			X
BBB	Rubber Tire Manufacturing Industry	X			X
CCC	(Reserved)				
DDD	Volatile Organic Compounds (VOC) Emissions	X			X

	Subpart	Air pollution control agency			
		Lake County AQMD	Lassen County APCD	Mariposa County AQMD	Mendocino County AQMD
	from the Polymer Manufacturing Industry				
EEE	(Reserved)				
FFF	Flexible Vinyl and Urethane Coating and Printing	X			X
GGG	Equipment Leaks of VOC in Petroleum Refineries	X			X
HHH	Synthetic Fiber Production Facilities	X			X
III	Volatile Organic Compound (VOC) Emissions From the Synthetic Organic Chemical Manufacturing Industry (SOCMI) Air Oxidation Unit Processes	X			X
JJJ	Petroleum Dry Cleaners	X			X
KKK	Equipment Leaks of VOC From Onshore Natural Gas Processing Plants	X			X
LLL	Onshore Natural Gas Processing: SO2 Emissions	X			X
MMM	(Reserved)				
NNN	Volatile Organic Compound (VOC) Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations	X			X
OOO	Nonmetallic Mineral Processing Plants	X			X
PPP	Wool Fiberglass Insulation Manufacturing Plants	X			X
QQQ	VOC Emissions From Petroleum Refinery Wastewater Systems	X			X
RRR	Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes	X			
SSS	Magnetic Tape Coating Facilities	X			X
TTT	Industrial Surface Coating: Surface Coating of Plastic Parts for Business Machines				
UUU	Calciners and Dryers in Mineral Industries	X			X
VVV	Polymeric Coating of Supporting Substrates Facilities	X			X

	Subpart	Air pollution control agency			
		Lake County AQMD	Lassen County APCD	Mariposa County AQMD	Mendocino County AQMD
WWW	Municipal Solid Waste Landfills	X			

(v) Delegations for Modoc Air Pollution Control District, Mojave Desert Air Quality Management District, Monterey Bay Unified Air Pollution Control District and North Coast Unified Air Quality Management District are shown in the following table:

Table 7 to Paragraph (d)(2)(v)—Delegation Status for New Source Performance Standards for Modoc County APCD, Mojave Desert AQMD, Monterey Bay Unified APCD, and North Coast Unified AQMD

	Subpart	Air pollution control agency			
		Modoc County APCD	Mojave Desert AQMD	Monterey Bay Unified APCD	North Coast Unified AQMD
A	General Provisions	X	X	X	X
D	Fossil-Fuel Fired Steam Generators Constructed After August 17, 1971	X	X	X	X
Da	Electric Utility Steam Generating Units Constructed After September 18, 1978	X	X	X	X
Db	Industrial-Commercial-Institutional Steam Generating Units	X	X	X	X
Dc	Small Industrial-Commercial-Institutional Steam Generating Units		X	X	
E	Incinerators	X	X	X	X
Ea	Municipal Waste Combustors Constructed After December 20, 1989 and On or Before September 20, 1994		X		
Eb	Large Municipal Waste Combustors Constructed After September 20, 1994		X		
Ec	Hospital/Medical/Infectious Waste Incinerators for Which Construction is Commenced After June 20, 1996		X		
F	Portland Cement Plants	X	X	X	X
G	Nitric Acid Plants	X	X	X	X

	Subpart	Air pollution control agency			
		Modoc County APCD	Mojave Desert AQMD	Monterey Bay Unified APCD	North Coast Unified AQMD
Ga	Nitric Acid Plants For Which Construction, Reconstruction or Modification Commenced After October 14, 2011				
H	Sulfuric Acid Plant	X	X	X	X
I	Hot Mix Asphalt Facilities	X	X	X	X
J	Petroleum Refineries	X	X	X	X
Ja	Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After May 14, 2007		X		
K	Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and Prior to May 19, 1978	X	X	X	X
Ka	Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and Prior to July 23, 1984	X	X	X	X
Kb	Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984	X	X	X	X
L	Secondary Lead Smelters	X	X	X	X
M	Secondary Brass and Bronze Production Plants	X	X	X	X
N	Primary Emissions from Basic Oxygen Process Furnaces for Which Construction is Commenced After June 11, 1973	X	X	X	X
Na	Secondary Emissions from Basic Oxygen Process Steelmaking Facilities for Which Construction is Commenced After January 20, 1983	X	X	X	X
O	Sewage Treatment Plants	X	X	X	X
P	Primary Copper Smelters	X	X	X	X
Q	Primary Zinc Smelters	X	X	X	X
R	Primary Lead Smelters	X	X	X	X
S	Primary Aluminum Reduction Plants	X	X	X	X
T	Phosphate Fertilizer Industry: Wet Process Phosphoric Acid Plants	X	X	X	X
U	Phosphate Fertilizer Industry: Superphosphoric Acid Plants	X	X	X	X

	Subpart	Air pollution control agency			
		Modoc County APCD	Mojave Desert AQMD	Monterey Bay Unified APCD	North Coast Unified AQMD
V	Phosphate Fertilizer Industry: Diammonium Phosphate Plants	X	X	X	X
W	Phosphate Fertilizer Industry: Triple Superphosphate Plants	X	X	X	X
X	Phosphate Fertilizer Industry: Granular Triple Superphosphate Storage Facilities	X	X	X	X
Y	Coal Preparation and Processing Plants	X	X	X	X
Z	Ferroalloy Production Facilities	X	X	X	X
AA	Steel Plants: Electric Arc Furnaces Constructed After October 21, 1974 and On or Before August 17, 1983	X	X	X	X
AAa	Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels Constructed After August 7, 1983	X	X	X	X
BB	Kraft Pulp Mills	X	X	X	X
CC	Glass Manufacturing Plants	X	X	X	X
DD	Grain Elevators	X	X	X	X
EE	Surface Coating of Metal Furniture	X	X	X	X
FF	(Reserved)				
GG	Stationary Gas Turbines	X	X	X	X
HH	Lime Manufacturing Plants	X	X	X	X
KK	Lead-Acid Battery Manufacturing Plants	X	X	X	X
LL	Metallic Mineral Processing Plants	X	X	X	X
MM	Automobile and Light Duty Trucks Surface Coating Operations	X	X	X	X
NN	Phosphate Rock Plants	X	X	X	X
PP	Ammonium Sulfate Manufacture	X	X	X	X
QQ	Graphic Arts Industry: Publication Rotogravure Printing	X	X	X	X
RR	Pressure Sensitive Tape and Label Surface Coating Operations	X	X	X	X
SS	Industrial Surface Coating: Large Appliances	X	X	X	X
TT	Metal Coil Surface Coating	X	X	X	X
UU	Asphalt Processing and Asphalt Roofing Manufacture	X	X	X	X
VV	Equipment Leaks of VOC in the Synthetic Organic Industry Chemicals Manufacturing	X	X	X	X

	Subpart	Air pollution control agency			
		Modoc County APCD	Mojave Desert AQMD	Monterey Bay Unified APCD	North Coast Unified AQMD
VVa	Equipment Leaks of VOC in the Synthetic Organic Industry for Which Construction, Reconstruction, or Chemicals Manufacturing Modification Commenced After November 7, 2006		X		
WW	Beverage Can Surface Coating Industry	X	X	X	X
XX	Bulk Gasoline Terminals				
AAA	New Residential Wood Heaters	X	X	X	X
BBB	Rubber Tire Manufacturing Industry	X	X	X	X
CCC	(Reserved)				
DDD	Volatile Organic Compounds (VOC) Emissions from the Polymer Manufacturing Industry	X	X	X	
EEE	(Reserved)				
FFF	Flexible Vinyl and Urethane Coating and Printing	X	X	X	X
GGG	Equipment Leaks of VOC in Petroleum Refineries	X	X	X	X
GGGa	Equipment Leaks of VOC in Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006		X		
HHH	Synthetic Fiber Production Facilities	X	X	X	X
III	Volatile Organic Compound (VOC) Emissions From the Synthetic Organic Chemical Manufacturing Industry (SOCMI) Air Oxidation Unit Processes		X		
JJJ	Petroleum Dry Cleaners	X	X	X	X
KKK	Equipment Leaks of VOC From Onshore Natural Gas Processing Plants	X	X	X	X
LLL	Onshore Natural Gas Processing: SO_2 Emissions	X	X	X	X
MMM	(Reserved)				
NNN	Volatile Organic Compound (VOC) Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations	X	X	X	
OOO	Nonmetallic Mineral Processing Plants	X	X	X	X
PPP	Wool Fiberglass Insulation Manufacturing Plants	X	X	X	X
QQQ	VOC Emissions From Petroleum Refinery Wastewater Systems	X	X	X	X
RRR	Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes		X		
SSS	Magnetic Tape Coating Facilities	X	X	X	X

	Subpart	Air pollution control agency			
		Modoc County APCD	Mojave Desert AQMD	Monterey Bay Unified APCD	North Coast Unified AQMD
TTT	Industrial Surface Coating: Surface Coating of Plastic Parts for Business Machines	X	X	X	X
UUU	Calciners and Dryers in Mineral Industries		X	X	
VVV	Polymeric Coating of Supporting Substrates Facilities		X	X	X
WWW	Municipal Solid Waste Landfills		X	X	
AAAA	Small Municipal Waste Combustion Units for Which Construction is Commenced After August 30, 1999 or for Which Modification or Reconstruction is Commended After June 6, 2001		X		
CCCC	Commercial and Industrial Solid Waste Incineration Units for Which Construction Is Commenced After November 30, 1999 or for Which Modification or Reconstruction Is Commenced on or After June 1, 2001		X		
EEEE	Other Solid Waste Incineration Units for Which Construction is Commenced After December 9, 2004, or for Which Modification or Reconstruction is Commenced on or After June 16, 2006		X		
GGGG	(Reserved)				
HHHH	(Reserved)				
IIII	Stationary Compression Ignition Internal Combustion Engines		X	X	
JJJJ	Stationary Spark Ignition Internal Combustion Engines		X	X	
KKKK	Stationary Combustion Turbines		X	X	
LLLL	New Sewage Sludge Incineration Units				
OOOO	Crude Oil and Natural Gas Production,				

	Subpart	Air pollution control agency			
		Modoc County APCD	Mojave Desert AQMD	Monterey Bay Unified APCD	North Coast Unified AQMD
	Transmission, and Distribution				

(vi) Delegations for Northern Sierra Air Quality Management District, Northern Sonoma County Air Pollution Control District, Placer County Air Pollution Control District, and Sacramento Metropolitan Air Quality Management District are shown in the following table:

Delegation Status for New Source Performance Standards for Northern Sierra Air Quality Management District, Northern Sonoma County Air Pollution Control District, Placer County Air Pollution Control District, and Sacramento Metropolitan Air Quality Management District

	Subpart	Air pollution control agency			
		Northern Sierra AQMD	Northern Sonoma County APCD	Placer County APCD	Sacramento Metropolitan AQMD
A	General Provisions		X		X
D	Fossil-Fuel Fired Steam Generators Constructed After August 17, 1971		X		X
Da	Electric Utility Steam Generating Units Constructed After September 18, 1978		X		X
Db	Industrial-Commercial-Institutional Steam Generating Units				X
Dc	Small Industrial Steam Generating Units				X
E	Incinerators		X		X
Ea	Municipal Waste Combustors Constructed After December 20, 1989 and On or Before September 20, 1994				X
Eb	Municipal Waste Combustors Constructed After September 20, 1994				X
Ec	Hospital/Medical/Infectious Waste Incinerators for Which Construction is Commenced After June 20, 1996				X

	Subpart	Air pollution control agency			
		Northern Sierra AQMD	Northern Sonoma County APCD	Placer County APCD	Sacramento Metropolitan AQMD
F	Portland Cement Plants		X		X
G	Nitric Acid Plants		X		X
H	Sulfuric Acid Plants		X		X
I	Hot Mix Asphalt Facilities		X		X
J	Petroleum Refineries		X		X
K	Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and Prior to May 19, 1978		X		X
Ka	Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and Prior to July 23, 1984		X		X
Kb	Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984				X
L	Secondary Lead Smelters		X		X
M	Secondary Brass and Bronze Production Plants		X		X
N	Primary Emissions from Basic Oxygen Process Furnaces for Which Construction is Commenced After June 11, 1973		X		X
Na	Secondary Emissions from Basic Oxygen Process Steelmaking Facilities for Which Construction is Commenced After January 20, 1983				X
O	Sewage Treatment Plants		X		X
P	Primary Copper Smelters		X		X
Q	Primary Zinc Smelters		X		X
R	Primary Lead Smelters		X		X
S	Primary Aluminum Reduction Plants		X		X
T	Phosphate Fertilizer Industry: Wet Process Phosphoric Acid Plants		X		X
U	Phosphate Fertilizer Industry: Superphosphoric Acid Plants		X		X
V	Phosphate Fertilizer Industry: Diammonium Phosphate Plants		X		X

	Subpart	Air pollution control agency			
		Northern Sierra AQMD	Northern Sonoma County APCD	Placer County APCD	Sacramento Metropolitan AQMD
W	Phosphate Fertilizer Industry: Triple Superphosphate Plants		X		X
X	Phosphate Fertilizer Industry: Granular Triple Superphosphate Storage Facilities		X		X
Y	Coal Preparation Plants		X		X
Z	Ferroalloy Production Facilities		X		X
AA	Steel Plants: Electric Arc Furnaces Constructed After October 21, 1974 and On or Before August 17, 1983		X		X
AAa	Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels Constructed After August 7, 1983				X
BB	Kraft pulp Mills		X		X
CC	Glass Manufacturing Plants		X		X
DD	Grain Elevators		X		X
EE	Surface Coating of Metal Furniture				X
FF	(Reserved)				
GG	Stationary Gas Turbines		X		X
HH	Lime Manufacturing Plants		X		X
KK	Lead-Acid Battery Manufacturing Plants				X
LL	Metallic Mineral Processing Plants				X
MM	Automobile and Light Duty Trucks Surface Coating Operations		X		X
NN	Phosphate Rock Plants				X
PP	Ammonium Sulfate Manufacture		X		X
QQ	Graphic Arts Industry: Publication Rotogravure Printing				X
RR	Pressure Sensitive Tape and Label Surface Coating Operations				X
SS	Industrial Surface Coating: Large Appliances				X
TT	Metal Coil Surface Coating				X
UU	Asphalt Processing and Asphalt Roofing Manufacture				X
VV	Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry				X
WW	Beverage Can Surface Coating Industry				X
XX	Bulk Gasoline Terminals				

	Subpart	Air pollution control agency			
		Northern Sierra AQMD	Northern Sonoma County APCD	Placer County APCD	Sacramento Metropolitan AQMD
AAA	New Residential Wool Heaters				X
BBB	Rubber Tire Manufacturing Industry				X
CCC	(Reserved)				
DDD	Volatile Organic Compounds (VOC) Emissions from the Polymer Manufacturing Industry				X
EEE	(Reserved)				
FFF	Flexible Vinyl and Urethane Coating and Printing				X
GGG	Equipment Leaks of VOC in Petroleum Refineries				X
HHH	Synthetic Fiber Production Facilities				X
III	Volatile Organic Compound (VOC) Emissions From the Synthetic Organic Chemical Manufacturing Industry (SOCMI) Air Oxidation Unit Processes				X
JJJ	Petroleum Dry Cleaners				X
KKK	Equipment Leaks of VOC From Onshore Natural Gas Processing Plants				X
LLL	Onshore Natural Gas Processing: SO2 Emissions				X
MMM	(Reserved)				
NNN	Volatile Organic Compound (VOC) Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations				X
OOO	Nonmetallic Mineral Processing Plants				X
PPP	Wool Fiberglass Insulation Manufacturing Plants				X
QQQ	VOC Emissions From Petroleum Refinery Wastewater Systems				X
RRR	Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes				X
SSS	Magnetic Tape Coating Facilities				X
TTT	Industrial Surface Coating: Surface Coating of Plastic Parts for Business Machines				X
UUU	Calciners and Dryers in Mineral Industries				X

	Subpart	Air pollution control agency			
		Northern Sierra AQMD	Northern Sonoma County APCD	Placer County APCD	Sacramento Metropolitan AQMD
VVV	Polymeric Coating of Supporting Substrates Facilities				X
WWW	Municipal Solid Waste Landfills				X

(vii) Delegations for San Diego County Air Pollution Control District, San Joaquin Valley Unified Air Pollution Control District, San Luis Obispo County Air Pollution Control District, and Santa Barbara County Air Pollution Control District are shown in the following table:

Table 9 to Paragraph (d)(2)(vii)—Delegation Status for New Source Performance Standards for San Diego County APCD, San Joaquin Valley Unified APCD, San Luis Obispo County APCD, and Santa Barbara County APCD

	Subpart	Air pollution control agency			
		San Diego County APCD	San Joaquin Valley Unified APCD	San Luis Obispo County APCD	Santa Barbara County APCD
A	General Provisions	X	X	X	X
D	Fossil-Fuel Fired Steam Generators Constructed After August 17, 1971	X	X	X	X
Da	Electric Utility Steam Generating Units Constructed After September 18, 1978	X	X	X	X
Db	Industrial-Commercial-Institutional Steam Generating Units	X	X	X	X
Dc	Small Industrial-Commercial-Institutional Steam Generating Units	X	X	X	X
E	Incinerators	X	X	X	X
Ea	Municipal Waste Combustors Constructed After December 20, 1989 and On or Before September 20, 1994	X	X	X	
Eb	Large Municipal Waste Combustors Constructed	X	X		X

	Subpart	Air pollution control agency			
		San Diego County APCD	San Joaquin Valley Unified APCD	San Luis Obispo County APCD	Santa Barbara County APCD
	After September 20, 1994				
Ec	Hospital/Medical/Infectious Waste Incinerators for Which Construction is Commenced After June 20, 1996	X			X
F	Portland Cement Plants	X	X	X	
G	Nitric Acid Plants	X	X	X	
Ga	Nitric Acid Plants For Which Construction, Reconstruction or Modification Commenced After October 14, 2011				
H	Sulfuric Acid Plant	X	X	X	
I	Hot Mix Asphalt Facilities	X	X	X	X
J	Petroleum Refineries	X	X	X	X
Ja	Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After May 14, 2007				X
K	Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and Prior to May 19, 1978	X	X	X	X
Ka	Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and Prior to July 23, 1984	X	X	X	X
Kb	Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984	X	X	X	X
L	Secondary Lead Smelters	X	X	X	X
M	Secondary Brass and Bronze Production Plants	X	X	X	X
N	Primary Emissions from Basic Oxygen Process Furnaces for Which Construction is Commenced After June 11, 1973	X	X	X	
Na	Secondary Emissions from Basic Oxygen Process Steelmaking Facilities for Which Construction is Commenced After January 20, 1983	X	X	X	
O	Sewage Treatment Plants	X	X	X	X
P	Primary Copper Smelters	X	X	X	

	Subpart	Air pollution control agency			
		San Diego County APCD	San Joaquin Valley Unified APCD	San Luis Obispo County APCD	Santa Barbara County APCD
Q	Primary Zinc Smelters	X	X	X	
R	Primary Lead Smelters	X	X	X	
S	Primary Aluminum Reduction Plants	X	X	X	
T	Phosphate Fertilizer Industry: Wet Process Phosphoric Acid Plants	X	X	X	
U	Phosphate Fertilizer Industry: Superphosphoric Acid Plants	X	X	X	
V	Phosphate Fertilizer Industry: Diammonium Phosphate Plants	X	X	X	
W	Phosphate Fertilizer Industry: Triple Superphosphate Plants	X	X	X	
X	Phosphate Fertilizer Industry: Granular Triple Superphosphate Storage Facilities	X	X	X	
Y	Coal Preparation and Processing Plants	X	X	X	
Z	Ferroalloy Production Facilities	X	X	X	
AA	Steel Plants: Electric Arc Furnaces Constructed After October 21, 1974 and On or Before August 17, 1983	X	X	X	
AAa	Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels Constructed After August 7, 1983	X	X	X	
BB	Kraft Pulp Mills	X	X	X	
CC	Glass Manufacturing Plants	X	X	X	X
DD	Grain Elevators	X	X	X	X
EE	Surface Coating of Metal Furniture	X	X	X	
FF	(Reserved)				
GG	Stationary Gas Turbines	X	X	X	X
HH	Lime Manufacturing Plants	X	X	X	
KK	Lead-Acid Battery Manufacturing Plants	X	X	X	
LL	Metallic Mineral Processing Plants	X	X	X	
MM	Automobile and Light Duty Trucks Surface Coating Operations	X	X	X	
NN	Phosphate Rock Plants	X	X	X	
PP	Ammonium Sulfate Manufacture	X	X	X	
QQ	Graphic Arts Industry: Publication Rotogravure Printing	X	X	X	
RR	Pressure Sensitive Tape and Label Surface Coating	X	X	X	

	Subpart	Air pollution control agency			
		San Diego County APCD	San Joaquin Valley Unified APCD	San Luis Obispo County APCD	Santa Barbara County APCD
	Operations				
SS	Industrial Surface Coating: Large Appliances	X	X	X	
TT	Metal Coil Surface Coating	X	X	X	
UU	Asphalt Processing and Asphalt Roofing Manufacture	X	X	X	
VV	Equipment Leaks of VOC in the Synthetic Organic Industry Chemicals Manufacturing	X	X	X	
VVa	Equipment Leaks of VOC in the Synthetic Organic Industry for Which Construction, Reconstruction, or Chemicals Manufacturing Modification Commenced After November 7, 2006				X
WW	Beverage Can Surface Coating Industry	X	X	X	
XX	Bulk Gasoline Terminals				
AAA	New Residential Wood Heaters	X	X	X	X
BBB	Rubber Tire Manufacturing Industry	X	X	X	
CCC	(Reserved)				
DDD	Volatile Organic Compounds (VOC) Emissions from the Polymer Manufacturing Industry	X	X		
EEE	(Reserved)				
FFF	Flexible Vinyl and Urethane Coating and Printing	X	X	X	
GGG	Equipment Leaks of VOC in Petroleum Refineries	X	X	X	
GGGa	Equipment Leaks of VOC in Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006				X
HHH	Synthetic Fiber Production Facilities	X	X	X	
III	Volatile Organic Compound (VOC) Emissions From the Synthetic Organic Chemical Manufacturing Industry (SOCMI) Air Oxidation Unit Processes	X	X		
JJJ	Petroleum Dry Cleaners	X	X	X	
KKK	Equipment Leaks of VOC From Onshore Natural Gas Processing Plants	X	X	X	
LLL	Onshore Natural Gas Processing: SO_2 Emissions	X	X	X	
MMM	(Reserved)				
NNN	Volatile Organic Compound (VOC) Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations	X	X		

	Subpart	Air pollution control agency			
		San Diego County APCD	San Joaquin Valley Unified APCD	San Luis Obispo County APCD	Santa Barbara County APCD
OOO	Nonmetallic Mineral Processing Plants	X	X	X	X
PPP	Wool Fiberglass Insulation Manufacturing Plants	X	X	X	
QQQ	VOC Emissions From Petroleum Refinery Wastewater Systems	X	X	X	
RRR	Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes	X	X	X	
SSS	Magnetic Tape Coating Facilities	X	X	X	
TTT	Industrial Surface Coating: Surface Coating of Plastic Parts for Business Machines	X	X	X	
UUU	Calciners and Dryers in Mineral Industries	X	X	X	X
VVV	Polymeric Coating of Supporting Substrates Facilities	X	X	X	X
WWW	Municipal Solid Waste Landfills	X	X	X	X
AAAA	Small Municipal Waste Combustion Units for Which Construction is Commenced After August 30, 1999 or for Which Modification or Reconstruction is Commended After June 6, 2001	X			X
CCCC	Commercial and Industrial Solid Waste Incineration Units for Which Construction Is Commenced After November 30, 1999 or for Which Modification or Reconstruction Is Commenced on or After June 1, 2001	X			X
EEEE	Other Solid Waste Incineration Units for Which Construction is Commenced After December 9, 2004, or for Which Modification or Reconstruction is Commenced on or After June 16, 2006	X			X
GGGG	(Reserved)				
HHHH	(Reserved)				
IIII	Stationary Compression Ignition Internal Combustion Engines	X			X
JJJJ	Stationary Spark Ignition Internal Combustion Engines	X			X
KKKK	Stationary Combustion Turbines	X			X
LLLL	New Sewage Sludge Incineration Units				
OOOO	Crude Oil and Natural Gas Production, Transmission, and Distribution				

	Subpart	Air pollution control agency			
		San Diego County APCD	San Joaquin Valley Unified APCD	San Luis Obispo County APCD	Santa Barbara County APCD
QQQQ	Standards of Performance for New Residential Hydronic Heaters and Forced-Air Furnaces	X			
TTTT	Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units	X			

(viii) Delegations for Shasta County Air Quality Management District, Siskiyou County Air Pollution Control District, South Coast Air Quality Management District, and Tehama County Air Pollution Control District are shown in the following table:

Delegation Status for New Source Performance Standards for Shasta County AQMD, Siskiyou County APCD, South Coast AQMD, and Tehama County APCD

	Subpart	Air pollution control agency			
		Shasta County AQMD	Siskiyou County APCD	South Coast AQMD	Tehama County APCD
A	General Provisions	X	X	X	
D	Fossil-Fuel Fired Steam Generators Constructed After August 17, 1971	X		X	
Da	Electric Utility Steam Generating Units Constructed After September 18, 1978			X	
Db	Industrial-Commercial-Institutional Steam Generating Units			X	
Dc	Small Industrial-Commercial-Institutional Steam Generating Units			X	
E	Incinerators	X		X	
Ea	Municipal Waste Combustors Constructed After December 20, 1989 and On or Before September 20, 1994			X	
Eb	Large Municipal Waste Combustors Constructed After September 20, 1994			X	
Ec	Hospital/Medical/Infectious Waste Incinerators for			X	

	Subpart	Air pollution control agency			
		Shasta County AQMD	Siskiyou County APCD	South Coast AQMD	Tehama County APCD
	Which Construction is Commenced After June 20, 1996				
F	Portland Cement Plants	X		X	
G	Nitric Acid Plants	X		X	
Ga	Nitric Acid Plants For Which Construction, Reconstruction or Modification Commenced After October 14, 2011				
H	Sulfuric Acid Plant	X		X	
I	Hot Mix Asphalt Facilities	X		X	
J	Petroleum Refineries	X		X	
Ja	Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After May 14, 2007			X	
K	Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and Prior to May 19, 1978	X		X	
Ka	Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and Prior to July 23, 1984			X	
Kb	Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984			X	
L	Secondary Lead Smelters	X		X	
M	Secondary Brass and Bronze Production Plants	X		X	
N	Primary Emissions from Basic Oxygen Process Furnaces for Which Construction is Commenced After June 11, 1973	X		X	
Na	Secondary Emissions from Basic Oxygen Process Steelmaking Facilities for Which Construction is Commenced After January 20, 1983			X	
O	Sewage Treatment Plants	X		X	
P	Primary Copper Smelters	X		X	
Q	Primary Zinc Smelters	X		X	
R	Primary Lead Smelters	X		X	
S	Primary Aluminum Reduction Plants	X		X	
T	Phosphate Fertilizer Industry: Wet Process	X		X	

	Subpart	Air pollution control agency			
		Shasta County AQMD	Siskiyou County APCD	South Coast AQMD	Tehama County APCD
	Phosphoric Acid Plants				
U	Phosphate Fertilizer Industry: Superphosphoric Acid Plants	X		X	
V	Phosphate Fertilizer Industry: Diammonium Phosphate Plants	X		X	
W	Phosphate Fertilizer Industry: Triple Superphosphate Plants	X		X	
X	Phosphate Fertilizer Industry: Granular Triple Superphosphate Storage Facilities	X		X	
Y	Coal Preparation and Processing Plants	X		X	
Z	Ferroalloy Production Facilities	X		X	
AA	Steel Plants: Electric Arc Furnaces Constructed After October 21, 1974 and On or Before August 17, 1983	X		X	
AAa	Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels Constructed After August 7, 1983			X	
BB	Kraft Pulp Mills	X		X	
CC	Glass Manufacturing Plants			X	
DD	Grain Elevators	X		X	
EE	Surface Coating of Metal Furniture			X	
FF	(Reserved)				
GG	Stationary Gas Turbines			X	
HH	Lime Manufacturing Plants	X		X	
KK	Lead-Acid Battery Manufacturing Plants			X	
LL	Metallic Mineral Processing Plants			X	
MM	Automobile and Light Duty Trucks Surface Coating Operations			X	
NN	Phosphate Rock Plants			X	
PP	Ammonium Sulfate Manufacture			X	
QQ	Graphic Arts Industry: Publication Rotogravure Printing			X	
RR	Pressure Sensitive Tape and Label Surface Coating Operations			X	
SS	Industrial Surface Coating: Large Appliances			X	
TT	Metal Coil Surface Coating			X	
UU	Asphalt Processing and Asphalt Roofing Manufacture			X	
VV	Equipment Leaks of VOC in the Synthetic Organic			X	

	Subpart	Air pollution control agency			
		Shasta County AQMD	Siskiyou County APCD	South Coast AQMD	Tehama County APCD
	Industry Chemicals Manufacturing				
VVa	Equipment Leaks of VOC in the Synthetic Organic Industry for Which Construction, Reconstruction, or Chemicals Manufacturing Modification Commenced After November 7, 2006			X	
WW	Beverage Can Surface Coating Industry			X	
XX	Bulk Gasoline Terminals				
AAA	New Residential Wood Heaters		X	X	
BBB	Rubber Tire Manufacturing Industry		X	X	
CCC	(Reserved)				
DDD	Volatile Organic Compounds (VOC) Emissions from the Polymer Manufacturing Industry			X	
EEE	(Reserved)				
FFF	Flexible Vinyl and Urethane Coating and Printing			X	
GGG	Equipment Leaks of VOC in Petroleum Refineries			X	
GGGa	Equipment Leaks of VOC in Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006			X	
HHH	Synthetic Fiber Production Facilities			X	
III	Volatile Organic Compound (VOC) Emissions From the Synthetic Organic Chemical Manufacturing Industry (SOCMI) Air Oxidation Unit Processes			X	
JJJ	Petroleum Dry Cleaners			X	
KKK	Equipment Leaks of VOC From Onshore Natural Gas Processing Plants			X	
LLL	Onshore Natural Gas Processing: SO_2 Emissions			X	
MMM	(Reserved)				
NNN	Volatile Organic Compound (VOC) Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations			X	
OOO	Nonmetallic Mineral Processing Plants			X	
PPP	Wool Fiberglass Insulation Manufacturing Plants			X	
QQQ	VOC Emissions From Petroleum Refinery Wastewater Systems		X	X	
RRR	Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes			X	
SSS	Magnetic Tape Coating Facilities		X	X	

	Subpart	Air pollution control agency			
		Shasta County AQMD	Siskiyou County APCD	South Coast AQMD	Tehama County APCD
TTT	Industrial Surface Coating: Surface Coating of Plastic Parts for Business Machines		X	X	
UUU	Calciners and Dryers in Mineral Industries			X	
VVV	Polymeric Coating of Supporting Substrates Facilities			X	
WWW	Municipal Solid Waste Landfills			X	
AAAA	Small Municipal Waste Combustion Units for Which Construction is Commenced After August 30, 1999 or for Which Modification or Reconstruction is Commended After June 6, 2001	X	X	X	
CCCC	Commercial and Industrial Solid Waste Incineration Units for Which Construction Is Commenced After November 30, 1999 or for Which Modification or Reconstruction Is Commenced on or After June 1, 2001			X	
EEEE	Other Solid Waste Incineration Units for Which Construction is Commenced After December 9, 2004, or for Which Modification or Reconstruction is Commenced on or After June 16, 2006			X	
GGGG	(Reserved)				
HHHH	(Reserved)				
IIII	Stationary Compression Ignition Internal Combustion Engines			X	
JJJJ	Stationary Spark Ignition Internal Combustion Engines			X	
KKKK	Stationary Combustion Turbines			X	
LLLL	New Sewage Sludge Incineration Units				
OOOO	Crude Oil and Natural Gas Production, Transmission,				

	Subpart	Air pollution control agency			
		Shasta County AQMD	Siskiyou County APCD	South Coast AQMD	Tehama County APCD
	and Distribution				

(ix) Delegations for Tuolumne County Air Pollution Control District, Ventura County Air Pollution Control District, and Yolo-Solano Air Quality Management District are shown in the following table:

Table 11 to Paragraph (d)(2)(ix)—Delegation Status for New Source Performance Standards for Tuolumne County APCD, Ventura County APCD, and Yolo-Solano AQMD

	Subpart	Air pollution control agency		
		Tuolumne County APCD	Ventura County APCD	Yolo-Solano AQMD
A	General Provisions		X	X
D	Fossil-Fuel Fired Steam Generators Constructed After August 17, 1971		X	X
Da	Electric Utility Steam Generating Units Constructed After September 18, 1978		X	
Db	Industrial-Commercial-Institutional Steam Generating Units		X	X
Dc	Small Industrial-Commercial-Institutional Steam Generating Units		X	
E	Incinerators		X	
Ea	Municipal Waste Combustors Constructed After December 20, 1989 and On or Before September 20, 1994		X	
Eb	Large Municipal Waste Combustors Constructed After September 20, 1994			
Ec	Hospital/Medical/Infectious Waste Incinerators for Which Construction is Commenced After June 20, 1996			
F	Portland Cement Plants		X	
G	Nitric Acid Plants		X	
H	Sulfuric Acid Plant		X	
I	Hot Mix Asphalt Facilities		X	X
J	Petroleum Refineries		X	X

	Subpart	Air pollution control agency		
		Tuolumne County APCD	Ventura County APCD	Yolo-Solano AQMD
K	Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and Prior to May 19, 1978		X	X
Ka	Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and Prior to July 23, 1984		X	
Kb	Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984		X	
L	Secondary Lead Smelters		X	
M	Secondary Brass and Bronze Production Plants		X	
N	Primary Emissions from Basic Oxygen Process Furnaces for Which Construction is Commenced After June 11, 1973		X	
Na	Secondary Emissions from Basic Oxygen Process Steelmaking Facilities for Which Construction is Commenced After January 20, 1983		X	
O	Sewage Treatment Plants		X	
P	Primary Copper Smelters		X	
Q	Primary Zinc Smelters		X	
R	Primary Lead Smelters		X	
S	Primary Aluminum Reduction Plants		X	
T	Phosphate Fertilizer Industry: Wet Process Phosphoric Acid Plants		X	
U	Phosphate Fertilizer Industry: Superphosphoric Acid Plants		X	
V	Phosphate Fertilizer Industry: Diammonium Phosphate Plants		X	
W	Phosphate Fertilizer Industry: Triple Superphosphate Plants		X	
X	Phosphate Fertilizer Industry: Granular Triple Superphosphate Storage Facilities		X	
Y	Coal Preparation and Processing Plants		X	
Z	Ferroalloy Production Facilities		X	
AA	Steel Plants: Electric Arc Furnaces Constructed After October 21, 1974 and On or Before August 17, 1983		X	X
AAa	Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels Constructed After August 7, 1983		X	
BB	Kraft Pulp Mills		X	
CC	Glass Manufacturing Plants		X	

	Subpart	Air pollution control agency		
		Tuolumne County APCD	Ventura County APCD	Yolo-Solano AQMD
DD	Grain Elevators		X	
EE	Surface Coating of Metal Furniture		X	
FF	(Reserved)			
GG	Stationary Gas Turbines		X	
HH	Lime Manufacturing Plants		X	
KK	Lead-Acid Battery Manufacturing Plants		X	
LL	Metallic Mineral Processing Plants		X	
MM	Automobile and Light Duty Trucks Surface Coating Operations		X	
NN	Phosphate Rock Plants		X	
PP	Ammonium Sulfate Manufacture		X	
QQ	Graphic Arts Industry: Publication Rotogravure Printing		X	
RR	Pressure Sensitive Tape and Label Surface Coating Operations		X	
SS	Industrial Surface Coating: Large Appliances		X	
TT	Metal Coil Surface Coating		X	
UU	Asphalt Processing and Asphalt Roofing Manufacture		X	
VV	Equipment Leaks of VOC in the Synthetic Organic Industry Chemicals Manufacturing		X	
WW	Beverage Can Surface Coating Industry		X	
XX	Bulk Gasoline Terminals			
AAA	New Residential Wood Heaters		X	
BBB	Rubber Tire Manufacturing Industry		X	
CCC	(Reserved)			
DDD	Volatile Organic Compounds (VOC) Emissions from the Polymer Manufacturing Industry		X	
EEE	(Reserved)			
FFF	Flexible Vinyl and Urethane Coating and Printing		X	
GGG	Equipment Leaks of VOC in Petroleum Refineries		X	
GGGa	Equipment Leaks of VOC in Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006			
HHH	Synthetic Fiber Production Facilities		X	
III	Volatile Organic Compound (VOC) Emissions From the Synthetic Organic Chemical Manufacturing Industry (SOCMI) Air Oxidation Unit Processes		X	
JJJ	Petroleum Dry Cleaners		X	

	Subpart	Air pollution control agency		
		Tuolumne County APCD	Ventura County APCD	Yolo-Solano AQMD
KKK	Equipment Leaks of VOC From Onshore Natural Gas Processing Plants		X	
LLL	Onshore Natural Gas Processing: SO_2 Emissions		X	
MMM	(Reserved)			
NNN	Volatile Organic Compound (VOC) Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations		X	
OOO	Nonmetallic Mineral Processing Plants		X	X
PPP	Wool Fiberglass Insulation Manufacturing Plants		X	
QQQ	VOC Emissions From Petroleum Refinery Wastewater Systems		X	
RRR	Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes		X	
SSS	Magnetic Tape Coating Facilities		X	
TTT	Industrial Surface Coating: Surface Coating of Plastic Parts for Business Machines		X	
UUU	Calciners and Dryers in Mineral Industries		X	
VVV	Polymeric Coating of Supporting Substrates Facilities		X	
WWW	Municipal Solid Waste Landfills	X	X	

(3) ***Hawaii.*** The following table identifies delegations for Hawaii:

Delegation Status for New Source Performance Standards for Hawaii:

DELEGATION STATUS FOR NEW SOURCE PERFORMANCE STANDARDS FOR HAWAII

	Subpart	Hawaii
A	General Provisions	X
D	Fossil-Fuel Fired Steam Generators Constructed After August 17, 1971	X
Da	Electric Utility Steam Generating Units Constructed After September 18, 1978	X
Db	Industrial-Commercial-Institutional Steam Generating Units	X
Dc	Small Industrial Steam Generating Units	X
E	Incinerators	X
Ea	Municipal Waste Combustors Constructed After December 20, 1989 and On or	X

	Subpart	Hawaii
	Before September 20, 1994	
Eb	Municipal Waste Combustors Constructed After September 20, 1994	X
Ec	Hospital/Medical/Infectious Waste Incinerators for Which Construction is Commenced After June 20, 1996	X
F	Portland Cement Plants	X
G	Nitric Acid Plants	
H	Sulfuric Acid Plants	
I	Hot Mix Asphalt Facilities	X
J	Petroleum Refineries	X
Ja	Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After May 14, 2007	
K	Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and Prior to May 19, 1978	X
Ka	Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and Prior to July 23, 1984	X
Kb	Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984	X
L	Secondary Lead Smelters	
M	Secondary Brass and Bronze Production Plants	
N	Primary Emissions from Basic Oxygen Process Furnaces for Which Construction is Commenced After June 11, 1973	
Na	Secondary Emissions from Basic Oxygen Process Steelmaking Facilities for Which Construction is Commenced After January 20, 1983	
O	Sewage Treatment Plants	X
P	Primary Copper Smelters	
Q	Primary Zinc Smelters	
R	Primary Lead Smelters	
S	Primary Aluminum Reduction Plants	
T	Phosphate Fertilizer Industry: Wet Process Phosphoric Acid Plants	
U	Phosphate Fertilizer Industry: Superphosphoric Acid Plants	
V	Phosphate Fertilizer Industry: Diammonium Phosphate Plants	
W	Phosphate Fertilizer Industry: Triple Superphosphate Plants	
X	Phosphate Fertilizer Industry: Granular Triple Superphosphate Storage Facilities	
Y	Coal Preparation Plants	X
Z	Ferroalloy Production Facilities	
AA	Steel Plants: Electric Arc Furnaces Constructed After October 21, 1974 and On or Before August 17, 1983	X
AAa	Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels Constructed After August 7, 1983	X
BB	Kraft pulp Mills	

	Subpart	Hawaii
CC	Glass Manufacturing Plants	
DD	Grain Elevators	
EE	Surface Coating of Metal Furniture	
FF	(Reserved)	
GG	Stationary Gas Turbines	X
HH	Lime Manufacturing Plants	
KK	Lead-Acid Battery Manufacturing Plants	
LL	Metallic Mineral Processing Plants	
MM	Automobile and Light Duty Trucks Surface Coating Operations	
NN	Phosphate Rock Plants	
PP	Ammonium Sulfate Manufacture	
QQ	Graphic Arts Industry: Publication Rotogravure Printing	
RR	Pressure Sensitive Tape and Label Surface Coating Operations	
SS	Industrial Surface Coating: Large Appliances	
TT	Metal Coil Surface Coating	
UU	Asphalt Processing and Asphalt Roofing Manufacture	
VV	Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry	X
VVa	Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006	
WW	Beverage Can Surface Coating Industry	X
XX	Bulk Gasoline Terminals	X
AAA	New Residential Wool Heaters	
BBB	Rubber Tire Manufacturing Industry	
CCC	(Reserved)	
DDD	Volatile Organic Compounds (VOC) Emissions from the Polymer Manufacturing Industry	
EEE	(Reserved)	
FFF	Flexible Vinyl and Urethane Coating and Printing	
GGG	Equipment Leaks of VOC in Petroleum Refineries	X
GGGa	Equipment Leaks of VOC in Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006	
HHH	Synthetic Fiber Production Facilities	
III	Volatile Organic Compound (VOC) Emissions From the Synthetic Organic Chemical Manufacturing Industry (SOCMI) Air Oxidation Unit Processes	
JJJ	Petroleum Dry Cleaners	X
KKK	Equipment Leaks of VOC From Onshore Natural Gas Processing Plants	
LLL	Onshore Natural Gas Processing: SO2 Emissions	
MMM	(Reserved)	

	Subpart	Hawaii
NNN	Volatile Organic Compound (VOC) Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations	X
OOO	Nonmetallic Mineral Processing Plants	X
PPP	Wool Fiberglass Insulation Manufacturing Plants	
QQQ	VOC Emissions From Petroleum Refinery Wastewater	X
RRR	Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes	
SSS	Magnetic Tape Coating Facilities	
TTT	Industrial Surface Coating: Surface Coating of Plastic Parts for Business Machines	
UUU	Calciners and Dryers in Mineral Industries	X
VVV	Polymeric Coating of Supporting Substrates Facilities	X
WWW	Municipal Solid Waste Landfills	X
AAAA	Small Municipal Waste Combustion Units for Which Construction is Commenced After August 30, 1999 or for Which Modification or Reconstruction is Commenced After June 6, 2001	X
CCCC	Commercial and Industrial Solid Waste Incineration Units for Which Construction Is Commenced After November 30, 1999 or for Which Modification or Reconstruction Is Commenced on or After June 1, 2001	X
EEEE	Other Solid Waste Incineration Units for Which Construction is Commenced After December 9, 2004, or for Which Modification or Reconstruction is Commenced on or After June 16, 2006	
GGGG	(Reserved)	
IIII	Stationary Compression Ignition Internal Combustion Engines	
JJJJ	Stationary Spark Ignition Internal Combustion Engines	
KKKK	Stationary Combustion Turbines	

(4) ***Nevada.*** The following table identifies delegations for Nevada:

TABLE 12 TO PARAGRAPH (d)(4)—DELEGATION STATUS FOR NEW SOURCE PERFORMANCE STANDARDS FOR NEVADA

	Subpart	Air pollution control agency		
		Nevada DEP	Clark County	Washoe County
A	General Provisions	X	X	X

	Subpart	Air pollution control agency		
		Nevada DEP	Clark County	Washoe County
Cf	Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills	X		
D	Fossil-Fuel Fired Steam Generators Constructed After August 17, 1971	X	X	X
Da	Electric Utility Steam Generating Units Constructed After September 18, 1978	X	X	
Db	Industrial-Commercial-Institutional Steam Generating Units	X	X	
Dc	Small Industrial-Commercial-Institutional Steam Generating Units	X	X	
E	Incinerators	X	X	X
Ea	Municipal Waste Combustors Constructed After December 20, 1989 and On or Before September 20, 1994	X	X	
Eb	Large Municipal Waste Combustors Constructed After September 20, 1994	X	X	
Ec	Hospital/Medical/Infectious Waste Incinerators for Which Construction is Commenced After June 20, 1996	X	X	
F	Portland Cement Plants	X	X	X
G	Nitric Acid Plants	X	X	
Ga	Nitric Acid Plants For Which Construction, Reconstruction or Modification Commenced After October 14, 2011	X		
H	Sulfuric Acid Plant	X	X	
I	Hot Mix Asphalt Facilities	X	X	X
J	Petroleum Refineries	X	X	
Ja	Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After May 14, 2007	X		
K	Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and Prior to May 19, 1978	X	X	X
Ka	Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and Prior to July 23, 1984	X	X	X
Kb	Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984	X	X	
L	Secondary Lead Smelters	X	X	X
M	Secondary Brass and Bronze Production Plants	X	X	
N	Primary Emissions from Basic Oxygen Process Furnaces for Which Construction is Commenced After June 11, 1973	X	X	

	Subpart	Air pollution control agency		
		Nevada DEP	Clark County	Washoe County
Na	Secondary Emissions from Basic Oxygen Process Steelmaking Facilities for Which Construction is Commenced After January 20, 1983	X	X	
O	Sewage Treatment Plants	X	X	X
P	Primary Copper Smelters	X	X	X
Q	Primary Zinc Smelters	X	X	X
R	Primary Lead Smelters	X	X	X
S	Primary Aluminum Reduction Plants	X	X	
T	Phosphate Fertilizer Industry: Wet Process Phosphoric Acid Plants		X	
U	Phosphate Fertilizer Industry: Superphosphoric Acid Plants		X	
V	Phosphate Fertilizer Industry: Diammonium Phosphate Plants		X	
W	Phosphate Fertilizer Industry: Triple Superphosphate Plants		X	
X	Phosphate Fertilizer Industry: Granular Triple Superphosphate Storage Facilities		X	
Y	Coal Preparation and Processing Plants	X	X	X
Z	Ferroalloy Production Facilities	X	X	
AA	Steel Plants: Electric Arc Furnaces Constructed After October 21, 1974 and On or Before August 17, 1983	X	X	
AAa	Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels Constructed After August 7, 1983	X	X	
BB	Kraft Pulp Mills		X	
CC	Glass Manufacturing Plants	X	X	
DD	Grain Elevators	X	X	X
EE	Surface Coating of Metal Furniture	X	X	X
FF	(Reserved)			
GG	Stationary Gas Turbines	X	X	X
HH	Lime Manufacturing Plants	X	X	X
KK	Lead-Acid Battery Manufacturing Plants	X	X	X
LL	Metallic Mineral Processing Plants	X	X	X
MM	Automobile and Light Duty Trucks Surface Coating Operations	X	X	X
NN	Phosphate Rock Plants	X	X	X
PP	Ammonium Sulfate Manufacture	X	X	
QQ	Graphic Arts Industry: Publication Rotogravure Printing	X	X	X
RR	Pressure Sensitive Tape and Label Surface Coating Operations	X	X	
SS	Industrial Surface Coating: Large Appliances	X	X	X

	Subpart	Air pollution control agency		
		Nevada DEP	Clark County	Washoe County
TT	Metal Coil Surface Coating	X	X	X
UU	Asphalt Processing and Asphalt Roofing Manufacture	X	X	X
VV	Equipment Leaks of VOC in the Synthetic Organic Industry Chemicals Manufacturing	X	X	X
VVa	Equipment Leaks of VOC in the Synthetic Organic Industry for Which Construction, Reconstruction, or Chemicals Manufacturing Modification Commenced After November 7, 2006	X	X	
WW	Beverage Can Surface Coating Industry	X	X	
XX	Bulk Gasoline Terminals	X	X	
AAA	New Residential Wood Heaters		X	
BBB	Rubber Tire Manufacturing Industry	X	X	
CCC	(Reserved)			
DDD	Volatile Organic Compounds (VOC) Emissions from the Polymer Manufacturing Industry	X	X	
EEE	(Reserved)			
FFF	Flexible Vinyl and Urethane Coating and Printing	X	X	
GGG	Equipment Leaks of VOC in Petroleum Refineries	X	X	
GGGa	Equipment Leaks of VOC in Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006	X	X	
HHH	Synthetic Fiber Production Facilities	X	X	
III	Volatile Organic Compound (VOC) Emissions From the Synthetic Organic Chemical Manufacturing Industry (SOCMI) Air Oxidation Unit Processes	X	X	
JJJ	Petroleum Dry Cleaners	X	X	X
KKK	Equipment Leaks of VOC From Onshore Natural Gas Processing Plants	X	X	
LLL	Onshore Natural Gas Processing: SO_2 Emissions	X	X	
MMM	(Reserved)			
NNN	Volatile Organic Compound (VOC) Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations	X	X	
OOO	Nonmetallic Mineral Processing Plants	X	X	
PPP	Wool Fiberglass Insulation Manufacturing Plants	X	X	
QQQ	VOC Emissions From Petroleum Refinery Wastewater Systems	X	X	
RRR	Volatile Organic Compound Emissions from Synthetic Organic	X	X	

	Subpart	Air pollution control agency		
		Nevada DEP	Clark County	Washoe County
	Chemical Manufacturing Industry (SOCMI) Reactor Processes			
SSS	Magnetic Tape Coating Facilities	X	X	
TTT	Industrial Surface Coating: Surface Coating of Plastic Parts for Business Machines	X	X	X
UUU	Calciners and Dryers in Mineral Industries	X	X	X
VVV	Polymeric Coating of Supporting Substrates Facilities	X	X	X
WWW	Municipal Solid Waste Landfills	X	X	X
XXX	Municipal Solid Waste Landfills that Commenced Construction, Reconstruction, or Modification after July 17, 2014	X		
AAAA	Small Municipal Waste Combustion Units for Which Construction is Commenced After August 30, 1999 or for Which Modification or Reconstruction is Commended After June 6, 2001	X	X	X
CCCC	Commercial and Industrial Solid Waste Incineration Units for Which Construction Is Commenced After November 30, 1999 or for Which Modification or Reconstruction Is Commenced on or After June 1, 2001	X	X	X
EEEE	Other Solid Waste Incineration Units for Which Construction is Commenced After December 9, 2004, or for Which Modification or Reconstruction is Commenced on or After June 16, 2006	X	X	X
GGGG	(Reserved)			
HHHH	(Reserved)			
IIII	Stationary Compression Ignition Internal Combustion Engines	X	X	X
JJJJ	Stationary Spark Ignition Internal Combustion Engines	X	X	X
KKKK	Stationary Combustion Turbines	X	X	X
LLLL	New Sewage Sludge Incineration Units		X	
OOOO	Crude Oil and Natural Gas Production, Transmission, and	X		

	Subpart	Air pollution control agency		
		Nevada DEP	Clark County	Washoe County
	Distribution			

(5) ***Guam.*** The following table identifies delegations as of June 15, 2001:

DELEGATION STATUS FOR NEW SOURCE PERFORMANCE STANDARDS FOR GUAM

	Subpart	Guam
A	General Provisions	X
D	Fossil-Fuel Fired Steam Generators Constructed After August 17, 1971	X
Da	Electric Utility Steam Generating Units Constructed After September 18, 1978	
Db	Industrial-Commercial-Institutional Steam Generating Units	
Dc	Small Industrial Steam Generating Units	
E	Incinerators	
Ea	Municipal Waste Combustors Constructed After December 20, 1989 and On or Before September 20, 1994	
Eb	Municipal Waste Combustors Constructed After September 20, 1994	
Ec	Hospital/Medical/Infectious Waste Incinerators for Which Construction is Commenced After June 20, 1996	
F	Portland Cement Plants	X
G	Nitric Acid Plants	
H	Sulfuric Acid Plants	
I	Hot Mix Asphalt Facilities	X
J	Petroleum Refineries	X
K	Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and Prior to May 19, 1978	X

(e) The following lists the specific part 60 standards that have been delegated unchanged to the air pollution control agencies in Region 6.

(1) ***New Mexico.*** The New Mexico Environment Department has been delegated all part 60 standards promulgated by the EPA, except subpart AAA—Standards of Performance for New Residential Wood Heaters; and subpart QQQQ—Standards of Performance for New Residential Hydronic Heaters and Forced-Air Furnaces, as amended in the FEDERAL REGISTER through January 15, 2017.

(2) ***Louisiana.*** The Louisiana Department of Environmental Quality has been delegated all part 60 standards promulgated by EPA, except subpart AAA—Standards of Performance for New Residential Wood Heaters, as amended in the FEDERAL REGISTER through July 1, 2013.

DELEGATION STATUS FOR PART 60 STANDARDS—STATE OF LOUISIANA [EXCLUDING INDIAN COUNTRY]

Subpart	Source category	LDEQ [1]
A	General Provisions	Yes
Ce	Emission Guidelines and Compliance Times for Hospital/Medical/Infectious Waste Incinerators	Yes
D	Fossil Fueled Steam Generators (>250 MM BTU/hr)	Yes
Da	Electric Utility Steam Generating Units (>250 MM BTU/hr)	Yes
Db	Industrial-Commercial-Institutional Steam Generating Units (100 to 250 MM BTU/hr)	Yes
Dc	Industrial-Commercial-Institutional Small Steam Generating Units (10 to 100 MM BTU/hr)	Yes
E	Incinerators (>50 tons per day)	Yes
Ea	Municipal Waste Combustors	Yes
Eb	Large Municipal Waste Combustors	Yes
Ec	Hospital/Medical/Infectious Waste Incinerators	Yes
F	Portland Cement Plants	Yes
G	Nitric Acid Plants	Yes
Ga	Nitric Acid Plants (after October 14, 2011)	Yes
H	Sulfuric Acid Plants	Yes
I	Hot Mix Asphalt Facilities	Yes
J	Petroleum Refineries	Yes
Ja	Petroleum Refineries (After May 14, 2007)	Yes
K	Storage Vessels for Petroleum Liquids (After 6/11/73 & Before 5/19/78)	Yes
Ka	Storage Vessels for Petroleum Liquids (After 6/11/73 & Before 5/19/78)	Yes
Kb	Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Stg/Vessels) After 7/23/84	Yes
L	Secondary Lead Smelters Yes	Yes
M	Secondary Brass and Bronze Production Plants	Yes
N	Primary Emissions from Basic Oxygen Process Furnaces (Construction Commenced After June 11, 1973)	Yes
Na	Secondary Emissions from Basic Oxygen Process Steelmaking Facilities	Yes

[1] The Louisiana Department of Environmental Quality (LDEQ) has been delegated all Part 60 standards promulgated by EPA, except subpart AAA—Standards of Performance for New Residential Wood Heaters—as amended in the ***Federal Register*** *through July 1, 2013.*

Subpart	Source category	LDEQ [1]
	Construction is Commenced After January 20, 1983	
O	Sewage Treatment Plants	Yes
P	Primary Copper Smelters	Yes
Q	Primary Zinc Smelters	Yes
R	Primary Lead Smelters	Yes
S	Primary Aluminum Reduction Plants	Yes
T	Phosphate Fertilizer Industry: Wet Process Phosphoric Plants	Yes
U	Phosphate Fertilizer Industry: Superphosphoric Acid Plants	Yes
V	Phosphate Fertilizer Industry: Diammonium Phosphate Plants	Yes
W	Phosphate Fertilizer Industry: Triple Superphosphate Plants	Yes
X	Phosphate Fertilizer Industry: Granular Triple Superphosphate Storage Facilities	Yes
Y	Coal Preparation Plants	Yes
Z	Ferroalloy Production Facilities	Yes
AA	Steel Plants: Electric Arc Furnaces After 10/21/74 & On or Before 8/17/83	Yes
AAa	Steel Plants: Electric Arc Furnaces & Argon-Oxygen Decarburization Vessels After 8/07/83	Yes
BB	Kraft Pulp Mills	Yes
CC	Glass Manufacturing Plants	Yes
DD	Grain Elevators	Yes
EE	Surface Coating of Metal Furniture	Yes
GG	Stationary Gas Turbines	Yes
HH	Lime Manufacturing Plants	Yes
KK	Lead-Acid Battery Manufacturing Plants	Yes
LL	Metallic Mineral Processing Plants	Yes
MM	Automobile & Light Duty Truck Surface Coating Operations	Yes
NN	Phosphate Manufacturing Plants	Yes
PP	Ammonium Sulfate Manufacture	Yes
QQ	Graphic Arts Industry: Publication Rotogravure Printing	Yes
RR	Pressure Sensitive Tape and Label Surface Coating Operations	Yes
SS	Industrial Surface Coating: Large Appliances	Yes
TT	Metal Coil Surface Coating	Yes
UU	Asphalt Processing and Asphalt Roofing Manufacture	Yes
VV	VOC Equipment Leaks in the SOCMI Industry	Yes
VVa	VOC Equipment Leaks in the SOCMI Industry (After November 7, 2006)	Yes
XX	Bulk Gasoline Terminals	Yes
AAA	New Residential Wood Heaters	No

*[1] The Louisiana Department of Environmental Quality (LDEQ) has been delegated all Part 60 standards promulgated by EPA, except subpart AAA—Standards of Performance for New Residential Wood Heaters—as amended in the **Federal Register** through July 1, 2013.*

Subpart	Source category	LDEQ [1]
BBB	Rubber Tire Manufacturing Industry	Yes
DDD	Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry	Yes
FFF	Flexible Vinyl and Urethane Coating and Printing	Yes
GGG	VOC Equipment Leaks in Petroleum Refineries	Yes
HHH	Synthetic Fiber Production	Yes
III	VOC Emissions from the SOCMI Air Oxidation Unit Processes	Yes
JJJ	Petroleum Dry Cleaners	Yes
KKK	VOC Equipment Leaks From Onshore Natural Gas Processing Plants	Yes
LLL	Onshore Natural Gas Processing: SO_2 Emissions	Yes
NNN	VOC Emissions from SOCMI Distillation Operations	Yes
OOO	Nonmetallic Mineral Processing Plants	Yes
PPP	Wool Fiberglass Insulation Manufacturing Plants	Yes
QQQ	VOC Emissions From Petroleum Refinery Wastewater Systems	Yes
RRR	VOC Emissions from SOCMI Reactor Processes	Yes
SSS	Magnetic Tape Coating Operations	Yes
TTT	Industrial Surface Coating: Plastic Parts for Business Machines	Yes
UUU	Calciners and Dryers in Mineral Industries	Yes
VVV	Polymeric Coating of Supporting Substrates Facilities	Yes
WWW	Municipal Solid Waste Landfills	Yes
AAAA	Small Municipal Waste Combustion Units (Construction is Commenced After 8/30/99 or Modification/Reconstruction is Commenced After 6/06/2001)	Yes
CCCC	Commercial & Industrial Solid Waste Incineration Units (Construction is Commenced After 11/30/1999 or Modification/Reconstruction is Commenced on or After 6/01/2001)	Yes
DDDD	Emission Guidelines & Compliance Times for Commercial & Industrial Solid Waste Incineration Units (Commenced Construction On or Before 11/30/1999)	Yes
EEEE	Other Solid Waste Incineration Units (Constructed after 12/09/2004 or Modification/Reconstruction is commenced on or after 06/16/2004)	Yes
IIII	Stationary Compression Ignition Internal Combustion Engines	Yes
JJJJ	Stationary Spark Ignition Internal Combustion Engines	Yes
KKKK	Stationary Combustion Turbines (Construction Commenced After 02/18/2005)	Yes
LLLL	New Sewage Sludge Incineration Units	Yes
MMMM	Emission Guidelines and Compliance Times for Existing Sewage Sludge Incineration Units	Yes

[1] *The Louisiana Department of Environmental Quality (LDEQ) has been delegated all Part 60 standards promulgated by EPA, except subpart AAA—Standards of Performance for New Residential Wood Heaters—as amended in the* ***Federal Register*** *through July 1, 2013.*

Subpart	Source category	LDEQ [1]
OOOO	Crude Oil and Natural Gas Production, Transmission and Distribution	Yes

[1] *The Louisiana Department of Environmental Quality (LDEQ) has been delegated all Part 60 standards promulgated by EPA, except subpart AAA—Standards of Performance for New Residential Wood Heaters—as amended in the* ***Federal Register*** *through July 1, 2013.*

(3) ***Albuquerque-Bernalillo County Air Quality Control Board.*** The Albuquerque-Bernalillo County Air Quality Control Board has been delegated all part 60 standards promulgated by the EPA, except subpart AAA of this part and subpart QQQQ of this part as amended through January 23, 2017.

[40 FR 18169, Apr. 25, 1975]

Editorial Note: For FEDERAL REGISTER citations affecting § 60.4, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at *www.govinfo.gov*.

§ 60.5 Determination of construction or modification.

(a) When requested to do so by an owner or operator, the Administrator will make a determination of whether action taken or intended to be taken by such owner or operator constitutes construction (including reconstruction) or modification or the commencement thereof within the meaning of this part.

(b) The Administrator will respond to any request for a determination under paragraph (a) of this section within 30 days of receipt of such request.

[40 FR 58418, Dec. 16, 1975]

§ 60.6 Review of plans.

(a) When requested to do so by an owner or operator, the Administrator will review plans for construction or modification for the purpose of providing technical advice to the owner or operator.

(b)

(1) A separate request shall be submitted for each construction or modification project.

(2) Each request shall identify the location of such project, and be accompanied by technical information describing the proposed nature, size, design, and method of operation of each affected facility involved in such project, including information on any equipment to be used for measurement or control of emissions.

(c) Neither a request for plans review nor advice furnished by the Administrator in response to such request shall

(1) relieve an owner or operator of legal responsibility for compliance with any provision of this part or of any applicable State or local requirement, or

(2) prevent the Administrator from implementing or enforcing any provision of this part or taking any other action authorized by the Act.

[36 FR 24877, Dec. 23, 1971, as amended at 39 FR 9314, Mar. 8, 1974]

§ 60.7 Notification and record keeping.

(a) Any owner or operator subject to the provisions of this part shall furnish the Administrator written notification or, if acceptable to both the Administrator and the owner or operator of a source, electronic notification, as follows:

(1) A notification of the date construction (or reconstruction as defined under § 60.15) of an affected facility is commenced postmarked no later than 30 days after such date. This requirement shall not apply in the case of mass-produced facilities which are purchased in completed form.

(2) [Reserved]

(3) A notification of the actual date of initial startup of an affected facility postmarked within 15 days after such date.

(4) A notification of any physical or operational change to an existing facility which may increase the emission rate of any air pollutant to which a standard applies, unless that change is specifically exempted under an applicable subpart or in § 60.14(e). This notice shall be postmarked 60 days or as soon as practicable before the change is commenced and shall include information describing the precise nature of the change, present and proposed emission control systems, productive capacity of the facility before and after the change, and the expected completion date of the change. The Administrator may request additional relevant information subsequent to this notice.

(5) A notification of the date upon which demonstration of the continuous monitoring system performance commences in accordance with § 60.13(c). Notification shall be postmarked not less than 30 days prior to such date.

(6) A notification of the anticipated date for conducting the opacity observations required by § 60.11(e)(1) of this part. The notification shall also include, if appropriate, a request for the Administrator to provide a visible emissions reader during a performance test. The notification shall be postmarked not less than 30 days prior to such date.

(7) A notification that continuous opacity monitoring system data results will be used to determine compliance with the applicable opacity standard during a performance test required by § 60.8 in lieu of Method 9 observation data as allowed by § 60.11(e)(5) of this part. This notification shall be postmarked not less than 30 days prior to the date of the performance test.

(b) Any owner or operator subject to the provisions of this part shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative.

(c) Each owner or operator required to install a continuous monitoring device shall submit excess emissions and monitoring systems performance report (excess emissions are defined in applicable subparts) and-or summary report form (see paragraph (d) of this section) to the Administrator semiannually, except when: more frequent reporting is specifically required by an applicable subpart; or the Administrator, on a case-

by-case basis, determines that more frequent reporting is necessary to accurately assess the compliance status of the source. All reports shall be postmarked by the 30th day following the end of each six-month period. Written reports of excess emissions shall include the following information:

(1) The magnitude of excess emissions computed in accordance with § 60.13(h), any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions. The process operating time during the reporting period.

(2) Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the affected facility. The nature and cause of any malfunction (if known), the corrective action taken or preventative measures adopted.

(3) The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments.

(4) When no excess emissions have occurred or the continuous monitoring system(s) have not been inoperative, repaired, or adjusted, such information shall be stated in the report.

(d) The summary report form shall contain the information and be in the format shown in figure 1 unless otherwise specified by the Administrator. One summary report form shall be submitted for each pollutant monitored at each affected facility.

(1) If the total duration of excess emissions for the reporting period is less than 1 percent of the total operating time for the reporting period and CMS downtime for the reporting period is less than 5 percent of the total operating time for the reporting period, only the summary report form shall be submitted and the excess emission report described in § 60.7(c) need not be submitted unless requested by the Administrator.

(2) If the total duration of excess emissions for the reporting period is 1 percent or greater of the total operating time for the reporting period or the total CMS downtime for the reporting period is 5 percent or greater of the total operating time for the reporting period, the summary report form and the excess emission report described in § 60.7(c) shall both be submitted.

Figure 1—Summary Report—Gaseous and Opacity Excess Emission and Monitoring System Performance

Pollutant (Circle One—SO_2/NO_X/TRS/H_2S/CO/Opacity)

Reporting period dates: From _____ to _____

Company:

Emission Limitation _____

Address:

Monitor Manufacturer and Model No. _____

Date of Latest CMS Certification or Audit _____

Process Unit(s) Description:

Total source operating time in reporting period [1] _____

Emission data summary [1]		CMS performance summary [1]	
1. Duration of excess emissions in reporting period due to:		1. CMS downtime in reporting period due to:	
a. Startup/shutdown		a. Monitor equipment malfunctions	
b. Control equipment problems		b. Non-Monitor equipment malfunctions	
c. Process problems		c. Quality assurance calibration	
d. Other known causes		d. Other known causes	
e. Unknown causes		e. Unknown causes	
2. Total duration of excess emission		2. Total CMS Downtime	
3. Total duration of excess emissions × (100) [Total source operating time]	% [2]	3. [Total CMS Downtime] × (100) [Total source operating time]	% [2]

[1] *For opacity, record all times in minutes. For gases, record all times in hours.*

[2] *For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in § 60.7(c) shall be submitted.*

On a separate page, describe any changes since last quarter in CMS, process or controls. I certify that the information contained in this report is true, accurate, and complete.

_____

Name

_____

Signature

_____

Title

_____

Date

(e)

(1) Notwithstanding the frequency of reporting requirements specified in paragraph (c) of this section, an owner or operator who is required by an applicable subpart to submit excess emissions and monitoring systems performance reports (and summary reports) on a quarterly (or more frequent) basis may reduce the frequency of reporting for that standard to semiannual if the following conditions are met:

(i) For 1 full year (e.g., 4 quarterly or 12 monthly reporting periods) the affected facility's excess emissions and monitoring systems reports submitted to comply with a standard under this part continually demonstrate that the facility is in compliance with the applicable standard;

(ii) The owner or operator continues to comply with all recordkeeping and monitoring requirements specified in this subpart and the applicable standard; and

(iii) The Administrator does not object to a reduced frequency of reporting for the affected facility, as provided in paragraph (e)(2) of this section.

(2) The frequency of reporting of excess emissions and monitoring systems performance (and summary) reports may be reduced only after the owner or operator notifies the Administrator in writing of his or her intention to make such a change and the Administrator does not object to the intended change. In deciding whether to approve a reduced frequency of reporting, the Administrator may review information concerning the source's entire previous performance history during the required recordkeeping period prior to the intended change, including performance test results, monitoring data, and evaluations of an owner or operator's conformance with operation and maintenance requirements. Such information may be used by the Administrator to make a judgment about the source's potential for noncompliance in the future. If the Administrator disapproves the owner or operator's request to reduce the frequency of reporting, the Administrator will notify the owner or operator in writing within 45 days after receiving notice of the owner or operator's intention. The notification from the Administrator to the owner or operator will specify the grounds on which the disapproval is based. In the absence of a notice of disapproval within 45 days, approval is automatically granted.

(3) As soon as monitoring data indicate that the affected facility is not in compliance with any emission limitation or operating parameter specified in the applicable standard, the frequency of reporting shall revert to the frequency specified in the applicable standard, and the owner or operator shall submit an excess emissions and monitoring systems performance report (and summary report, if required) at the next appropriate reporting period following the noncomplying event. After demonstrating compliance with the applicable standard for another full year, the owner or operator may again request approval from the Administrator to reduce the frequency of reporting for that standard as provided for in paragraphs (e)(1) and (e)(2) of this section.

(f) Any owner or operator subject to the provisions of this part shall maintain a file of all measurements, including continuous monitoring system, monitoring device, and performance testing measurements; all continuous monitoring system performance evaluations; all continuous monitoring system or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; and all other information required by this part recorded in a permanent form suitable for inspection. The file shall be retained for at least two years following the date of such measurements, maintenance, reports, and records, except as follows:

(1) This paragraph applies to owners or operators required to install a continuous emissions monitoring system (CEMS) where the CEMS installed is automated, and where the calculated data averages do not exclude periods of CEMS breakdown or malfunction. An automated CEMS records and reduces the measured data to the form of the pollutant emission standard through the use of a computerized data acquisition system. In lieu of maintaining a file of all CEMS subhourly measurements as required under paragraph (f) of this section, the owner or operator shall retain the most recent consecutive three averaging periods of subhourly measurements and a file that contains a hard copy of the data acquisition system algorithm used to reduce the measured data into the reportable form of the standard.

(2) This paragraph applies to owners or operators required to install a CEMS where the measured data is manually reduced to obtain the reportable form of the standard, and where the calculated data averages do not exclude periods of CEMS breakdown or malfunction. In lieu of maintaining a file of all CEMS subhourly measurements as required under paragraph (f) of this section, the owner or operator shall retain all subhourly measurements for the most recent reporting period. The subhourly measurements shall be retained for 120 days from the date of the most recent summary or excess emission report submitted to the Administrator.

(3) The Administrator or delegated authority, upon notification to the source, may require the owner or operator to maintain all measurements as required by paragraph (f) of this section, if the Administrator or the delegated authority determines these records are required to more accurately assess the compliance status of the affected source.

(g) If notification substantially similar to that in paragraph (a) of this section is required by any other State or local agency, sending the Administrator a copy of that notification will satisfy the requirements of paragraph (a) of this section.

(h) Individual subparts of this part may include specific provisions which clarify or make inapplicable the provisions set forth in this section.

[36 FR 24877, Dec. 28, 1971, as amended at 40 FR 46254, Oct. 6, 1975; 40 FR 58418, Dec. 16, 1975; 45 FR 5617, Jan. 23, 1980; 48 FR 48335, Oct. 18, 1983; 50 FR 53113, Dec. 27, 1985; 52 FR 9781, Mar. 26, 1987; 55 FR 51382, Dec. 13, 1990; 59 FR 12428, Mar. 16, 1994; 59 FR 47265, Sep. 15, 1994; 64 FR 7463, Feb. 12, 1999]

§ 60.8 Performance tests.

(a) Except as specified in paragraphs (a)(1),(a)(2), (a)(3), and (a)(4) of this section, within 60 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup of such facility, or at such other times specified by this part, and at such other times as may be required by the Administrator under section 114 of the Act, the owner or operator of such facility shall conduct performance test(s) and furnish the Administrator a written report of the results of such performance test(s).

(1) If a force majeure is about to occur, occurs, or has occurred for which the affected owner or operator intends to assert a claim of force majeure, the owner or operator shall notify the Administrator, in writing as soon as practicable following the date the owner or operator first knew, or through due diligence should have known that the event may cause or caused a delay in testing beyond the regulatory deadline, but the notification must occur before the performance test deadline unless the initial force majeure or a subsequent force majeure event delays the notice, and in such cases, the notification shall occur as soon as practicable.

(2) The owner or operator shall provide to the Administrator a written description of the force majeure event and a rationale for attributing the delay in testing beyond the regulatory deadline to the force majeure; describe the measures taken or to be taken to minimize the delay; and identify a date by which the owner or operator proposes to conduct the performance test. The performance test shall be conducted as soon as practicable after the force majeure occurs.

(3) The decision as to whether or not to grant an extension to the performance test deadline is solely within the discretion of the Administrator. The Administrator will notify the owner or operator in writing of approval or disapproval of the request for an extension as soon as practicable.

(4) Until an extension of the performance test deadline has been approved by the Administrator under paragraphs (a)(1), (2), and (3) of this section, the owner or operator of the affected facility remains strictly subject to the requirements of this part.

(b) Performance tests shall be conducted and data reduced in accordance with the test methods and procedures contained in each applicable subpart unless the Administrator

(1) specifies or approves, in specific cases, the use of a reference method with minor changes in methodology,

(2) approves the use of an equivalent method,

(3) approves the use of an alternative method the results of which he has determined to be adequate for indicating whether a specific source is in compliance,

(4) waives the requirement for performance tests because the owner or operator of a source has demonstrated by other means to the Administrator's satisfaction that the affected facility is in compliance with the standard, or

(5) approves shorter sampling times and smaller sample volumes when necessitated by process variables or other factors. Nothing in this paragraph shall be construed to abrogate the Administrator's authority to require testing under section 114 of the Act.

(c) Performance tests shall be conducted under such conditions as the Administrator shall specify to the plant operator based on representative performance of the affected facility. The owner or operator shall make available to the Administrator such records as may be necessary to determine the conditions of the performance tests. Operations during periods of startup, shutdown, and malfunction shall not constitute representative conditions for the purpose of a performance test nor shall emissions in excess of the level of the applicable emission limit during periods of startup, shutdown, and malfunction be considered a violation of the applicable emission limit unless otherwise specified in the applicable standard.

(d) The owner or operator of an affected facility shall provide the Administrator at least 30 days prior notice of any performance test, except as specified under other subparts, to afford the Administrator the opportunity to have an observer present. If after 30 days notice for an initially scheduled performance test, there is a delay (due to operational problems, etc.) in conducting the scheduled performance test, the owner or operator of an affected facility shall notify the Administrator (or delegated State or local agency) as soon as possible of any delay in the original test date, either by providing at least 7 days prior notice of the rescheduled date of the performance test, or by arranging a rescheduled date with the Administrator (or delegated State or local agency) by mutual agreement.

(e) The owner or operator of an affected facility shall provide, or cause to be provided, performance testing facilities as follows:

(1) Sampling ports adequate for test methods applicable to such facility. This includes

(i) constructing the air pollution control system such that volumetric flow rates and pollutant emission rates can be accurately determined by applicable test methods and procedures and

(ii) providing a stack or duct free of cyclonic flow during performance tests, as demonstrated by applicable test methods and procedures.

(2) Safe sampling platform(s).

(3) Safe access to sampling platform(s).

(4) Utilities for sampling and testing equipment.

(f) Unless otherwise specified in the applicable subpart, each performance test shall consist of three separate runs using the applicable test method.

(1) Each run shall be conducted for the time and under the conditions specified in the applicable standard. For the purpose of determining compliance with an applicable standard, the arithmetic means of results of the three runs shall apply. In the event that a sample is accidentally lost or conditions occur in which one of the three runs must be discontinued because of forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances, beyond the owner or operator's control, compliance may, upon the Administrator's approval, be determined using the arithmetic mean of the results of the two other runs.

(2) Contents of report (electronic or paper submitted copy). Unless otherwise specified in a relevant standard or test method, or as otherwise approved by the Administrator in writing, the report for a performance test shall include the elements identified in paragraphs (f)(2)(i) through (vi) of this section.

(i) General identification information for the facility including a mailing address, the physical address, the owner or operator or responsible official (where applicable) and his/her email address, and the appropriate Federal Registry System (FRS) number for the facility.

(ii) Purpose of the test including the applicable regulation(s) requiring the test, the pollutant(s) and other parameters being measured, the applicable emission standard and any process parameter component, and a brief process description.

(iii) Description of the emission unit tested including fuel burned, control devices, and vent characteristics; the appropriate source classification code (SCC); the permitted maximum process rate (where applicable); and the sampling location.

(iv) Description of sampling and analysis procedures used and any modifications to standard procedures, quality assurance procedures and results, record of process operating conditions that demonstrate the applicable test conditions are met, and values for any operating parameters for which limits were being set during the test.

(v) Where a test method requires you record or report, the following shall be included: Record of preparation of standards, record of calibrations, raw data sheets for field sampling, raw data sheets for field and laboratory analyses, chain-of-custody documentation, and example calculations for reported results.

(vi) Identification of the company conducting the performance test including the primary office address, telephone number, and the contact for this test program including his/her email address.

(g) The performance testing shall include a test method performance audit (PA) during the performance test. The PAs consist of blind audit samples supplied by an accredited audit sample provider and analyzed during the performance test in order to provide a measure of test data bias. Gaseous audit samples are designed to audit the performance of the sampling system as well as the analytical system and must be collected by the sampling system during the compliance test just as the compliance samples are collected. If a liquid or solid audit sample is designed to audit the sampling system, it must also be collected by the sampling system during the compliance test. If multiple sampling systems or sampling trains are used during the compliance test for any of the test methods, the tester is only required to use

one of the sampling systems per method to collect the audit sample. The audit sample must be analyzed by the same analyst using the same analytical reagents and analytical system and at the same time as the compliance samples. Retests are required when there is a failure to produce acceptable results for an audit sample. However, if the audit results do not affect the compliance or noncompliance status of the affected facility, the compliance authority may waive the reanalysis requirement, further audits, or retests and accept the results of the compliance test. Acceptance of the test results shall constitute a waiver of the reanalysis requirement, further audits, or retests. The compliance authority may also use the audit sample failure and the compliance test results as evidence to determine the compliance or noncompliance status of the affected facility. A blind audit sample is a sample whose value is known only to the sample provider and is not revealed to the tested facility until after they report the measured value of the audit sample. For pollutants that exist in the gas phase at ambient temperature, the audit sample shall consist of an appropriate concentration of the pollutant in air or nitrogen that can be introduced into the sampling system of the test method at or near the same entry point as a sample from the emission source. If no gas phase audit samples are available, an acceptable alternative is a sample of the pollutant in the same matrix that would be produced when the sample is recovered from the sampling system as required by the test method. For samples that exist only in a liquid or solid form at ambient temperature, the audit sample shall consist of an appropriate concentration of the pollutant in the same matrix that would be produced when the sample is recovered from the sampling system as required by the test method. An accredited audit sample provider (AASP) is an organization that has been accredited to prepare audit samples by an independent, third party accrediting body.

(1) The source owner, operator, or representative of the tested facility shall obtain an audit sample, if commercially available, from an AASP for each test method used for regulatory compliance purposes. No audit samples are required for the following test methods: Methods 3A and 3C of appendix A-3 of part 60, Methods 6C, 7E, 9, and 10 of appendix A-4 of part 60, Methods 18 and 19 of appendix A-6 of part 60, Methods 20, 22, and 25A of appendix A-7 of part 60, Methods 30A and 30B of appendix A-8 of part 60, and Methods 303, 318, 320, and 321 of appendix A of part 63 of this chapter. If multiple sources at a single facility are tested during a compliance test event, only one audit sample is required for each method used during a compliance test. The compliance authority responsible for the compliance test may waive the requirement to include an audit sample if they believe that an audit sample is not necessary. “Commercially available” means that two or more independent AASPs have blind audit samples available for purchase. If the source owner, operator, or representative cannot find an audit sample for a specific method, the owner, operator, or representative shall consult the EPA Web site at the following URL, *www.epa.gov/ttn/emc,* to confirm whether there is a source that can supply an audit sample for that method. If the EPA Web site does not list an available audit sample at least 60 days prior to the beginning of the compliance test, the source owner, operator, or representative shall not be required to include an audit sample as part of the quality assurance program for the compliance test. When ordering an audit sample, the source owner, operator, or representative shall give the sample provider an estimate for the concentration of each pollutant that is emitted by the source or the estimated concentration of each pollutant based on the permitted level and the name, address, and phone number of the compliance authority. The source owner, operator, or representative shall report the results for the audit sample along with a summary of the emission test results for the audited pollutant to the compliance authority and shall report the results of the audit sample to the AASP. The source owner, operator, or representative shall make both reports at the same time and in the same manner or shall report to the compliance authority first and then report to the AASP. If the method being audited is a method that allows the samples to be analyzed in the field and the tester plans to analyze the samples in the field, the tester may analyze the audit samples prior to collecting the emission samples provided a representative of

the compliance authority is present at the testing site. The tester may request and the compliance authority may grant a waiver to the requirement that a representative of the compliance authority must be present at the testing site during the field analysis of an audit sample. The source owner, operator, or representative may report the results of the audit sample to the compliance authority and report the results of the audit sample to the AASP prior to collecting any emission samples. The test protocol and final test report shall document whether an audit sample was ordered and utilized and the pass/fail results as applicable.

(2) An AASP shall have and shall prepare, analyze, and report the true value of audit samples in accordance with a written technical criteria document that describes how audit samples will be prepared and distributed in a manner that will ensure the integrity of the audit sample program. An acceptable technical criteria document shall contain standard operating procedures for all of the following operations:

(i) Preparing the sample;

(ii) Confirming the true concentration of the sample;

(iii) Defining the acceptance limits for the results from a well qualified tester. This procedure must use well established statistical methods to analyze historical results from well qualified testers. The acceptance limits shall be set so that there is 95 percent confidence that 90 percent of well qualified labs will produce future results that are within the acceptance limit range.

(iv) Providing the opportunity for the compliance authority to comment on the selected concentration level for an audit sample;

(v) Distributing the sample to the user in a manner that guarantees that the true value of the sample is unknown to the user;

(vi) Recording the measured concentration reported by the user and determining if the measured value is within acceptable limits;

(vii) The AASP shall report the results from each audit sample in a timely manner to the compliance authority and then to the source owner, operator, or representative. The AASP shall make both reports at the same time and in the same manner or shall report to the compliance authority first and then report to the source owner, operator, or representative. The results shall include the name of the facility tested, the date on which the compliance test was conducted, the name of the company performing the sample collection, the name of the company that analyzed the compliance samples including the audit sample, the measured result for the audit sample, and whether the testing company passed or failed the audit. The AASP shall report the true value of the audit sample to the compliance authority. The AASP may report the true value to the source owner, operator, or representative if the AASP's operating plan ensures that no laboratory will receive the same audit sample twice.

(viii) Evaluating the acceptance limits of samples at least once every two years to determine in cooperation with the voluntary consensus standard body if they should be changed;

(ix) Maintaining a database, accessible to the compliance authorities, of results from the audit that shall include the name of the facility tested, the date on which the compliance test was conducted, the name of the company performing the sample collection, the name of the

company that analyzed the compliance samples including the audit sample, the measured result for the audit sample, the true value of the audit sample, the acceptance range for the measured value, and whether the testing company passed or failed the audit.

(3) The accrediting body shall have a written technical criteria document that describes how it will ensure that the AASP is operating in accordance with the AASP technical criteria document that describes how audit samples are to be prepared and distributed. This document shall contain standard operating procedures for all of the following operations:

(i) Checking audit samples to confirm their true value as reported by the AASP;

(ii) Performing technical systems audits of the AASP's facilities and operating procedures at least once every two years;

(iii) Providing standards for use by the voluntary consensus standard body to approve the accrediting body that will accredit the audit sample providers.

(4) The technical criteria documents for the accredited sample providers and the accrediting body shall be developed through a public process guided by a voluntary consensus standards body (VCSB). The VCSB shall operate in accordance with the procedures and requirements in the Office of Management and Budget Circular A-119. A copy of Circular A-119 is available upon request by writing the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street, NW., Washington, DC 20503, by calling (202) 395-6880 or downloading online at *http://standards.gov/standards_gov/a119.cfm*. The VCSB shall approve all accrediting bodies. The Administrator will review all technical criteria documents. If the technical criteria documents do not meet the minimum technical requirements in paragraphs (g)(2) through (4)of this section, the technical criteria documents are not acceptable and the proposed audit sample program is not capable of producing audit samples of sufficient quality to be used in a compliance test. All acceptable technical criteria documents shall be posted on the EPA Web site at the following URL, *http://www.epa.gov/ttn/emc*.

(h) Unless otherwise specified in the applicable subpart, each test location must be verified to be free of cyclonic flow and evaluated for the existence of emission gas stratification and the required number of sampling traverse points. If other procedures are not specified in the applicable subpart to the regulations, use the appropriate procedures in Method 1 to check for cyclonic flow and Method 7E to evaluate emission gas stratification and selection of sampling points.

(i) Whenever the use of multiple calibration gases is required by a test method, performance specification, or quality assurance procedure in a part 60 standard or appendix, Method 205 of 40 CFR part 51, appendix M of this chapter, “Verification of Gas Dilution Systems for Field Instrument Calibrations,” may be used.

[36 FR 24877, Dec. 23, 1971, as amended at 39 FR 9314, Mar. 8, 1974; 42 FR 57126, Nov. 1, 1977; 44 FR 33612, June 11, 1979; 54 FR 6662, Feb. 14, 1989; 54 FR 21344, May 17, 1989; 64 FR 7463, Feb. 12, 1999; 72 FR 27442, May 16, 2007; 75 FR 55646, Sept. 13, 2010; 79 FR 11241, Feb. 27, 2014; 81 FR 59809, Aug. 30, 2016]

§ 60.9 Availability of information.

The availability to the public of information provided to, or otherwise obtained by, the Administrator under this part shall be governed by part 2 of this chapter. (Information submitted voluntarily to the Administrator for the purposes of §§ 60.5 and 60.6 is governed by §§ 2.201 through 2.213 of this chapter and not by § 2.301 of this chapter.)

§ 60.10 State authority.

The provisions of this part shall not be construed in any manner to preclude any State or political subdivision thereof from:

(a) Adopting and enforcing any emission standard or limitation applicable to an affected facility, provided that such emission standard or limitation is not less stringent than the standard applicable to such facility.

(b) Requiring the owner or operator of an affected facility to obtain permits, licenses, or approvals prior to initiating construction, modification, or operation of such facility.

§ 60.11 Compliance with standards and maintenance requirements.

(a) Compliance with standards in this part, other than opacity standards, shall be determined in accordance with performance tests established by § 60.8, unless otherwise specified in the applicable standard.

(b) Compliance with opacity standards in this part shall be determined by conducting observations in accordance with Method 9 in appendix A of this part, any alternative method that is approved by the Administrator, or as provided in paragraph (e)(5) of this section. For purposes of determining initial compliance, the minimum total time of observations shall be 3 hours (30 6-minute averages) for the performance test or other set of observations (meaning those fugitive-type emission sources subject only to an opacity standard).

(c) The opacity standards set forth in this part shall apply at all times except during periods of startup, shutdown, malfunction, and as otherwise provided in the applicable standard.

(d) At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.

(e)

(1) For the purpose of demonstrating initial compliance, opacity observations shall be conducted concurrently with the initial performance test required in § 60.8 unless one of the following conditions apply. If no performance test under § 60.8 is required, then opacity observations shall be conducted within 60 days after achieving the maximum production rate at which the affected facility will be operated but no later than 180 days after initial startup of the facility. If visibility or other conditions prevent the opacity observations from being conducted concurrently with the initial performance test required under § 60.8, the source owner or operator shall reschedule the opacity observations as soon after the initial performance test as possible, but not later than 30 days thereafter, and shall advise the Administrator of the rescheduled date. In these cases, the 30-day prior notification to the Administrator required in § 60.7(a)(6) shall be waived. The rescheduled opacity observations shall be conducted (to the extent possible) under the same operating conditions that existed during the initial performance test conducted under § 60.8. The visible emissions observer shall determine whether visibility or other conditions prevent the opacity observations from being made concurrently with the initial performance test in accordance with procedures contained in Method 9 of appendix B of this part. Opacity readings of portions of plumes which contain condensed, uncombined water vapor shall not be used for purposes of determing compliance with opacity standards. The owner or operator of an affected facility shall make

available, upon request by the Administrator, such records as may be necessary to determine the conditions under which the visual observations were made and shall provide evidence indicating proof of current visible observer emission certification. Except as provided in paragraph (e)(5) of this section, the results of continuous monitoring by transmissometer which indicate that the opacity at the time visual observations were made was not in excess of the standard are probative but not conclusive evidence of the actual opacity of an emission, provided that the source shall meet the burden of proving that the instrument used meets (at the time of the alleged violation) Performance Specification 1 in appendix B of this part, has been properly maintained and (at the time of the alleged violation) that the resulting data have not been altered in any way.

(2) Except as provided in paragraph (e)(3) of this section, the owner or operator of an affected facility to which an opacity standard in this part applies shall conduct opacity observations in accordance with paragraph (b) of this section, shall record the opacity of emissions, and shall report to the Administrator the opacity results along with the results of the initial performance test required under § 60.8. The inability of an owner or operator to secure a visible emissions observer shall not be considered a reason for not conducting the opacity observations concurrent with the initial performance test.

(3) The owner or operator of an affected facility to which an opacity standard in this part applies may request the Administrator to determine and to record the opacity of emissions from the affected facility during the initial performance test and at such times as may be required. The owner or operator of the affected facility shall report the opacity results. Any request to the Administrator to determine and to record the opacity of emissions from an affected facility shall be included in the notification required in § 60.7(a)(6). If, for some reason, the Administrator cannot determine and record the opacity of emissions from the affected facility during the performance test, then the provisions of paragraph (e)(1) of this section shall apply.

(4) An owner or operator of an affected facility using a continuous opacity monitor (transmissometer) shall record the monitoring data produced during the initial performance test required by § 60.8 and shall furnish the Administrator a written report of the monitoring results along with Method 9 and § 60.8 performance test results.

(5) An owner or operator of an affected facility subject to an opacity standard may submit, for compliance purposes, continuous opacity monitoring system (COMS) data results produced during any performance test required under § 60.8 in lieu of Method 9 observation data. If an owner or operator elects to submit COMS data for compliance with the opacity standard, he shall notify the Administrator of that decision, in writing, at least 30 days before any performance test required under § 60.8 is conducted. Once the owner or operator of an affected facility has notified the Administrator to that effect, the COMS data results will be used to determine opacity compliance during subsequent tests required under § 60.8 until the owner or operator notifies the Administrator, in writing, to the contrary. For the purpose of determining compliance with the opacity standard during a performance test required under § 60.8 using COMS data, the minimum total time of COMS data collection shall be averages of all 6-minute continuous periods within the duration of the mass emission performance test. Results of the COMS opacity determinations shall be submitted along with the results of the performance test required under § 60.8. The owner or operator of an affected facility using a COMS for compliance purposes is responsible for demonstrating that the COMS meets the requirements specified in § 60.13(c) of this part, that the COMS has been properly maintained and operated, and that the resulting data have not been altered in any way. If COMS data

results are submitted for compliance with the opacity standard for a period of time during which Method 9 data indicates noncompliance, the Method 9 data will be used to determine compliance with the opacity standard.

(6) Upon receipt from an owner or operator of the written reports of the results of the performance tests required by § 60.8, the opacity observation results and observer certification required by § 60.11(e)(1), and the COMS results, if applicable, the Administrator will make a finding concerning compliance with opacity and other applicable standards. If COMS data results are used to comply with an opacity standard, only those results are required to be submitted along with the performance test results required by § 60.8. If the Administrator finds that an affected facility is in compliance with all applicable standards for which performance tests are conducted in accordance with § 60.8 of this part but during the time such performance tests are being conducted fails to meet any applicable opacity standard, he shall notify the owner or operator and advise him that he may petition the Administrator within 10 days of receipt of notification to make appropriate adjustment to the opacity standard for the affected facility.

(7) The Administrator will grant such a petition upon a demonstration by the owner or operator that the affected facility and associated air pollution control equipment was operated and maintained in a manner to minimize the opacity of emissions during the performance tests; that the performance tests were performed under the conditions established by the Administrator; and that the affected facility and associated air pollution control equipment were incapable of being adjusted or operated to meet the applicable opacity standard.

(8) The Administrator will establish an opacity standard for the affected facility meeting the above requirements at a level at which the source will be able, as indicated by the performance and opacity tests, to meet the opacity standard at all times during which the source is meeting the mass or concentration emission standard. The Administrator will promulgate the new opacity standard in the FEDERAL REGISTER.

(f) Special provisions set forth under an applicable subpart shall supersede any conflicting provisions in paragraphs (a) through (e) of this section.

(g) For the purpose of submitting compliance certifications or establishing whether or not a person has violated or is in violation of any standard in this part, nothing in this part shall preclude the use, including the exclusive use, of any credible evidence or information, relevant to whether a source would have been in compliance with applicable requirements if the appropriate performance or compliance test or procedure had been performed.

[38 FR 28565, Oct. 15, 1973, as amended at 39 FR 39873, Nov. 12, 1974; 43 FR 8800, Mar. 3, 1978; 45 FR 23379, Apr. 4, 1980; 48 FR 48335, Oct. 18, 1983; 50 FR 53113, Dec. 27, 1985; 51 FR 1790, Jan. 15, 1986; 52 FR 9781, Mar. 26, 1987; 62 FR 8328, Feb. 24, 1997; 65 FR 61749, Oct. 17, 2000]

§ 60.12 Circumvention.

No owner or operator subject to the provisions of this part shall build, erect, install, or use any article, machine, equipment or process, the use of which conceals an emission which would otherwise constitute a violation of an applicable standard. Such concealment includes, but is not limited to, the use of gaseous diluents to achieve compliance with an opacity standard or with a standard which is based on the concentration of a pollutant in the gases discharged to the atmosphere.

[39 FR 9314, Mar. 8, 1974]

§ 60.13 Monitoring requirements.

(a) For the purposes of this section, all continuous monitoring systems required under applicable subparts shall be subject to the provisions of this section upon promulgation of performance specifications for continuous monitoring systems under appendix B to this part and, if the continuous monitoring system is used to demonstrate compliance with emission limits on a continuous basis, appendix F to this part, unless otherwise specified in an applicable subpart or by the Administrator. Appendix F is applicable December 4, 1987.

(b) All continuous monitoring systems and monitoring devices shall be installed and operational prior to conducting performance tests under § 60.8. Verification of operational status shall, as a minimum, include completion of the manufacturer's written requirements or recommendations for installation, operation, and calibration of the device.

(c) If the owner or operator of an affected facility elects to submit continous opacity monitoring system (COMS) data for compliance with the opacity standard as provided under § 60.11(e)(5), he shall conduct a performance evaluation of the COMS as specified in Performance Specification 1, appendix B, of this part before the performance test required under § 60.8 is conducted. Otherwise, the owner or operator of an affected facility shall conduct a performance evaluation of the COMS or continuous emission monitoring system (CEMS) during any performance test required under § 60.8 or within 30 days thereafter in accordance with the applicable performance specification in appendix B of this part, The owner or operator of an affected facility shall conduct COMS or CEMS performance evaluations at such other times as may be required by the Administrator under section 114 of the Act.

(1) The owner or operator of an affected facility using a COMS to determine opacity compliance during any performance test required under § 60.8 and as described in § 60.11(e)(5) shall furnish the Administrator two or, upon request, more copies of a written report of the results of the COMS performance evaluation described in paragraph (c) of this section at least 10 days before the performance test required under § 60.8 is conducted.

(2) Except as provided in paragraph (c)(1) of this section, the owner or operator of an affected facility shall furnish the Administrator within 60 days of completion two or, upon request, more copies of a written report of the results of the performance evaluation.

(d)

(1) Owners and operators of a CEMS installed in accordance with the provisions of this part, must check the zero (or low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once each operating day in accordance with a written procedure. The zero and span must, at a minimum, be adjusted whenever either the 24-hour zero drift or the 24-hour span drift exceeds two times the limit of the applicable performance specification in appendix B of this part. The system must allow the amount of the excess zero and span drift to be recorded and quantified whenever specified. Owners and operators of a COMS installed in accordance with the provisions of this part must check the zero and upscale (span) calibration drifts at least once daily. For a particular COMS, the acceptable range of zero and upscale calibration materials is defined in the applicable version of PS-1 in appendix B of this part. For a COMS, the optical surfaces, exposed to the effluent gases, must be cleaned before performing the zero and upscale drift adjustments, except for systems using automatic zero adjustments. The optical surfaces must be cleaned when the cumulative automatic zero compensation exceeds 4 percent opacity.

(2) Unless otherwise approved by the Administrator, the following procedures must be followed for a COMS. Minimum procedures must include an automated method for producing a simulated zero opacity condition and an upscale opacity condition using a certified neutral density filter or other related technique to produce a known obstruction of the light beam. Such procedures must provide a system check of all active analyzer internal optics with power or curvature, all active electronic circuitry including the light source and photodetector assembly, and electronic or electro-mechanical systems and hardware and or software used during normal measurement operation.

(e) Except for system breakdowns, repairs, calibration checks, and zero and span adjustments required under paragraph (d) of this section, all continuous monitoring systems shall be in continuous operation and shall meet minimum frequency of operation requirements as follows:

(1) All continuous monitoring systems referenced by paragraph (c) of this section for measuring opacity of emissions shall complete a minimum of one cycle of sampling and analyzing for each successive 10-second period and one cycle of data recording for each successive 6-minute period.

(2) All continuous monitoring systems referenced by paragraph (c) of this section for measuring emissions, except opacity, shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period.

(f) All continuous monitoring systems or monitoring devices shall be installed such that representative measurements of emissions or process parameters from the affected facility are obtained. Additional procedures for location of continuous monitoring systems contained in the applicable Performance Specifications of appendix B of this part shall be used.

(g) When the effluents from a single affected facility or two or more affected facilities subject to the same emission standards are combined before being released to the atmosphere, the owner or operator may install applicable continuous monitoring systems on each effluent or on the combined effluent. When the affected facilities are not subject to the same emission standards, separate continuous monitoring systems shall be installed on each effluent. When the effluent from one affected facility is released to the atmosphere through more than one point, the owner or operator shall install an applicable continuous monitoring system on each separate effluent unless the installation of fewer systems is approved by the Administrator. When more than one continuous monitoring system is used to measure the emissions from one affected facility (e.g., multiple breechings, multiple outlets), the owner or operator shall report the results as required from each continuous monitoring system.

(h)

(1) Owners or operators of all continuous monitoring systems for measurement of opacity shall reduce all data to 6-minute averages and for continuous monitoring systems other than opacity to 1-hour averages for time periods as defined in § 60.2. Six-minute opacity averages shall be calculated from 36 or more data points equally spaced over each 6-minute period.

(2) For continuous monitoring systems other than opacity, 1-hour averages shall be computed as follows, except that the provisions pertaining to the validation of partial operating hours are only applicable for affected facilities that are required by the applicable subpart to include partial hours in the emission calculations:

(i) Except as provided under paragraph (h)(2)(iii) of this section, for a full operating hour (any clock hour with 60 minutes of unit operation), at least four valid data points are required to calculate the hourly average, *i.e.*, one data point in each of the 15-minute quadrants of the hour.

(ii) Except as provided under paragraph (h)(2)(iii) of this section, for a partial operating hour (any clock hour with less than 60 minutes of unit operation), at least one valid data point in each 15-minute quadrant of the hour in which the unit operates is required to calculate the hourly average.

(iii) For any operating hour in which required maintenance or quality-assurance activities are performed:

(A) If the unit operates in two or more quadrants of the hour, a minimum of two valid data points, separated by at least 15 minutes, is required to calculate the hourly average; or

(B) If the unit operates in only one quadrant of the hour, at least one valid data point is required to calculate the hourly average.

(iv) If a daily calibration error check is failed during any operating hour, all data for that hour shall be invalidated, unless a subsequent calibration error test is passed in the same hour and the requirements of paragraph (h)(2)(iii) of this section are met, based solely on valid data recorded after the successful calibration.

(v) For each full or partial operating hour, all valid data points shall be used to calculate the hourly average.

(vi) Except as provided under paragraph (h)(2)(vii) of this section, data recorded during periods of continuous monitoring system breakdown, repair, calibration checks, and zero and span adjustments shall not be included in the data averages computed under this paragraph.

(vii) Owners and operators complying with the requirements of § 60.7(f)(1) or (2) must include any data recorded during periods of monitor breakdown or malfunction in the data averages.

(viii) When specified in an applicable subpart, hourly averages for certain partial operating hours shall not be computed or included in the emission averages (e.g., hours with < 30 minutes of unit operation under § 60.47b(d)).

(ix) Either arithmetic or integrated averaging of all data may be used to calculate the hourly averages. The data may be recorded in reduced or nonreduced form (e.g., ppm pollutant and percent O_2 or ng/J of pollutant).

(3) All excess emissions shall be converted into units of the standard using the applicable conversion procedures specified in the applicable subpart. After conversion into units of the standard, the data may be rounded to the same number of significant digits used in the applicable subpart to specify the emission limit.

(i) After receipt and consideration of written application, the Administrator may approve alternatives to any monitoring procedures or requirements of this part including, but not limited to the following:

(1) Alternative monitoring requirements when installation of a continuous monitoring system or monitoring device specified by this part would not provide accurate measurements due to liquid water or other interferences caused by substances in the effluent gases.

(2) Alternative monitoring requirements when the affected facility is infrequently operated.

(3) Alternative monitoring requirements to accommodate continuous monitoring systems that require additional measurements to correct for stack moisture conditions.

(4) Alternative locations for installing continuous monitoring systems or monitoring devices when the owner or operator can demonstrate that installation at alternate locations will enable accurate and representative measurements.

(5) Alternative methods of converting pollutant concentration measurements to units of the standards.

(6) Alternative procedures for performing daily checks of zero and span drift that do not involve use of span gases or test cells.

(7) Alternatives to the A.S.T.M. test methods or sampling procedures specified by any subpart.

(8) Alternative continuous monitoring systems that do not meet the design or performance requirements in Performance Specification 1, appendix B, but adequately demonstrate a definite and consistent relationship between its measurements and the measurements of opacity by a system complying with the requirements in Performance Specification 1. The Administrator may require that such demonstration be performed for each affected facility.

(9) Alternative monitoring requirements when the effluent from a single affected facility or the combined effluent from two or more affected facilities is released to the atmosphere through more than one point.

(j) An alternative to the relative accuracy (RA) test specified in Performance Specification 2 of appendix B may be requested as follows:

(1) An alternative to the reference method tests for determining RA is available for sources with emission rates demonstrated to be less than 50 percent of the applicable standard. A source owner or operator may petition the Administrator to waive the RA test in Section 8.4 of Performance Specification 2 and substitute the procedures in Section 16.0 if the results of a performance test conducted according to the requirements in § 60.8 of this subpart or other tests performed following the criteria in § 60.8 demonstrate that the emission rate of the pollutant of interest in the units of the applicable standard is less than 50 percent of the applicable standard. For sources subject to standards expressed as control efficiency levels, a source owner or operator may petition the Administrator to waive the RA test and substitute the procedures in Section 16.0 of Performance Specification 2 if the control device exhaust emission rate is less than 50 percent of the level needed to meet the control efficiency requirement. The alternative procedures do not apply if the continuous emission monitoring system is used to determine compliance continuously with the applicable standard. The petition to waive the RA test shall include a detailed description of the procedures to be applied. Included shall be location and procedure for conducting the alternative, the concentration or response levels of the alternative RA materials, and the other equipment checks included in the alternative procedure. The Administrator will review the petition for completeness and applicability. The determination to grant a waiver will depend on the intended use of the CEMS data (e.g., data collection purposes other than NSPS) and may require specifications more stringent than in Performance Specification 2 (e.g., the applicable emission limit is more stringent than NSPS).

(2) The waiver of a CEMS RA test will be reviewed and may be rescinded at such time, following successful completion of the alternative RA procedure, that the CEMS data indicate that the source emissions are approaching the level. The criterion for reviewing the waiver is the collection of CEMS data showing that emissions have exceeded 70 percent of the applicable standard for seven, consecutive, averaging periods as specified by the applicable regulation(s). For sources subject to standards expressed as control efficiency levels, the criterion for reviewing the waiver is the collection of CEMS data showing that exhaust emissions have exceeded 70 percent of the level

needed to meet the control efficiency requirement for seven, consecutive, averaging periods as specified by the applicable regulation(s) [e.g., §§ 60.45(g) (2) and (3), 60.73(e), and 60.84(e)]. It is the responsibility of the source operator to maintain records and determine the level of emissions relative to the criterion on the waiver of RA testing. If this criterion is exceeded, the owner or operator must notify the Administrator within 10 days of such occurrence and include a description of the nature and cause of the increasing emissions. The Administrator will review the notification and may rescind the waiver and require the owner or operator to conduct a RA test of the CEMS as specified in Section 8.4 of Performance Specification 2.

[40 FR 46255, Oct. 6, 1975]

Editorial Note: For FEDERAL REGISTER citations affecting § 60.13, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at *www.govinfo.gov*.

§ 60.14 Modification.

(a) Except as provided under paragraphs (e) and (f) of this section, any physical or operational change to an existing facility which results in an increase in the emission rate to the atmosphere of any pollutant to which a standard applies shall be considered a modification within the meaning of section 111 of the Act. Upon modification, an existing facility shall become an affected facility for each pollutant to which a standard applies and for which there is an increase in the emission rate to the atmosphere.

(b) Emission rate shall be expressed as kg/hr of any pollutant discharged into the atmosphere for which a standard is applicable. The Administrator shall use the following to determine emission rate:

(1) Emission factors as specified in the latest issue of "Compilation of Air Pollutant Emission Factors," EPA Publication No. AP-42, or other emission factors determined by the Administrator to be superior to AP-42 emission factors, in cases where utilization of emission factors demonstrates that the emission level resulting from the physical or operational change will either clearly increase or clearly not increase.

(2) Material balances, continuous monitor data, or manual emission tests in cases where utilization of emission factors as referenced in paragraph (b)(1) of this section does not demonstrate to the Administrator's satisfaction whether the emission level resulting from the physical or operational change will either clearly increase or clearly not increase, or where an owner or operator demonstrates to the Administrator's satisfaction that there are reasonable grounds to dispute the result obtained by the Administrator utilizing emission factors as referenced in paragraph (b)(1) of this section. When the emission rate is based on results from manual emission tests or continuous monitoring systems, the procedures specified in appendix C of this part shall be used to determine whether an increase in emission rate has occurred. Tests shall be conducted under such conditions as the Administrator shall specify to the owner or operator based on representative performance of the facility. At least three valid test runs must be conducted before and at least three after the physical or operational change. All operating parameters which may affect emissions must be held constant to the maximum feasible degree for all test runs.

(c) The addition of an affected facility to a stationary source as an expansion to that source or as a replacement for an existing facility shall not by itself bring within the applicability of this part any other facility within that source.

(d) [Reserved]

(e) The following shall not, by themselves, be considered modifications under this part:

(1) Maintenance, repair, and replacement which the Administrator determines to be routine for a source category, subject to the provisions of paragraph (c) of this section and § 60.15.

(2) An increase in production rate of an existing facility, if that increase can be accomplished without a capital expenditure on that facility.

(3) An increase in the hours of operation.

(4) Use of an alternative fuel or raw material if, prior to the date any standard under this part becomes applicable to that source type, as provided by § 60.1, the existing facility was designed to accommodate that alternative use. A facility shall be considered to be designed to accommodate an alternative fuel or raw material if that use could be accomplished under the facility's construction specifications as amended prior to the change. Conversion to coal required for energy considerations, as specified in section 111(a)(8) of the Act, shall not be considered a modification.

(5) The addition or use of any system or device whose primary function is the reduction of air pollutants, except when an emission control system is removed or is replaced by a system which the Administrator determines to be less environmentally beneficial.

(6) The relocation or change in ownership of an existing facility.

(f) Special provisions set forth under an applicable subpart of this part shall supersede any conflicting provisions of this section.

(g) Within 180 days of the completion of any physical or operational change subject to the control measures specified in paragraph (a) of this section, compliance with all applicable standards must be achieved.

(h) No physical change, or change in the method of operation, at an existing electric utility steam generating unit shall be treated as a modification for the purposes of this section provided that such change does not increase the maximum hourly emissions of any pollutant regulated under this section above the maximum hourly emissions achievable at that unit during the 5 years prior to the change.

(i) Repowering projects that are awarded funding from the Department of Energy as permanent clean coal technology demonstration projects (or similar projects funded by EPA) are exempt from the requirements of this section provided that such change does not increase the maximum hourly emissions of any pollutant regulated under this section above the maximum hourly emissions achievable at that unit during the five years prior to the change.

(j)

(1) Repowering projects that qualify for an extension under section 409(b) of the Clean Air Act are exempt from the requirements of this section, provided that such change does not increase the actual hourly emissions of any pollutant regulated under this section above the actual hourly emissions achievable at that unit during the 5 years prior to the change.

(2) This exemption shall not apply to any new unit that:

(i) Is designated as a replacement for an existing unit;

(ii) Qualifies under section 409(b) of the Clean Air Act for an extension of an emission limitation compliance date under section 405 of the Clean Air Act; and

(iii) Is located at a different site than the existing unit.

(k) The installation, operation, cessation, or removal of a temporary clean coal technology demonstration project is exempt from the requirements of this section. A *temporary clean coal control technology demonstration project,* for the purposes of this section is a clean coal technology demonstration project that is operated for a period of 5 years or less, and which complies with the State implementation plan for the State in which the project is located and other requirements necessary to attain and maintain the national ambient air quality standards during the project and after it is terminated.

(l) The reactivation of a very clean coal-fired electric utility steam generating unit is exempt from the requirements of this section.

[40 FR 58419, Dec. 16, 1975, as amended at 43 FR 34347, Aug. 3, 1978; 45 FR 5617, Jan. 23, 1980; 57 FR 32339, July 21, 1992; 65 FR 61750, Oct. 17, 2000]

§ 60.15 Reconstruction.

(a) An existing facility, upon reconstruction, becomes an affected facility, irrespective of any change in emission rate.

(b) "Reconstruction" means the replacement of components of an existing facility to such an extent that:

(1) The fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable entirely new facility, and

(2) It is technologically and economically feasible to meet the applicable standards set forth in this part.

(c) "Fixed capital cost" means the capital needed to provide all the depreciable components.

(d) If an owner or operator of an existing facility proposes to replace components, and the fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable entirely new facility, he shall notify the Administrator of the proposed replacements. The notice must be postmarked 60 days (or as soon as practicable) before construction of the replacements is commenced and must include the following information:

(1) Name and address of the owner or operator.

(2) The location of the existing facility.

(3) A brief description of the existing facility and the components which are to be replaced.

(4) A description of the existing air pollution control equipment and the proposed air pollution control equipment.

(5) An estimate of the fixed capital cost of the replacements and of constructing a comparable entirely new facility.

(6) The estimated life of the existing facility after the replacements.

(7) A discussion of any economic or technical limitations the facility may have in complying with the applicable standards of performance after the proposed replacements.

(e) The Administrator will determine, within 30 days of the receipt of the notice required by paragraph (d) of this section and any additional information he may reasonably require, whether the proposed replacement constitutes reconstruction.

(f) The Administrator's determination under paragraph (e) shall be based on:

(1) The fixed capital cost of the replacements in comparison to the fixed capital cost that would be required to construct a comparable entirely new facility;

(2) The estimated life of the facility after the replacements compared to the life of a comparable entirely new facility;

(3) The extent to which the components being replaced cause or contribute to the emissions from the facility; and

(4) Any economic or technical limitations on compliance with applicable standards of performance which are inherent in the proposed replacements.

(g) Individual subparts of this part may include specific provisions which refine and delimit the concept of reconstruction set forth in this section.

[40 FR 58420, Dec. 16, 1975]

§ 60.16 Priority list.

Prioritized Major Source Categories

Priority Number [1]	*Source Category*
1.	Synthetic Organic Chemical Manufacturing Industry (SOCMI) and Volatile Organic Liquid Storage Vessels and Handling Equipment
	(a) SOCMI unit processes
	(b) Volatile organic liquid (VOL) storage vessels and handling equipment
	(c) SOCMI fugitive sources
	(d) SOCMI secondary sources
2.	Industrial Surface Coating: Cans
3.	Petroleum Refineries: Fugitive Sources
4.	Industrial Surface Coating: Paper
5.	Dry Cleaning
	(a) Perchloroethylene
	(b) Petroleum solvent
6.	Graphic Arts
7.	Polymers and Resins: Acrylic Resins
8.	Mineral Wool (Deleted)
9.	Stationary Internal Combustion Engines

[1] *Low numbers have highest priority, e.g., No. 1 is high priority, No. 59 is low priority.*

[2] *Formerly titled "Sintering: Clay and Fly Ash".*

[3] *Minor source category, but included on list since an NSPS is being developed for that source category.*

[4] *Not prioritized, since an NSPS for this major source category has already been promulgated.*

Priority Number [1]	*Source Category*
10.	Industrial Surface Coating: Fabric
11.	Industrial-Commercial-Institutional Steam Generating Units.
12.	Incineration: Non-Municipal (Deleted)
13.	Non-Metallic Mineral Processing
14.	Metallic Mineral Processing
15.	Secondary Copper (Deleted)
16.	Phosphate Rock Preparation
17.	Foundries: Steel and Gray Iron
18.	Polymers and Resins: Polyethylene
19.	Charcoal Production
20.	Synthetic Rubber
	(a) Tire manufacture
	(b) SBR production
21.	Vegetable Oil
22.	Industrial Surface Coating: Metal Coil
23.	Petroleum Transportation and Marketing
24.	By-Product Coke Ovens
25.	Synthetic Fibers
26.	Plywood Manufacture
27.	Industrial Surface Coating: Automobiles
28.	Industrial Surface Coating: Large Appliances
29.	Crude Oil and Natural Gas Production
30.	Secondary Aluminum
31.	Potash (Deleted)
32.	Lightweight Aggregate Industry: Clay, Shale, and Slate [2]
33.	Glass
34.	Gypsum
35.	Sodium Carbonate
36.	Secondary Zinc (Deleted)
37.	Polymers and Resins: Phenolic
38.	Polymers and Resins: Urea-Melamine
39.	Ammonia (Deleted)
40.	Polymers and Resins: Polystyrene
41.	Polymers and Resins: ABS-SAN Resins

[1] Low numbers have highest priority, e.g., No. 1 is high priority, No. 59 is low priority.

[2] Formerly titled "Sintering: Clay and Fly Ash".

[3] Minor source category, but included on list since an NSPS is being developed for that source category.

[4] Not prioritized, since an NSPS for this major source category has already been promulgated.

Priority Number [1]	*Source Category*
42.	Fiberglass
43.	Polymers and Resins: Polypropylene
44.	Textile Processing
45.	Asphalt Processing and Asphalt Roofing Manufacture
46.	Brick and Related Clay Products
47.	Ceramic Clay Manufacturing (Deleted)
48.	Ammonium Nitrate Fertilizer
49.	Castable Refractories (Deleted)
50.	Borax and Boric Acid (Deleted)
51.	Polymers and Resins: Polyester Resins
52.	Ammonium Sulfate
53.	Starch
54.	Perlite
55.	Phosphoric Acid: Thermal Process (Deleted)
56.	Uranium Refining
57.	Animal Feed Defluorination (Deleted)
58.	Urea (for fertilizer and polymers)
59.	Detergent (Deleted)
	Other Source Categories
Lead acid battery manufacture [3]	
Organic solvent cleaning [3]	
Industrial surface coating: metal furniture [3]	
Stationary gas turbines [4]	
Municipal solid waste landfills [4]	

[1] *Low numbers have highest priority, e.g., No. 1 is high priority, No. 59 is low priority.*

[2] *Formerly titled "Sintering: Clay and Fly Ash".*

[3] *Minor source category, but included on list since an NSPS is being developed for that source category.*

[4] *Not prioritized, since an NSPS for this major source category has already been promulgated.*

[47 FR 951, Jan. 8, 1982, as amended at 47 FR 31876, July 23, 1982; 51 FR 42796, Nov. 25, 1986; 52 FR 11428, Apr. 8, 1987; 61 FR 9919, Mar. 12, 1996]

§ 60.17 Incorporations by reference.

(a)

(1) Certain material is incorporated by reference into this part with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in this section, the U.S. Environmental Protection Agency (EPA) must publish a document

in the FEDERAL REGISTER and the material must be available to the public. All approved incorporation by reference (IBR) material is available for inspection at the EPA and at the National Archives and Records Administration (NARA). Contact the EPA at: EPA Docket Center, Public Reading Room, EPA WJC West, Room 3334, 1301 Constitution Ave. NW, Washington, DC; phone: (202) 566-1744. For information on the availability of this material at NARA, visit *www.archives.gov/federal-register/cfr/ibr-locations* or email *fr.inspection@nara.gov*.

(2) The IBR material may be obtained from the sources in the following paragraphs of this section or from one or more private resellers listed in this paragraph (a)(2). For material that is no longer commercially available, contact: the EPA (see paragraph (a)(1) of this section).

(i) Accuris Standards Store, 321 Inverness Drive, South Englewood, CO 80112; phone: (800) 332-6077; website: *https://store.accuristech.com*.

(ii) American National Standards Institute (ANSI), see paragraph (d) of this section.

(iii) GlobalSpec, 257 Fuller Road, Suite NFE 1100, Albany, NY 12203-3621; phone: (800) 261-2052; website: *https://standards.globalspec.com*.

(iv) Nimonik Document Center, 401 Roland Way, Suite 224, Oakland, CA 94624; phone (650) 591-7600; email: *info@document-center.com*; website: *www.document-center.com*.

(v) Techstreet, phone: (855) 999-9870; email: *store@techstreet.com*; website: *www.techstreet.com*.

(b) American Gas Association, available through ILI Infodisk, 610 Winters Avenue, Paramus, New Jersey 07652:

(1) American Gas Association Report No. 3: Orifice Metering for Natural Gas and Other Related Hydrocarbon Fluids, Part 1: General Equations and Uncertainty Guidelines (1990), IBR approved for § 60.107a(d).

(2) American Gas Association Report No. 3: Orifice Metering for Natural Gas and Other Related Hydrocarbon Fluids, Part 2: Specification and Installation Requirements (2000), IBR approved for § 60.107a(d).

(3) American Gas Association Report No. 11: Measurement of Natural Gas by Coriolis Meter (2003), IBR approved for § 60.107a(d).

(4) American Gas Association Transmission Measurement Committee Report No. 7: Measurement of Gas by Turbine Meters (Revised February 2006), IBR approved for § 60.107a(d).

(c) American Hospital Association (AHA) Service, Inc., Post Office Box 92683, Chicago, Illinois 60675-2683.

(1) An Ounce of Prevention: Waste Reduction Strategies for Health Care Facilities. American Society for Health Care Environmental Services of the American Hospital Association. Chicago, Illinois. 1993. AHA Catalog No. 057007. ISBN 0-87258-673-5. IBR approved for §§ 60.35e and 60.55c.

(2) [Reserved]

(d) American National Standards Institute (ANSI), 25 West 43rd Street, Fourth Floor, New York, NY 10036-7417; phone: (212) 642-4980; email: *info@ansi.org*; website: *www.ansi.org*.

(1) ANSI No. C12.20-2010 American National Standard for Electricity Meters—0.2 and 0.5 Accuracy Classes (Approved August 31, 2010); IBR approved for §§ 60.5535(d); 60.5535a(d); 60.5860b(a).

(2) [Reserved]

(e) American Petroleum Institute (API), 200 Massachusetts Ave. NW, Suite 1100, Washington, DC 20001; phone: (202) 682-8000; website: *www.api.org*.

(1) API Publication 2517, Evaporation Loss from External Floating Roof Tanks, Second Edition, February 1980, IBR approved for §§ 60.111(i), 60.111a(f), and 60.116b(e).

(2) API Manual of Petroleum Measurement Standards, Chapter 14—Natural Gas Fluids Measurement, Section 1—Collecting and Handling of Natural Gas Samples for Custody Transfer, 7th Edition, May 2016, IBR approved for § 60.4415(a).

(3) API Manual of Petroleum Measurement Standards, Chapter 22—Testing Protocol, Section 2—Differential Pressure Flow Measurement Devices, First Edition, August 2005, IBR approved for § 60.107a(d).

(f) American Public Health Association, 1015 18th Street NW., Washington, DC 20036.

(1) "Standard Methods for the Examination of Water and Wastewater," 16th edition, 1985. Method 303F: "Determination of Mercury by the Cold Vapor Technique." Incorporated by reference for appendix A-8 to part 60, Method 29, §§ 9.2.3, 10.3, and 11.1.3.

(2) 2540 G. Total, Fixed, and Volatile Solids in Solid and Semisolid Samples, in Standard Methods for the Examination of Water and Wastewater, 20th Edition, 1998, IBR approved for § 60.154(b).

(g) American Society of Mechanical Engineers (ASME), Two Park Avenue, New York, NY 10016-5990; phone: (800) 843-2763; email: *CustomerCare@asme.org;* website: *www.asme.org*.

(1) ASME Interim Supplement 19.5 on Instruments and Apparatus: Application, Part II of Fluid Meters, 6th Edition (1971), IBR approved for §§ 60.58a(h), 60.58b(i), 60.1320(a), and 60.1810(a).

(2) ASME MFC-3M-2004, Measurement of Fluid Flow in Pipes Using Orifice, Nozzle, and Venturi, IBR approved for § 60.107a(d).

(3) ASME/ANSI MFC-4M-1986 (Reaffirmed 2008), Measurement of Gas Flow by Turbine Meters, IBR approved for § 60.107a(d).

(4) ASME/ANSI MFC-5M-1985 (Reaffirmed 2006), Measurement of Liquid Flow in Closed Conduits Using Transit-Time Ultrasonic Flowmeters, IBR approved for § 60.107a(d).

(5) ASME MFC-6M-1998 (Reaffirmed 2005), Measurement of Fluid Flow in Pipes Using Vortex Flowmeters, IBR approved for § 60.107a(d).

(6) ASME/ANSI MFC-7M-1987 (Reaffirmed 2006), Measurement of Gas Flow by Means of Critical Flow Venturi Nozzles, IBR approved for § 60.107a(d).

(7) ASME/ANSI MFC-9M-1988 (Reaffirmed 2006), Measurement of Liquid Flow in Closed Conduits by Weighing Method, IBR approved for § 60.107a(d).

(8) ASME MFC-11M-2006, Measurement of Fluid Flow by Means of Coriolis Mass Flowmeters, IBR approved for § 60.107a(d).

(9) ASME MFC-14M-2003, Measurement of Fluid Flow Using Small Bore Precision Orifice Meters, IBR approved for § 60.107a(d).

(10) ASME MFC-16-2007, Measurement of Liquid Flow in Closed Conduits with Electromagnetic Flowmeters, IBR approved for § 60.107a(d).

(11) ASME MFC-18M-2001, Measurement of Fluid Flow Using Variable Area Meters, IBR approved for § 60.107a(d).

(12) ASME MFC-22-2007, Measurement of Liquid by Turbine Flowmeters, IBR approved for § 60.107a(d).

(13) ASME PTC 4.1-1964 (Reaffirmed 1991), Power Test Codes: Test Code for Steam Generating Units (with 1968 and 1969 Addenda), IBR approved for §§ 60.46b, 60.58a(h), 60.58b(i), 60.1320(a), and 60.1810(a).

(14) ASME/ANSI PTC 19.10-1981, Flue and Exhaust Gas Analyses [Part 10, Instruments and Apparatus], Issued August 31, 1981; IBR approved for §§ 60.56c(b); 60.63(f); 60.106(e); 60.104a(d), (h), (i), and (j); 60.105a(b), (d), (f), and (g); 60.106a(a); 60.107a(a), (c), and (d); 60.275(e); 60.275a(e); 60.275b(e); tables 1 and 3 to subpart EEEE; tables 2 and 4 to subpart FFFF; table 2 to subpart JJJJ; §§ 60.285a(f); 60.396(a); 60.614a(b); 60.664a(b); 60.704(b); 60.704a(b); 60.2145(s) and (t); 60.2710(s) and (t); 60.2730(q); 60.4415(a); 60.4900(b); 60.5220(b); tables 1 and 2 to subpart LLLL; tables 2 and 3 to subpart MMMM; §§ 60.5406(c); 60.5406a(c); 60.5406b(c); 60.5407a(g); 60.5407b(g); 60.5413(b); 60.5413a(b) and (d); 60.5413b(d) and (d); 60.5413c(b) and (d).

(15) ASME PTC 22-2014, Gas Turbines: Performance Test Codes, (Issued December 31, 2014); IBR approved for §§ 60.5580; 60.5580a.

(16) ASME PTC 46-1996, Performance Test Code on Overall Plant Performance, (Issued October 15,1997); IBR approved for §§ 60.5580; 60.5580a.

(17) ASME QRO-1-1994, Standard for the Qualification and Certification of Resource Recovery Facility Operators, IBR approved for §§ 60.54b(a) and (b), 60.56a, 60.1185(a) and (c), and 60.1675(a) and (c).

(h) ASTM International, 100 Barr Harbor Drive, P.O. Box CB700, West Conshohocken, Pennsylvania 19428-2959; phone: (800) 262-1373; website: *www.astm.org*.

(1) ASTM A99-76, Standard Specification for Ferromanganese, IBR approved for § 60.261.

(2) ASTM A99-82 (Reapproved 1987), Standard Specification for Ferromanganese, IBR approved for § 60.261.

(3) ASTM A100-69, Standard Specification for Ferrosilicon, IBR approved for § 60.261.

(4) ASTM A100-74, Standard Specification for Ferrosilicon, IBR approved for § 60.261.

(5) ASTM A100-93, Standard Specification for Ferrosilicon, IBR approved for § 60.261.

(6) ASTM A101-73, Standard Specification for Ferrochromium, IBR approved for § 60.261.

(7) ASTM A101-93, Standard Specification for Ferrochromium, IBR approved for § 60.261.

(8) ASTM A482-76, Standard Specification for Ferrochromesilicon, IBR approved for § 60.261.

(9) ASTM A482-93, Standard Specification for Ferrochromesilicon, IBR approved for § 60.261.

(10) ASTM A483-64, Standard Specification for Silicomanganese, IBR approved for § 60.261.

(11) ASTM A483-74 (Reapproved 1988), Standard Specification for Silicomanganese, IBR approved for § 60.261.

(12) ASTM A495-76, Standard Specification for Calcium-Silicon and Calcium Manganese-Silicon, IBR approved for § 60.261.

(13) ASTM A495-94, Standard Specification for Calcium-Silicon and Calcium Manganese-Silicon, IBR approved for § 60.261.

(14) ASTM D86-78, Distillation of Petroleum Products, IBR approved for §§ 60.562-2(d), 60.593(d), 60.593a(d), 60.633(h).

(15) ASTM D86-82, Distillation of Petroleum Products, IBR approved for §§ 60.562-2(d), 60.593(d), 60.593a(d), 60.633(h).

(16) ASTM D86-90, Distillation of Petroleum Products, IBR approved for §§ 60.562-2(d), 60.593(d), 60.593a(d), 60.633(h).

(17) ASTM D86-93, Distillation of Petroleum Products, IBR approved for §§ 60.562-2(d), 60.593(d), 60.593a(d), 60.633(h).

(18) ASTM D86-95, Distillation of Petroleum Products, IBR approved for §§ 60.562-2(d), 60.593(d), 60.593a(d), 60.633(h).

(19) ASTM D86-96, Distillation of Petroleum Products, approved April 10, 1996; IBR approved for §§ 60.562-2(d). 60.593(d). 60.593a(d); 60.633(h); 60.5401(f); 60.5401a(f); 60.5402b(d); 60.5402c(d).

(20) ASTM D129-64, Standard Test Method for Sulfur in Petroleum Products (General Bomb Method), IBR approved for §§ 60.106(j) and appendix A-7 to part 60: Method 19, Section 12.5.2.2.3.

(21) ASTM D129-78, Standard Test Method for Sulfur in Petroleum Products (General Bomb Method), IBR approved for §§ 60.106(j) and appendix A-7 to part 60: Method 19, Section 12.5.2.2.3.

(22) ASTM D129-95, Standard Test Method for Sulfur in Petroleum Products (General Bomb Method), IBR approved for §§ 60.106(j) and appendix A-7 to part 60: Method 19, Section 12.5.2.2.3.

(23) ASTM D129-00, Standard Test Method for Sulfur in Petroleum Products (General Bomb Method), IBR approved for § 60.335(b).

(24) ASTM D129-00 (Reapproved 2005), Standard Test Method for Sulfur in Petroleum Products (General Bomb Method), IBR approved for § 60.4415(a).

(25) ASTM D240-76, Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter, IBR approved for §§ 60.46(c), 60.296(b), and appendix A-7 to part 60: Method 19, Section 12.5.2.2.3.

(26) ASTM D240-92, Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter, IBR approved for §§ 60.46(c), 60.296(b), and appendix A-7: Method 19, Section 12.5.2.2.3.

(27) ASTM D240-02 (Reapproved 2007), Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter, (Approved May 1, 2007), IBR approved for § 60.107a(d).

(28) ASTM D240-19, Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter, approved November 1, 2019; IBR approved for § 60.485b(g).

(29) ASTM D270-65, Standard Method of Sampling Petroleum and Petroleum Products, IBR approved for appendix A-7 to part 60: Method 19, Section 12.5.2.2.1.

(30) ASTM D270-75, Standard Method of Sampling Petroleum and Petroleum Products, IBR approved for appendix A-7 to part 60: Method 19, Section 12.5.2.2.1.

(31) ASTM D323-82, Test Method for Vapor Pressure of Petroleum Products (Reid Method), IBR approved for §§ 60.111(l), 60.111a(g), 60.111b, and 60.116b(f).

(32) ASTM D323-94, Test Method for Vapor Pressure of Petroleum Products (Reid Method), IBR approved for §§ 60.111(l), 60.111a(g), 60.111b, and 60.116b(f).

(33) ASTM D388-77, Standard Specification for Classification of Coals by Rank, IBR approved for §§ 60.41, 60.45(f), 60.41Da, 60.41b, 60.41c, and 60.251.

(34) ASTM D388-90, Standard Specification for Classification of Coals by Rank, IBR approved for §§ 60.41, 60.45(f), 60.41Da, 60.41b, 60.41c, and 60.251.

(35) ASTM D388-91, Standard Specification for Classification of Coals by Rank, IBR approved for §§ 60.41, 60.45(f), 60.41Da, 60.41b, 60.41c, and 60.251.

(36) ASTM D388-95, Standard Specification for Classification of Coals by Rank, IBR approved for §§ 60.41, 60.45(f), 60.41Da, 60.41b, 60.41c, and 60.251.

(37) ASTM D388-98a, Standard Specification for Classification of Coals by Rank, IBR approved for §§ 60.41, 60.45(f), 60.41Da, 60.41b, 60.41c, and 60.251.

(38) ASTM D388-99 (Reapproved 2004)$^{\varepsilon 1}$(ASTM D388-99R04), Standard Classification of Coals by Rank, (Approved June 1, 2004); IBR approved for §§ 60.41; 60.45(f); 60.41Da; 60.41b; 60.41c; 60.251; 60.5580; 60.5580a.

(39) ASTM D396-78, Standard Specification for Fuel Oils, IBR approved for §§ 60.41b, 60.41c, 60.111(b), and 60.111a(b).

(40) ASTM D396-89, Standard Specification for Fuel Oils, IBR approved for §§ 60.41b, 60.41c, 60.111(b), and 60.111a(b).

(41) ASTM D396-90, Standard Specification for Fuel Oils, IBR approved for §§ 60.41b, 60.41c, 60.111(b), and 60.111a(b).

(42) ASTM D396-92, Standard Specification for Fuel Oils, IBR approved for §§ 60.41b, 60.41c, 60.111(b), and 60.111a(b).

(43) ASTM D396-98, Standard Specification for Fuel Oils, (Approved April 10, 1998); IBR approved for §§ 60.41b; 60.41c; 60.111(b); 60.111a(b); 60.5580; 60.5580a.

(44) ASTM D975-78, Standard Specification for Diesel Fuel Oils, IBR approved for §§ 60.111(b) and 60.111a(b).

(45) ASTM D975-96, Standard Specification for Diesel Fuel Oils, IBR approved for §§ 60.111(b) and 60.111a(b).

(46) ASTM D975-98a, Standard Specification for Diesel Fuel Oils, IBR approved for §§ 60.111(b) and 60.111a(b).

(47) ASTM D975-08a, Standard Specification for Diesel Fuel Oils, (Approved October 1, 2008); IBR approved for §§ 60.41b; 60.41c; 60.5580; 60.5580a.

(48) ASTM D1072-80, Standard Test Method for Total Sulfur in Fuel Gases, IBR approved for § 60.335(b).

(49) ASTM D1072-90 (Reapproved 1994), Standard Test Method for Total Sulfur in Fuel Gases, IBR approved for § 60.335(b).

(50) ASTM D1072-90 (Reapproved 1999), Standard Test Method for Total Sulfur in Fuel Gases, IBR approved for § 60.4415(a).

(51) ASTM D1137-53, Standard Method for Analysis of Natural Gases and Related Types of Gaseous Mixtures by the Mass Spectrometer, IBR approved for § 60.45(f).

(52) ASTM D1137-75, Standard Method for Analysis of Natural Gases and Related Types of Gaseous Mixtures by the Mass Spectrometer, IBR approved for § 60.45(f).

(53) ASTM D1193-77, Standard Specification for Reagent Water, IBR approved for appendix A-3 to part 60: Method 5, Section 7.1.3; Method 5E, Section 7.2.1; Method 5F, Section 7.2.1; appendix A-4 to part 60: Method 6, Section 7.1.1; Method 7, Section 7.1.1; Method 7C, Section 7.1.1; Method 7D, Section 7.1.1; Method 10A, Section 7.1.1; appendix A-5 to part 60: Method 11, Section 7.1.3; Method 12, Section 7.1.3; Method 13A, Section 7.1.2; appendix A-8 to part 60: Method 26, Section 7.1.2; Method 26A, Section 7.1.2; and Method 29, Section 7.2.2.

(54) ASTM D1193-91, Standard Specification for Reagent Water, IBR approved for appendix A-3 to part 60: Method 5, Section 7.1.3; Method 5E, Section 7.2.1; Method 5F, Section 7.2.1; appendix A-4 to part 60: Method 6, Section 7.1.1; Method 7, Section 7.1.1; Method 7C, Section 7.1.1; Method 7D, Section 7.1.1; Method 10A, Section 7.1.1; appendix A-5 to part 60: Method 11, Section 7.1.3; Method 12, Section 7.1.3; Method 13A, Section 7.1.2; appendix A-8 to part 60: Method 26, Section 7.1.2; Method 26A, Section 7.1.2; and Method 29, Section 7.2.2.

(55) ASTM D1266-87, Standard Test Method for Sulfur in Petroleum Products (Lamp Method), IBR approved for §§ 60.106(j) and 60.335(b).

(56) ASTM D1266-91, Standard Test Method for Sulfur in Petroleum Products (Lamp Method), IBR approved for §§ 60.106(j) and 60.335(b).

(57) ASTM D1266-98, Standard Test Method for Sulfur in Petroleum Products (Lamp Method), IBR approved for §§ 60.106(j) and 60.335(b).

(58) ASTM D1266-98 (Reapproved 2003)$^{\varepsilon}$,[1] Standard Test Method for Sulfur in Petroleum Products (Lamp Method), IBR approved for § 60.4415(a).

(59) ASTM D1475-60 (Reapproved 1980), Standard Test Method for Density of Paint, Varnish Lacquer, and Related Products, IBR approved for § 60.435(d), appendix A-7 to part 60: Method 24, Section 6.1; and Method 24A, Sections 6.5 and 7.1.

(60) ASTM D1475-90, Standard Test Method for Density of Paint, Varnish Lacquer, and Related Products, IBR approved for § 60.435(d), appendix A-7 to part 60: Method 24, Section 6.1; and Method 24A, §§ 6.5 and 7.1.

(61) ASTM D1475-13, Standard Test Method for Density of Liquid Coatings, Inks, and Related Products, Approved November 1, 2013; IBR approved for § 60.393a(f).

(62) ASTM D1552-83, Standard Test Method for Sulfur in Petroleum Products (High-Temperature Method), IBR approved for §§ 60.106(j), 60.335(b), and appendix A-7 to part 60: Method 19, Section 12.5.2.2.3.

(63) ASTM D1552-95, Standard Test Method for Sulfur in Petroleum Products (High-Temperature Method), IBR approved for §§ 60.106(j), 60.335(b), and appendix A-7 to part 60: Method 19, Section 12.5.2.2.3.

(64) ASTM D1552-01, Standard Test Method for Sulfur in Petroleum Products (High-Temperature Method), IBR approved for §§ 60.106(j), 60.335(b), and appendix A-7 to part 60: Method 19, Section 12.5.2.2.3.

(65) ASTM D1552-03, Standard Test Method for Sulfur in Petroleum Products (High-Temperature Method), IBR approved for § 60.4415(a).

(66) ASTM D1826-77, Standard Test Method for Calorific Value of Gases in Natural Gas Range by Continuous Recording Calorimeter, IBR approved for §§ 60.45(f), 60.46(c), 60.296(b), and appendix A-7 to part 60: Method 19, Section 12.3.2.4.

(67) ASTM D1826-94, Standard Test Method for Calorific Value of Gases in Natural Gas Range by Continuous Recording Calorimeter, IBR approved for §§ 60.45(f), 60.46(c), 60.296(b), and appendix A-7 to part 60: Method 19, Section 12.3.2.4.

(68) ASTM D1826-94 (Reapproved 2003), Standard Test Method for Calorific (Heating) Value of Gases in Natural Gas Range by Continuous Recording Calorimeter, (Approved May 10, 2003), IBR approved for § 60.107a(d).

(69) ASTM D1835-87, Standard Specification for Liquefied Petroleum (LP) Gases, IBR approved for §§ 60.41Da, 60.41b, and 60.41c.

(70) ASTM D1835-91, Standard Specification for Liquefied Petroleum (LP) Gases, IBR approved for §§ 60.41Da, 60.41b, and 60.41c.

(71) ASTM D1835-97, Standard Specification for Liquefied Petroleum (LP) Gases, IBR approved for §§ 60.41Da, 60.41b, and 60.41c.

(72) ASTM D1835-03a, Standard Specification for Liquefied Petroleum (LP) Gases, IBR approved for §§ 60.41Da, 60.41b, and 60.41c.

(73) ASTM D1945-64, Standard Method for Analysis of Natural Gas by Gas Chromatography, IBR approved for § 60.45(f).

(74) ASTM D1945-76, Standard Method for Analysis of Natural Gas by Gas Chromatography, IBR approved for § 60.45(f).

(75) ASTM D1945-91, Standard Method for Analysis of Natural Gas by Gas Chromatography, IBR approved for § 60.45(f).

(76) ASTM D1945-96, Standard Method for Analysis of Natural Gas by Gas Chromatography, IBR approved for § 60.45(f).

(77) ASTM D1945-03 (Reapproved 2010), Standard Method for Analysis of Natural Gas by Gas Chromatography, approved January 1, 2010; IBR approved for §§ 60.107a(d); 60.5413(d); 60.5413a(d); 60.5413b(d); 60.5413c(d).

(78) ASTM D1945-14 (Reapproved 2019), Standard Test Method for Analysis of Natural Gas by Gas Chromatography, approved December 1, 2019; IBR approved for § 60.485b(g).

(79) ASTM D1946-77, Standard Method for Analysis of Reformed Gas by Gas Chromatography, IBR approved for §§ 60.18(f), 60.45(f), 60.564(f), 60.614(e), 60.664(e), and 60.704(d).

(80) ASTM D1946-90 (Reapproved 1994), Standard Method for Analysis of Reformed Gas by Gas Chromatography, IBR approved for §§ 60.18(f), 60.45(f), 60.564(f), 60.614(e), 60.664(e), and 60.704(d).

(81) ASTM D1946-90 (Reapproved 2006), Standard Method for Analysis of Reformed Gas by Gas Chromatography, (Approved June 1, 2006), IBR approved for § 60.107a(d).

(82) ASTM D2013-72, Standard Method of Preparing Coal Samples for Analysis, IBR approved for appendix A-7 to part 60: Method 19, Section 12.5.2.1.3.

(83) ASTM D2013-86, Standard Method of Preparing Coal Samples for Analysis, IBR approved for appendix A-7 to part 60: Method 19, Section 12.5.2.1.3.

(84) ASTM D2015-77 (Reapproved 1978), Standard Test Method for Gross Calorific Value of Solid Fuel by the Adiabatic Bomb Calorimeter, IBR approved for §§ 60.45(f), 60.46(c), and appendix A-7 to part 60: Method 19, Section 12.5.2.1.3.

(85) ASTM D2015-96, Standard Test Method for Gross Calorific Value of Solid Fuel by the Adiabatic Bomb Calorimeter, IBR approved for §§ 60.45(f), 60.46(c), and appendix A-7 to part 60: Method 19, Section 12.5.2.1.3.

(86) ASTM D2016-74, Standard Test Methods for Moisture Content of Wood, IBR approved for appendix A-8 to part 60: Method 28, Section 16.1.1.

(87) ASTM D2016-83, Standard Test Methods for Moisture Content of Wood, IBR approved for appendix A-8 to part 60: Method 28, Section 16.1.1.

(88) ASTM D2234-76, Standard Methods for Collection of a Gross Sample of Coal, IBR approved for appendix A-7 to part 60: Method 19, Section 12.5.2.1.1.

(89) ASTM D2234-96, Standard Methods for Collection of a Gross Sample of Coal, IBR approved for appendix A-7 to part 60: Method 19, Section 12.5.2.1.1.

(90) ASTM D2234-97b, Standard Methods for Collection of a Gross Sample of Coal, IBR approved for appendix A-7 to part 60: Method 19, Section 12.5.2.1.1.

(91) ASTM D2234-98, Standard Methods for Collection of a Gross Sample of Coal, IBR approved for appendix A-7 to part 60: Method 19, Section 12.5.2.1.1.

(92) ASTM D2369-81, Standard Test Method for Volatile Content of Coatings, IBR approved for appendix A-7 to part 60: Method 24, Section 6.2.

(93) ASTM D2369-87, Standard Test Method for Volatile Content of Coatings, IBR approved for appendix A-7 to part 60: Method 24, Section 6.2.

(94) ASTM D2369-90, Standard Test Method for Volatile Content of Coatings, IBR approved for appendix A-7 to part 60: Method 24, Section 6.2.

(95) ASTM D2369-92, Standard Test Method for Volatile Content of Coatings, IBR approved for appendix A-7 to part 60: Method 24, Section 6.2.

(96) ASTM D2369-93, Standard Test Method for Volatile Content of Coatings, IBR approved for appendix A-7 to part 60: Method 24, Section 6.2.

(97) ASTM D2369-95, Standard Test Method for Volatile Content of Coatings, IBR approved for appendix A-7 to part 60: Method 24, Section 6.2.

(98) ASTM D2369-10 (Reapproved 2015)e1, Standard Test Method for Volatile Content of Coatings, (Approved June 1, 2015); IBR approved for appendix A-7 to part 60: Method 24, Section 6.2.

(99) ASTM D2369-20, Standard Test Method for Volatile Content of Coatings, Approved June 1, 2020; IBR approved for §§ 60.393a(f); 60.723(b); 60.724(a); 60.725(b); 60.723a(b); 60.724a(a); 60.725a(b).

(100) ASTM D2382-76, Heat of Combustion of Hydrocarbon Fuels by Bomb Calorimeter (High-Precision Method), IBR approved for §§ 60.18(f), 60.485(g), 60.485a(g), 60.564(f), 60.614(e), 60.664(e), and 60.704(d).

(101) ASTM D2382-88, Heat of Combustion of Hydrocarbon Fuels by Bomb Calorimeter (High-Precision Method), IBR approved for §§ 60.18(f), 60.485(g), 60.485a(g), 60.564(f), 60.614(e), 60.664(e), and 60.704(d).

(102) ASTM D2504-67, Noncondensable Gases in C3 and Lighter Hydrocarbon Products by Gas Chromatography, IBR approved for §§ 60.485(g) and 60.485a(g).

(103) ASTM D2504-77, Noncondensable Gases in C3 and Lighter Hydrocarbon Products by Gas Chromatography, IBR approved for §§ 60.485(g) and 60.485a(g).

(104) ASTM D2504-88 (Reapproved 1993), Noncondensable Gases in C3 and Lighter Hydrocarbon Products by Gas Chromatography, IBR approved for §§ 60.485(g) and 60.485a(g).

(105) ASTM D2584-68(Reapproved 1985), Standard Test Method for Ignition Loss of Cured Reinforced Resins, IBR approved for § 60.685(c).

(106) ASTM D2584-94, Standard Test Method for Ignition Loss of Cured Reinforced Resins, IBR approved for § 60.685(c).

(107) ASTM D2597-94 (Reapproved 1999), Standard Test Method for Analysis of Demethanized Hydrocarbon Liquid Mixtures Containing Nitrogen and Carbon Dioxide by Gas Chromatography, IBR approved for § 60.335(b).

(108) ASTM D2622-87, Standard Test Method for Sulfur in Petroleum Products by Wavelength Dispersive X-Ray Fluorescence Spectrometry, IBR approved for §§ 60.106(j) and 60.335(b).

(109) ASTM D2622-94, Standard Test Method for Sulfur in Petroleum Products by Wavelength Dispersive X-Ray Fluorescence Spectrometry, IBR approved for §§ 60.106(j) and 60.335(b).

(110) ASTM D2622-98, Standard Test Method for Sulfur in Petroleum Products by Wavelength Dispersive X-Ray Fluorescence Spectrometry, IBR approved for §§ 60.106(j) and 60.335(b).

(111) ASTM D2622-05, Standard Test Method for Sulfur in Petroleum Products by Wavelength Dispersive X-Ray Fluorescence Spectrometry, IBR approved for § 60.4415(a).

(112) ASTM D2697-22, Standard Test Method for Volume Nonvolatile Matter in Clear or Pigmented Coatings, Approved July 1, 2022; IBR approved for §§ 60.393a(g); 60.723(b); 60.724(a); 60.725(b); 60.723a(b); 60.724a(a); 60.725a(b).

(113) ASTM D2879-83, Test Method for Vapor Pressure-Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope, approved 1983; IBR approved for §§ 60.111b(f); 60.116b(e) and (f); 60.485(e); 60.485a(e); 60.5403b(d); 60.5406c(d).

(114) ASTM D2879-96, Test Method for Vapor Pressure-Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope, approved 1996; IBR approved for §§ 60.111b(f); 60.116b(e) and (f); 60.485(e); 60.485a(e); 60.5403b(d); 60.5406c(d).

(115) ASTM D2879-97, Test Method for Vapor Pressure-Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope, approved 1997; IBR approved for §§ 60.111b(f); 60.116b(e) and (f); 60.485(e); 60.485a(e); 60.5403b(d); 60.5406c(d).

(116) ASTM D2879-23, Standard Test Method for Vapor Pressure-Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope, approved December 1, 2019; IBR approved for § 60.485b(e).

(117) ASTM D2880-78, Standard Specification for Gas Turbine Fuel Oils, IBR approved for §§ 60.111(b), 60.111a(b), and 60.335(d).

(118) ASTM D2880-96, Standard Specification for Gas Turbine Fuel Oils, IBR approved for §§ 60.111(b), 60.111a(b), and 60.335(d).

(119) ASTM D2908-74, Standard Practice for Measuring Volatile Organic Matter in Water by Aqueous-Injection Gas Chromatography, IBR approved for § 60.564(j).

(120) ASTM D2908-91, Standard Practice for Measuring Volatile Organic Matter in Water by Aqueous-Injection Gas Chromatography, IBR approved for § 60.564(j).

(121) ASTM D2986-71, Standard Method for Evaluation of Air, Assay Media by the Monodisperse DOP (Dioctyl Phthalate) Smoke Test, IBR approved for appendix A-3 to part 60: Method 5, Section 7.1.1; appendix A-5 to part 60: Method 12, Section 7.1.1; and Method 13A, Section 7.1.1.2.

(122) ASTM D2986-78, Standard Method for Evaluation of Air, Assay Media by the Monodisperse DOP (Dioctyl Phthalate) Smoke Test, IBR approved for appendix A-3 to part 60: Method 5, Section 7.1.1; appendix A-5 to part 60: Method 12, Section 7.1.1; and Method 13A, Section 7.1.1.2.

(123) ASTM D2986-95a, Standard Method for Evaluation of Air, AssaMedia by the Monodisperse DOP (Dioctyl Phthalate) Smoke Test, IBR approved for appendix A-3 to part 60: Method 5, Section 7.1.1; appendix A-5 to part 60: Method 12, Section 7.1.1; and Method 13A, Section 7.1.1.2.

(124) ASTM D3173-73, Standard Test Method for Moisture in the Analysis Sample of Coal and Coke, IBR approved for appendix A-7 to part 60: Method 19, Section 12.5.2.1.3.

(125) ASTM D3173-87, Standard Test Method for Moisture in the Analysis Sample of Coal and Coke, IBR approved for appendix A-7 to part 60: Method 19, Section 12.5.2.1.3.

(126) ASTM D3176-74, Standard Method for Ultimate Analysis of Coal and Coke, IBR approved for § 60.45(f)(5)(i) and appendix A-7 to part 60: Method 19, Section 12.3.2.3.

(127) ASTM D3176-89, Standard Method for Ultimate Analysis of Coal and Coke, IBR approved for § 60.45(f)(5)(i) and appendix A-7 to part 60: Method 19, Section 12.3.2.3.

(128) ASTM D3177-75, Standard Test Method for Total Sulfur in the Analysis Sample of Coal and Coke, IBR approved for appendix A-7 to part 60: Method 19, Section 12.5.2.1.3.

(129) ASTM D3177-89, Standard Test Method for Total Sulfur in the Analysis Sample of Coal and Coke, IBR approved for appendix A-7 to part 60: Method 19, Section 12.5.2.1.3.

(130) ASTM D3178-73 (Reapproved 1979), Standard Test Methods for Carbon and Hydrogen in the Analysis Sample of Coal and Coke, IBR approved for § 60.45(f).

(131) ASTM D3178-89, Standard Test Methods for Carbon and Hydrogen in the Analysis Sample of Coal and Coke, IBR approved for § 60.45(f).

(132) ASTM D3246-81, Standard Test Method for Sulfur in Petroleum Gas by Oxidative Microcoulometry, IBR approved for § 60.335(b).

(133) ASTM D3246-92, Standard Test Method for Sulfur in Petroleum Gas by Oxidative Microcoulometry, IBR approved for § 60.335(b).

(134) ASTM D3246-96, Standard Test Method for Sulfur in Petroleum Gas by Oxidative Microcoulometry, IBR approved for § 60.335(b).

(135) ASTM D3246-05, Standard Test Method for Sulfur in Petrolum Gas by Oxidative Microcoulometry, IBR approved for § 60.4415(a)(1).

(136) ASTM D3270-73T, Standard Test Methods for Analysis for Fluoride Content of the Atmosphere and Plant Tissues (Semiautomated Method), IBR approved for appendix A-5 to part 60: Method 13A, Section 16.1.

(137) ASTM D3270-80, Standard Test Methods for Analysis for Fluoride Content of the Atmosphere and Plant Tissues (Semiautomated Method), IBR approved for appendix A-5 to part 60: Method 13A, Section 16.1.

(138) ASTM D3270-91, Standard Test Methods for Analysis for Fluoride Content of the Atmosphere and Plant Tissues (Semiautomated Method), IBR approved for appendix A-5 to part 60: Method 13A, Section 16.1.

(139) ASTM D3270-95, Standard Test Methods for Analysis for Fluoride Content of the Atmosphere and Plant Tissues (Semiautomated Method), IBR approved for appendix A-5 to part 60: Method 13A, Section 16.1.

(140) ASTM D3286-85, Standard Test Method for Gross Calorific Value of Coal and Coke by the Isoperibol Bomb Calorimeter, IBR approved for appendix A-7 to part 60: Method 19, Section 12.5.2.1.3.

(141) ASTM D3286-96, Standard Test Method for Gross Calorific Value of Coal and Coke by the Isoperibol Bomb Calorimeter, IBR approved for appendix A-7 to part 60: Method 19, Section 12.5.2.1.3.

(142) ASTM D3370-76, Standard Practices for Sampling Water, IBR approved for § 60.564(j).

(143) ASTM D3370-95a, Standard Practices for Sampling Water, IBR approved for § 60.564(j).

(144) ASTM D3588-98 (Reapproved 2003), Standard Practice for Calculating Heat Value, Compressibility Factor, and Relative Density of Gaseous Fuels, approved May 10, 2003; IBR approved for §§ 60.107a(d); 60.5413(d); 60.5413a(d); 60.5413b(d); 60.5413c(d).

(145) ASTM D3699-08, Standard Specification for Kerosine, including Appendix X1, (Approved September 1, 2008); IBR approved for §§ 60.41b; 60.41c; 60.5580; 60.5580a.

(146) ASTM D3792-79, Standard Test Method for Water Content of Water-Reducible Paints by Direct Injection into a Gas Chromatograph, IBR approved for appendix A-7 to part 60: Method 24, Section 6.3.

(147) ASTM D3792-91, Standard Test Method for Water Content of Water-Reducible Paints by Direct Injection into a Gas Chromatograph, IBR approved for appendix A-7 to part 60: Method 24, Section 6.3.

(148) ASTM D4017-81, Standard Test Method for Water in Paints and Paint Materials by the Karl Fischer Titration Method, IBR approved for appendix A-7 to part 60: Method 24, Section 6.4.

(149) ASTM D4017-90, Standard Test Method for Water in Paints and Paint Materials by the Karl Fischer Titration Method, IBR approved for appendix A-7 to part 60: Method 24, Section 6.4.

(150) ASTM D4017-96a, Standard Test Method for Water in Paints and Paint Materials by the Karl Fischer Titration Method, IBR approved for appendix A-7 to part 60: Method 24, Section 6.4.

(151) ASTM D4057-81, Standard Practice for Manual Sampling of Petroleum and Petroleum Products, IBR approved for appendix A-7 to part 60: Method 19, Section 12.5.2.2.3.

(152) ASTM D4057-95, Standard Practice for Manual Sampling of Petroleum and Petroleum Products, IBR approved for appendix A-7 to part 60: Method 19, Section 12.5.2.2.3.

(153) ASTM D4057-95 (Reapproved 2000), Standard Practice for Manual Sampling of Petroleum and Petroleum Products, IBR approved for § 60.4415(a).

(154) ASTM D4084-82, Standard Test Method for Analysis of Hydrogen Sulfide in Gaseous Fuels (Lead Acetate Reaction Rate Method), IBR approved for § 60.334(h).

(155) ASTM D4084-94, Standard Test Method for Analysis of Hydrogen Sulfide in Gaseous Fuels (Lead Acetate Reaction Rate Method), IBR approved for § 60.334(h).

(156) ASTM D4084-05, Standard Test Method for Analysis of Hydrogen Sulfide in Gaseous Fuels (Lead Acetate Reaction Rate Method), IBR approved for §§ 60.4360 and 60.4415(a).

(157) ASTM D4177-95, Standard Practice for Automatic Sampling of Petroleum and Petroleum Products, IBR approved for appendix A-7 to part 60: Method 19, Section 12.5.2.2.1.

(158) ASTM D4177-95 (Reapproved 2000), Standard Practice for Automatic Sampling of Petroleum and Petroleum Products, IBR approved for § 60.4415(a).

(159) ASTM D4239-85, Standard Test Methods for Sulfur in the Analysis Sample of Coal and Coke Using High Temperature Tube Furnace Combustion Methods, IBR approved for appendix A-7 to part 60: Method 19, Section 12.5.2.1.3.

(160) ASTM D4239-94, Standard Test Methods for Sulfur in the Analysis Sample of Coal and Coke Using High Temperature Tube Furnace Combustion Methods, IBR approved for appendix A-7 to part 60: Method 19, Section 12.5.2.1.3.

(161) ASTM D4239-97, Standard Test Methods for Sulfur in the Analysis Sample of Coal and Coke Using High Temperature Tube Furnace Combustion Methods, IBR approved for appendix A-7 to part 60: Method 19, Section 12.5.2.1.3.

(162) ASTM D4294-02, Standard Test Method for Sulfur in Petroleum and Petroleum Products by Energy-Dispersive X-Ray Fluorescence Spectrometry, IBR approved for § 60.335(b).

(163) ASTM D4294-03, Standard Test Method for Sulfur in Petroleum and Petroleum Products by Energy-Dispersive X-Ray Fluorescence Spectrometry, IBR approved for § 60.4415(a).

(164) ASTM D4442-84, Standard Test Methods for Direct Moisture Content Measurement in Wood and Wood-base Materials, IBR approved for appendix A-8 to part 60: Method 28, Section 16.1.1.

(165) ASTM D4442-92, Standard Test Methods for Direct Moisture Content Measurement in Wood and Wood-base Materials, IBR approved for appendix A-8 to part 60: Method 28, Section 16.1.1.

(166) ASTM D4444-92, Standard Test Methods for Use and Calibration of Hand-Held Moisture Meters, IBR approved for appendix A-8 to part 60: Method 28, Section 16.1.1.

(167) ASTM D4457-85 (Reapproved 1991), Test Method for Determination of Dichloromethane and 1,1,1-Trichloroethane in Paints and Coatings by Direct Injection into a Gas Chromatograph, IBR approved for appendix A-7 to part 60: Method 24, Section 6.5.

(168) ASTM D4468-85 (Reapproved 2000), Standard Test Method for Total Sulfur in Gaseous Fuels by Hydrogenolysis and Rateometric Colorimetry, IBR approved for §§ 60.335(b) and 60.4415(a).

(169) ASTM D4468-85 (Reapproved 2006), Standard Test Method for Total Sulfur in Gaseous Fuels by Hydrogenolysis and Rateometric Colorimetry, (Approved June 1, 2006), IBR approved for § 60.107a(e).

(170) ASTM D4629-02, Standard Test Method for Trace Nitrogen in Liquid Petroleum Hydrocarbons by Syringe/Inlet Oxidative Combustion and Chemiluminescence Detection, IBR approved for §§ 60.49b(e) and 60.335(b).

(171) ASTM D4809-95, Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter (Precision Method), IBR approved for §§ 60.18(f), 60.485(g), 60.485a(g), 60.564(f), 60.614(d), 60.664(e), and 60.704(d).

(172) ASTM D4809-06, Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter (Precision Method), (Approved December 1, 2006), IBR approved for § 60.107a(d).

(173) ASTM D4809-18, Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter (Precision Method), approved July 1, 2018; IBR approved for § 60.485b(g).

(174) ASTM D4810-88 (Reapproved 1999), Standard Test Method for Hydrogen Sulfide in Natural Gas Using Length of Stain Detector Tubes, IBR approved for §§ 60.4360 and 60.4415(a).

(175) ASTM D4840-99(2018)e1 Standard Guide for Sample Chain-of-Custody Procedures, approved August 2018; IBR approved for Appendix A-7: Method 23.

(176) ASTM D4891-89 (Reapproved 2006), Standard Test Method for Heating Value of Gases in Natural Gas Range by Stoichiometric Combustion, approved June 1, 2006; IBR approved for §§ 60.107a(d); 60.5413(d); 60.5413a(d); 60.5413b(d); 60.5413c(d).

(177) ASTM D5066-91, Standard Test Method for Determination of the Transfer Efficiency Under Production Conditions for Spray Application of Automotive Paints—Weight Basis, Approved June 1, 2017; IBR approved for § 60.393a(h).

(178) ASTM D5087-02 (Reapproved 2021), Standard Test Method for Determining Amount of Volatile Organic Compound (VOC) Released from Solventborne Automotive Coatings and Available for Removal in a VOC Control Device (Abatement), Approved February 1, 2021; IBR approved for § 60.397a(e); appendix A to subpart MMa.

(179) ASTM D5287-97 (Reapproved 2002), Standard Practice for Automatic Sampling of Gaseous Fuels, IBR approved for § 60.4415(a).

(180) ASTM D5403-93, Standard Test Methods for Volatile Content of Radiation Curable Materials, IBR approved for appendix A-7 to part 60: Method 24, Section 6.6.

(181) ASTM D5453-00, Standard Test Method for Determination of Total Sulfur in Light Hydrocarbons, Motor Fuels and Oils by Ultraviolet Fluorescence, IBR approved for § 60.335(b).

(182) ASTM D5453-05, Standard Test Method for Determination of Total Sulfur in Light Hydrocarbons, Motor Fuels and Oils by Ultraviolet Fluorescence, IBR approved for § 60.4415(a).

(183) ASTM D5504-01, Standard Test Method for Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Chemiluminescence, IBR approved for §§ 60.334(h) and 60.4360.

(184) ASTM D5504-08, Standard Test Method for Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Chemiluminescence, (Approved June 15, 2008), IBR approved for §§ 60.107a(e) and 60.5413(d).

(185) ASTM D5623-19, Standard Test Method for Sulfur Compounds in Light Petroleum Liquids by Gas Chromatography and Sulfur Selective Detection, (Approved July 1, 2019); IBR approved for § 60.4415(a).

(186) ASTM D5762-02, Standard Test Method for Nitrogen in Petroleum and Petroleum Products by Boat-Inlet Chemiluminescence, IBR approved for § 60.335(b).

(187) ASTM D5865-98, Standard Test Method for Gross Calorific Value of Coal and Coke, IBR approved for §§ 60.45(f) and 60.46(c), and appendix A-7 to part 60: Method 19, Section 12.5.2.1.3.

(188) ASTM D5865-10, Standard Test Method for Gross Calorific Value of Coal and Coke, (Approved January 1, 2010), IBR approved for §§ 60.45(f), 60.46(c), and appendix A-7 to part 60: Method 19, section 12.5.2.1.3.

(189) ASTM D5965-02 (Reapproved 2013), Standard Test Methods for Specific Gravity of Coating Powders, Approved June 1, 2013; IBR approved for § 60.393a(f).

(190) ASTM D6093-97 (Reapproved 2016), Standard Test Method for Percent Volume Nonvolatile Matter in Clear or Pigmented Coatings Using a Helium Gas Pycnometer, Approved December 1, 2016; IBR approved for §§ 60.393a(g); 60.723(b); 60.724(a); 60.725(b); 60.723a(b); 60.724a(a); 60.725a(b).

(191) ASTM D6216-20, Standard Practice for Opacity Monitor Manufacturers to Certify Conformance with Design and Performance Specifications, approved September 1, 2020; IBR approved for appendix B to part 60.

(192) ASTM D6228-98, Standard Test Method for Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Flame Photometric Detection, IBR approved for § 60.334(h).

(193) ASTM D6228-98 (Reapproved 2003), Standard Test Method for Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Flame Photometric Detection, IBR approved for §§ 60.4360 and 60.4415.

(194) ASTM D6266-00a (Reapproved 2017), Standard Test Method for Determining the Amount of Volatile Organic Compound (VOC) Released From Waterborne Automotive Coatings and Available for Removal in a VOC Control Device (Abatement), Approved July 1, 2017; IBR approved for § 60.397a(e).

(195) ASTM D6348-03, Standard Test Method for Determination of Gaseous Compounds by Extractive Direct Interface Fourier Transform Infrared (FTIR) Spectroscopy, (Approved October 1, 2003), IBR approved for § 60.73a(b), table 7 to subpart IIII, table 2 to subpart JJJJ, and § 60.4245(d).

(196) ASTM D6348-12e1, Standard Test Method for Determination of Gaseous Compounds by Extractive Direct Interface Fourier Transform Infrared (FTIR) Spectroscopy, approved February 1, 2012; IBR approved for § 60.5413c(b).

(197) ASTM D6366-99, Standard Test Method for Total Trace Nitrogen and Its Derivatives in Liquid Aromatic Hydrocarbons by Oxidative Combustion and Electrochemical Detection, IBR approved for § 60.335(b)(9).

(198) ASTM D6377-20, Standard Test Method for Determination of Vapor Pressure of Crude Oil: $VPCR_X$ (Expansion Method), (Approved June 1, 2020); IBR approved for § 60.113c.

(199) ASTM-D6378-22, Standard Test Method for Determination of Vapor Pressure (VPX) of Petroleum Products, Hydrocarbons, and Hydrocarbon-Oxygenate Mixtures (Triple Expansion Method), (Approved July 1, 2022); IBR approved for § 60.113c.

(200) ASTM D6420-99 (Reapproved 2004), Standard Test Method for Determination of Gaseous Organic Compounds by Direct Interface Gas Chromatography-Mass Spectrometry, (Approved October 1, 2004), IBR approved for § 60.107a(d) and table 2 to subpart JJJJ.

(201) ASTM D6420-18, Standard Test Method for Determination of Gaseous Organic Compounds by Direct Interface Gas Chromatography-Mass Spectrometry, approved November 1, 2018, IBR approved for §§ 60.485(g); 60.485a(g); 60.485b(g); 60.611a; 60.614(b) and (e); 60.614a(b) and (e), 60.664(b) and (e); 60.664a(b) and (f); 60.700(c); 60.704(b) (d), and (h); 60.705(l); 60.704a(b) and (f).

(202) ASTM D6522-00, Standard Test Method for Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Concentrations in Emissions from Natural Gas-Fired Reciprocating Engines, Combustion Turbines, Boilers, and Process Heaters Using Portable Analyzers, IBR approved for § 60.335(a).

(203) ASTM D6522-00 (Reapproved 2005), Standard Test Method for Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Concentrations in Emissions from Natural Gas-Fired Reciprocating Engines, Combustion Turbines, Boilers, and Process Heaters Using Portable Analyzers, (Approved October 1, 2005), IBR approved for table 2 to subpart JJJJ, §§ 60.5413(b) and (d), and 60.5413a(b).

(204) ASTM D6522-11 Standard Test Method for Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Concentrations in Emissions from Natural Gas-Fired Reciprocating Engines, Combustion Turbines, Boilers, and Process Heaters Using Portable Analyzers (Approved December 1, 2011), IBR approved for § 60.37f(a), 60.766(a).

(205) ASTM D6522-20, Standard Test Method for Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Concentrations in Emissions from Natural Gas-Fired Reciprocating Engines, Combustion Turbines, Boilers, and Process Heaters Using Portable Analyzers, approved June 1, 2020; IBR approved for §§ 60.5413b(b); 60.5413c(b).

(206) ASTM D6667-01, Standard Test Method for Determination of Total Volatile Sulfur in Gaseous Hydrocarbons and Liquefied Petroleum Gases by Ultraviolet Fluorescence, IBR approved for § 60.335(b).

(207) ASTM D6667-04, Standard Test Method for Determination of Total Volatile Sulfur in Gaseous Hydrocarbons and Liquefied Petroleum Gases by Ultraviolet Fluorescence, IBR approved for § 60.4415(a).

(208) ASTM D6751-11b, Standard Specification for Biodiesel Fuel Blend Stock (B100) for Middle Distillate Fuels, including Appendices X1 through X3, (Approved July 15, 2011), IBR approved for §§ 60.41b, 60.41c, 60.5580, and 60.5580a.

(209) ASTM D6784-02, Standard Test Method for Elemental, Oxidized, Particle-Bound and Total Mercury in Flue Gas Generated from Coal-Fired Stationary Sources (Ontario Hydro Method), IBR approved for § 60.56c(b) and appendix B to part 60: Performance Specification 12A, Section 8.6.2.

(210) ASTM D6784-02 (Reapproved 2008), Standard Test Method for Elemental, Oxidized, Particle-Bound and Total Mercury in Flue Gas Generated from Coal-Fired Stationary Sources (Ontario Hydro Method), approved April 1, 2008; IBR approved for § 60.56c(b).

(211) ASTM D6784-16, Standard Test Method for Elemental, Oxidized, Particle-Bound and Total Mercury in Flue Gas Generated from Coal-Fired Stationary Sources (Ontario Hydro Method), approved March 1, 2016; IBR approved for appendix B to part 60.

(212) ASTM D6911-15 Standard Guide for Packaging and Shipping Environmental Samples for Laboratory Analysis, approved January 15, 2015; IBR approved for Appendix A-7: Method 23; Appendix A-8: Method 30B.

(213) ASTM D7039-15a, Standard Test Method for Sulfur in Gasoline, Diesel Fuel, Jet Fuel, Kerosine, Boideisel, Biodiesel Blends, and Gasoline-Ethanol Blends by Monochromatic Wavelength Dispersive X-ray Fluorescence Spectrometry, (Approved July 1, 2015); IBR approved for § 60.4415(a).

(214) ASTM D7467-10, Standard Specification for Diesel Fuel Oil, Biodiesel Blend (B6 to B20), including Appendices X1 through X3, (Approved August 1, 2010), IBR approved for §§ 60.41b, 60.41c, 60.5580, and 60.5580a.

(215) ASTM D7520-16, Standard Test Method for Determining the Opacity of a Plume in the Outdoor Ambient Atmosphere, approved April 1, 2016; IBR approved for §§ 60.123(c)(6); 60.123(c)(6)(i); 60.123(c)(6)(ii); 60.123(c)(6)(v); 60.123a(c)(6)(ii); 60.123a(c)(6)(ii)(A); 60.123a(c)(6)(ii)(B); 60.123a(c)(6)(ii)(E); 60.271(k); 60.272(a) and (b); 60.273(c) and (d); 60.274(h); 60.275(e); 60.276(c); 60.271a; 60.272a(a) and (b); 60.273a(c) and (d); 60.274a(h); 60.275a(e); 60.276a(f); 60.271b; 60.272b(a) and (b); 60.273b(c) and (d); 60.274b(h); 60.275b(e); 60.276b(f); 60.374a(d).

(216) ASTM E168-67, General Techniques of Infrared Quantitative Analysis, IBR approved for §§ 60.485a(d), 60.593(b), 60.593a(b), and 60.632(f).

(217) ASTM E168-77, General Techniques of Infrared Quantitative Analysis, IBR approved for §§ 60.485a(d), 60.593(b), 60.593a(b), and 60.632(f).

(218) ASTM E168-92, General Techniques of Infrared Quantitative Analysis, IBR approved for §§ 60.485a(d), 60.593(b), 60.593a(b), 60.632(f), 60.5400, 60.5400a(f).

(219) ASTM E168-16 (Reapproved 2023), Standard Practices for General Techniques of Infrared Quantitative Analysis, approved January 1, 2023; IBR approved for § 60.485b(d).

(220) ASTM E169-63, General Techniques of Ultraviolet Quantitative Analysis, IBR approved for §§ 60.485a(d), 60.593(b), 60.593a(b), and 60.632(f) .

(221) ASTM E169-77, General Techniques of Ultraviolet Quantitative Analysis, IBR approved for §§ 60.485a(d), 60.593(b), and 60.593a(b), 60.632(f).

(222) ASTM E169-93, General Techniques of Ultraviolet Quantitative Analysis, (Approved May 15, 1993), IBR approved for §§ 60.485a(d), 60.593(b), 60.593a(b), 60.632(f), 60.5400(f), and 60.5400a(f).

(223) ASTM E169-16 (Reapproved 2022), Standard Practices for General Techniques of Ultraviolet-Visible Quantitative Analysis, approved November 1, 2022; IBR approved for § 60.485b(d).

(224) ASTM E260-73, General Gas Chromatography Procedures, IBR approved for §§ 60.485a(d), 60.593(b), 60.593a(b), and 60.632(f).

(225) ASTM E260-91, General Gas Chromatography Procedures, (IBR approved for §§ 60.485a(d), 60.593(b), 60.593a(b), and 60.632(f).

(226) ASTM E260-96, General Gas Chromatography Procedures, approved April 10, 1996; IBR approved for §§ 60.485a(d), 60.593(b), 60.593a(b), 60.632(f), 60.5400(f), 60.5400a(f), 60.5406(b), 60.5406a(b)(3), 60.5400b(a)(2), 60.5401b(a)(2), 60.5406b(b)(3), 60.5400c(a), and 60.5401c(a).

(227) ASTM E260-96 (Reapproved 2019), Standard Practice for Packed Column Gas Chromatography, approved September 1, 2029; IBR approved for § 60.485b(d).

(228) ASTM E617-13, Standard Specification for Laboratory Weights and Precision Mass Standards, approved May 1, 2013, IBR approved for appendix A-3: Methods 4, 5, 5H, 5I, and appendix A-8: Method 29.

(229) ASTM E871-82 (Reapproved 2013), Standard Test Method for Moisture Analysis of Particulate Wood Fuels, (Approved August 15, 2013), IBR approved for appendix A-8: method 28R.

(230) ASTM E1584-11, Standard Test Method for Assay of Nitric Acid, (Approved August 1, 2011), IBR approved for § 60.73a(c).

(231) ASTM E2515-11, Standard Test Method for Determination of Particulate Matter Emissions Collected by a Dilution Tunnel, (Approved November 1, 2011), IBR approved for § 60.534 and § 60.5476.

(232) ASTM E2618-13 Standard Test Method for Measurement of Particulate Matter Emissions and Heating Efficiency of Outdoor Solid Fuel-Fired Hydronic Heating Appliances, (Approved September 1, 2013), IBR approved for § 60.5476.

(233) ASTM E2779-10, Standard Test Method for Determining Particulate Matter Emissions from Pellet Heaters, (Approved October 1, 2010), IBR approved for § 60.534.

(234) ASTM E2780-10, Standard Test Method for Determining Particulate Matter Emissions from Wood Heaters, (Approved October 1, 2010), IBR approved for appendix A: method 28R.

(235) ASTM UOP539-97, Refinery Gas Analysis by Gas Chromatography, (Copyright 1997), IBR approved for § 60.107a(d).

(i) Association of Official Analytical Chemists, 1111 North 19th Street, Suite 210, Arlington, VA 22209; phone: (301) 927-7077; website: *https://www.aoac.org/*.

(1) AOAC Method 9, Official Methods of Analysis of the Association of Official Analytical Chemists (AOAC), 11th edition, 1970, pp. 11-12, IBR approved for §§ 60.204(b), 60.214(b), 60.224(b), and 60.234(b).

(2) [Reserved]

(j) CSA Group (CSA) (formerly Canadian Standards Association), 178 Rexdale Boulevard, Toronto, Ontario, Canada; phone: (800) 463-6727; website: *https://shop.csa.ca*.

(1) CSA B415.1-10, Performance Testing of Solid-fuel-burning Heating Appliances, (March 2010), IBR approved for §§ 60.534; 60.5476.

(2) [Reserved]

(k) U.S. Environmental Protection Agency (EPA), 1200 Pennsylvania Avenue NW, Washington, DC 20460; phone: (202) 272-0167; website: *www.epa.gov/aboutepa/forms/contact-epa*.

(1) EPA-453/R-08-002, Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light-Duty Truck Primer-Surfacer and Topcoat Operations, September 2008, Office of Air Quality Planning and Standards (OAQPS); IBR approved for §§ 60.393a(e) and (h); 60.395a(k); 60.397a(e); appendix A to subpart MMa.

(2) EPA-454/B-08-002, Quality Assurance Handbook for Air Pollution Measurement Systems; Volume IV: Meteorological Measurements, Version 2.0 (Final), March 2008; IBR approved for appendix K to this part.

(3) EPA-454/R-98-015, Office of Air Quality Planning and Standards (OAQPS), Fabric Filter Bag Leak Detection Guidance, September 1997; IBR approved for §§ 60.124(f); 60.124a(f); 60.273(e); 60.273a(e); 60.273b(e); 60.373a(b); 60.2145(r); 60.2710(r); 60.4905(b); 60.5225(b). (Available from: *https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=2000D5T6.pdf*).

(4) EPA-600/R-12/531, EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards, May 2012; IBR approved for §§ 60.5413(d); 60.5413a(d); 60.5413b(d); 60.5413c(d).

(5) In EPA Publication No. SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (Available from: *www.epa.gov/hw-sw846/sw-846-compendium*):

(i) SW-846-6010D, Inductively Coupled Plasma-Optical Emission Spectrometry, Revision 5, July 2018; IBR approved for appendix A-5 to this part.

(ii) SW-846-6020B, Inductively Coupled Plasma-Mass Spectrometry, Revision 2, July 2014; IBR approved for appendix A-5 to this part.

(l) European Standards (EN), European Committee for Standardization, Management Centre, Avenue Marnix 17, B-1000 Brussels, Belgium; phone: + 32 2 550 08 11; website: *https://www.en-standard.eu*.

(1) DIN EN 303-5:2012E (EN 303-5), Heating boilers—Part 5: Heating boilers for solid fuels, manually and automatically stoked, nominal heat output of up to 500 kW—Terminology, requirements, testing and marking, (October 2012), IBR approved for § 60.5476.

(2) [Reserved]

(m) GPA Midstream Association, 6060 American Plaza, Suite 700, Tulsa, OK 74135; phone: (918) 493-3872; website: *www.gpamidstream.org*.

(1) GPA Midstream Standard 2140-17 (GPA 2140-17), Liquefied Petroleum Gas Specifications and Test Methods, (Revised 2017), IBR approved for § 60.4415(a).

(2) GPA Midstream Standard 2166-17 (GPA 2166-17), Obtaining Natural Gas Samples for Analysis by Gas Chromatography, (Reaffirmed 2017), IBR approved for § 60.4415(a).

(3) Gas Processors Association Standard 2172-09, Calculation of Gross Heating Value, Relative Density, Compressibility and Theoretical Hydrocarbon Liquid Content for Natural Gas Mixtures for Custody Transfer (2009), IBR approved for § 60.107a(d).

(4) GPA Standard 2174-14 (GPA 2174-14), Obtaining Liquid Hydrocarbon Samples for Analysis by Gas Chromatography, (Revised 2014), IBR approved for § 60.4415(a).

(5) GPA Standard 2261-19 (GPA 2261-19), Analysis for Natural Gas and Similar Gaseous Mixtures by Gas Chromatography, (Revised 2019), IBR approved for § 60.4415(a).

(6) Gas Processors Association Standard 2377-86, Test for Hydrogen Sulfide and Carbon Dioxide in Natural Gas Using Length of Stain Tubes, 1986 Revision, IBR approved for §§ 60.105(b), 60.107a(b), 60.334(h), 60.4360, and 60.4415(a).

(n) International Organization for Standardization (ISO), 1, ch. de la Voie-Creuse, Case postale 56, CH-1211 Geneva 20, Switzerland; phone: + 41 22 749 01 11; website: *www.iso.org*.

(1) ISO 8178-4: 1996(E), Reciprocating Internal Combustion Engines—Exhaust Emission Measurement—part 4: Test Cycles for Different Engine Applications, IBR approved for § 60.4241(b).

(2) ISO 2314:2009(E), Gas turbines-Acceptance tests, Third edition (December 15, 2009), IBR approved for §§ 60.5580; 60.5580a.

(3) ISO 8316: Measurement of Liquid Flow in Closed Conduits—Method by Collection of the Liquid in a Volumetric Tank (1987-10-01)—First Edition, IBR approved for § 60.107a(d).

(4) ISO 10715:1997(E), Natural gas—Sampling guidelines, (First Edition, June 1, 1997), IBR approved for § 60.4415(a).

(o) National Technical Information Services (NTIS), 5285 Port Royal Road, Springfield, Virginia 22161.

(1) OMB Bulletin No. 93-17: Revised Statistical Definitions for Metropolitan Areas. Office of Management and Budget, June 30, 1993. NTIS No. PB 93-192-664. IBR approved for § 60.31e.

(2) [Reserved]

(p) North American Electric Reliability Corporation, 1325 G Street NW., Suite 600, Washington, DC 20005-3801, *http://www.nerc.com*.

(1) North American Electric Reliability Corporation Reliability Standard EOP-002-3, Capacity and Energy Emergencies, updated November 19, 2012, IBR approved for §§ 60.4211(f) and 60.4243(d). Also available online: *http://www.nerc.com/files/EOP-002-3__1.pdf*.

(2) [Reserved]

(q) Pacific Lumber Inspection Bureau (formerly West Coast Lumber Inspection Bureau), 1010 South 336th Street #210, Federal Way, WA 98003; phone: (253) 835.3344; website: *www.plib.org*.

(1) West Coast Lumber Standard Grading Rules No. 16, pages 5-21, 90 and 91, September 3, 1970, revised 1984, IBR approved for appendix A-8 to part 60.

(2) [Reserved]

(r) Technical Association of the Pulp and Paper Industry (TAPPI), 15 Technology Parkway South, Suite 115, Peachtree Corners, GA 30092; phone (800) 332-8686; website: *www.tappi.org*.

(1) TAPPI Method T 624 cm-11, (Copyright 2011), IBR approved, for §§ 60.285(d) and 60.285a(d).

(2) [Reserved]

(s) Underwriter's Laboratories, Inc. (UL), 333 Pfingsten Road, Northbrook, IL 60062.

(1) UL 103, Sixth Edition revised as of September 3, 1986, Standard for Chimneys, Factory-built, Residential Type and Building Heating Appliance, IBR approved for appendix A-8 to part 60.

(2) [Reserved]

(t) Water Pollution Control Federation (WPCF), 2626 Pennsylvania Avenue NW., Washington, DC 20037.

(1) Method 209A, Total Residue Dried at 103-105 °C, in Standard Methods for the Examination of Water and Wastewater, 15th Edition, 1980, IBR approved for § 60.683(b).

(2) [Reserved]

[79 FR 11242, Feb. 27, 2014]

Editorial Note: For FEDERAL REGISTER citations affecting § 60.17, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at www.govinfo.gov.

§ 60.18 General control device and work practice requirements.

(a) ***Introduction.***

(1) This section contains requirements for control devices used to comply with applicable subparts of 40 CFR parts 60 and 61. The requirements are placed here for administrative convenience and apply only to facilities covered by subparts referring to this section.

(2) This section also contains requirements for an alternative work practice used to identify leaking equipment. This alternative work practice is placed here for administrative convenience and is available to all subparts in 40 CFR parts 60, 61, 63, and 65 that require monitoring of equipment with a 40 CFR part 60, appendix A-7, Method 21 monitor.

(b) ***Flares.*** Paragraphs (c) through (f) apply to flares.

(c)

(1) Flares shall be designed for and operated with no visible emissions as determined by the methods specified in paragraph (f), except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.

(2) Flares shall be operated with a flame present at all times, as determined by the methods specified in paragraph (f).

(3) An owner/operator has the choice of adhering to either the heat content specifications in paragraph (c)(3)(ii) of this section and the maximum tip velocity specifications in paragraph (c)(4) of this section, or adhering to the requirements in paragraph (c)(3)(i) of this section.

(i)

(A) Flares shall be used that have a diameter of 3 inches or greater, are nonassisted, have a hydrogen content of 8.0 percent (by volume), or greater, and are designed for and operated with an exit velocity less than 37.2 m/sec (122 ft/sec) and less than the velocity, V_{max}, as determined by the following equation:

$$V_{max} = (X_{H2} - K_1) * K_2$$

Where:

V_{max} = Maximum permitted velocity, m/sec.

K_1 = Constant, 6.0 volume-percent hydrogen.

K_2 = Constant, 3.9(m/sec)/volume-percent hydrogen.

X_{H2} = The volume-percent of hydrogen, on a wet basis, as calculated by using the American Society for Testing and Materials (ASTM) Method D1946-77. (Incorporated by reference as specified in § 60.17).

(B) The actual exit velocity of a flare shall be determined by the method specified in paragraph (f)(4) of this section.

(ii) Flares shall be used only with the net heating value of the gas being combusted being 11.2 MJ/scm (300 Btu/scf) or greater if the flare is steam-assisted or air-assisted; or with the net heating value of the gas being combusted being 7.45 MJ/scm (200 Btu/scf) or greater if the flare is nonassisted. The net heating value of the gas being combusted shall be determined by the methods specified in paragraph (f)(3) of this section.

(4)

(i) Steam-assisted and nonassisted flares shall be designed for and operated with an exit velocity, as determined by the methods specified in paragraph (f)(4) of this section, less than 18.3 m/sec (60 ft/sec), except as provided in paragraphs (c)(4) (ii) and (iii) of this section.

(ii) Steam-assisted and nonassisted flares designed for and operated with an exit velocity, as determined by the methods specified in paragraph (f)(4), equal to or greater than 18.3 m/sec (60 ft/sec) but less than 122 m/sec (400 ft/sec) are allowed if the net heating value of the gas being combusted is greater than 37.3 MJ/scm (1,000 Btu/scf).

(iii) Steam-assisted and nonassisted flares designed for and operated with an exit velocity, as determined by the methods specified in paragraph (f)(4), less than the velocity, V_{max}, as determined by the method specified in paragraph (f)(5), and less than 122 m/sec (400 ft/sec) are allowed.

(5) Air-assisted flares shall be designed and operated with an exit velocity less than the velocity, V_{max}, as determined by the method specified in paragraph (f)(6).

(6) Flares used to comply with this section shall be steam-assisted, air-assisted, or nonassisted.

(d) Owners or operators of flares used to comply with the provisions of this subpart shall monitor these control devices to ensure that they are operated and maintained in conformance with their designs. Applicable subparts will provide provisions stating how owners or operators of flares shall monitor these control devices.

(e) Flares used to comply with provisions of this subpart shall be operated at all times when emissions may be vented to them.

(f)

(1) Method 22 of appendix A to this part shall be used to determine the compliance of flares with the visible emission provisions of this subpart. The observation period is 2 hours and shall be used according to Method 22.

(2) The presence of a flare pilot flame shall be monitored using a thermocouple or any other equivalent device to detect the presence of a flame.

(3) The net heating value of the gas being combusted in a flare shall be calculated using the following equation:

$$H_T = K \sum_{i=1}^{n} C_i H_i$$

where:

H_T = Net heating value of the sample, MJ/scm; where the net enthalpy per mole of offgas is based on combustion at 25 °C and 760 mm Hg, but the standard temperature for determining the volume corresponding to one mole is 20 °C;

$$K = \text{Constant}, \quad 1.740 \times 10^{-7} \quad \left(\frac{1}{\text{ppm}}\right) \left(\frac{\text{g mole}}{\text{scm}}\right) \left(\frac{\text{MJ}}{\text{kcal}}\right)$$

where the standard temperature for $\left(\frac{\text{g mole}}{\text{scm}}\right)$ is 20°C;

C_i = Concentration of sample component i in ppm on a wet basis, as measured for organics by Reference Method 18 and measured for hydrogen and carbon monoxide by ASTM D1946-77 or 90 (Reapproved 1994) (Incorporated by reference as specified in § 60.17); and

H_i = Net heat of combustion of sample component i, kcal/g mole at 25 °C and 760 mm Hg. The heats of combustion may be determined using ASTM D2382-76 or 88 or D4809-95 (incorporated by reference as specified in § 60.17) if published values are not available or cannot be calculated.

(4) The actual exit velocity of a flare shall be determined by dividing the volumetric flowrate (in units of standard temperature and pressure), as determined by Reference Methods 2, 2A, 2C, or 2D as appropriate; by the unobstructed (free) cross sectional area of the flare tip.

(5) The maximum permitted velocity, V_{max}, for flares complying with paragraph (c)(4)(iii) shall be determined by the following equation.

$Log_{10}(V_{max}) = (H_T + 28.8)/31.7$

V_{max} = Maximum permitted velocity, M/sec

28.8 = Constant

31.7 = Constant

H_T = The net heating value as determined in paragraph (f)(3).

(6) The maximum permitted velocity, V_{max}, for air-assisted flares shall be determined by the following equation.

$V_{max} = 8.706 + 0.7084 (H_T)$

V_{max} = Maximum permitted velocity, m/sec

8.706 = Constant

0.7084 = Constant

H_T = The net heating value as determined in paragraph (f)(3).

(g) ***Alternative work practice for monitoring equipment for leaks.*** Paragraphs (g), (h), and (i) of this section apply to all equipment for which the applicable subpart requires monitoring with a 40 CFR part 60, appendix A-7, Method 21 monitor, except for closed vent systems, equipment designated as leakless, and equipment identified in the applicable subpart as having no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background. An owner or operator may use an optical gas imaging instrument instead of a 40 CFR part 60, appendix A-7, Method 21 monitor. Requirements in the existing subparts that are specific to the Method 21 instrument do not apply under this section. All other requirements in the applicable subpart that are not addressed in paragraphs (g), (h), and (i) of this section apply to this standard. For example, equipment specification requirements, and non-Method 21 instrument recordkeeping and reporting requirements in the applicable subpart continue to apply. The terms defined in paragraphs (g)(1) through (5) of this section have meanings that are specific to the alternative work practice standard in paragraphs (g), (h), and (i) of this section.

(1) ***Applicable subpart*** means the subpart in 40 CFR parts 60, 61, 63, or 65 that requires monitoring of equipment with a 40 CFR part 60, appendix A-7, Method 21 monitor.

(2) ***Equipment*** means pumps, valves, pressure relief valves, compressors, open-ended lines, flanges, connectors, and other equipment covered by the applicable subpart that require monitoring with a 40 CFR part 60, appendix A-7, Method 21 monitor.

(3) ***Imaging*** means making visible emissions that may otherwise be invisible to the naked eye.

(4) ***Optical gas imaging instrument*** means an instrument that makes visible emissions that may otherwise be invisible to the naked eye.

(5) ***Repair*** means that equipment is adjusted, or otherwise altered, in order to eliminate a leak.

(6) ***Leak*** means:

(i) Any emissions imaged by the optical gas instrument;

(ii) Indications of liquids dripping;

(iii) Indications by a sensor that a seal or barrier fluid system has failed; or

(iv) Screening results using a 40 CFR part 60, appendix A-7, Method 21 monitor that exceed the leak definition in the applicable subpart to which the equipment is subject.

(h) The alternative work practice standard for monitoring equipment for leaks is available to all subparts in 40 CFR parts 60, 61, 63, and 65 that require monitoring of equipment with a 40 CFR part 60, appendix A-7, Method 21 monitor.

(1) An owner or operator of an affected source subject to CFR parts 60, 61, 63, or 65 can choose to comply with the alternative work practice requirements in paragraph (i) of this section instead of using the 40 CFR part 60, appendix A-7, Method 21 monitor to identify leaking equipment. The owner or operator must document the equipment, process units, and facilities for which the alternative work practice will be used to identify leaks.

(2) Any leak detected when following the leak survey procedure in paragraph (i)(3) of this section must be identified for repair as required in the applicable subpart.

(3) If the alternative work practice is used to identify leaks, re-screening after an attempted repair of leaking equipment must be conducted using either the alternative work practice or the 40 CFR part 60, appendix A-7, Method 21 monitor at the leak definition required in the applicable subpart to which the equipment is subject.

(4) The schedule for repair is as required in the applicable subpart.

(5) When this alternative work practice is used for detecting leaking equipment, choose one of the monitoring frequencies listed in Table 1 to subpart A of this part in lieu of the monitoring frequency specified for regulated equipment in the applicable subpart. Reduced monitoring frequencies for good performance are not applicable when using the alternative work practice.

(6) When this alternative work practice is used for detecting leaking equipment the following are not applicable for the equipment being monitored:

(i) Skip period leak detection and repair;

(ii) Quality improvement plans; or

(iii) Complying with standards for allowable percentage of valves and pumps to leak.

(7) When the alternative work practice is used to detect leaking equipment, the regulated equipment in paragraph (h)(1)(i) of this section must also be monitored annually using a 40 CFR part 60, appendix A-7, Method 21 monitor at the leak definition required in the applicable subpart. The owner or operator may choose the specific monitoring period (for example, first quarter) to conduct the

annual monitoring. Subsequent monitoring must be conducted every 12 months from the initial period. Owners or operators must keep records of the annual Method 21 screening results, as specified in paragraph (i)(4)(vii) of this section.

(i) An owner or operator of an affected source who chooses to use the alternative work practice must comply with the requirements of paragraphs (i)(1) through (i)(5) of this section.

(1) Instrument Specifications. The optical gas imaging instrument must comply with the requirements in (i)(1)(i) and (i)(1)(ii) of this section.

(i) Provide the operator with an image of the potential leak points for each piece of equipment at both the detection sensitivity level and within the distance used in the daily instrument check described in paragraph (i)(2) of this section. The detection sensitivity level depends upon the frequency at which leak monitoring is to be performed.

(ii) Provide a date and time stamp for video records of every monitoring event.

(2) Daily Instrument Check. On a daily basis, and prior to beginning any leak monitoring work, test the optical gas imaging instrument at the mass flow rate determined in paragraph (i)(2)(i) of this section in accordance with the procedure specified in paragraphs (i)(2)(ii) through (i)(2)(iv) of this section for each camera configuration used during monitoring (for example, different lenses used), unless an alternative method to demonstrate daily instrument checks has been approved in accordance with paragraph (i)(2)(v) of this section.

(i) Calculate the mass flow rate to be used in the daily instrument check by following the procedures in paragraphs (i)(2)(i)(A) and (i)(2)(i)(B) of this section.

(A) For a specified population of equipment to be imaged by the instrument, determine the piece of equipment in contact with the lowest mass fraction of chemicals that are detectable, within the distance to be used in paragraph (i)(2)(iv)(B) of this section, at or below the standard detection sensitivity level.

(B) Multiply the standard detection sensitivity level, corresponding to the selected monitoring frequency in Table 1 of subpart A of this part, by the mass fraction of detectable chemicals from the stream identified in paragraph (i)(2)(i)(A) of this section to determine the mass flow rate to be used in the daily instrument check, using the following equation.

$$E_{dic} = (E_{sds}) \sum_{i=1}^{k} x_i$$

Where:

E_{dic} = Mass flow rate for the daily instrument check, grams per hour

x_i = Mass fraction of detectable chemical(s) i seen by the optical gas imaging instrument, within the distance to be used in paragraph (i)(2)(iv)(B) of this section, at or below the standard detection sensitivity level, E_{sds}.

E_{sds} = Standard detection sensitivity level from Table 1 to subpart A, grams per hour

k = Total number of detectable chemicals emitted from the leaking equipment and seen by the optical gas imaging instrument.

(ii) Start the optical gas imaging instrument according to the manufacturer's instructions, ensuring that all appropriate settings conform to the manufacturer's instructions.

(iii) Use any gas chosen by the user that can be viewed by the optical gas imaging instrument and that has a purity of no less than 98 percent.

(iv) Establish a mass flow rate by using the following procedures:

(A) Provide a source of gas where it will be in the field of view of the optical gas imaging instrument.

(B) Set up the optical gas imaging instrument at a recorded distance from the outlet or leak orifice of the flow meter that will not be exceeded in the actual performance of the leak survey. Do not exceed the operating parameters of the flow meter.

(C) Open the valve on the flow meter to set a flow rate that will create a mass emission rate equal to the mass rate specified in paragraph (i)(2)(i) of this section while observing the gas flow through the optical gas imaging instrument viewfinder. When an image of the gas emission is seen through the viewfinder at the required emission rate, make a record of the reading on the flow meter.

(v) Repeat the procedures specified in paragraphs (i)(2)(ii) through (i)(2)(iv) of this section for each configuration of the optical gas imaging instrument used during the leak survey.

(vi) To use an alternative method to demonstrate daily instrument checks, apply to the Administrator for approval of the alternative under § 60.13(i).

(3) Leak Survey Procedure. Operate the optical gas imaging instrument to image every regulated piece of equipment selected for this work practice in accordance with the instrument manufacturer's operating parameters. All emissions imaged by the optical gas imaging instrument are considered to be leaks and are subject to repair. All emissions visible to the naked eye are also considered to be leaks and are subject to repair.

(4) Recordkeeping. You must keep the records described in paragraphs (i)(4)(i) through (i)(4)(vii) of this section:

(i) The equipment, processes, and facilities for which the owner or operator chooses to use the alternative work practice.

(ii) The detection sensitivity level selected from Table 1 to subpart A of this part for the optical gas imaging instrument.

(iii) The analysis to determine the piece of equipment in contact with the lowest mass fraction of chemicals that are detectable, as specified in paragraph (i)(2)(i)(A) of this section.

(iv) The technical basis for the mass fraction of detectable chemicals used in the equation in paragraph (i)(2)(i)(B) of this section.

(v) The daily instrument check. Record the distance, per paragraph (i)(2)(iv)(B) of this section, and the flow meter reading, per paragraph (i)(2)(iv)(C) of this section, at which the leak was imaged. Keep a video record of the daily instrument check for each configuration of the optical gas imaging instrument used during the leak survey (for example, the daily instrument check must be conducted for each lens used). The video record must include a time and date stamp for each daily instrument check. The video record must be kept for 5 years.

(vi) Recordkeeping requirements in the applicable subpart. A video record must be used to document the leak survey results. The video record must include a time and date stamp for each monitoring event. A video record can be used to meet the recordkeeping requirements of the applicable subparts if each piece of regulated equipment selected for this work practice can be identified in the video record. The video record must be kept for 5 years.

(vii) The results of the annual Method 21 screening required in paragraph (h)(7) of this section. Records must be kept for all regulated equipment specified in paragraph (h)(1) of this section. Records must identify the equipment screened, the screening value measured by Method 21, the time and date of the screening, and calibration information required in the existing applicable subpart.

(5) Reporting. Submit the reports required in the applicable subpart. Submit the records of the annual Method 21 screening required in paragraph (h)(7) of this section to the Administrator via e-mail to *CCG-AWP@EPA.GOV*.

[51 FR 2701, Jan. 21, 1986, as amended at 63 FR 24444, May 4, 1998; 65 FR 61752, Oct. 17, 2000; 73 FR 78209, Dec. 22, 2008]

§ 60.19 General notification and reporting requirements.

(a) For the purposes of this part, time periods specified in days shall be measured in calendar days, even if the word “calendar” is absent, unless otherwise specified in an applicable requirement.

(b) For the purposes of this part, if an explicit postmark deadline is not specified in an applicable requirement for the submittal of a notification, application, report, or other written communication to the Administrator, the owner or operator shall postmark the submittal on or before the number of days specified in the applicable requirement. For example, if a notification must be submitted 15 days before a particular event is scheduled to take place, the notification shall be postmarked on or before 15 days preceding the event; likewise, if a notification must be submitted 15 days after a particular event takes place, the notification shall be delivered or postmarked on or before 15 days following the end of the event. The use of reliable non-Government mail carriers that provide indications of verifiable delivery of information required to be submitted to the Administrator, similar to the postmark provided by the U.S. Postal Service, or alternative means of delivery, including the use of electronic media, agreed to by the permitting authority, is acceptable.

(c) Notwithstanding time periods or postmark deadlines specified in this part for the submittal of information to the Administrator by an owner or operator, or the review of such information by the Administrator, such time periods or deadlines may be changed by mutual agreement between the owner or operator and the Administrator. Procedures governing the implementation of this provision are specified in paragraph (f) of this section.

(d) If an owner or operator of an affected facility in a State with delegated authority is required to submit periodic reports under this part to the State, and if the State has an established timeline for the submission of periodic reports that is consistent with the reporting frequency(ies) specified for such facility under this part, the owner or operator may change the dates by which periodic reports under this part shall be submitted (without changing the frequency of reporting) to be consistent with the State's schedule by mutual agreement between the owner or operator and the State. The allowance in the previous sentence applies in each State beginning 1 year after the affected facility is required to be in compliance with the applicable subpart in this part. Procedures governing the implementation of this provision are specified in paragraph (f) of this section.

(e) If an owner or operator supervises one or more stationary sources affected by standards set under this part and standards set under part 61, part 63, or both such parts of this chapter, he/she may arrange by mutual agreement between the owner or operator and the Administrator (or the State with an approved permit program) a common schedule on which periodic reports required by each applicable standard shall be submitted throughout the year. The allowance in the previous sentence applies in each State beginning 1 year after the stationary source is required to be in compliance with the applicable subpart in this part, or 1 year after the stationary source is required to be in compliance with the applicable 40 CFR part 61 or part 63 of this chapter standard, whichever is latest. Procedures governing the implementation of this provision are specified in paragraph (f) of this section.

(f)

(1)

(i) Until an adjustment of a time period or postmark deadline has been approved by the Administrator under paragraphs (f)(2) and (f)(3) of this section, the owner or operator of an affected facility remains strictly subject to the requirements of this part.

(ii) An owner or operator shall request the adjustment provided for in paragraphs (f)(2) and (f)(3) of this section each time he or she wishes to change an applicable time period or postmark deadline specified in this part.

(2) Notwithstanding time periods or postmark deadlines specified in this part for the submittal of information to the Administrator by an owner or operator, or the review of such information by the Administrator, such time periods or deadlines may be changed by mutual agreement between the owner or operator and the Administrator. An owner or operator who wishes to request a change in a time period or postmark deadline for a particular requirement shall request the adjustment in writing as soon as practicable before the subject activity is required to take place. The owner or operator shall include in the request whatever information he or she considers useful to convince the Administrator that an adjustment is warranted.

(3) If, in the Administrator's judgment, an owner or operator's request for an adjustment to a particular time period or postmark deadline is warranted, the Administrator will approve the adjustment. The Administrator will notify the owner or operator in writing of approval or disapproval of the request for an adjustment within 15 calendar days of receiving sufficient information to evaluate the request.

(4) If the Administrator is unable to meet a specified deadline, he or she will notify the owner or operator of any significant delay and inform the owner or operator of the amended schedule.

[59 FR 12428, Mar. 16, 1994, as amended at 64 FR 7463, Feb. 12, 1998]

Table 1 to Subpart A of Part 60—Detection Sensitivity Levels (grams per hour)

Monitoring frequency per subpart [a]	Detection sensitivity level
Bi-Monthly	60
Semi-Quarterly	85
Monthly	100

[a] When this alternative work practice is used to identify leaking equipment, the owner or operator must choose one of the monitoring frequencies listed in this table in lieu of the monitoring frequency specified in the applicable subpart. Bi-monthly means every other month. Semi-quarterly means twice per quarter. Monthly means once per month.

[73 FR 78211, Dec. 22, 2008]

This content is from the eCFR and is authoritative but unofficial.

New 2500kw (3674hp) emergency only diesel generator

Title 40 —Protection of Environment
Chapter I —Environmental Protection Agency
Subchapter C —Air Programs
Part 60 —Standards of Performance for New Stationary Sources

Authority: 42 U.S.C. 7401 *et seq.*

Source: 36 FR 24877, Dec. 23, 1971, unless otherwise noted.

Subpart IIII Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

What This Subpart Covers
§ 60.4200 Am I subject to this subpart?
Emission Standards for Manufacturers
§ 60.4201 What emission standards must I meet for non-emergency engines if I am a stationary CI internal combustion engine manufacturer?
§ 60.4202 What emission standards must I meet for emergency engines if I am a stationary CI internal combustion engine manufacturer?
§ 60.4203 How long must my engines meet the emission standards if I am a manufacturer of stationary CI internal combustion engines?
Emission Standards for Owners and Operators
§ 60.4204 What emission standards must I meet for non-emergency engines if I am an owner or operator of a stationary CI internal combustion engine?
§ 60.4205 What emission standards must I meet for emergency engines if I am an owner or operator of a stationary CI internal combustion engine?
§ 60.4206 How long must I meet the emission standards if I am an owner or operator of a stationary CI internal combustion engine?
Fuel Requirements for Owners and Operators
§ 60.4207 What fuel requirements must I meet if I am an owner or operator of a stationary CI internal combustion engine subject to this subpart?
Other Requirements for Owners and Operators
§ 60.4208 What is the deadline for importing or installing stationary CI ICE produced in previous model years?
§ 60.4209 What are the monitoring requirements if I am an owner or operator of a stationary CI internal combustion engine?
Compliance Requirements
§ 60.4210 What are my compliance requirements if I am a stationary CI internal combustion engine manufacturer?
§ 60.4211 What are my compliance requirements if I am an owner or operator of a stationary CI internal combustion engine?
Testing Requirements for Owners and Operators
§ 60.4212 What test methods and other procedures must I use if I am an owner or operator of a stationary CI internal combustion engine with a displacement of less than 30 liters per cylinder?
§ 60.4213 What test methods and other procedures must I use if I am an owner or operator of a stationary CI internal combustion engine with a displacement of greater than or equal to 30 liters per cylinder?
Notification, Reports, and Records for Owners and Operators
§ 60.4214 What are my notification, reporting, and recordkeeping requirements if I am an owner or operator of a stationary CI internal combustion engine?

Special Requirements
§ 60.4215 What requirements must I meet for engines used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands?
§ 60.4216 What requirements must I meet for engines used in Alaska?
§ 60.4217 What emission standards must I meet if I am an owner or operator of a stationary internal combustion engine using special fuels?
General Provisions
§ 60.4218 What General Provisions and confidential information provisions apply to me?
Definitions
§ 60.4219 What definitions apply to this subpart?
Table 1 to Subpart IIII of Part 60
Emission Standards for Stationary Pre-2007 Model Year Engines With a Displacement of <10 Liters per Cylinder and 2007-2010 Model Year Engines >2,237 KW (3,000 HP) and With a Displacement of <10 Liters per Cylinder
Table 2 to Subpart IIII of Part 60
Emission Standards for 2008 Model Year and Later Emergency Stationary CI ICE <37 KW (50 HP) With a Displacement of <10 Liters per Cylinder
Table 3 to Subpart IIII of Part 60
Certification Requirements for Stationary Fire Pump Engines
Table 4 to Subpart IIII of Part 60
Emission Standards for Stationary Fire Pump Engines
Table 5 to Subpart IIII of Part 60
Labeling and Recordkeeping Requirements for New Stationary Emergency Engines
Table 6 to Subpart IIII of Part 60
Optional 3-Mode Test Cycle for Stationary Fire Pump Engines
Table 7 to Subpart IIII of Part 60
Requirements for Performance Tests for Stationary CI ICE With a Displacement of ≥30 Liters per Cylinder
Table 8 to Subpart IIII of Part 60
Applicability of General Provisions to Subpart IIII

Subpart IIII—Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

Source: 71 FR 39172, July 11, 2006, unless otherwise noted.

WHAT THIS SUBPART COVERS

§ 60.4200 Am I subject to this subpart?

(a) The provisions of this subpart are applicable to manufacturers, owners, and operators of stationary compression ignition (CI) internal combustion engines (ICE) and other persons as specified in paragraphs (a)(1) through (4) of this section. For the purposes of this subpart, the date that construction commences is the date the engine is ordered by the owner or operator.

(1) Manufacturers of stationary CI ICE with a displacement of less than 30 liters per cylinder where the model year is:

(i) 2007 or later, for engines that are not fire pump engines;

(ii) The model year listed in Table 3 to this subpart or later model year, for fire pump engines.

(2) Owners and operators of stationary CI ICE that commence construction after July 11, 2005, where the stationary CI ICE are:

(i) Manufactured after April 1, 2006, and are not fire pump engines, or

(ii) Manufactured as a certified National Fire Protection Association (NFPA) fire pump engine after July 1, 2006.

(3) Owners and operators of any stationary CI ICE that are modified or reconstructed after July 11, 2005 and any person that modifies or reconstructs any stationary CI ICE after July 11, 2005.

(4) The provisions of § 60.4208 of this subpart are applicable to all owners and operators of stationary CI ICE that commence construction after July 11, 2005.

(b) The provisions of this subpart are not applicable to stationary CI ICE being tested at a stationary CI ICE test cell/stand.

(c) If you are an owner or operator of an area source subject to this subpart, you are exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71, provided you are not required to obtain a permit under 40 CFR 70.3(a) or 40 CFR 71.3(a) for a reason other than your status as an area source under this subpart. Notwithstanding the previous sentence, you must continue to comply with the provisions of this subpart applicable to area sources.

(d) Stationary CI ICE may be eligible for exemption from the requirements of this subpart as described in 40 CFR part 1068, subpart C, except that owners and operators, as well as manufacturers, may be eligible to request an exemption for national security.

(e) Owners and operators of facilities with CI ICE that are acting as temporary replacement units and that are located at a stationary source for less than 1 year and that have been properly certified as meeting the standards that would be applicable to such engine under the appropriate nonroad engine provisions, are not required to meet any other provisions under this subpart with regard to such engines.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37967, June 28, 2011; 86 FR 34357, June 29, 2021]

EMISSION STANDARDS FOR MANUFACTURERS

§ 60.4201 What emission standards must I meet for non-emergency engines if I am a stationary CI internal combustion engine manufacturer?

(a) Stationary CI internal combustion engine manufacturers must certify their 2007 model year and later non-emergency stationary CI ICE with a maximum engine power less than or equal to 2,237 kilowatt (KW) (3,000 horsepower (HP)) and a displacement of less than 10 liters per cylinder to the certification emission standards for new nonroad CI engines in 40 CFR 1039.101, 1039.102, 1039.104, 1039.105, 1039.107, and 1039.115 and 40 CFR part 1039, appendix I, as applicable, for all pollutants, for the same model year and maximum engine power.

(b) Stationary CI internal combustion engine manufacturers must certify their 2007 through 2010 model year non-emergency stationary CI ICE with a maximum engine power greater than 2,237 KW (3,000 HP) and a displacement of less than 10 liters per cylinder to the emission standards in table 1 to this subpart, for all pollutants, for the same maximum engine power.

(c) Stationary CI internal combustion engine manufacturers must certify their 2011 model year and later non-emergency stationary CI ICE with a maximum engine power greater than 2,237 KW (3,000 HP) and a displacement of less than 10 liters per cylinder to the certification emission standards for new nonroad CI engines in 40 CFR 1039.101, 40 CFR 1039.102, 40 CFR 1039.104, 40 CFR 1039.105, 40 CFR 1039.107, and 40 CFR 1039.115, as applicable, for all pollutants, for the same maximum engine power.

(d) Stationary CI internal combustion engine manufacturers must certify the following non-emergency stationary CI ICE to the appropriate Tier 2 emission standards for new marine CI engines as described in 40 CFR part 1042, appendix I, for all pollutants, for the same displacement and rated power:

(1) Their 2007 model year through 2012 non-emergency stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder;

(2) Their 2013 model year non-emergency stationary CI ICE with a maximum engine power greater than or equal to 3,700 KW (4,958 HP) and a displacement of greater than or equal to 10 liters per cylinder and less than 15 liters per cylinder; and

(3) Their 2013 model year non-emergency stationary CI ICE with a displacement of greater than or equal to 15 liters per cylinder and less than 30 liters per cylinder.

(e) Stationary CI internal combustion engine manufacturers must certify the following non-emergency stationary CI ICE to the certification emission standards and other requirements for new marine CI engines in 40 CFR 1042.101, 40 CFR 1042.107, 40 CFR 1042.110, 40 CFR 1042.115, 40 CFR 1042.120, and 40 CFR 1042.145, as applicable, for all pollutants, for the same displacement and maximum engine power:

(1) Their 2013 model year non-emergency stationary CI ICE with a maximum engine power less than 3,700 KW (4,958 HP) and a displacement of greater than or equal to 10 liters per cylinder and less than 15 liters per cylinder; and

(2) Their 2014 model year and later non-emergency stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder.

(f) Notwithstanding the requirements in paragraphs (a) through (c) of this section, stationary non-emergency CI ICE identified in paragraphs (a) and (c) of this section may be certified to the provisions of 40 CFR part 1042 for commercial engines that are applicable for the engine's model year, displacement, power density, and maximum engine power if the engines will be used solely in either or both of the following locations:

(1) Remote areas of Alaska; and

(2) Marine offshore installations.

(g) Notwithstanding the requirements in paragraphs (a) through (f) of this section, stationary CI internal combustion engine manufacturers are not required to certify reconstructed engines; however manufacturers may elect to do so. The reconstructed engine must be certified to the emission standards specified in paragraphs (a) through (e) of this section that are applicable to the model year, maximum engine power, and displacement of the reconstructed stationary CI ICE.

(h) Stationary CI ICE certified to the standards in 40 CFR part 1039 and equipped with auxiliary emission control devices (AECDs) as specified in 40 CFR 1039.665 must meet the Tier 1 certification emission standards for new nonroad CI engines in 40 CFR part 1039, appendix I, while the AECD is activated during a qualified emergency situation. A qualified emergency situation is defined in 40 CFR 1039.665. When the qualified emergency situation has ended and the AECD is deactivated, the engine must resume meeting the otherwise applicable emission standard specified in this section.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37967, June 28, 2011; 81 FR 44219, July 7, 2016; 86 FR 34357, June 29, 2021]

§ 60.4202 What emission standards must I meet for emergency engines if I am a stationary CI internal combustion engine manufacturer?

(a) Stationary CI internal combustion engine manufacturers must certify their 2007 model year and later emergency stationary CI ICE with a maximum engine power less than or equal to 2,237 KW (3,000 HP) and a displacement of less than 10 liters per cylinder that are not fire pump engines to the emission standards specified in paragraphs (a)(1) through (2) of this section.

(1) For engines with a maximum engine power less than 37 KW (50 HP):

(i) The Tier 2 emission standards for new nonroad CI engines for the appropriate rated power as described in 40 CFR part 1039, appendix I, for all pollutants and the smoke standards as specified in 40 CFR 1039.105 for model year 2007 engines; and

(ii) The certification emission standards for new nonroad CI engines in 40 CFR 1039.104, 40 CFR 1039.105, 40 CFR 1039.107, 40 CFR 1039.115, and table 2 to this subpart, for 2008 model year and later engines.

(2) For engines with a rated power greater than or equal to 37 KW (50 HP), the Tier 2 or Tier 3 emission standards for new nonroad CI engines for the same rated power as described in 40 CFR part 1039, appendix I, for all pollutants and the smoke standards as specified in 40 CFR 1039.105 beginning in model year 2007.

(b) Stationary CI internal combustion engine manufacturers must certify their 2007 model year and later emergency stationary CI ICE with a maximum engine power greater than 2,237 KW (3,000 HP) and a displacement of less than 10 liters per cylinder that are not fire pump engines to the emission standards specified in paragraphs (b)(1) through (2) of this section.

(1) For 2007 through 2010 model years, the emission standards in table 1 to this subpart, for all pollutants, for the same maximum engine power.

(2) For 2011 model year and later, the Tier 2 emission standards as described in 40 CFR part 1039, appendix I, for all pollutants and the smoke standards as specified in 40 CFR 1039.105.

(c) [Reserved]

(d) Beginning with the model years in table 3 to this subpart, stationary CI internal combustion engine manufacturers must certify their fire pump stationary CI ICE to the emission standards in table 4 to this subpart, for all pollutants, for the same model year and NFPA nameplate power.

(e) Stationary CI internal combustion engine manufacturers must certify the following emergency stationary CI ICE that are not fire pump engines to the appropriate Tier 2 emission standards for new marine CI engines as described in 40 CFR part 1042, appendix I, for all pollutants, for the same displacement and rated power:

(1) Their 2007 model year through 2012 emergency stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder;

(2) Their 2013 model year and later emergency stationary CI ICE with a maximum engine power greater than or equal to 3,700 KW (4,958 HP) and a displacement of greater than or equal to 10 liters per cylinder and less than 15 liters per cylinder;

(3) Their 2013 model year emergency stationary CI ICE with a displacement of greater than or equal to 15 liters per cylinder and less than 30 liters per cylinder; and

(4) Their 2014 model year and later emergency stationary CI ICE with a maximum engine power greater than or equal to 2,000 KW (2,682 HP) and a displacement of greater than or equal to 15 liters per cylinder and less than 30 liters per cylinder.

(f) Stationary CI internal combustion engine manufacturers must certify the following emergency stationary CI ICE to the certification emission standards and other requirements applicable to Tier 3 new marine CI engines in 40 CFR 1042.101, 40 CFR 1042.107, 40 CFR 1042.115, 40 CFR 1042.120, and 40 CFR 1042.145, for all pollutants, for the same displacement and maximum engine power:

(1) Their 2013 model year and later emergency stationary CI ICE with a maximum engine power less than 3,700 KW (4,958 HP) and a displacement of greater than or equal to 10 liters per cylinder and less than 15 liters per cylinder; and

(2) Their 2014 model year and later emergency stationary CI ICE with a maximum engine power less than 2,000 KW (2,682 HP) and a displacement of greater than or equal to 15 liters per cylinder and less than 30 liters per cylinder.

(g) Notwithstanding the requirements in paragraphs (a) through (d) of this section, stationary emergency CI ICE identified in paragraphs (a) and (c) of this section may be certified to the provisions of 40 CFR part 1042 for commercial engines that are applicable for the engine's model year, displacement, power density, and maximum engine power if the engines will be used solely in either or both of the locations identified in paragraphs (g)(1) and (2) of this section. Engines that would be subject to the Tier 4 standards in 40 CFR part 1042 that are used solely in either or both of the locations identified in paragraphs (g)(1) and (2) of this section may instead continue to be certified to the previous tier of standards in 40 CFR part 1042. The previous tier is Tier 3 in most cases; however, the previous tier is Tier 2 if there are no Tier 3 standards specified for engines of a certain size or power rating.

(1) Remote areas of Alaska; and

(2) Marine offshore installations.

(h) Notwithstanding the requirements in paragraphs (a) through (f) of this section, stationary CI internal combustion engine manufacturers are not required to certify reconstructed engines; however manufacturers may elect to do so. The reconstructed engine must be certified to the emission standards specified in paragraphs (a) through (f) of this section that are applicable to the model year, maximum engine power and displacement of the reconstructed emergency stationary CI ICE.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37968, June 28, 2011; 81 FR 44219, July 7, 2016; 86 FR 34358, June 29, 2021; 88 FR 4471, Jan. 24, 2023]

§ 60.4203 How long must my engines meet the emission standards if I am a manufacturer of stationary CI internal combustion engines?

Engines manufactured by stationary CI internal combustion engine manufacturers must meet the emission standards as required in §§ 60.4201 and 60.4202 during the certified emissions life of the engines.

[76 FR 37968, June 28, 2011]

EMISSION STANDARDS FOR OWNERS AND OPERATORS

§ 60.4204 What emission standards must I meet for non-emergency engines if I am an owner or operator of a stationary CI internal combustion engine?

(a) Owners and operators of pre-2007 model year non-emergency stationary CI ICE with a displacement of less than 10 liters per cylinder must comply with the emission standards in table 1 to this subpart. Owners and operators of pre-2007 model year non-emergency stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder must comply with the Tier 1 emission standards in 40 CFR part 1042, appendix I.

(b) Owners and operators of 2007 model year and later non-emergency stationary CI ICE with a displacement of less than 30 liters per cylinder must comply with the emission standards for new CI engines in § 60.4201 for their 2007 model year and later stationary CI ICE, as applicable.

(c) Owners and operators of non-emergency stationary CI engines with a displacement of greater than or equal to 30 liters per cylinder must meet the following requirements:

(1) For engines installed prior to January 1, 2012, limit the emissions of NO_X in the stationary CI internal combustion engine exhaust to the following:

(i) 17.0 grams per kilowatt-hour (g/KW-hr) (12.7 grams per horsepower-hr (g/HP-hr)) when maximum engine speed is less than 130 revolutions per minute (rpm);

(ii) $45 \cdot n^{-0.2}$ g/KW-hr ($34 \cdot n^{-0.2}$ g/HP-hr) when maximum engine speed is 130 or more but less than 2,000 rpm, where n is maximum engine speed; and

(iii) 9.8 g/KW-hr (7.3 g/HP-hr) when maximum engine speed is 2,000 rpm or more.

(2) For engines installed on or after January 1, 2012 and before January 1, 2016, limit the emissions of NO_X in the stationary CI internal combustion engine exhaust to the following:

(i) 14.4 g/KW-hr (10.7 g/HP-hr) when maximum engine speed is less than 130 rpm;

(ii) $44 \cdot n^{-0.23}$ g/KW-hr ($33 \cdot n^{-0.23}$ g/HP-hr) when maximum engine speed is greater than or equal to 130 but less than 2,000 rpm and where n is maximum engine speed; and

(iii) 7.7 g/KW-hr (5.7 g/HP-hr) when maximum engine speed is greater than or equal to 2,000 rpm.

(3) For engines installed on or after January 1, 2016, limit the emissions of NO_X in the stationary CI internal combustion engine exhaust to the following:

(i) 3.4 g/KW-hr (2.5 g/HP-hr) when maximum engine speed is less than 130 rpm;

(ii) $9.0 \cdot n^{-0.20}$ g/KW-hr ($6.7 \cdot n^{-0.20}$ g/HP-hr) where n (maximum engine speed) is 130 or more but less than 2,000 rpm; and

(iii) 2.0 g/KW-hr (1.5 g/HP-hr) where maximum engine speed is greater than or equal to 2,000 rpm.

(4) Reduce particulate matter (PM) emissions by 60 percent or more, or limit the emissions of PM in the stationary CI internal combustion engine exhaust to 0.15 g/KW-hr (0.11 g/HP-hr).

(d) Owners and operators of non-emergency stationary CI ICE with a displacement of less than 30 liters per cylinder who conduct performance tests in-use must meet the not-to-exceed (NTE) standards as indicated in § 60.4212.

(e) Owners and operators of any modified or reconstructed non-emergency stationary CI ICE subject to this subpart must meet the emission standards applicable to the model year, maximum engine power, and displacement of the modified or reconstructed non-emergency stationary CI ICE that are specified in paragraphs (a) through (d) of this section.

(f) Owners and operators of stationary CI ICE certified to the standards in 40 CFR part 1039 and equipped with AECDs as specified in 40 CFR 1039.665 must meet the Tier 1 certification emission standards for new nonroad CI engines in 40 CFR part 1039, appendix I, while the AECD is activated during a qualified emergency situation. A qualified emergency situation is defined in 40 CFR 1039.665. When the qualified emergency situation has ended and the AECD is deactivated, the engine must resume meeting the otherwise applicable emission standard specified in this section.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37968, June 28, 2011; 81 FR 44219, July 7, 2016; 86 FR 34358, June 29, 2021]

§ 60.4205 What emission standards must I meet for emergency engines if I am an owner or operator of a stationary CI internal combustion engine?

(a) Owners and operators of pre-2007 model year emergency stationary CI ICE with a displacement of less than 10 liters per cylinder that are not fire pump engines must comply with the emission standards in Table 1 to this subpart. Owners and operators of pre-2007 model year emergency stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder that are not fire pump engines must comply with the Tier 1 emission standards in 40 CFR part 1042, appendix I.

(b) Owners and operators of 2007 model year and later emergency stationary CI ICE with a displacement of less than 30 liters per cylinder that are not fire pump engines must comply with the emission standards for new nonroad CI engines in § 60.4202, for all pollutants, for the same model year and maximum engine power for their 2007 model year and later emergency stationary CI ICE.

(c) Owners and operators of fire pump engines with a displacement of less than 30 liters per cylinder must comply with the emission standards in table 4 to this subpart, for all pollutants.

(d) Owners and operators of emergency stationary CI engines with a displacement of greater than or equal to 30 liters per cylinder must meet the requirements in this section.

(1) For engines installed prior to January 1, 2012, limit the emissions of NO_X in the stationary CI internal combustion engine exhaust to the following:

(i) 17.0 g/KW-hr (12.7 g/HP-hr) when maximum engine speed is less than 130 rpm;

(ii) $45 \cdot n^{-0.2}$ g/KW-hr ($34 \cdot n^{-0.2}$ g/HP-hr) when maximum engine speed is 130 or more but less than 2,000 rpm, where n is maximum engine speed; and

(iii) 9.8 g/kW-hr (7.3 g/HP-hr) when maximum engine speed is 2,000 rpm or more.

(2) For engines installed on or after January 1, 2012, limit the emissions of NO_X in the stationary CI internal combustion engine exhaust to the following:

(i) 14.4 g/KW-hr (10.7 g/HP-hr) when maximum engine speed is less than 130 rpm;

(ii) $44 \cdot n^{-0.23}$ g/KW-hr ($33 \cdot n^{-0.23}$ g/HP-hr) when maximum engine speed is greater than or equal to 130 but less than 2,000 rpm and where n is maximum engine speed; and

(iii) 7.7 g/KW-hr (5.7 g/HP-hr) when maximum engine speed is greater than or equal to 2,000 rpm.

(3) Limit the emissions of PM in the stationary CI internal combustion engine exhaust to 0.40 g/KW-hr (0.30 g/HP-hr).

(e) Owners and operators of emergency stationary CI ICE with a displacement of less than 30 liters per cylinder who conduct performance tests in-use must meet the NTE standards as indicated in § 60.4212.

(f) Owners and operators of any modified or reconstructed emergency stationary CI ICE subject to this subpart must meet the emission standards applicable to the model year, maximum engine power, and displacement of the modified or reconstructed CI ICE that are specified in paragraphs (a) through (e) of this section.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37969, June 28, 2011; 86 FR 34358, June 29, 2021]

§ 60.4206 How long must I meet the emission standards if I am an owner or operator of a stationary CI internal combustion engine?

Owners and operators of stationary CI ICE must operate and maintain stationary CI ICE that achieve the emission standards as required in §§ 60.4204 and 60.4205 over the entire life of the engine.

[76 FR 37969, June 28, 2011]

Fuel Requirements for Owners and Operators

§ 60.4207 What fuel requirements must I meet if I am an owner or operator of a stationary CI internal combustion engine subject to this subpart?

(a) [Reserved]

(b) Beginning October 1, 2010, owners and operators of stationary CI ICE subject to this subpart with a displacement of less than 30 liters per cylinder that use diesel fuel must use diesel fuel that meets the requirements of 40 CFR 1090.305 for nonroad diesel fuel, except that any existing diesel fuel purchased (or otherwise obtained) prior to October 1, 2010, may be used until depleted.

(c) [Reserved]

(d) Beginning June 1, 2012, owners and operators of stationary CI ICE subject to this subpart with a displacement of greater than or equal to 30 liters per cylinder must use diesel fuel that meets a maximum per-gallon sulfur content of 1,000 parts per million (ppm).

(e) Stationary CI ICE that have a national security exemption under § 60.4200(d) are also exempt from the fuel requirements in this section.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37969, June 28, 2011; 78 FR 6695, Jan. 30, 2013; 85 FR 78463, Dec. 4, 2020]

OTHER REQUIREMENTS FOR OWNERS AND OPERATORS

§ 60.4208 What is the deadline for importing or installing stationary CI ICE produced in previous model years?

(a) After December 31, 2008, owners and operators may not install stationary CI ICE (excluding fire pump engines) that do not meet the applicable requirements for 2007 model year engines.

(b) After December 31, 2009, owners and operators may not install stationary CI ICE with a maximum engine power of less than 19 KW (25 HP) (excluding fire pump engines) that do not meet the applicable requirements for 2008 model year engines.

(c) After December 31, 2014, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power of greater than or equal to 19 KW (25 HP) and less than 56 KW (75 HP) that do not meet the applicable requirements for 2013 model year non-emergency engines.

(d) After December 31, 2013, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power of greater than or equal to 56 KW (75 HP) and less than 130 KW (175 HP) that do not meet the applicable requirements for 2012 model year non-emergency engines.

(e) After December 31, 2012, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power of greater than or equal to 130 KW (175 HP), including those above 560 KW (750 HP), that do not meet the applicable requirements for 2011 model year non-emergency engines.

(f) After December 31, 2016, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power of greater than or equal to 560 KW (750 HP) that do not meet the applicable requirements for 2015 model year non-emergency engines.

(g) After December 31, 2018, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power greater than or equal to 600 KW (804 HP) and less than 2,000 KW (2,680 HP) and a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder that do not meet the applicable requirements for 2017 model year non-emergency engines.

(h) In addition to the requirements specified in §§ 60.4201, 60.4202, 60.4204, and 60.4205, it is prohibited to import stationary CI ICE with a displacement of less than 30 liters per cylinder that do not meet the applicable requirements specified in paragraphs (a) through (g) of this section after the dates specified in paragraphs (a) through (g) of this section.

(i) The requirements of this section do not apply to owners or operators of stationary CI ICE that have been modified, reconstructed, and do not apply to engines that were removed from one existing location and reinstalled at a new location.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37969, June 28, 2011]

§ 60.4209 What are the monitoring requirements if I am an owner or operator of a stationary CI internal combustion engine?

If you are an owner or operator, you must meet the monitoring requirements of this section. In addition, you must also meet the monitoring requirements specified in § 60.4211.

(a) If you are an owner or operator of an emergency stationary CI internal combustion engine that does not meet the standards applicable to non-emergency engines, you must install a non-resettable hour meter prior to startup of the engine.

(b) If you are an owner or operator of a stationary CI internal combustion engine equipped with a diesel particulate filter to comply with the emission standards in § 60.4204, the diesel particulate filter must be installed with a backpressure monitor that notifies the owner or operator when the high backpressure limit of the engine is approached.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37969, June 28, 2011]

Compliance Requirements

§ 60.4210 What are my compliance requirements if I am a stationary CI internal combustion engine manufacturer?

(a) Stationary CI internal combustion engine manufacturers must certify their stationary CI ICE with a displacement of less than 10 liters per cylinder to the emission standards specified in §§ 60.4201(a) through (c) and 60.4202(a), (b), and (d) using the certification procedures required in 40 CFR part 1039, subpart C, and must test their engines as specified in 40 CFR part 1039. For the purposes of this subpart, engines certified to the standards in Table 1 to this subpart shall be subject to the same certification procedures required for engines certified to the Tier 1 standards in 40 CFR part 1039, appendix I. For the purposes of this subpart, engines certified to the standards in Table 4 to this subpart shall be subject to the same certification procedures required for engines certified to the Tier 1 standards in 40 CFR part 1039, appendix I, except that engines with NFPA nameplate power of less than 37 KW (50 HP) certified to model year 2011 or later standards shall be subject to the same requirements as engines certified to the standards in 40 CFR part 1039.

(b) Stationary CI internal combustion engine manufacturers must certify their stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder to the emission standards specified in §§ 60.4201(d) and (e) and 60.4202(e) and (f) using the certification procedures required in 40 CFR part 1042, subpart C, and must test their engines as specified in 40 CFR part 1042.

(c) Stationary CI internal combustion engine manufacturers must meet the requirements of 40 CFR 1039.120, 1039.125, 1039.130, and 1039.135 and 40 CFR part 1068 for engines that are certified to the emission standards in 40 CFR part 1039. Stationary CI internal combustion engine manufacturers must meet the corresponding provisions of 40 CFR part 1042 for engines that would be covered by that part if they were nonroad (including marine) engines. Labels on such engines must refer to stationary engines, rather than or in addition to nonroad or marine engines, as appropriate. Stationary CI internal combustion engine manufacturers must label their engines according to paragraphs (c)(1) through (3) of this section.

(1) Stationary CI internal combustion engines manufactured from January 1, 2006 to March 31, 2006 (January 1, 2006 to June 30, 2006 for fire pump engines), other than those that are part of certified engine families under the nonroad CI engine regulations, must be labeled according to 40 CFR 1039.20.

(2) Stationary CI internal combustion engines manufactured from April 1, 2006 to December 31, 2006 (or, for fire pump engines, July 1, 2006 to December 31 of the year preceding the year listed in table 3 to this subpart) must be labeled according to paragraphs (c)(2)(i) through (iii) of this section:

(i) Stationary CI internal combustion engines that are part of certified engine families under the nonroad regulations must meet the labeling requirements for nonroad CI engines, but do not have to meet the labeling requirements in 40 CFR 1039.20.

(ii) Stationary CI internal combustion engines that meet Tier 1 requirements (or requirements for fire pumps) under this subpart, but do not meet the requirements applicable to nonroad CI engines must be labeled according to 40 CFR 1039.20. The engine manufacturer may add language to the label clarifying that the engine meets Tier 1 requirements (or requirements for fire pumps) of this subpart.

(iii) Stationary CI internal combustion engines manufactured after April 1, 2006 that do not meet Tier 1 requirements of this subpart, or fire pumps engines manufactured after July 1, 2006 that do not meet the requirements for fire pumps under this subpart, may not be used in the U.S. If any such engines are manufactured in the U.S. after April 1, 2006 (July 1, 2006 for fire pump engines), they must be exported or must be brought into compliance with the appropriate standards prior to initial operation. The export provisions of 40 CFR 1068.230 would apply to engines for export and the manufacturers must label such engines according to 40 CFR 1068.230.

(3) Stationary CI internal combustion engines manufactured after January 1, 2007 (for fire pump engines, after January 1 of the year listed in table 3 to this subpart, as applicable) must be labeled according to paragraphs (c)(3)(i) through (iii) of this section.

(i) Stationary CI internal combustion engines that meet the requirements of this subpart and the corresponding requirements for nonroad (including marine) engines of the same model year and HP must be labeled according to the provisions in 40 CFR part 1039 or 1042, as appropriate.

(ii) Stationary CI internal combustion engines that meet the requirements of this subpart, but are not certified to the standards applicable to nonroad (including marine) engines of the same model year and HP must be labeled according to the provisions in 40 CFR part 1039 or 1042, as appropriate, but the words “stationary” must be included instead of “nonroad” or “marine” on the label. In addition, such engines must be labeled according to 40 CFR 1039.20.

(iii) Stationary CI internal combustion engines that do not meet the requirements of this subpart must be labeled according to 40 CFR 1068.230 and must be exported under the provisions of 40 CFR 1068.230.

(d) An engine manufacturer certifying an engine family or families to standards under this subpart that are identical to standards applicable under 40 CFR part 1039 or 1042 for that model year may certify any such family that contains both nonroad (including marine) and stationary engines as a single engine family and/or may include any such family containing stationary engines in the averaging, banking, and trading provisions applicable for such engines under those parts.

(e) Manufacturers of engine families discussed in paragraph (d) of this section may meet the labeling requirements referred to in paragraph (c) of this section for stationary CI ICE by either adding a separate label containing the information required in paragraph (c) of this section or by adding the words “and stationary” after the word “nonroad” or “marine,” as appropriate, to the label.

(f) Starting with the model years shown in table 5 to this subpart, stationary CI internal combustion engine manufacturers must add a permanent label stating that the engine is for stationary emergency use only to each new emergency stationary CI internal combustion engine greater than or equal to 19 KW (25 HP) that meets all the emission standards for emergency engines in § 60.4202 but does not meet all the emission standards for non-emergency engines in § 60.4201. The label must be added according to the labeling requirements specified in 40 CFR 1039.135(b). Engine manufacturers must specify in the owner's manual that operation of emergency engines is limited to emergency operations and required maintenance and testing.

(g) Manufacturers of fire pump engines may use the test cycle in table 6 to this subpart for testing fire pump engines and may test at the NFPA certified nameplate HP, provided that the engine is labeled as “Fire Pump Applications Only”.

(h) Engine manufacturers, including importers, may introduce into commerce uncertified engines or engines certified to earlier standards that were manufactured before the new or changed standards took effect until inventories are depleted, as long as such engines are part of normal inventory. For example, if the engine manufacturers' normal industry practice is to keep on hand a one-month supply of engines based on its projected sales, and a new tier of standards starts to apply for the 2009 model year, the engine manufacturer may manufacture engines based on the normal inventory requirements late in the 2008 model year, and sell those engines for installation. The engine manufacturer may not circumvent the provisions of § 60.4201 or § 60.4202 by stockpiling engines that are built before new or changed standards take effect. Stockpiling of such engines beyond normal industry practice is a violation of this subpart.

(i) The replacement engine provisions of 40 CFR 1068.240 are applicable to stationary CI engines replacing existing equipment that is less than 15 years old.

(j) Stationary CI ICE manufacturers may equip their stationary CI internal combustion engines certified to the emission standards in 40 CFR part 1039 with AECDs for qualified emergency situations according to the requirements of 40 CFR 1039.665. Manufacturers of stationary CI ICE equipped with AECDs as allowed by 40 CFR 1039.665 must meet all the requirements in 40 CFR 1039.665 that apply to manufacturers.

Manufacturers must document that the engine complies with the Tier 1 standard in 40 CFR part 1039, appendix I, when the AECD is activated. Manufacturers must provide any relevant testing, engineering analysis, or other information in sufficient detail to support such statement when applying for certification (including amending an existing certificate) of an engine equipped with an AECD as allowed by 40 CFR 1039.665.

(k) Manufacturers of any size may certify their emergency stationary CI internal combustion engines under this section using assigned deterioration factors established by EPA, consistent with 40 CFR 1039.240 and 1042.240.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37969, June 28, 2011; 81 FR 44219, July 7, 2016; 86 FR 34358, June 29, 2021]

§ 60.4211 What are my compliance requirements if I am an owner or operator of a stationary CI internal combustion engine?

(a) If you are an owner or operator and must comply with the emission standards specified in this subpart, you must do all of the following, except as permitted under paragraph (g) of this section:

(1) Operate and maintain the stationary CI internal combustion engine and control device according to the manufacturer's emission-related written instructions;

(2) Change only those emission-related settings that are permitted by the manufacturer; and

(3) Meet the requirements of 40 CFR part 1068, as they apply to you.

(b) If you are an owner or operator of a pre-2007 model year stationary CI internal combustion engine and must comply with the emission standards specified in § 60.4204(a) or § 60.4205(a), or if you are an owner or operator of a CI fire pump engine that is manufactured prior to the model years in table 3 to this subpart and must comply with the emission standards specified in § 60.4205(c), you must demonstrate compliance according to one of the methods specified in paragraphs (b)(1) through (5) of this section.

(1) Purchasing an engine certified to emission standards for the same model year and maximum engine power as described in 40 CFR parts 1039 and 1042, as applicable. The engine must be installed and configured according to the manufacturer's specifications.

(2) Keeping records of performance test results for each pollutant for a test conducted on a similar engine. The test must have been conducted using the same methods specified in this subpart and these methods must have been followed correctly.

(3) Keeping records of engine manufacturer data indicating compliance with the standards.

(4) Keeping records of control device vendor data indicating compliance with the standards.

(5) Conducting an initial performance test to demonstrate compliance with the emission standards according to the requirements specified in § 60.4212, as applicable.

(c) If you are an owner or operator of a 2007 model year and later stationary CI internal combustion engine and must comply with the emission standards specified in § 60.4204(b) or § 60.4205(b), or if you are an owner or operator of a CI fire pump engine that is manufactured during or after the model year that applies to your fire pump engine power rating in table 3 to this subpart and must comply with the emission standards specified in § 60.4205(c), you must comply by purchasing an engine certified to the emission standards in § 60.4204(b), or § 60.4205(b) or (c), as applicable, for the same model year and

maximum (or in the case of fire pumps, NFPA nameplate) engine power. The engine must be installed and configured according to the manufacturer's emission-related specifications, except as permitted in paragraph (g) of this section.

(d) If you are an owner or operator and must comply with the emission standards specified in § 60.4204(c) or § 60.4205(d), you must demonstrate compliance according to the requirements specified in paragraphs (d)(1) through (3) of this section.

(1) Conducting an initial performance test to demonstrate initial compliance with the emission standards as specified in § 60.4213.

(2) Establishing operating parameters to be monitored continuously to ensure the stationary internal combustion engine continues to meet the emission standards. The owner or operator must petition the Administrator for approval of operating parameters to be monitored continuously. The petition must include the information described in paragraphs (d)(2)(i) through (v) of this section.

(i) Identification of the specific parameters you propose to monitor continuously;

(ii) A discussion of the relationship between these parameters and NO_X and PM emissions, identifying how the emissions of these pollutants change with changes in these parameters, and how limitations on these parameters will serve to limit NO_X and PM emissions;

(iii) A discussion of how you will establish the upper and/or lower values for these parameters which will establish the limits on these parameters in the operating limitations;

(iv) A discussion identifying the methods and the instruments you will use to monitor these parameters, as well as the relative accuracy and precision of these methods and instruments; and

(v) A discussion identifying the frequency and methods for recalibrating the instruments you will use for monitoring these parameters.

(3) For non-emergency engines with a displacement of greater than or equal to 30 liters per cylinder, conducting annual performance tests to demonstrate continuous compliance with the emission standards as specified in § 60.4213.

(e) If you are an owner or operator of a modified or reconstructed stationary CI internal combustion engine and must comply with the emission standards specified in § 60.4204(e) or § 60.4205(f), you must demonstrate compliance according to one of the methods specified in paragraphs (e)(1) or (2) of this section.

(1) Purchasing, or otherwise owning or operating, an engine certified to the emission standards in § 60.4204(e) or § 60.4205(f), as applicable.

(2) Conducting a performance test to demonstrate initial compliance with the emission standards according to the requirements specified in § 60.4212 or § 60.4213, as appropriate. The test must be conducted within 60 days after the engine commences operation after the modification or reconstruction.

(f) If you own or operate an emergency stationary ICE, you must operate the emergency stationary ICE according to the requirements in paragraphs (f)(1) through (3) of this section. In order for the engine to be considered an emergency stationary ICE under this subpart, any operation other than emergency operation, maintenance and testing, and operation in non-emergency situations for 50 hours per year, as

described in paragraphs (f)(1) through (3), is prohibited. If you do not operate the engine according to the requirements in paragraphs (f)(1) through (3), the engine will not be considered an emergency engine under this subpart and must meet all requirements for non-emergency engines.

(1) There is no time limit on the use of emergency stationary ICE in emergency situations.

(2) You may operate your emergency stationary ICE for the purpose specified in paragraph (f)(2)(i) of this section for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraph (f)(3) of this section counts as part of the 100 hours per calendar year allowed by this paragraph (f)(2).

(i) Emergency stationary ICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency ICE beyond 100 hours per calendar year.

(ii)-(iii) [Reserved]

(3) Emergency stationary ICE may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing provided in paragraph (f)(2) of this section. Except as provided in paragraph (f)(3)(i) of this section, the 50 hours per calendar year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

(i) The 50 hours per year for non-emergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met:

(A) The engine is dispatched by the local balancing authority or local transmission and distribution system operator;

(B) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.

(C) The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.

(D) The power is provided only to the facility itself or to support the local transmission and distribution system.

(E) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator.

(ii) [Reserved]

(g) If you do not install, configure, operate, and maintain your engine and control device according to the manufacturer's emission-related written instructions, or you change emission-related settings in a way that is not permitted by the manufacturer, you must demonstrate compliance as follows:

(1) If you are an owner or operator of a stationary CI internal combustion engine with maximum engine power less than 100 HP, you must keep a maintenance plan and records of conducted maintenance to demonstrate compliance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, if you do not install and configure the engine and control device according to the manufacturer's emission-related written instructions, or you change the emission-related settings in a way that is not permitted by the manufacturer, you must conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of such action.

(2) If you are an owner or operator of a stationary CI internal combustion engine greater than or equal to 100 HP and less than or equal to 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of startup, or within 1 year after an engine and control device is no longer installed, configured, operated, and maintained in accordance with the manufacturer's emission-related written instructions, or within 1 year after you change emission-related settings in a way that is not permitted by the manufacturer.

(3) If you are an owner or operator of a stationary CI internal combustion engine greater than 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of startup, or within 1 year after an engine and control device is no longer installed, configured, operated, and maintained in accordance with the manufacturer's emission-related written instructions, or within 1 year after you change emission-related settings in a way that is not permitted by the manufacturer. You must conduct subsequent performance testing every 8,760 hours of engine operation or 3 years, whichever comes first, thereafter to demonstrate compliance with the applicable emission standards.

(h) The requirements for operators and prohibited acts specified in 40 CFR 1039.665 apply to owners or operators of stationary CI ICE equipped with AECDs for qualified emergency situations as allowed by 40 CFR 1039.665.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37970, June 28, 2011; 78 FR 6695, Jan. 30, 2013; 81 FR 44219, July 7, 2016; 86 FR 34359, June 29, 2021; 87 FR 48605, Aug. 10, 2022]

Testing Requirements for Owners and Operators

§ 60.4212 What test methods and other procedures must I use if I am an owner or operator of a stationary CI internal combustion engine with a displacement of less than 30 liters per cylinder?

Owners and operators of stationary CI ICE with a displacement of less than 30 liters per cylinder who conduct performance tests pursuant to this subpart must do so according to paragraphs (a) through (e) of this section.

(a) The performance test must be conducted according to the in-use testing procedures in 40 CFR part 1039, subpart F, for stationary CI ICE with a displacement of less than 10 liters per cylinder, and according to 40 CFR part 1042, subpart F, for stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder. Alternatively, stationary CI ICE that are complying with Tier 2 or Tier 3 emission standards as described in 40 CFR part 1039, appendix I, or with Tier 2 emission standards as described in 40 CFR part 1042, appendix I, may follow the testing procedures specified in § 60.4213, as appropriate.

(b) Exhaust emissions from stationary CI ICE that are complying with the emission standards for new CI engines in 40 CFR part 1039 must not exceed the not-to-exceed (NTE) standards for the same model year and maximum engine power as required in 40 CFR 1039.101(e) and 40 CFR 1039.102(g)(1), except as specified in 40 CFR 1039.104(d). This requirement starts when NTE requirements take effect for nonroad diesel engines under 40 CFR part 1039.

(c) Exhaust emissions from stationary CI ICE subject to Tier 2 or Tier 3 emission standards as described in 40 CFR part 1039, appendix I, or Tier 2 emission standards as described in 40 CFR part 1042, appendix I, must not exceed the NTE numerical requirements, rounded to the same number of decimal places as the applicable standard, determined from the following equation:

$$\text{NTE requirement for each pollutant} = (1.25) \times (\text{STD}) \quad \text{(Eq. 1)}$$

Where:

STD = The standard specified for that pollutant in 40 CFR part 1039 or 1042, as applicable.

(d) Exhaust emissions from stationary CI ICE that are complying with the emission standards for pre-2007 model year engines in § 60.4204(a), § 60.4205(a), or § 60.4205(c) must not exceed the NTE numerical requirements, rounded to the same number of decimal places as the applicable standard in § 60.4204(a), § 60.4205(a), or § 60.4205(c), determined from the equation in paragraph (c) of this section.

Where:

STD = The standard specified for that pollutant in § 60.4204(a), § 60.4205(a), or § 60.4205(c).

Alternatively, stationary CI ICE that are complying with the emission standards for pre-2007 model year engines in § 60.4204(a), § 60.4205(a), or § 60.4205(c) may follow the testing procedures specified in § 60.4213, as appropriate.

(e) Exhaust emissions from stationary CI ICE that are complying with the emission standards for new CI engines in 40 CFR part 1042 must not exceed the NTE standards for the same model year and maximum engine power as required in 40 CFR 1042.101(c).

[71 FR 39172, July 11, 2006, as amended at 76 FR 37971, June 28, 2011; 86 FR 34359, June 29, 2021]

§ 60.4213 What test methods and other procedures must I use if I am an owner or operator of a stationary CI internal combustion engine with a displacement of greater than or equal to 30 liters per cylinder?

Owners and operators of stationary CI ICE with a displacement of greater than or equal to 30 liters per cylinder must conduct performance tests according to paragraphs (a) through (f) of this section.

(a) Each performance test must be conducted according to the requirements in § 60.8 and under the specific conditions that this subpart specifies in table 7. The test must be conducted within 10 percent of 100 percent peak (or the highest achievable) load.

(b) You may not conduct performance tests during periods of startup, shutdown, or malfunction, as specified in § 60.8(c).

(c) You must conduct three separate test runs for each performance test required in this section, as specified in § 60.8(f). Each test run must last at least 1 hour.

(d) To determine compliance with the percent reduction requirement, you must follow the requirements as specified in paragraphs (d)(1) through (3) of this section.

(1) You must use Equation 2 of this section to determine compliance with the percent reduction requirement:

$$\frac{C_i - C_o}{C_i} \times 100 = R \qquad \text{(Eq. 2)}$$

Where:

C_i = concentration of NO_X or PM at the control device inlet,

C_o = concentration of NO_X or PM at the control device outlet, and

R = percent reduction of NO_X or PM emissions.

(2) You must normalize the NO_X or PM concentrations at the inlet and outlet of the control device to a dry basis and to 15 percent oxygen (O_2) using Equation 3 of this section, or an equivalent percent carbon dioxide (CO_2) using the procedures described in paragraph (d)(3) of this section.

$$C_{adj} = C_d \frac{5.9}{20.9 - \%\ O_2} \qquad \text{(Eq. 3)}$$

Where:

C_{adj} = Calculated NO_X or PM concentration adjusted to 15 percent O_2.

C_d = Measured concentration of NO_X or PM, uncorrected.

5.9 = 20.9 percent O_2–15 percent O_2, the defined O_2 correction value, percent.

$\%O_2$ = Measured O_2 concentration, dry basis, percent.

(3) If pollutant concentrations are to be corrected to 15 percent O_2 and CO_2 concentration is measured in lieu of O_2 concentration measurement, a CO_2 correction factor is needed. Calculate the CO_2 correction factor as described in paragraphs (d)(3)(i) through (iii) of this section.

(i) Calculate the fuel-specific F_o value for the fuel burned during the test using values obtained from Method 19, Section 5.2, and the following equation:

$$F_o = \frac{0.209_{F_d}}{F_c} \qquad \text{(Eq. 4)}$$

Where:

F_o = Fuel factor based on the ratio of O_2 volume to the ultimate CO_2 volume produced by the fuel at zero percent excess air.

0.209 = Fraction of air that is O_2, percent/100.

F_d = Ratio of the volume of dry effluent gas to the gross calorific value of the fuel from Method 19, dsm^3/J ($dscf/10^6$ Btu).

F_c = Ratio of the volume of CO_2 produced to the gross calorific value of the fuel from Method 19, dsm^3/J ($dscf/10^6$ Btu).

(ii) Calculate the CO_2 correction factor for correcting measurement data to 15 percent O_2, as follows:

$$X_{CO_2} = \frac{5.9}{F_o} \qquad \text{(Eq. 5)}$$

Where:

X_{CO2} = CO_2 correction factor, percent.

5.9 = 20.9 percent O_2–15 percent O_2, the defined O_2 correction value, percent.

(iii) Calculate the NO_X and PM gas concentrations adjusted to 15 percent O_2 using CO_2 as follows:

$$C_{adj} = C_d \frac{X_{CO_2}}{\%CO_2} \qquad \text{(Eq. 6)}$$

Where:

C_{adj} = Calculated NO_X or PM concentration adjusted to 15 percent O_2.

C_d = Measured concentration of NO_X or PM, uncorrected.

$\%CO_2$ = Measured CO_2 concentration, dry basis, percent.

(e) To determine compliance with the NO_X mass per unit output emission limitation, convert the concentration of NO_X in the engine exhaust using Equation 7 of this section:

$$ER = \frac{C_d \times 1.912 \times 10^{-3} \times Q \times T}{KW\text{-}hour} \qquad (Eq.\ 7)$$

Where:

ER = Emission rate in grams per KW-hour.

C_d = Measured NO_X concentration in ppm.

$1.912x10^{-3}$ = Conversion constant for ppm NO_X to grams per standard cubic meter at 25 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meter per hour.

T = Time of test run, in hours.

KW-hour = Brake work of the engine, in KW-hour.

(f) To determine compliance with the PM mass per unit output emission limitation, convert the concentration of PM in the engine exhaust using Equation 8 of this section:

$$ER = \frac{C_{adj} \times Q \times T}{KW\text{-}hour} \qquad (Eq.\ 8)$$

Where:

ER = Emission rate in grams per KW-hour.

C_{adj} = Calculated PM concentration in grams per standard cubic meter.

Q = Stack gas volumetric flow rate, in standard cubic meter per hour.

T = Time of test run, in hours.

KW-hour = Energy output of the engine, in KW.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37971, June 28, 2011]

NOTIFICATION, REPORTS, AND RECORDS FOR OWNERS AND OPERATORS

§ 60.4214 What are my notification, reporting, and recordkeeping requirements if I am an owner or operator of a stationary CI internal combustion engine?

(a) Owners and operators of non-emergency stationary CI ICE that are greater than 2,237 KW (3,000 HP), or have a displacement of greater than or equal to 10 liters per cylinder, or are pre-2007 model year engines that are greater than 130 KW (175 HP) and not certified, must meet the requirements of paragraphs (a)(1) and (2) of this section.

(1) Submit an initial notification as required in § 60.7(a)(1). The notification must include the information in paragraphs (a)(1)(i) through (v) of this section. Beginning on February 26, 2025, submit the notification electronically according to paragraph (g) of this section.

(i) Name and address of the owner or operator;

(ii) The address of the affected source;

(iii) Engine information including make, model, engine family, serial number, model year, maximum engine power, and engine displacement;

(iv) Emission control equipment; and

(v) Fuel used.

(2) Keep records of the information in paragraphs (a)(2)(i) through (iv) of this section.

(i) All notifications submitted to comply with this subpart and all documentation supporting any notification.

(ii) Maintenance conducted on the engine.

(iii) If the stationary CI internal combustion is a certified engine, documentation from the manufacturer that the engine is certified to meet the emission standards.

(iv) If the stationary CI internal combustion is not a certified engine, documentation that the engine meets the emission standards.

(b) If the stationary CI internal combustion engine is an emergency stationary internal combustion engine, the owner or operator is not required to submit an initial notification. Starting with the model years in table 5 to this subpart, if the emergency engine does not meet the standards applicable to non-emergency engines in the applicable model year, the owner or operator must keep records of the operation of the engine in emergency and non-emergency service that are recorded through the non-resettable hour meter. The owner must record the time of operation of the engine and the reason the engine was in operation during that time.

(c) If the stationary CI internal combustion engine is equipped with a diesel particulate filter, the owner or operator must keep records of any corrective action taken after the backpressure monitor has notified the owner or operator that the high backpressure limit of the engine is approached.

(d) If you own or operate an emergency stationary CI ICE with a maximum engine power more than 100 HP that operates for the purpose specified in § 60.4211(f)(3)(i), you must submit an annual report according to the requirements in paragraphs (d)(1) through (3) of this section.

(1) The report must contain the following information:

(i) Company name and address where the engine is located.

(ii) Date of the report and beginning and ending dates of the reporting period.

(iii) Engine site rating and model year.

(iv) Latitude and longitude of the engine in decimal degrees reported to the fifth decimal place.

(v)-(vi) [Reserved]

(vii) Hours spent for operation for the purposes specified in § 60.4211(f)(3)(i), including the date, start time, and end time for engine operation for the purposes specified in § 60.4211(f)(3)(i). The report must also identify the entity that dispatched the engine and the situation that necessitated the dispatch of the engine.

(2) The first annual report must cover the calendar year 2015 and must be submitted no later than March 31, 2016. Subsequent annual reports for each calendar year must be submitted no later than March 31 of the following calendar year.

(3) The annual report must be submitted electronically using the subpart specific reporting form in the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) (*https://cdx.epa.gov/*). However, if the reporting form specific to this subpart is not available in CEDRI at the time that the report is due, the written report must be submitted to the Administrator at the appropriate address listed in § 60.4. Beginning on February 26, 2025, submit annual report electronically according to paragraph (g) of this section.

(e) Owners or operators of stationary CI ICE equipped with AECDs pursuant to the requirements of 40 CFR 1039.665 must report the use of AECDs as required by 40 CFR 1039.665(e).

(f) Beginning on February 26, 2025, within 60 days after the date of completing each performance test required by this subpart, you must submit the results of the performance test required under this section following the procedures specified in paragraphs (f)(1) and (2) of this section.

(1) ***Data collected using test methods supported by the EPA's Electronic Reporting Tool (ERT) as listed on the EPA's ERT website (https://www.epa.gov/electronic-reporting-air-emissions/electronic-reporting-tool-ert) at the time of the test.*** Submit the results of the performance test to the EPA via the Compliance and Emissions Data Reporting Interface (CEDRI), according to paragraph (g) of this section. The data must be submitted in a file format generated using the EPA's ERT. Alternatively, you may submit an electronic file consistent with the extensible markup language (XML) schema listed on the EPA's ERT website.

(2) ***Data collected using test methods that are not supported by the EPA's ERT as listed on the EPA's ERT website at the time of the test.*** The results of the performance test must be included as an attachment in the ERT or an alternate electronic file consistent with the XML schema listed on the EPA's ERT website. Submit the ERT generated package or alternative file to the EPA via CEDRI according to paragraph (g) of this section.

(g) If you are required to submit notifications or reports following the procedure specified in this paragraph (g), you must submit notifications or reports to the EPA via the Compliance and Emissions Data Reporting Interface (CEDRI), which can be accessed through the EPA's Central Data Exchange (CDX) (*https://cdx.epa.gov/*). The EPA will make all the information submitted through CEDRI available to the public without further notice to you. Do not use CEDRI to submit information you claim as CBI. Although we do not expect persons to assert a claim of CBI, if you wish to assert a CBI claim for some of the information in the report or notification, you must submit a complete file in the format specified in this subpart, including information claimed to be CBI, to the EPA following the procedures in paragraphs (g)(1) and (2) of this section. Clearly mark the part or all of the information that you claim to be CBI. Information not marked as CBI may be authorized for public release without prior notice. Information marked as CBI will not be disclosed except in accordance with procedures set forth in 40 CFR part 2. All CBI claims must be asserted at the time of submission. Anything submitted using CEDRI cannot later be claimed CBI. Furthermore, under CAA section 114(c), emissions data is not entitled to confidential treatment, and the

EPA is required to make emissions data available to the public. Thus, emissions data will not be protected as CBI and will be made publicly available. You must submit the same file submitted to the CBI office with the CBI omitted to the EPA via the EPA's CDX as described earlier in this paragraph (g).

(1) The preferred method to receive CBI is for it to be transmitted electronically using email attachments, File Transfer Protocol, or other online file sharing services. Electronic submissions must be transmitted directly to the OAQPS CBI Office at the email address *oaqpscbi@epa.gov,* and as described in paragraph (g) of this section, should include clear CBI markings. ERT files should be flagged to the attention of the Group Leader, Measurement Policy Group; all other files should be flagged to the attention of the Stationary Compression Ignition Internal Combustion Engine Sector Lead. If assistance is needed with submitting large electronic files that exceed the file size limit for email attachments, and if you do not have your own file sharing service, please email *oaqpscbi@epa.gov* to request a file transfer link.

(2) If you cannot transmit the file electronically, you may send CBI information through the postal service to the following address: OAQPS Document Control Officer (C404-02), OAQPS, U.S. Environmental Protection Agency, 109 T.W. Alexander Drive, P.O. Box 12055, Research Triangle Park, North Carolina 27711. ERT files should be sent to the attention of the Group Leader, Measurement Policy Group, and all other files should be sent to the attention of the Stationary Compression Ignition Internal Combustion Engine Sector Lead. The mailed CBI material should be double wrapped and clearly marked. Any CBI markings should not show through the outer envelope.

(h) If you are required to electronically submit a report through CEDRI in the EPA's CDX, you may assert a claim of EPA system outage for failure to timely comply with that reporting requirement. To assert a claim of EPA system outage, you must meet the requirements outlined in paragraphs (h)(1) through (7) of this section.

(1) You must have been or will be precluded from accessing CEDRI and submitting a required report within the time prescribed due to an outage of either the EPA's CEDRI or CDX systems.

(2) The outage must have occurred within the period of time beginning five business days prior to the date that the submission is due.

(3) The outage may be planned or unplanned.

(4) You must submit notification to the Administrator in writing as soon as possible following the date you first knew, or through due diligence should have known, that the event may cause or has caused a delay in reporting.

(5) You must provide to the Administrator a written description identifying:

(i) The date(s) and time(s) when CDX or CEDRI was accessed and the system was unavailable;

(ii) A rationale for attributing the delay in reporting beyond the regulatory deadline to EPA system outage;

(iii) A description of measures taken or to be taken to minimize the delay in reporting; and

(iv) The date by which you propose to report, or if you have already met the reporting requirement at the time of the notification, the date you reported.

(6) The decision to accept the claim of EPA system outage and allow an extension to the reporting deadline is solely within the discretion of the Administrator.

(7) In any circumstance, the report must be submitted electronically as soon as possible after the outage is resolved.

(i) If you are required to electronically submit a report through CEDRI in the EPA's CDX, you may assert a claim of force majeure for failure to timely comply with that reporting requirement. To assert a claim of force majeure, you must meet the requirements outlined in paragraphs (i)(1) through (5) of this section.

(1) You may submit a claim if a force majeure event is about to occur, occurs, or has occurred or there are lingering effects from such an event within the period of time beginning five business days prior to the date the submission is due. For the purposes of this section, a force majeure event is defined as an event that will be or has been caused by circumstances beyond the control of the affected facility, its contractors, or any entity controlled by the affected facility that prevents you from complying with the requirement to submit a report electronically within the time period prescribed. Examples of such events are acts of nature (*e.g.,* hurricanes, earthquakes, or floods), acts of war or terrorism, or equipment failure or safety hazard beyond the control of the affected facility (*e.g.,* large scale power outage).

(2) You must submit notification to the Administrator in writing as soon as possible following the date you first knew, or through due diligence should have known, that the event may cause or has caused a delay in reporting.

(3) You must provide to the Administrator:

(i) A written description of the force majeure event;

(ii) A rationale for attributing the delay in reporting beyond the regulatory deadline to the force majeure event;

(iii) A description of measures taken or to be taken to minimize the delay in reporting; and

(iv) The date by which you propose to report, or if you have already met the reporting requirement at the time of the notification, the date you reported.

(4) The decision to accept the claim of force majeure and allow an extension to the reporting deadline is solely within the discretion of the Administrator.

(5) In any circumstance, the reporting must occur as soon as possible after the force majeure event occurs.

(j) Any records required to be maintained by this subpart that are submitted electronically via the EPA's CEDRI may be maintained in electronic format. This ability to maintain electronic copies does not affect the requirement for facilities to make records, data, and reports available upon request to a delegated air agency or the EPA as part of an on-site compliance evaluation.

[71 FR 39172, July 11, 2006, as amended at 78 FR 6696, Jan. 30, 2013; 81 FR 44219, July 7, 2016; 87 FR 48606, Aug. 10, 2022; 89 FR 70512, Aug. 30, 2024]

Special Requirements

§ 60.4215 What requirements must I meet for engines used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands?

(a) Stationary CI ICE with a displacement of less than 30 liters per cylinder that are used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands are required to meet the applicable emission standards in §§ 60.4202 and 60.4205.

(b) Stationary CI ICE that are used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands are not required to meet the fuel requirements in § 60.4207.

(c) Stationary CI ICE with a displacement of greater than or equal to 30 liters per cylinder that are used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands are required to meet the following emission standards:

(1) For engines installed prior to January 1, 2012, limit the emissions of NO_X in the stationary CI internal combustion engine exhaust to the following:

(i) 17.0 g/KW-hr (12.7 g/HP-hr) when maximum engine speed is less than 130 rpm;

(ii) $45 \cdot n^{-0.2}$ g/KW-hr ($34 \cdot n^{-0.2}$ g/HP-hr) when maximum engine speed is 130 or more but less than 2,000 rpm, where n is maximum engine speed; and

(iii) 9.8 g/KW-hr (7.3 g/HP-hr) when maximum engine speed is 2,000 rpm or more.

(2) For engines installed on or after January 1, 2012, limit the emissions of NO_X in the stationary CI internal combustion engine exhaust to the following:

(i) 14.4 g/KW-hr (10.7 g/HP-hr) when maximum engine speed is less than 130 rpm;

(ii) $44 \cdot n^{-0.23}$ g/KW-hr ($33 \cdot n^{-0.23}$ g/HP-hr) when maximum engine speed is greater than or equal to 130 but less than 2,000 rpm and where n is maximum engine speed; and

(iii) 7.7 g/KW-hr (5.7 g/HP-hr) when maximum engine speed is greater than or equal to 2,000 rpm.

(3) Limit the emissions of PM in the stationary CI internal combustion engine exhaust to 0.40 g/KW-hr (0.30 g/HP-hr).

[71 FR 39172, July 11, 2006, as amended at 76 FR 37971, June 28, 2011]

§ 60.4216 What requirements must I meet for engines used in Alaska?

(a) Prior to December 1, 2010, owners and operators of stationary CI ICE with a displacement of less than 30 liters per cylinder located in areas of Alaska not accessible by the FAHS should refer to 40 CFR part 69 to determine the diesel fuel requirements applicable to such engines.

(b) Except as indicated in paragraph (c) of this section, manufacturers, owners and operators of stationary CI ICE with a displacement of less than 10 liters per cylinder located in remote areas of Alaska may meet the requirements of this subpart by manufacturing and installing engines meeting the Tier 2 or Tier 3 emission standards described in 40 CFR part 1042 for the same model year, displacement, and maximum engine power, as appropriate, rather than the otherwise applicable requirements of 40 CFR part 1039, as indicated in §§ 60.4201(f) and 60.4202(g).

(c) Manufacturers, owners, and operators of stationary CI ICE that are located in remote areas of Alaska may choose to meet the applicable emission standards for emergency engines in §§ 60.4202 and 60.4205, and not those for non-emergency engines in §§ 60.4201 and 60.4204, except that for 2014 model year and later nonemergency CI ICE, the owner or operator of any such engine must have that engine certified as meeting at least the Tier 3 PM standards identified in appendix I of 40 CFR part 1039 or in 40 CFR 1042.101.

(d) The provisions of § 60.4207 do not apply to owners and operators of pre-2014 model year stationary CI ICE subject to this subpart that are located in remote areas of Alaska.

(e) The provisions of § 60.4208(a) do not apply to owners and operators of stationary CI ICE subject to this subpart that are located in areas of Alaska not accessible by the FAHS until after December 31, 2009.

(f) The provisions of this section and § 60.4207 do not prevent owners and operators of stationary CI ICE subject to this subpart that are located in remote areas of Alaska from using fuels mixed with used lubricating oil, in volumes of up to 1.75 percent of the total fuel. The sulfur content of the used lubricating oil must be less than 200 parts per million. The used lubricating oil must meet the on-specification levels and properties for used oil in 40 CFR 279.11.

[76 FR 37971, June 28, 2011, as amended at 81 FR 44219, July 7, 2016; 86 FR 34359, June 29, 2021]

§ 60.4217 What emission standards must I meet if I am an owner or operator of a stationary internal combustion engine using special fuels?

Owners and operators of stationary CI ICE that do not use diesel fuel may petition the Administrator for approval of alternative emission standards, if they can demonstrate that they use a fuel that is not the fuel on which the manufacturer of the engine certified the engine and that the engine cannot meet the applicable standards required in § 60.4204 or § 60.4205 using such fuels and that use of such fuel is appropriate and reasonably necessary, considering cost, energy, technical feasibility, human health and environmental, and other factors, for the operation of the engine.

[76 FR 37972, June 28, 2011]

General Provisions

§ 60.4218 What General Provisions and confidential information provisions apply to me?

(a) Table 8 to this subpart shows which parts of the General Provisions in §§ 60.1 through 60.19 apply to you.

(b) The provisions of 40 CFR 1068.10 and 1068.11 apply for engine manufacturers. For others, the general confidential business information (CBI) provisions apply as described in 40 CFR part 2.

[88 FR 4471, Jan. 24, 2023]

Definitions

§ 60.4219 What definitions apply to this subpart?

As used in this subpart, all terms not defined herein shall have the meaning given them in the CAA and in subpart A of this part.

Alaska Railbelt Grid means the service areas of the six regulated public utilities that extend from Fairbanks to Anchorage and the Kenai Peninsula. These utilities are Golden Valley Electric Association; Chugach Electric Association; Matanuska Electric Association; Homer Electric Association; Anchorage Municipal Light & Power; and the City of Seward Electric System.

Certified emissions life means the period during which the engine is designed to properly function in terms of reliability and fuel consumption, without being remanufactured, specified as a number of hours of operation or calendar years, whichever comes first. The values for certified emissions life for stationary CI ICE with a displacement of less than 10 liters per cylinder are given in 40 CFR 1039.101(g). The values for certified emissions life for stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder are given in 40 CFR 1042.101(e).

Combustion turbine means all equipment, including but not limited to the turbine, the fuel, air, lubrication and exhaust gas systems, control systems (except emissions control equipment), and any ancillary components and sub-components comprising any simple cycle combustion turbine, any regenerative/recuperative cycle combustion turbine, the combustion turbine portion of any cogeneration cycle combustion system, or the combustion turbine portion of any combined cycle steam/electric generating system.

Compression ignition means relating to a type of stationary internal combustion engine that is not a spark ignition engine.

Date of manufacture means one of the following things:

(1) For freshly manufactured engines and modified engines, date of manufacture means the date the engine is originally produced.

(2) For reconstructed engines, date of manufacture means the date the engine was originally produced, except as specified in paragraph (3) of this definition.

(3) Reconstructed engines are assigned a new date of manufacture if the fixed capital cost of the new and refurbished components exceeds 75 percent of the fixed capital cost of a comparable entirely new facility. An engine that is produced from a previously used engine block does not retain the date of manufacture of the engine in which the engine block was previously used if the engine is produced using all new components except for the engine block. In these cases, the date of manufacture is the date of reconstruction or the date the new engine is produced.

Diesel fuel means any liquid obtained from the distillation of petroleum with a boiling point of approximately 150 to 360 degrees Celsius. One commonly used form is number 2 distillate oil.

Diesel particulate filter means an emission control technology that reduces PM emissions by trapping the particles in a flow filter substrate and periodically removes the collected particles by either physical action or by oxidizing (burning off) the particles in a process called regeneration.

Emergency stationary internal combustion engine means any stationary reciprocating internal combustion engine that meets all of the criteria in paragraphs (1) through (3) of this definition. All emergency stationary ICE must comply with the requirements specified in § 60.4211(f) in order to be considered emergency stationary ICE. If the engine does not comply with the requirements specified in § 60.4211(f), then it is not considered to be an emergency stationary ICE under this subpart.

(1) The stationary ICE is operated to provide electrical power or mechanical work during an emergency situation. Examples include stationary ICE used to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility (or the normal power source, if the facility runs on its own power production) is interrupted, or stationary ICE used to pump water in the case of fire or flood, etc.

(2) The stationary ICE is operated under limited circumstances for situations not included in paragraph (1) of this definition, as specified in § 60.4211(f).

(3) The stationary ICE operates as part of a financial arrangement with another entity in situations not included in paragraph (1) of this definition only as allowed in § 60.4211(f)(3)(i).

Engine manufacturer means the manufacturer of the engine. See the definition of "manufacturer" in this section.

Fire pump engine means an emergency stationary internal combustion engine certified to NFPA requirements that is used to provide power to pump water for fire suppression or protection.

Freshly manufactured engine means an engine that has not been placed into service. An engine becomes freshly manufactured when it is originally produced.

Installed means the engine is placed and secured at the location where it is intended to be operated.

Manufacturer has the meaning given in section 216(1) of the Act. In general, this term includes any person who manufactures a stationary engine for sale in the United States or otherwise introduces a new stationary engine into commerce in the United States. This includes importers who import stationary engines for sale or resale.

Maximum engine power means maximum engine power as defined in 40 CFR 1039.801.

Model year means the calendar year in which an engine is manufactured (see "date of manufacture"), except as follows:

(1) Model year means the annual new model production period of the engine manufacturer in which an engine is manufactured (see "date of manufacture"), if the annual new model production period is different than the calendar year and includes January 1 of the calendar year for which the model year is named. It may not begin before January 2 of the previous calendar year and it must end by December 31 of the named calendar year.

(2) For an engine that is converted to a stationary engine after being placed into service as a nonroad or other non-stationary engine, model year means the calendar year or new model production period in which the engine was manufactured (see "date of manufacture").

Other internal combustion engine means any internal combustion engine, except combustion turbines, which is not a reciprocating internal combustion engine or rotary internal combustion engine.

Reciprocating internal combustion engine means any internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work.

Remote areas of Alaska means areas of Alaska that meet either paragraph (1) or (2) of this definition.

(1) Areas of Alaska that are not accessible by the Federal Aid Highway System (FAHS).

(2) Areas of Alaska that meet all of the following criteria:

(i) The only connection to the FAHS is through the Alaska Marine Highway System, or the stationary CI ICE operation is within an isolated grid in Alaska that is not connected to the statewide electrical grid referred to as the Alaska Railbelt Grid.

(ii) At least 10 percent of the power generated by the stationary CI ICE on an annual basis is used for residential purposes.

(iii) The generating capacity of the source is less than 12 megawatts, or the stationary CI ICE is used exclusively for backup power for renewable energy.

Rotary internal combustion engine means any internal combustion engine which uses rotary motion to convert heat energy into mechanical work.

Spark ignition means relating to a gasoline, natural gas, or liquefied petroleum gas fueled engine or any other type of engine with a spark plug (or other sparking device) and with operating characteristics significantly similar to the theoretical Otto combustion cycle. Spark ignition engines usually use a throttle to regulate intake air flow to control power during normal operation. Dual-fuel engines in which a liquid fuel (typically diesel fuel) is used for CI and gaseous fuel (typically natural gas) is used as the primary fuel at an annual average ratio of less than 2 parts diesel fuel to 100 parts total fuel on an energy equivalent basis are spark ignition engines.

Stationary internal combustion engine means any internal combustion engine, except combustion turbines, that converts heat energy into mechanical work and is not mobile. Stationary ICE differ from mobile ICE in that a stationary internal combustion engine is not a nonroad engine as defined at 40 CFR 1068.30 (excluding paragraph (2)(ii) of that definition), and is not used to propel a motor vehicle, aircraft, or a vehicle used solely for competition. Stationary ICE include reciprocating ICE, rotary ICE, and other ICE, except combustion turbines.

Subpart means 40 CFR part 60, subpart IIII.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37972, June 28, 2011; 78 FR 6696, Jan. 30, 2013; 81 FR 44219, July 7, 2016; 86 FR 34360, June 29, 2021; 87 FR 48606, Aug. 10, 2022]

Table 1 to Subpart IIII of Part 60—Emission Standards for Stationary Pre-2007 Model Year Engines With a Displacement of <10 Liters per Cylinder and 2007-2010 Model Year Engines >2,237 KW (3,000 HP) and With a Displacement of <10 Liters per Cylinder

[As stated in §§ 60.4201(b), 60.4202(b), 60.4204(a), and 60.4205(a), you must comply with the following emission standards]

Maximum engine power	Emission standards for stationary pre-2007 model year engines with a displacement of <10 liters per cylinder and 2007-2010 model year engines >2,237 KW (3,000 HP) and with a displacement of <10 liters per cylinder in g/KW-hr (g/HP-hr)				
	NMHC + NO_X	HC	NO_X	CO	PM
KW<8	10.5 (7.8)			8.0 (6.0)	1.0 (0.75)

Maximum engine power	Emission standards for stationary pre-2007 model year engines with a displacement of <10 liters per cylinder and 2007-2010 model year engines >2,237 KW (3,000 HP) and with a displacement of <10 liters per cylinder in g/KW-hr (g/HP-hr)				
	NMHC + NO_X	HC	NO_X	CO	PM
(HP<11)					
8≤KW<19 (11≤HP<25)	9.5 (7.1)			6.6 (4.9)	0.80 (0.60)
19≤KW<37 (25≤HP<50)	9.5 (7.1)			5.5 (4.1)	0.80 (0.60)
37≤KW<56 (50≤HP<75)			9.2 (6.9)		
56≤KW<75 (75≤HP<100)			9.2 (6.9)		
75≤KW<130 (100≤HP<175)			9.2 (6.9)		
130≤KW<225 (175≤HP<300)		1.3 (1.0)	9.2 (6.9)	11.4 (8.5)	0.54 (0.40)
225≤KW<450 (300≤HP<600)		1.3 (1.0)	9.2 (6.9)	11.4 (8.5)	0.54 (0.40)
450≤KW≤560 (600≤HP≤750)		1.3 (1.0)	9.2 (6.9)	11.4 (8.5)	0.54 (0.40)
KW>560 (HP>750)		1.3 (1.0)	9.2 (6.9)	11.4 (8.5)	0.54 (0.40)

Table 2 to Subpart IIII of Part 60—Emission Standards for 2008 Model Year and Later Emergency Stationary CI ICE <37 KW (50 HP) With a Displacement of <10 Liters per Cylinder

[As stated in § 60.4202(a)(1), you must comply with the following emission standards]

Engine power	Emission standards for 2008 model year and later emergency stationary CI ICE <37 KW (50 HP) with a displacement of <10 liters per cylinder in g/KW-hr (g/HP-hr)			
	Model year(s)	NO_X + NMHC	CO	PM
KW<8 (HP<11)	2008 +	7.5 (5.6)	8.0 (6.0)	0.40 (0.30)
8≤KW<19 (11≤HP<25)	2008 +	7.5 (5.6)	6.6 (4.9)	0.40 (0.30)

Engine power	Emission standards for 2008 model year and later emergency stationary CI ICE <37 KW (50 HP) with a displacement of <10 liters per cylinder in g/KW-hr (g/HP-hr)			
	Model year(s)	NO_X + NMHC	CO	PM
19≤KW<37 (25≤HP<50)	2008 +	7.5 (5.6)	5.5 (4.1)	0.30 (0.22)

Table 3 to Subpart IIII of Part 60—Certification Requirements for Stationary Fire Pump Engines

As stated in § 60.4202(d), you must certify new stationary fire pump engines beginning with the following model years:

Engine power	Starting model year engine manufacturers must certify new stationary fire pump engines according to § 60.4202(d)[1]
KW<75 (HP<100)	2011
75≤KW<130 (100≤HP<175)	2010
130≤KW≤560 (175≤HP≤750)	2009
KW>560 (HP>750)	2008

[1] Manufacturers of fire pump stationary CI ICE with a maximum engine power greater than or equal to 37 kW (50 HP) and less than 450 KW (600 HP) and a rated speed of greater than 2,650 revolutions per minute (rpm) are not required to certify such engines until three model years following the model year indicated in this Table 3 for engines in the applicable engine power category.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37972, June 28, 2011]

Table 4 to Subpart IIII of Part 60—Emission Standards for Stationary Fire Pump Engines

[As stated in §§ 60.4202(d) and 60.4205(c), you must comply with the following emission standards for stationary fire pump engines]

Maximum engine power	Model year(s)	Emission standards for stationary fire pump engines in g/KW-hr (g/HP-hr)		
		NMHC + NO_X	CO	PM
KW<8 (HP<11)	2010 and earlier	10.5 (7.8)	8.0 (6.0)	1.0 (0.75)
KW<8 (HP<11)	2011 +	7.5 (5.6)	8.0 (6.0)	0.40 (0.30)
8≤KW<19 (11≤HP<25)	2010 and earlier	9.5 (7.1)	6.6 (4.9)	0.80 (0.60)
8≤KW<19 (11≤HP<25)	2011 +	7.5 (5.6)	6.6 (4.9)	0.40 (0.30)
19≤KW<37 (25≤HP<50)	2010 and earlier	9.5 (7.1)	5.5 (4.1)	0.80 (0.60)
19≤KW<37 (25≤HP<50)	2011 +	7.5 (5.6)	5.5 (4.1)	0.30 (0.22)
37≤KW<56 (50≤HP<75)	2010 and earlier	10.5 (7.8)	5.0 (3.7)	0.80 (0.60)
37≤KW<56 (50≤HP<75)	2011 + [1]	4.7 (3.5)	5.0 (3.7)	0.40 (0.30)
56≤KW<75 (75≤HP<100)	2010 and earlier	10.5 (7.8)	5.0 (3.7)	0.80 (0.60)
56≤KW<75 (75≤HP<100)	2011 + [1]	4.7 (3.5)	5.0 (3.7)	0.40 (0.30)
75≤KW<130 (100≤HP<175)	2009 and earlier	10.5 (7.8)	5.0 (3.7)	0.80 (0.60)
75≤KW<130 (100≤HP<175)	2010 + [2]	4.0 (3.0)	5.0 (3.7)	0.30 (0.22)
130≤KW<225 (175≤HP<300)	2008 and earlier	10.5 (7.8)	3.5 (2.6)	0.54 (0.40)
130≤KW<225 (175≤HP<300)	2009 + [3]	4.0 (3.0)	3.5 (2.6)	0.20 (0.15)
225≤KW<450	2008 and	10.5 (7.8)	3.5 (2.6)	0.54 (0.40)

[1] For model years 2011-2013, manufacturers, owners and operators of fire pump stationary CI ICE in this engine power category with a rated speed of greater than 2,650 revolutions per minute (rpm) may comply with the emission limitations for 2010 model year engines.

[2] For model years 2010-2012, manufacturers, owners and operators of fire pump stationary CI ICE in this engine power category with a rated speed of greater than 2,650 rpm may comply with the emission limitations for 2009 model year engines.

[3] In model years 2009-2011, manufacturers of fire pump stationary CI ICE in this engine power category with a rated speed of greater than 2,650 rpm may comply with the emission limitations for 2008 model year engines.

Maximum engine power	Model year(s)	Emission standards for stationary fire pump engines in g/KW-hr (g/HP-hr)		
		NMHC + NO_X	CO	PM
(300≤HP<600)	earlier			
225≤KW<450 (300≤HP<600)	2009 + [3]	4.0 (3.0)	3.5 (2.6)	0.20 (0.15)
450≤KW≤560 (600≤HP≤750)	2008 and earlier	10.5 (7.8)	3.5 (2.6)	0.54 (0.40)
450≤KW≤560 (600≤HP≤750)	2009 +	4.0 (3.0)	3.5 (2.6)	0.20 (0.15)
KW>560 (HP>750)	2007 and earlier	10.5 (7.8)	3.5 (2.6)	0.54 (0.40)
KW>560 (HP>750)	2008 +	6.4 (4.8)	3.5 (2.6)	0.20 (0.15)

[1] For model years 2011-2013, manufacturers, owners and operators of fire pump stationary CI ICE in this engine power category with a rated speed of greater than 2,650 revolutions per minute (rpm) may comply with the emission limitations for 2010 model year engines.

[2] For model years 2010-2012, manufacturers, owners and operators of fire pump stationary CI ICE in this engine power category with a rated speed of greater than 2,650 rpm may comply with the emission limitations for 2009 model year engines.

[3] In model years 2009-2011, manufacturers of fire pump stationary CI ICE in this engine power category with a rated speed of greater than 2,650 rpm may comply with the emission limitations for 2008 model year engines.

[89 FR 70513, Aug. 30, 2024]

Table 5 to Subpart IIII of Part 60—Labeling and Recordkeeping Requirements for New Stationary Emergency Engines

[You must comply with the labeling requirements in § 60.4210(f) and the recordkeeping requirements in § 60.4214(b) for new emergency stationary CI ICE beginning in the following model years:]

Engine power	Starting model year
19≤KW<56 (25≤HP<75)	2013
56≤KW<130 (75≤HP<175)	2012
KW≥130 (HP≥175)	2011

Table 6 to Subpart IIII of Part 60—Optional 3-Mode Test Cycle for Stationary Fire Pump Engines

[As stated in § 60.4210(g), manufacturers of fire pump engines may use the following test cycle for testing fire pump engines:]

Mode No.	Engine speed [1]	Torque (percent) [2]	Weighting factors
1	Rated	100	0.30
2	Rated	75	0.50
3	Rated	50	0.20

[1] *Engine speed: ±2 percent of point.*

[2] *Torque: NFPA certified nameplate HP for 100 percent point. All points should be ±2 percent of engine percent load value.*

Table 7 to Subpart IIII of Part 60—Requirements for Performance Tests for Stationary CI ICE With a Displacement of ≥30 Liters per Cylinder

As stated in § 60.4213, you must comply with the following requirements for performance tests for stationary CI ICE with a displacement of ≥30 liters per cylinder:

Each	Complying with the requirement to	You must	Using	According to the following requirements
1. Stationary CI internal combustion engine with a displacement of ≥ 30 liters per cylinder	a. Reduce NO_X emissions by 90 percent or more;	i. Select the sampling port location and number/ location of traverse points at the inlet and outlet of the control device;		(a) For NO_X, O_2, and moisture measurement, ducts ≤6 inches in diameter may be sampled at a single point located at the duct centroid and ducts >6 and ≤12 inches in diameter may be sampled at 3 traverse points located at 16.7, 50.0, and 83.3% of the measurement line ('3-point long line'). If the duct is >12 inches in diameter *and* the sampling port location meets the two and half-diameter criterion of Section 11.1.1 of Method 1 of 40 CFR part 60, appendix A-1, the duct may be sampled at '3-point long line'; otherwise, conduct the stratification

Each	Complying with the requirement to	You must	Using	According to the following requirements
				testing and select sampling points according to Section 8.1.2 of Method 7E of 40 CFR part 60, appendix A-4.
		ii. Measure O_2 at the inlet and outlet of the control device;	(1) Method 3, 3A, or 3B of 40 CFR part 60, appendix A-2	(b) Measurements to determine O_2 concentration must be made at the same time as the measurements for NO_X concentration.
		iii. If necessary, measure moisture content at the inlet and outlet of the control device; and	(2) Method 4 of 40 CFR part 60, appendix A-3, Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03 (incorporated by reference, see § 60.17)	(c) Measurements to determine moisture content must be made at the same time as the measurements for NO_X concentration.
		iv. Measure NO_X at the inlet and outlet of the control device.	(3) Method 7E of 40 CFR part 60, appendix A-4, Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03 (incorporated by reference, see § 60.17)	(d) NO_X concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.
	b. Limit the concentration of NO_X in the stationary CI internal combustion	i. Select the sampling port location and number/ location of traverse		(a) For NO_X, O_2, and moisture measurement, ducts ≤6 inches in diameter may be sampled at a single point located at the duct centroid and ducts >6 and ≤12 inches in diameter may be sampled at 3

Each	Complying with the requirement to	You must	Using	According to the following requirements
	engine exhaust.	points at the exhaust of the stationary internal combustion engine;		traverse points located at 16.7, 50.0, and 83.3% of the measurement line ('3-point long line'). If the duct is >12 inches in diameter *and* the sampling port location meets the two and half-diameter criterion of Section 11.1.1 of Method 1 of 40 CFR part 60, appendix A-1, the duct may be sampled at '3-point long line'; otherwise, conduct the stratification testing and select sampling points according to Section 8.1.2 of Method 7E of 40 CFR part 60, appendix A-4.
		ii. Determine the O_2 concentration of the stationary internal combustion engine exhaust at the sampling port location;	(1) Method 3, 3A, or 3B of 40 CFR part 60, appendix A-2	(b) Measurements to determine O_2 concentration must be made at the same time as the measurement for NO_X concentration.
		iii. If necessary, measure moisture content of the stationary internal combustion engine exhaust at the sampling port location; and	(2) Method 4 of 40 CFR part 60, appendix A-3, Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03 (incorporated by reference, see § 60.17)	(c) Measurements to determine moisture content must be made at the same time as the measurement for NO_X concentration.
		iv. Measure NO_X at the exhaust of	(3) Method 7E of 40 CFR part 60,	(d) NO_X concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the

Each	Complying with the requirement to	You must	Using	According to the following requirements
		the stationary internal combustion engine; if using a control device, the sampling site must be located at the outlet of the control device.	appendix A-4, Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03 (incorporated by reference, see § 60.17)	three 1-hour or longer runs.
	c. Reduce PM emissions by 60 percent or more	i. Select the sampling port location and the number of traverse points;	(1) Method 1 or 1A of 40 CFR part 60, appendix A-1	(a) Sampling sites must be located at the inlet and outlet of the control device.
		ii. Measure O_2 at the inlet and outlet of the control device;	(2) Method 3, 3A, or 3B of 40 CFR part 60, appendix A-2	(b) Measurements to determine O_2 concentration must be made at the same time as the measurements for PM concentration.
		iii. If necessary, measure moisture content at the inlet and outlet of the control device; and	(3) Method 4 of 40 CFR part 60, appendix A-3	(c) Measurements to determine and moisture content must be made at the same time as the measurements for PM concentration.
		iv. Measure PM at the inlet and outlet of the control device.	(4) Method 5 of 40 CFR part 60, appendix A-3	(d) PM concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.
	d. Limit the	i. Select the	(1) Method 1	(a) If using a control device, the

Each	Complying with the requirement to	You must	Using	According to the following requirements
	concentration of PM in the stationary CI internal combustion engine exhaust	sampling port location and the number of traverse points;	or 1A of 40 CFR part 60, appendix A-1	sampling site must be located at the outlet of the control device.
		ii. Determine the O_2 concentration of the stationary internal combustion engine exhaust at the sampling port location;	(2) Method 3, 3A, or 3B of 40 CFR part 60, appendix A-2	(b) Measurements to determine O_2 concentration must be made at the same time as the measurements for PM concentration.
		iii. If necessary, measure moisture content of the stationary internal combustion engine exhaust at the sampling port location; and	(3) Method 4 of 40 CFR part 60, appendix A-3	(c) Measurements to determine moisture content must be made at the same time as the measurements for PM concentration.
		iv. Measure PM at the exhaust of the stationary internal combustion engine.	(4) Method 5 of 40 CFR part 60, appendix A-3	(d) PM concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.

[79 FR 11251, Feb. 27, 2014]

Table 8 to Subpart IIII of Part 60—Applicability of General Provisions to Subpart IIII

[As stated in § 60.4218, you must comply with the following applicable General Provisions:]

General Provisions citation	Subject of citation	Applies to subpart	Explanation
§ 60.1	General applicability of the General Provisions	Yes	
§ 60.2	Definitions	Yes	Additional terms defined in § 60.4219.
§ 60.3	Units and abbreviations	Yes	
§ 60.4	Address	Yes	
§ 60.5	Determination of construction or modification	Yes	
§ 60.6	Review of plans	Yes	
§ 60.7	Notification and Recordkeeping	Yes	Except that § 60.7 only applies as specified in § 60.4214(a).
§ 60.8	Performance tests	Yes	Except that § 60.8 only applies to stationary CI ICE with a displacement of (≥30 liters per cylinder and engines that are not certified.
§ 60.9	Availability of information	Yes	
§ 60.10	State Authority	Yes	
§ 60.11	Compliance with standards and maintenance requirements	No	Requirements are specified in subpart IIII.
§ 60.12	Circumvention	Yes	
§ 60.13	Monitoring requirements	Yes	Except that § 60.13 only applies to stationary CI ICE with a displacement of (≥30 liters per cylinder.
§ 60.14	Modification	Yes	
§ 60.15	Reconstruction	Yes	
§ 60.16	Priority list	Yes	
§ 60.17	Incorporations by reference	Yes	
§ 60.18	General control device requirements	No	
§ 60.19	General notification and reporting	Yes	

General Provisions citation	Subject of citation	Applies to subpart	Explanation
	requirements		

Attachment D

40 CFR 63, Subpart A and Subpart ZZZZ Highlighted Requirements

This content is from the eCFR and is authoritative but unofficial.

Following 40 CFR Part 63 Subpart ZZZZ for new emergency generators at area sources, there are no applicable requirements under Subpart ZZZZ because the units are subject to 40 CFR Part 60 Subpart IIII NSPS requirements (63.6590(c)(1)). Therefore, there are no provisions under 40 CFR Part 63 Subpart A to highlight. Only the first page of 40 CFR Part 63 Subpart A has been included.

Title 40 —Protection of Environment
Chapter I —Environmental Protection Agency
Subchapter C —Air Programs
Part 63 —National Emission Standards for Hazardous Air Pollutants for Source Categories

Authority: 42 U.S.C. 7401 *et seq.*

Source: 57 FR 61992, Dec. 29, 1992, unless otherwise noted.

Subpart A General Provisions

§ 63.1 Applicability.
§ 63.2 Definitions.
§ 63.3 Units and abbreviations.
§ 63.4 Prohibited activities and circumvention.
§ 63.5 Preconstruction review and notification requirements.
§ 63.6 Compliance with standards and maintenance requirements.
§ 63.7 Performance testing requirements.
§ 63.8 Monitoring requirements.
§ 63.9 Notification requirements.
§ 63.10 Recordkeeping and reporting requirements.
§ 63.11 Control device and work practice requirements.
§ 63.12 State authority and delegations.
§ 63.13 Addresses of State air pollution control agencies and EPA Regional Offices.
§ 63.14 Incorporations by reference.
§ 63.15 Availability of information and confidentiality.
§ 63.16 Performance Track Provisions.

Table 1 to Subpart A of Part 63
Detection Sensitivity Levels (grams per hour)

Subpart A—General Provisions

Source: 59 FR 12430, Mar. 16, 1994, unless otherwise noted.

§ 63.1 Applicability.

(a) ***General.***

(1) Terms used throughout this part are defined in § 63.2 or in the Clean Air Act (Act) as amended in 1990, except that individual subparts of this part may include specific definitions in addition to or that supersede definitions in § 63.2.

This content is from the eCFR and is authoritative but unofficial.

Title 40 —Protection of Environment
Chapter I —Environmental Protection Agency
Subchapter C —Air Programs
Part 63 —National Emission Standards for Hazardous Air Pollutants for Source Categories

Authority: 42 U.S.C. 7401 *et seq.*

Source: 57 FR 61992, Dec. 29, 1992, unless otherwise noted.

Subpart ZZZZ National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

What This Subpart Covers

§ 63.6580 What is the purpose of subpart ZZZZ?

§ 63.6585 Am I subject to this subpart?

§ 63.6590 What parts of my plant does this subpart cover?

§ 63.6595 When do I have to comply with this subpart?

Emission and Operating Limitations

§ 63.6600 What emission limitations and operating limitations must I meet if I own or operate a stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions?

§ 63.6601 What emission limitations must I meet if I own or operate a new or reconstructed 4SLB stationary RICE with a site rating of greater than or equal to 250 brake HP and less than or equal to 500 brake HP located at a major source of HAP emissions?

§ 63.6602 What emission limitations and other requirements must I meet if I own or operate an existing stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions?

§ 63.6603 What emission limitations, operating limitations, and other requirements must I meet if I own or operate an existing stationary RICE located at an area source of HAP emissions?

§ 63.6604 What fuel requirements must I meet if I own or operate a stationary CI RICE?

General Compliance Requirements

§ 63.6605 What are my general requirements for complying with this subpart?

Testing and Initial Compliance Requirements

§ 63.6610 By what date must I conduct the initial performance tests or other initial compliance demonstrations if I own or operate a stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions?

§ 63.6611 By what date must I conduct the initial performance tests or other initial compliance demonstrations if I own or operate a new or reconstructed 4SLB SI stationary RICE with a site rating of greater than or equal to 250 and less than or equal to 500 brake HP located at a major source of HAP emissions?

§ 63.6612 By what date must I conduct the initial performance tests or other initial compliance demonstrations if I own or operate an existing stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions or an existing stationary RICE located at an area source of HAP emissions?
§ 63.6615 When must I conduct subsequent performance tests?
§ 63.6620 What performance tests and other procedures must I use?
§ 63.6625 What are my monitoring, installation, collection, operation, and maintenance requirements?
§ 63.6630 How do I demonstrate initial compliance with the emission limitations, operating limitations, and other requirements?
Continuous Compliance Requirements
§ 63.6635 How do I monitor and collect data to demonstrate continuous compliance?
§ 63.6640 How do I demonstrate continuous compliance with the emission limitations, operating limitations, and other requirements?
Notifications, Reports, and Records
§ 63.6645 What notifications must I submit and when?
§ 63.6650 What reports must I submit and when?
§ 63.6655 What records must I keep?
§ 63.6660 In what form and how long must I keep my records?
Other Requirements and Information
§ 63.6665 What parts of the General Provisions apply to me?
§ 63.6670 Who implements and enforces this subpart?
§ 63.6675 What definitions apply to this subpart?
Table 1a to Subpart ZZZZ of Part 63
Emission Limitations for Existing, New, and Reconstructed Spark Ignition, 4SRB Stationary RICE >500 HP Located at a Major Source of HAP Emissions
Table 1b to Subpart ZZZZ of Part 63
Operating Limitations for Existing, New, and Reconstructed SI 4SRB Stationary RICE >500 HP Located at a Major Source of HAP Emissions
Table 2a to Subpart ZZZZ of Part 63
Emission Limitations for New and Reconstructed 2SLB and Compression Ignition Stationary RICE >500 HP and New and Reconstructed 4SLB Stationary RICE ≥250 HP Located at a Major Source of HAP Emissions
Table 2b to Subpart ZZZZ of Part 63
Operating Limitations for New and Reconstructed 2SLB and CI

Stationary RICE >500 HP Located at a Major Source of HAP Emissions, New and Reconstructed 4SLB Stationary RICE ≥250 HP Located at a Major Source of HAP Emissions, Existing CI Stationary RICE >500 HP

Table 2c to Subpart ZZZZ of Part 63

Requirements for Existing Compression Ignition Stationary RICE Located at a Major Source of HAP Emissions and Existing Spark Ignition Stationary RICE ≤500 HP Located at a Major Source of HAP Emissions

Table 2d to Subpart ZZZZ of Part 63

Requirements for Existing Stationary RICE Located at Area Sources of HAP Emissions

Table 3 to Subpart ZZZZ of Part 63

Subsequent Performance Tests

Table 4 to Subpart ZZZZ of Part 63

Requirements for Performance Tests

Table 5 to Subpart ZZZZ of Part 63

Initial Compliance With Emission Limitations, Operating Limitations, and Other Requirements

Table 6 to Subpart ZZZZ of Part 63

Continuous Compliance With Emission Limitations, and Other Requirements

Table 7 to Subpart ZZZZ of Part 63

Requirements for Reports

Table 8 to Subpart ZZZZ of Part 63

Applicability of General Provisions to Subpart ZZZZ

Appendix A to Subpart ZZZZ of Part 63

Protocol for Using an Electrochemical Analyzer to Determine Oxygen and Carbon Monoxide Concentrations From Certain Engines

Subpart ZZZZ—National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

Source: 69 FR 33506, June 15, 2004, unless otherwise noted.

What This Subpart Covers

§ 63.6580 What is the purpose of subpart ZZZZ?

Subpart ZZZZ establishes national emission limitations and operating limitations for hazardous air pollutants (HAP) emitted from stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and operating limitations.

[73 FR 3603, Jan. 18, 2008]

§ 63.6585 Am I subject to this subpart?

You are subject to this subpart if you own or operate a stationary RICE at a major or area source of HAP emissions, except if the stationary RICE is being tested at a stationary RICE test cell/stand.

(a) A stationary RICE is any internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work and which is not mobile. Stationary RICE differ from mobile RICE in that a stationary RICE is not a non-road engine as defined at 40 CFR 1068.30, and is not used to propel a motor vehicle or a vehicle used solely for competition.

(b) A major source of HAP emissions is a plant site that emits or has the potential to emit any single HAP at a rate of 10 tons (9.07 megagrams) or more per year or any combination of HAP at a rate of 25 tons (22.68 megagrams) or more per year, except that for oil and gas production facilities, a major source of HAP emissions is determined for each surface site.

(c) An area source of HAP emissions is a source that is not a major source.

(d) If you are an owner or operator of an area source subject to this subpart, your status as an entity subject to a standard or other requirements under this subpart does not subject you to the obligation to obtain a permit under 40 CFR part 70 or 71, provided you are not required to obtain a permit under 40 CFR 70.3(a) or 40 CFR 71.3(a) for a reason other than your status as an area source under this subpart. Notwithstanding the previous sentence, you must continue to comply with the provisions of this subpart as applicable.

(e) If you are an owner or operator of a stationary RICE used for national security purposes, you may be eligible to request an exemption from the requirements of this subpart as described in 40 CFR part 1068, subpart C.

(f) The emergency stationary RICE listed in paragraphs (f)(1) through (3) of this section are not subject to this subpart. The stationary RICE must meet the definition of an emergency stationary RICE in § 63.6675, which includes operating according to the provisions specified in § 63.6640(f).

(1) Existing residential emergency stationary RICE located at an area source of HAP emissions that do not operate for the purpose specified in § 63.6640(f)(4)(ii).

(2) Existing commercial emergency stationary RICE located at an area source of HAP emissions that do not operate for the purpose specified in § 63.6640(f)(4)(ii).

(3) Existing institutional emergency stationary RICE located at an area source of HAP emissions that do not operate for the purpose specified in § 63.6640(f)(4)(ii).

[69 FR 33506, June 15, 2004, as amended at 73 FR 3603, Jan. 18, 2008; 78 FR 6700, Jan. 30, 2013; 87 FR 48607, Aug. 10, 2022]

§ 63.6590 What parts of my plant does this subpart cover?

This subpart applies to each affected source.

(a) ***Affected source.*** An affected source is any existing, new, or reconstructed stationary RICE located at a major or area source of HAP emissions, excluding stationary RICE being tested at a stationary RICE test cell/stand.

(1) ***Existing stationary RICE.***

(i) For stationary RICE with a site rating of more than 500 brake horsepower (HP) located at a major source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before December 19, 2002.

(ii) For stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before June 12, 2006.

(iii) For stationary RICE located at an area source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before June 12, 2006.

(iv) A change in ownership of an existing stationary RICE does not make that stationary RICE a new or reconstructed stationary RICE.

(2) ***New stationary RICE.***

(i) A stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions is new if you commenced construction of the stationary RICE on or after December 19, 2002.

(ii) A stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions is new if you commenced construction of the stationary RICE on or after June 12, 2006.

(iii) A stationary RICE located at an area source of HAP emissions is new if you commenced construction of the stationary RICE on or after June 12, 2006.

(3) ***Reconstructed stationary RICE.***

(i) A stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions is reconstructed if you meet the definition of reconstruction in § 63.2 and reconstruction is commenced on or after December 19, 2002.

(ii) A stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions is reconstructed if you meet the definition of reconstruction in § 63.2 and reconstruction is commenced on or after June 12, 2006.

(iii) A stationary RICE located at an area source of HAP emissions is reconstructed if you meet the definition of reconstruction in § 63.2 and reconstruction is commenced on or after June 12, 2006.

(b) ***Stationary RICE subject to limited requirements.***

(1) An affected source which meets either of the criteria in paragraphs (b)(1)(i) through (ii) of this section does not have to meet the requirements of this subpart and of subpart A of this part except for the initial notification requirements of § 63.6645(f).

(i) The stationary RICE is a new or reconstructed emergency stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions.

(ii) The stationary RICE is a new or reconstructed limited use stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions.

(2) A new or reconstructed stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis must meet the initial notification requirements of § 63.6645(f) and the requirements of §§ 63.6625(c), 63.6650(g), and 63.6655(c). These stationary RICE do not have to meet the emission limitations and operating limitations of this subpart.

(3) The following stationary RICE do not have to meet the requirements of this subpart and of subpart A of this part, including initial notification requirements:

(i) Existing spark ignition 2 stroke lean burn (2SLB) stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions;

(ii) Existing spark ignition 4 stroke lean burn (4SLB) stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions;

(iii) Existing emergency stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions.

(iv) Existing limited use stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions;

(v) Existing stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis;

(c) ***Stationary RICE subject to Regulations under 40 CFR Part 60.*** An affected source that meets any of the criteria in paragraphs (c)(1) through (7) of this section must meet the requirements of this part by meeting the requirements of 40 CFR part 60 subpart IIII, for compression ignition engines or 40 CFR part 60 subpart JJJJ, for spark ignition engines. No further requirements apply for such engines under this part.

(1) A new or reconstructed stationary RICE located at an area source;

(2) A new or reconstructed 2SLB stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions;

(3) A new or reconstructed 4SLB stationary RICE with a site rating of less than 250 brake HP located at a major source of HAP emissions;

(4) A new or reconstructed spark ignition 4 stroke rich burn (4SRB) stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions;

(5) A new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis;

(6) A new or reconstructed emergency or limited use stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions;

(7) A new or reconstructed compression ignition (CI) stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions.

[69 FR 33506, June 15, 2004, as amended at 73 FR 3604, Jan. 18, 2008; 75 FR 9674, Mar. 3, 2010; 75 FR 37733, June 30, 2010; 75 FR 51588, Aug. 20, 2010; 78 FR 6700, Jan. 30, 2013; 87 FR 48607, Aug. 10, 2022]

§ 63.6595 When do I have to comply with this subpart?

(a) ***Affected sources.***

(1) If you have an existing stationary RICE, excluding existing non-emergency CI stationary RICE, with a site rating of more than 500 brake HP located at a major source of HAP emissions, you must comply with the applicable emission limitations, operating limitations and other requirements no later than June 15, 2007. If you have an existing non-emergency CI stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, an existing stationary CI RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions, or an existing stationary CI RICE located at an area source of HAP emissions, you must comply with the applicable emission limitations, operating limitations, and other requirements no later than May 3, 2013. If you have an existing stationary SI RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions, or an existing stationary SI RICE located at an area source of HAP emissions, you must comply with the applicable emission limitations, operating limitations, and other requirements no later than October 19, 2013.

(2) If you start up your new or reconstructed stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions before August 16, 2004, you must comply with the applicable emission limitations and operating limitations in this subpart no later than August 16, 2004.

(3) If you start up your new or reconstructed stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions after August 16, 2004, you must comply with the applicable emission limitations and operating limitations in this subpart upon startup of your affected source.

(4) If you start up your new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions before January 18, 2008, you must comply with the applicable emission limitations and operating limitations in this subpart no later than January 18, 2008.

(5) If you start up your new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions after January 18, 2008, you must comply with the applicable emission limitations and operating limitations in this subpart upon startup of your affected source.

(6) If you start up your new or reconstructed stationary RICE located at an area source of HAP emissions before January 18, 2008, you must comply with the applicable emission limitations and operating limitations in this subpart no later than January 18, 2008.

(7) If you start up your new or reconstructed stationary RICE located at an area source of HAP emissions after January 18, 2008, you must comply with the applicable emission limitations and operating limitations in this subpart upon startup of your affected source.

(b) ***Area sources that become major sources.*** If you have an area source that increases its emissions or its potential to emit such that it becomes a major source of HAP, the compliance dates in paragraphs (b)(1) and (2) of this section apply to you.

(1) Any stationary RICE for which construction or reconstruction is commenced after the date when your area source becomes a major source of HAP must be in compliance with this subpart upon startup of your affected source.

(2) Any stationary RICE for which construction or reconstruction is commenced before your area source becomes a major source of HAP must be in compliance with the provisions of this subpart that are applicable to RICE located at major sources within 3 years after your area source becomes a major source of HAP.

(c) If you own or operate an affected source, you must meet the applicable notification requirements in § 63.6645 and in 40 CFR part 63, subpart A.

[69 FR 33506, June 15, 2004, as amended at 73 FR 3604, Jan. 18, 2008; 75 FR 9675, Mar. 3, 2010; 75 FR 51589, Aug. 20, 2010; 78 FR 6701, Jan. 30, 2013]

EMISSION AND OPERATING LIMITATIONS

§ 63.6600 What emission limitations and operating limitations must I meet if I own or operate a stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions?

Compliance with the numerical emission limitations established in this subpart is based on the results of testing the average of three 1-hour runs using the testing requirements and procedures in § 63.6620 and Table 4 to this subpart.

(a) If you own or operate an existing, new, or reconstructed spark ignition 4SRB stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you must comply with the emission limitations in Table 1a to this subpart and the operating limitations in Table 1b to this subpart which apply to you.

(b) If you own or operate a new or reconstructed 2SLB stationary RICE with a site rating of more than 500 brake HP located at major source of HAP emissions, a new or reconstructed 4SLB stationary RICE with a site rating of more than 500 brake HP located at major source of HAP emissions, or a new or reconstructed CI stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you must comply with the emission limitations in Table 2a to this subpart and the operating limitations in Table 2b to this subpart which apply to you.

(c) If you own or operate any of the following stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you do not need to comply with the emission limitations in Tables 1a, 2a, 2c, and 2d to this subpart or operating limitations in Tables 1b and 2b to this subpart: an

existing 2SLB stationary RICE; an existing 4SLB stationary RICE; a stationary RICE that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis; an emergency stationary RICE; or a limited use stationary RICE.

(d) If you own or operate an existing non-emergency stationary CI RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you must comply with the emission limitations in Table 2c to this subpart and the operating limitations in Table 2b to this subpart which apply to you.

[73 FR 3605, Jan. 18, 2008, as amended at 75 FR 9675, Mar. 3, 2010]

§ 63.6601 What emission limitations must I meet if I own or operate a new or reconstructed 4SLB stationary RICE with a site rating of greater than or equal to 250 brake HP and less than or equal to 500 brake HP located at a major source of HAP emissions?

Compliance with the numerical emission limitations established in this subpart is based on the results of testing the average of three 1-hour runs using the testing requirements and procedures in § 63.6620 and Table 4 to this subpart. If you own or operate a new or reconstructed 4SLB stationary RICE with a site rating of greater than or equal to 250 and less than or equal to 500 brake HP located at major source of HAP emissions manufactured on or after January 1, 2008, you must comply with the emission limitations in Table 2a to this subpart and the operating limitations in Table 2b to this subpart which apply to you.

[73 FR 3605, Jan. 18, 2008, as amended at 75 FR 9675, Mar. 3, 2010; 75 FR 51589, Aug. 20, 2010]

§ 63.6602 What emission limitations and other requirements must I meet if I own or operate an existing stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions?

If you own or operate an existing stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions, you must comply with the emission limitations and other requirements in Table 2c to this subpart which apply to you. Compliance with the numerical emission limitations established in this subpart is based on the results of testing the average of three 1-hour runs using the testing requirements and procedures in § 63.6620 and Table 4 to this subpart.

[78 FR 6701, Jan. 30, 2013]

§ 63.6603 What emission limitations, operating limitations, and other requirements must I meet if I own or operate an existing stationary RICE located at an area source of HAP emissions?

Compliance with the numerical emission limitations established in this subpart is based on the results of testing the average of three 1-hour runs using the testing requirements and procedures in § 63.6620 and Table 4 to this subpart.

(a) If you own or operate an existing stationary RICE located at an area source of HAP emissions, you must comply with the requirements in Table 2d to this subpart and the operating limitations in Table 2b to this subpart that apply to you.

(b) If you own or operate an existing stationary non-emergency CI RICE with a site rating of more than 300 HP located at an area source of HAP that meets either paragraph (b)(1) or (2) of this section, you do not have to meet the numerical CO emission limitations specified in Table 2d of this subpart. Existing stationary

non-emergency CI RICE with a site rating of more than 300 HP located at an area source of HAP that meet either paragraph (b)(1) or (2) of this section must meet the management practices that are shown for stationary non-emergency CI RICE with a site rating of less than or equal to 300 HP in Table 2d of this subpart.

(1) The area source is located in an area of Alaska that is not accessible by the Federal Aid Highway System (FAHS).

(2) The stationary RICE is located at an area source that meets paragraphs (b)(2)(i), (ii), and (iii) of this section.

(i) The only connection to the FAHS is through the Alaska Marine Highway System (AMHS), or the stationary RICE operation is within an isolated grid in Alaska that is not connected to the statewide electrical grid referred to as the Alaska Railbelt Grid.

(ii) At least 10 percent of the power generated by the stationary RICE on an annual basis is used for residential purposes.

(iii) The generating capacity of the area source is less than 12 megawatts, or the stationary RICE is used exclusively for backup power for renewable energy.

(c) If you own or operate an existing stationary non-emergency CI RICE with a site rating of more than 300 HP located on an offshore vessel that is an area source of HAP and is a nonroad vehicle that is an Outer Continental Shelf (OCS) source as defined in 40 CFR 55.2, you do not have to meet the numerical CO emission limitations specified in Table 2d of this subpart. You must meet all of the following management practices:

(1) Change oil every 1,000 hours of operation or within 1 year + 30 days of the previous change, whichever comes first. Sources have the option to utilize an oil analysis program as described in § 63.6625(i) in order to extend the specified oil change requirement.

(2) Inspect and clean air filters every 750 hours of operation or within 1 year + 30 days of the previous inspection, whichever comes first, and replace as necessary.

(3) Inspect fuel filters and belts, if installed, every 750 hours of operation or within 1 year + 30 days of the previous inspection, whichever comes first, and replace as necessary.

(4) Inspect all flexible hoses every 1,000 hours of operation or within 1 year + 30 days of the previous inspection, whichever comes first, and replace as necessary.

(d) If you own or operate an existing non-emergency CI RICE with a site rating of more than 300 HP located at an area source of HAP emissions that is certified to the Tier 1 or Tier 2 emission standards in Table 1 of 40 CFR 89.112 and that is subject to an enforceable state or local standard that requires the engine to be replaced no later than June 1, 2018, you may until January 1, 2015, or 12 years after the installation date of the engine (whichever is later), but not later than June 1, 2018, choose to comply with the management practices that are shown for stationary non-emergency CI RICE with a site rating of less than or equal to 300 HP in Table 2d of this subpart instead of the applicable emission limitations in Table 2d, operating limitations in Table 2b, and crankcase ventilation system requirements in § 63.6625(g). You must comply with the emission limitations in Table 2d and operating limitations in Table 2b that apply for non-emergency CI RICE with a site rating of more than 300 HP located at an area source of HAP emissions by January 1, 2015, or 12 years after the installation date of the engine (whichever is later), but not later than

June 1, 2018. You must also comply with the crankcase ventilation system requirements in § 63.6625(g) by January 1, 2015, or 12 years after the installation date of the engine (whichever is later), but not later than June 1, 2018.

(e) If you own or operate an existing non-emergency CI RICE with a site rating of more than 300 HP located at an area source of HAP emissions that is certified to the Tier 3 (Tier 2 for engines above 560 kilowatt (kW)) emission standards in Table 1 of 40 CFR 89.112, you may comply with the requirements under this part by meeting the requirements for Tier 3 engines (Tier 2 for engines above 560 kW) in 40 CFR part 60 subpart IIII instead of the emission limitations and other requirements that would otherwise apply under this part for existing non-emergency CI RICE with a site rating of more than 300 HP located at an area source of HAP emissions.

(f) An existing non-emergency SI 4SLB and 4SRB stationary RICE with a site rating of more than 500 HP located at area sources of HAP must meet the definition of remote stationary RICE in § 63.6675 on the initial compliance date for the engine, October 19, 2013, in order to be considered a remote stationary RICE under this subpart. Owners and operators of existing non-emergency SI 4SLB and 4SRB stationary RICE with a site rating of more than 500 HP located at area sources of HAP that meet the definition of remote stationary RICE in § 63.6675 of this subpart as of October 19, 2013 must evaluate the status of their stationary RICE every 12 months. Owners and operators must keep records of the initial and annual evaluation of the status of the engine. If the evaluation indicates that the stationary RICE no longer meets the definition of remote stationary RICE in § 63.6675 of this subpart, the owner or operator must comply with all of the requirements for existing non-emergency SI 4SLB and 4SRB stationary RICE with a site rating of more than 500 HP located at area sources of HAP that are not remote stationary RICE within 1 year of the evaluation.

[75 FR 9675, Mar. 3, 2010, as amended at 75 FR 51589, Aug. 20, 2010; 76 FR 12866, Mar. 9, 2011; 78 FR 6701, Jan. 30, 2013; 89 FR 70515, Aug. 30, 2024]

§ 63.6604 What fuel requirements must I meet if I own or operate a stationary CI RICE?

(a) If you own or operate an existing non-emergency, non-black start CI stationary RICE with a site rating of more than 300 brake HP with a displacement of less than 30 liters per cylinder that uses diesel fuel, you must use diesel fuel that meets the requirements in 40 CFR 1090.305 for nonroad diesel fuel.

(b) Beginning January 1, 2015, if you own or operate an existing emergency CI stationary RICE with a site rating of more than 100 brake HP and a displacement of less than 30 liters per cylinder that uses diesel fuel and operates for the purpose specified in § 63.6640(f)(4)(ii), you must use diesel fuel that meets the requirements in 40 CFR 1090.305 for nonroad diesel fuel, except that any existing diesel fuel purchased (or otherwise obtained) prior to January 1, 2015, may be used until depleted.

(c) [Reserved]

(d) Existing CI stationary RICE located in Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, at area sources in areas of Alaska that meet either § 63.6603(b)(1) or § 63.6603(b)(2), or are on offshore vessels that meet § 63.6603(c) are exempt from the requirements of this section.

[78 FR 6702, Jan. 30, 2013, as amended at 85 FR 78463, Dec. 4, 2020; 87 FR 48607, Aug. 10, 2022]

General Compliance Requirements

§ 63.6605 What are my general requirements for complying with this subpart?

(a) You must be in compliance with the emission limitations, operating limitations, and other requirements in this subpart that apply to you at all times.

(b) At all times you must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require you to make any further efforts to reduce emissions if levels required by this standard have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

[75 FR 9675, Mar. 3, 2010, as amended at 78 FR 6702, Jan. 30, 2013]

Testing and Initial Compliance Requirements

§ 63.6610 By what date must I conduct the initial performance tests or other initial compliance demonstrations if I own or operate a stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions?

If you own or operate a stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions you are subject to the requirements of this section.

(a) You must conduct the initial performance test or other initial compliance demonstrations in Table 4 to this subpart that apply to you within 180 days after the compliance date that is specified for your stationary RICE in § 63.6595 and according to the provisions in § 63.7(a)(2).

(b) If you commenced construction or reconstruction between December 19, 2002 and June 15, 2004 and own or operate stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you must demonstrate initial compliance with either the proposed emission limitations or the promulgated emission limitations no later than February 10, 2005 or no later than 180 days after startup of the source, whichever is later, according to § 63.7(a)(2)(ix).

(c) If you commenced construction or reconstruction between December 19, 2002 and June 15, 2004 and own or operate stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, and you chose to comply with the proposed emission limitations when demonstrating initial compliance, you must conduct a second performance test to demonstrate compliance with the promulgated emission limitations by December 13, 2007 or after startup of the source, whichever is later, according to § 63.7(a)(2)(ix).

(d) An owner or operator is not required to conduct an initial performance test on units for which a performance test has been previously conducted, but the test must meet all of the conditions described in paragraphs (d)(1) through (5) of this section.

(1) The test must have been conducted using the same methods specified in this subpart, and these methods must have been followed correctly.

(2) The test must not be older than 2 years.

(3) The test must be reviewed and accepted by the Administrator.

(4) Either no process or equipment changes must have been made since the test was performed, or the owner or operator must be able to demonstrate that the results of the performance test, with or without adjustments, reliably demonstrate compliance despite process or equipment changes.

(5) The test must be conducted at any load condition within plus or minus 10 percent of 100 percent load.

[69 FR 33506, June 15, 2004, as amended at 73 FR 3605, Jan. 18, 2008]

§ 63.6611 By what date must I conduct the initial performance tests or other initial compliance demonstrations if I own or operate a new or reconstructed 4SLB SI stationary RICE with a site rating of greater than or equal to 250 and less than or equal to 500 brake HP located at a major source of HAP emissions?

If you own or operate a new or reconstructed 4SLB stationary RICE with a site rating of greater than or equal to 250 and less than or equal to 500 brake HP located at a major source of HAP emissions, you must conduct an initial performance test within 240 days after the compliance date that is specified for your stationary RICE in § 63.6595 and according to the provisions specified in Table 4 to this subpart, as appropriate.

[73 FR 3605, Jan. 18, 2008, as amended at 75 FR 51589, Aug. 20, 2010]

§ 63.6612 By what date must I conduct the initial performance tests or other initial compliance demonstrations if I own or operate an existing stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions or an existing stationary RICE located at an area source of HAP emissions?

If you own or operate an existing stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions or an existing stationary RICE located at an area source of HAP emissions you are subject to the requirements of this section.

(a) You must conduct any initial performance test or other initial compliance demonstration according to Tables 4 and 5 to this subpart that apply to you within 180 days after the compliance date that is specified for your stationary RICE in § 63.6595 and according to the provisions in § 63.7(a)(2).

(b) An owner or operator is not required to conduct an initial performance test on a unit for which a performance test has been previously conducted, but the test must meet all of the conditions described in paragraphs (b)(1) through (4) of this section.

(1) The test must have been conducted using the same methods specified in this subpart, and these methods must have been followed correctly.

(2) The test must not be older than 2 years.

(3) The test must be reviewed and accepted by the Administrator.

(4) Either no process or equipment changes must have been made since the test was performed, or the owner or operator must be able to demonstrate that the results of the performance test, with or without adjustments, reliably demonstrate compliance despite process or equipment changes.

[75 FR 9676, Mar. 3, 2010, as amended at 75 FR 51589, Aug. 20, 2010]

§ 63.6615 When must I conduct subsequent performance tests?

If you must comply with the emission limitations and operating limitations, you must conduct subsequent performance tests as specified in Table 3 of this subpart.

§ 63.6620 What performance tests and other procedures must I use?

(a) You must conduct each performance test in Tables 3 and 4 of this subpart that applies to you.

(b) Each performance test must be conducted according to the requirements that this subpart specifies in Table 4 to this subpart. If you own or operate a non-operational stationary RICE that is subject to performance testing, you do not need to start up the engine solely to conduct the performance test. Owners and operators of a non-operational engine can conduct the performance test when the engine is started up again. The test must be conducted at any load condition within plus or minus 10 percent of 100 percent load for the stationary RICE listed in paragraphs (b)(1) through (4) of this section.

(1) Non-emergency 4SRB stationary RICE with a site rating of greater than 500 brake HP located at a major source of HAP emissions.

(2) New non-emergency 4SLB stationary RICE with a site rating of greater than or equal to 250 brake HP located at a major source of HAP emissions.

(3) New non-emergency 2SLB stationary RICE with a site rating of greater than 500 brake HP located at a major source of HAP emissions.

(4) New non-emergency CI stationary RICE with a site rating of greater than 500 brake HP located at a major source of HAP emissions.

(c) [Reserved]

(d) You must conduct three separate test runs for each performance test required in this section, as specified in § 63.7(e)(3). Each test run must last at least 1 hour, unless otherwise specified in this subpart.

(e)

(1) You must use Equation 1 of this section to determine compliance with the percent reduction requirement:

$$\frac{C_i - C_o}{C_i} \times 100 = R \quad (Eq.\ 1)$$

Where:

C_i = concentration of carbon monoxide (CO), total hydrocarbons (THC), or formaldehyde at the control device inlet,

C_o = concentration of CO, THC, or formaldehyde at the control device outlet, and

R = percent reduction of CO, THC, or formaldehyde emissions.

(2) You must normalize the CO, THC, or formaldehyde concentrations at the inlet and outlet of the control device to a dry basis and to 15 percent oxygen, or an equivalent percent carbon dioxide (CO_2). If pollutant concentrations are to be corrected to 15 percent oxygen and CO_2 concentration is measured in lieu of oxygen concentration measurement, a CO_2 correction factor is needed. Calculate the CO_2 correction factor as described in paragraphs (e)(2)(i) through (iii) of this section.

(i) Calculate the fuel-specific F_o value for the fuel burned during the test using values obtained from Method 19, Section 5.2, and the following equation:

$$F_o = \frac{0.209\ F_d}{F_c} \quad (Eq.\ 2)$$

Where:

F_o = Fuel factor based on the ratio of oxygen volume to the ultimate CO_2 volume produced by the fuel at zero percent excess air.

0.209 = Fraction of air that is oxygen, percent/100.

F_d = Ratio of the volume of dry effluent gas to the gross calorific value of the fuel from Method 19, dsm^3/J ($dscf/10^6$ Btu).

F_c = Ratio of the volume of CO_2 produced to the gross calorific value of the fuel from Method 19, dsm^3/J ($dscf/10^6$ Btu)

(ii) Calculate the CO_2 correction factor for correcting measurement data to 15 percent O_2, as follows:

$$X_{CO2} = \frac{5.9}{F_o} \quad (Eq.\ 3)$$

Where:

X_{CO2} = CO_2 correction factor, percent.

5.9 = 20.9 percent O_2—15 percent O_2, the defined O_2 correction value, percent.

(iii) Calculate the CO, THC, and formaldehyde gas concentrations adjusted to 15 percent O_2 using CO_2 as follows:

$$C_{adj} = C_d \frac{X_{CO2}}{\%CO_2} \quad (Eq.\ 4)$$

Where:

C_{adj} = Calculated concentration of CO, THC, or formaldehyde adjusted to 15 percent O_2.

C_d = Measured concentration of CO, THC, or formaldehyde, uncorrected.

X_{CO2} = CO_2 correction factor, percent.

$\%CO_2$ = Measured CO_2 concentration measured, dry basis, percent.

(f) If you comply with the emission limitation to reduce CO and you are not using an oxidation catalyst, if you comply with the emission limitation to reduce formaldehyde and you are not using NSCR, or if you comply with the emission limitation to limit the concentration of formaldehyde in the stationary RICE exhaust and you are not using an oxidation catalyst or NSCR, you must petition the Administrator for operating limitations to be established during the initial performance test and continuously monitored thereafter; or for approval of no operating limitations. You must not conduct the initial performance test until after the petition has been approved by the Administrator.

(g) If you petition the Administrator for approval of operating limitations, your petition must include the information described in paragraphs (g)(1) through (5) of this section.

(1) Identification of the specific parameters you propose to use as operating limitations;

(2) A discussion of the relationship between these parameters and HAP emissions, identifying how HAP emissions change with changes in these parameters, and how limitations on these parameters will serve to limit HAP emissions;

(3) A discussion of how you will establish the upper and/or lower values for these parameters which will establish the limits on these parameters in the operating limitations;

(4) A discussion identifying the methods you will use to measure and the instruments you will use to monitor these parameters, as well as the relative accuracy and precision of these methods and instruments; and

(5) A discussion identifying the frequency and methods for recalibrating the instruments you will use for monitoring these parameters.

(h) If you petition the Administrator for approval of no operating limitations, your petition must include the information described in paragraphs (h)(1) through (7) of this section.

(1) Identification of the parameters associated with operation of the stationary RICE and any emission control device which could change intentionally (*e.g.,* operator adjustment, automatic controller adjustment, etc.) or unintentionally (*e.g.,* wear and tear, error, etc.) on a routine basis or over time;

(2) A discussion of the relationship, if any, between changes in the parameters and changes in HAP emissions;

(3) For the parameters which could change in such a way as to increase HAP emissions, a discussion of whether establishing limitations on the parameters would serve to limit HAP emissions;

(4) For the parameters which could change in such a way as to increase HAP emissions, a discussion of how you could establish upper and/or lower values for the parameters which would establish limits on the parameters in operating limitations;

(5) For the parameters, a discussion identifying the methods you could use to measure them and the instruments you could use to monitor them, as well as the relative accuracy and precision of the methods and instruments;

(6) For the parameters, a discussion identifying the frequency and methods for recalibrating the instruments you could use to monitor them; and

(7) A discussion of why, from your point of view, it is infeasible or unreasonable to adopt the parameters as operating limitations.

(i) The engine percent load during a performance test must be determined by documenting the calculations, assumptions, and measurement devices used to measure or estimate the percent load in a specific application. A written report of the average percent load determination must be included in the notification of compliance status. The following information must be included in the written report: the engine model number, the engine manufacturer, the year of purchase, the manufacturer's site-rated brake horsepower, the ambient temperature, pressure, and humidity during the performance test, and all assumptions that were made to estimate or calculate percent load during the performance test must be clearly explained. If measurement devices such as flow meters, kilowatt meters, beta analyzers, stain gauges, etc. are used, the model number of the measurement device, and an estimate of its accurate in percentage of true value must be provided.

(j) Beginning on February 26, 2025, within 60 days after the date of completing each performance test required by this subpart, you must submit the results of the performance test following the procedure specified in § 63.9(k). Data collected using test methods supported by the EPA's Electronic Reporting Tool (ERT) as listed on the EPA's ERT website (*https://www.epa.gov/electronic-reporting-air-emissions/electronic-reporting-tool-ert*) at the time of the test must be submitted in a file format generated using the EPA's ERT. Alternatively, you may submit an electronic file consistent with the extensible markup language (XML) schema listed on the EPA's ERT website. Data collected using test methods that are not supported by the EPA's ERT as listed on the EPA's ERT website at the time of the test must be included as an attachment in the ERT or alternate electronic file.

[69 FR 33506, June 15, 2004, as amended at 75 FR 9676, Mar. 3, 2010; 78 FR 6702, Jan. 30, 2013; 89 FR 70516, Aug. 30, 2024]

§ 63.6625 What are my monitoring, installation, collection, operation, and maintenance requirements?

(a) If you elect to install a CEMS as specified in Table 5 of this subpart, you must install, operate, and maintain a CEMS to monitor CO and either O_2 or CO_2 according to the requirements in paragraphs (a)(1) through (4) of this section. If you are meeting a requirement to reduce CO emissions, the CEMS must be installed at both the inlet and outlet of the control device. If you are meeting a requirement to limit the concentration of CO, the CEMS must be installed at the outlet of the control device.

(1) Each CEMS must be installed, operated, and maintained according to the applicable performance specifications of 40 CFR part 60, appendix B.

(2) You must conduct an initial performance evaluation and an annual relative accuracy test audit (RATA) of each CEMS according to the requirements in § 63.8 and according to the applicable performance specifications of 40 CFR part 60, appendix B as well as daily and periodic data quality checks in accordance with 40 CFR part 60, appendix F, procedure 1.

(3) As specified in § 63.8(c)(4)(ii), each CEMS must complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period. You must have at least two data points, with each representing a different 15-minute period, to have a valid hour of data.

(4) The CEMS data must be reduced as specified in § 63.8(g)(2) and recorded in parts per million or parts per billion (as appropriate for the applicable limitation) at 15 percent oxygen or the equivalent CO_2 concentration.

(5) Beginning on February 26, 2025, within 60 days after the date of completing each continuous emissions monitoring system (CEMS) performance evaluation (as defined in § 63.2) that includes a relative accuracy test audit (RATA), you must submit the results of the performance evaluation following the procedures specified in § 63.9(k). The results of performance evaluations of CEMS measuring RATA pollutants that are supported by the EPA's ERT as listed on the EPA's ERT website at the time of the evaluation must be submitted in a file format generated using the EPA's ERT. Alternatively, you may submit an electronic file consistent with the XML schema listed on the EPA's ERT website. The results of performance evaluations of CEMS measuring RATA pollutants that are not supported by the EPA's ERT as listed on the EPA's ERT website at the time of the evaluation must be included as an attachment in the ERT or alternate electronic file.

(b) If you are required to install a continuous parameter monitoring system (CPMS) as specified in Table 5 of this subpart, you must install, operate, and maintain each CPMS according to the requirements in paragraphs (b)(1) through (6) of this section. For an affected source that is complying with the emission limitations and operating limitations on March 9, 2011, the requirements in paragraph (b) of this section are applicable September 6, 2011.

(1) You must prepare a site-specific monitoring plan that addresses the monitoring system design, data collection, and the quality assurance and quality control elements outlined in paragraphs (b)(1)(i) through (v) of this section and in § 63.8(d). As specified in § 63.8(f)(4), you may request approval of monitoring system quality assurance and quality control procedures alternative to those specified in paragraphs (b)(1) through (5) of this section in your site-specific monitoring plan.

(i) The performance criteria and design specifications for the monitoring system equipment, including the sample interface, detector signal analyzer, and data acquisition and calculations;

(ii) Sampling interface (*e.g.,* thermocouple) location such that the monitoring system will provide representative measurements;

(iii) Equipment performance evaluations, system accuracy audits, or other audit procedures;

(iv) Ongoing operation and maintenance procedures in accordance with provisions in § 63.8(c)(1)(ii) and (c)(3); and

(v) Ongoing reporting and recordkeeping procedures in accordance with provisions in § 63.10(c), (e)(1), and (e)(2)(i).

(2) You must install, operate, and maintain each CPMS in continuous operation according to the procedures in your site-specific monitoring plan.

(3) The CPMS must collect data at least once every 15 minutes (see also § 63.6635).

(4) For a CPMS for measuring temperature range, the temperature sensor must have a minimum tolerance of 2.8 degrees Celsius (5 degrees Fahrenheit) or 1 percent of the measurement range, whichever is larger.

(5) You must conduct the CPMS equipment performance evaluation, system accuracy audits, or other audit procedures specified in your site-specific monitoring plan at least annually.

(6) You must conduct a performance evaluation of each CPMS in accordance with your site-specific monitoring plan.

(c) If you are operating a new or reconstructed stationary RICE which fires landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, you must monitor and record your fuel usage daily with separate fuel meters to measure the volumetric flow rate of each fuel. In addition, you must operate your stationary RICE in a manner which reasonably minimizes HAP emissions.

(d) If you are operating a new or reconstructed emergency 4SLB stationary RICE with a site rating of greater than or equal to 250 and less than or equal to 500 brake HP located at a major source of HAP emissions, you must install a non-resettable hour meter prior to the startup of the engine.

(e) If you own or operate any of the following stationary RICE, you must operate and maintain the stationary RICE and after-treatment control device (if any) according to the manufacturer's emission-related written instructions or develop your own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions:

(1) An existing stationary RICE with a site rating of less than 100 HP located at a major source of HAP emissions;

(2) An existing emergency or black start stationary RICE with a site rating of less than or equal to 500 HP located at a major source of HAP emissions;

(3) An existing emergency or black start stationary RICE located at an area source of HAP emissions;

(4) An existing non-emergency, non-black start stationary CI RICE with a site rating less than or equal to 300 HP located at an area source of HAP emissions;

(5) An existing non-emergency, non-black start 2SLB stationary RICE located at an area source of HAP emissions;

(6) An existing non-emergency, non-black start stationary RICE located at an area source of HAP emissions which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis.

(7) An existing non-emergency, non-black start 4SLB stationary RICE with a site rating less than or equal to 500 HP located at an area source of HAP emissions;

(8) An existing non-emergency, non-black start 4SRB stationary RICE with a site rating less than or equal to 500 HP located at an area source of HAP emissions;

(9) An existing, non-emergency, non-black start 4SLB stationary RICE with a site rating greater than 500 HP located at an area source of HAP emissions that is operated 24 hours or less per calendar year; and

(10) An existing, non-emergency, non-black start 4SRB stationary RICE with a site rating greater than 500 HP located at an area source of HAP emissions that is operated 24 hours or less per calendar year.

(f) If you own or operate an existing emergency stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions or an existing emergency stationary RICE located at an area source of HAP emissions, you must install a non-resettable hour meter if one is not already installed.

(g) If you own or operate an existing non-emergency, non-black start CI engine greater than or equal to 300 HP that is not equipped with a closed crankcase ventilation system, you must comply with either paragraph (g)(1) or paragraph (2) of this section. Owners and operators must follow the manufacturer's

specified maintenance requirements for operating and maintaining the open or closed crankcase ventilation systems and replacing the crankcase filters, or can request the Administrator to approve different maintenance requirements that are as protective as manufacturer requirements. Existing CI engines located at area sources in areas of Alaska that meet either § 63.6603(b)(1) or § 63.6603(b)(2) do not have to meet the requirements of this paragraph (g). Existing CI engines located on offshore vessels that meet § 63.6603(c) do not have to meet the requirements of this paragraph (g).

(1) Install a closed crankcase ventilation system that prevents crankcase emissions from being emitted to the atmosphere, or

(2) Install an open crankcase filtration emission control system that reduces emissions from the crankcase by filtering the exhaust stream to remove oil mist, particulates and metals.

(h) If you operate a new, reconstructed, or existing stationary engine, you must minimize the engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the emission standards applicable to all times other than startup in Tables 1a, 2a, 2c, and 2d to this subpart apply.

(i) If you own or operate a stationary CI engine that is subject to the work, operation or management practices in items 1 or 2 of table 2c to this subpart or in items 1 or 4 of table 2d to this subpart, you have the option of utilizing an oil analysis program in order to extend the specified oil and filter change requirement in tables 2c and 2d to this subpart. The oil analysis must be performed at the same frequency specified for changing the oil and filter in table 2c or 2d to this subpart. The analysis program must at a minimum analyze the following three parameters: Total Base Number, viscosity, and percent water content. The condemning limits for these parameters are as follows: Total Base Number is less than 30 percent of the Total Base Number of the oil when new; viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new; or percent water content (by volume) is greater than 0.5. If all of these condemning limits are not exceeded, the engine owner or operator is not required to change the oil and filter. If any of the limits are exceeded, the engine owner or operator must change the oil and filter within 2 business days of receiving the results of the analysis; if the engine is not in operation when the results of the analysis are received, the engine owner or operator must change the oil and filter within 2 business days or before commencing operation, whichever is later. The owner or operator must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil and filter changes for the engine. The analysis program must be part of the maintenance plan for the engine.

(j) If you own or operate a stationary SI engine that is subject to the work, operation or management practices in items 6, 7, or 8 of table 2c to this subpart or in items 5, 6, 7, 8, 10, 11, or 13 of table 2d to this subpart, you have the option of utilizing an oil analysis program in order to extend the specified oil and filter change requirement in tables 2c and 2d to this subpart. The oil analysis must be performed at the same frequency specified for changing the oil and filter in table 2c or 2d to this subpart. The analysis program must at a minimum analyze the following three parameters: Total Acid Number, viscosity, and percent water content. The condemning limits for these parameters are as follows: Total Acid Number increases by more than 3.0 milligrams of potassium hydroxide (KOH) per gram from Total Acid Number of the oil when new; viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new; or percent water content (by volume) is greater than 0.5. If all of these condemning limits are not exceeded, the engine owner or operator is not required to change the oil and filter. If any of the limits are exceeded, the engine owner or operator must change the oil and filter within 2 business days of receiving the results of the analysis; if the engine is not in operation when the results of the analysis are received, the engine owner or operator must change the oil and filter within 2 business days or before

commencing operation, whichever is later. The owner or operator must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil and filter changes for the engine. The analysis program must be part of the maintenance plan for the engine.

[69 FR 33506, June 15, 2004, as amended at 73 FR 3606, Jan. 18, 2008; 75 FR 9676, Mar. 3, 2010; 75 FR 51589, Aug. 20, 2010; 76 FR 12866, Mar. 9, 2011; 78 FR 6703, Jan. 30, 2013; 89 FR 70516, Aug. 30, 2024]

§ 63.6630 How do I demonstrate initial compliance with the emission limitations, operating limitations, and other requirements?

(a) You must demonstrate initial compliance with each emission limitation, operating limitation, and other requirement that applies to you according to Table 5 of this subpart.

(b) During the initial performance test, you must establish each operating limitation in Tables 1b and 2b of this subpart that applies to you.

(c) You must submit the Notification of Compliance Status containing the results of the initial compliance demonstration according to the requirements in § 63.6645.

(d) Non-emergency 4SRB stationary RICE complying with the requirement to reduce formaldehyde emissions by 76 percent or more can demonstrate initial compliance with the formaldehyde emission limit by testing for THC instead of formaldehyde. The testing must be conducted according to the requirements in Table 4 of this subpart. The average reduction of emissions of THC determined from the performance test must be equal to or greater than 30 percent.

(e) The initial compliance demonstration required for existing non-emergency 4SLB and 4SRB stationary RICE with a site rating of more than 500 HP located at an area source of HAP that are not remote stationary RICE and that are operated more than 24 hours per calendar year must be conducted according to the following requirements:

(1) The compliance demonstration must consist of at least three test runs.

(2) Each test run must be of at least 15 minute duration, except that each test conducted using the method in appendix A to this subpart must consist of at least one measurement cycle and include at least 2 minutes of test data phase measurement.

(3) If you are demonstrating compliance with the CO concentration or CO percent reduction requirement, you must measure CO emissions using one of the CO measurement methods specified in Table 4 of this subpart, or using appendix A to this subpart.

(4) If you are demonstrating compliance with the THC percent reduction requirement, you must measure THC emissions using Method 25A, reported as propane, of 40 CFR part 60, appendix A.

(5) You must measure O_2 using one of the O_2 measurement methods specified in Table 4 of this subpart. Measurements to determine O_2 concentration must be made at the same time as the measurements for CO or THC concentration.

(6) If you are demonstrating compliance with the CO or THC percent reduction requirement, you must measure CO or THC emissions and O_2 emissions simultaneously at the inlet and outlet of the control device.

[69 FR 33506, June 15, 2004, as amended at 78 FR 6704, Jan. 30, 2013]

CONTINUOUS COMPLIANCE REQUIREMENTS

§ 63.6635 How do I monitor and collect data to demonstrate continuous compliance?

(a) If you must comply with emission and operating limitations, you must monitor and collect data according to this section.

(b) Except for monitor malfunctions, associated repairs, required performance evaluations, and required quality assurance or control activities, you must monitor continuously at all times that the stationary RICE is operating. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.

(c) You may not use data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities in data averages and calculations used to report emission or operating levels. You must, however, use all the valid data collected during all other periods.

[69 FR 33506, June 15, 2004, as amended at 76 FR 12867, Mar. 9, 2011]

§ 63.6640 How do I demonstrate continuous compliance with the emission limitations, operating limitations, and other requirements?

(a) You must demonstrate continuous compliance with each emission limitation, operating limitation, and other requirements in Tables 1a and 1b, Tables 2a and 2b, Table 2c, and Table 2d to this subpart that apply to you according to methods specified in Table 6 to this subpart.

(b) You must report each instance in which you did not meet each emission limitation or operating limitation in Tables 1a and 1b, Tables 2a and 2b, Table 2c, and Table 2d to this subpart that apply to you. These instances are deviations from the emission and operating limitations in this subpart. These deviations must be reported according to the requirements in § 63.6650. If you change your catalyst, you must reestablish the values of the operating parameters measured during the initial performance test. When you reestablish the values of your operating parameters, you must also conduct a performance test to demonstrate that you are meeting the required emission limitation applicable to your stationary RICE.

(c) The annual compliance demonstration required for existing non-emergency 4SLB and 4SRB stationary RICE with a site rating of more than 500 HP located at an area source of HAP that are not remote stationary RICE and that are operated more than 24 hours per calendar year must be conducted according to the following requirements:

(1) The compliance demonstration must consist of at least one test run.

(2) Each test run must be of at least 15 minute duration, except that each test conducted using the method in appendix A to this subpart must consist of at least one measurement cycle and include at least 2 minutes of test data phase measurement.

(3) If you are demonstrating compliance with the CO concentration or CO percent reduction requirement, you must measure CO emissions using one of the CO measurement methods specified in Table 4 of this subpart, or using appendix A to this subpart.

(4) If you are demonstrating compliance with the THC percent reduction requirement, you must measure THC emissions using Method 25A, reported as propane, of 40 CFR part 60, appendix A.

(5) You must measure O_2 using one of the O_2 measurement methods specified in Table 4 of this subpart. Measurements to determine O_2 concentration must be made at the same time as the measurements for CO or THC concentration.

(6) If you are demonstrating compliance with the CO or THC percent reduction requirement, you must measure CO or THC emissions and O_2 emissions simultaneously at the inlet and outlet of the control device.

(7) If the results of the annual compliance demonstration show that the emissions exceed the levels specified in Table 6 of this subpart, the stationary RICE must be shut down as soon as safely possible, and appropriate corrective action must be taken (e.g., repairs, catalyst cleaning, catalyst replacement). The stationary RICE must be retested within 7 days of being restarted and the emissions must meet the levels specified in Table 6 of this subpart. If the retest shows that the emissions continue to exceed the specified levels, the stationary RICE must again be shut down as soon as safely possible, and the stationary RICE may not operate, except for purposes of startup and testing, until the owner/operator demonstrates through testing that the emissions do not exceed the levels specified in Table 6 of this subpart.

(d) For new, reconstructed, and rebuilt stationary RICE, deviations from the emission or operating limitations that occur during the first 200 hours of operation from engine startup (engine burn-in period) are not violations. Rebuilt stationary RICE means a stationary RICE that has been rebuilt as that term is defined in 40 CFR 94.11(a).

(e) You must also report each instance in which you did not meet the requirements in Table 8 to this subpart that apply to you. If you own or operate a new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions (except new or reconstructed 4SLB engines greater than or equal to 250 and less than or equal to 500 brake HP), a new or reconstructed stationary RICE located at an area source of HAP emissions, or any of the following RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you do not need to comply with the requirements in Table 8 to this subpart: An existing 2SLB stationary RICE, an existing 4SLB stationary RICE, an existing emergency stationary RICE, an existing limited use stationary RICE, or an existing stationary RICE which fires landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis. If you own or operate any of the following RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you do not need to comply with the requirements in Table 8 to this subpart, except for the initial notification requirements: a new or reconstructed stationary RICE that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, a new or reconstructed emergency stationary RICE, or a new or reconstructed limited use stationary RICE.

(f) If you own or operate an emergency stationary RICE, you must operate the emergency stationary RICE according to the requirements in paragraphs (f)(1) through (4) of this section. In order for the engine to be considered an emergency stationary RICE under this subpart, any operation other than emergency operation, maintenance and testing, and operation in non-emergency situations for 50 hours per year, as described in paragraphs (f)(1) through (4), is prohibited. If you do not operate the engine according to the requirements in paragraphs (f)(1) through (4), the engine will not be considered an emergency engine under this subpart and must meet all requirements for non-emergency engines.

(1) There is no time limit on the use of emergency stationary RICE in emergency situations.

(2) You may operate your emergency stationary RICE for the purpose specified in paragraph (f)(2)(i) of this section for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraphs (f)(3) and (4) of this section counts as part of the 100 hours per calendar year allowed by this paragraph (f)(2).

(i) Emergency stationary RICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency RICE beyond 100 hours per calendar year.

(ii)-(iii) [Reserved]

(3) Emergency stationary RICE located at major sources of HAP may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing provided in paragraph (f)(2) of this section. The 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

(4) Emergency stationary RICE located at area sources of HAP may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing provided in paragraph (f)(2) of this section. Except as provided in paragraphs (f)(4)(i) and (ii) of this section, the 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

(i) Prior to May 3, 2014, the 50 hours per year for non-emergency situations can be used for peak shaving or non-emergency demand response to generate income for a facility, or to otherwise supply power as part of a financial arrangement with another entity if the engine is operated as part of a peak shaving (load management program) with the local distribution system operator and the power is provided only to the facility itself or to support the local distribution system.

(ii) The 50 hours per year for non-emergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met:

(A) The engine is dispatched by the local balancing authority or local transmission and distribution system operator.

(B) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.

(C) The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.

(D) The power is provided only to the facility itself or to support the local transmission and distribution system.

(E) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator.

[69 FR 33506, June 15, 2004, as amended at 71 FR 20467, Apr. 20, 2006; 73 FR 3606, Jan. 18, 2008; 75 FR 9676, Mar. 3, 2010; 75 FR 51591, Aug. 20, 2010; 78 FR 6704, Jan. 30, 2013; 87 FR 48607, Aug. 10, 2022]

NOTIFICATIONS, REPORTS, AND RECORDS

§ 63.6645 What notifications must I submit and when?

(a) You must submit all of the notifications in §§ 63.7(b) and (c), 63.8(e), (f)(4) and (f)(6), 63.9(b) through (e), and (g) and (h) that apply to you by the dates specified if you own or operate any of the following;

(1) An existing stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions.

(2) An existing stationary RICE located at an area source of HAP emissions.

(3) A stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions.

(4) A new or reconstructed 4SLB stationary RICE with a site rating of greater than or equal to 250 HP located at a major source of HAP emissions.

(5) This requirement does not apply if you own or operate an existing stationary RICE less than 100 HP, an existing stationary emergency RICE, or an existing stationary RICE that is not subject to any numerical emission standards.

(b) As specified in § 63.9(b)(2), if you start up your stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions before the effective date of this subpart, you must submit an initial notification not later than December 13, 2004, or no later than 120 days after the source becomes subject to this subpart, whichever is later. Beginning on February 26, 2025, submit the notification electronically in portable document format (PDF) consistent with § 63.9(k).

(c) If you start up your new or reconstructed stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions on or after August 16, 2004, you must submit an initial notification not later than 120 days after you become subject to this subpart. Beginning on February 26, 2025, submit the notification electronically in PDF consistent with § 63.9(k).

(d) As specified in § 63.9(b)(2), if you start up your stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions before the effective date of this subpart and you are required to submit an initial notification, you must submit an initial notification not later than July 16, 2008, or no later than 120 days after the source becomes subject to this subpart, whichever is later. Beginning on February 26, 2025, submit the notification electronically in PDF consistent with § 63.9(k).

(e) If you start up your new or reconstructed stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions on or after March 18, 2008, and you are required to submit an initial notification, you must submit an initial notification not later than 120 days after you become subject to this subpart. Beginning on February 26, 2025, submit the notification electronically in PDF consistent with § 63.9(k).

(f) If you are required to submit an Initial Notification but are otherwise not affected by the requirements of this subpart, in accordance with § 63.6590(b), your notification should include the information in § 63.9(b)(2)(i) through (v), and a statement that your stationary RICE has no additional requirements and explain the basis of the exclusion (for example, that it operates exclusively as an emergency stationary RICE if it has a site rating of more than 500 brake HP located at a major source of HAP emissions).

(g) If you are required to conduct a performance test, you must submit a Notification of Intent to conduct a performance test at least 60 days before the performance test is scheduled to begin as required in § 63.7(b)(1).

(h) If you are required to conduct a performance test or other initial compliance demonstration as specified in Tables 4 and 5 to this subpart, you must submit a Notification of Compliance Status according to § 63.9(h)(2)(ii).

(1) For each initial compliance demonstration required in Table 5 to this subpart that does not include a performance test, you must submit the Notification of Compliance Status before the close of business on the 30th day following the completion of the initial compliance demonstration.

(2) Before February 26, 2025, for each initial compliance demonstration required in table 5 to this subpart that includes a performance test conducted according to the requirements in table 3 to this subpart, you must submit the Notification of Compliance Status, including the performance test results, before the close of business on the 60th day following the completion of the performance test according to § 63.10(d)(2). Beginning on February 26, 2025, for each initial compliance demonstration required in table 5 to this subpart that includes a performance test conducted according to the requirements in table 3 to this subpart, you must submit the Notification of Compliance Status, including a summary of the performance test results, in PDF to the EPA via the Compliance and Emissions Data Reporting Interface (CEDRI), before the close of business on the 60th day following the completion of the performance test following the procedure specified in § 63.9(k), except any Confidential Business Information (CBI) is to be submitted according to paragraphs (h)(2)(i) and (ii) of this section. Do not use CEDRI to submit information you claim as CBI. Although we do not expect persons to assert a claim of CBI, if you wish to assert a CBI claim for some of the information in the report, you must submit a complete file, including information claimed to be CBI, to the EPA following the procedures in paragraphs (h)(2)(i) and (ii) of this section. Clearly mark the part or all of the information that you claim to be CBI. Information not marked as CBI may be authorized for public release without prior notice. Information marked as CBI will not be disclosed except in accordance with procedures set forth in 40 CFR part 2. All CBI claims must be asserted at the time of submission. Anything submitted using CEDRI cannot later be claimed CBI. Furthermore, under CAA section 114(c), emissions data is not entitled to confidential treatment, and the EPA is required to make emissions data available to the public. Thus, emissions data will not be protected as CBI and will be made publicly available. You must submit the same file submitted to the CBI office with the CBI omitted to the EPA via the EPA's CDX as described earlier in this paragraph (h)(2).

(i) The preferred method to receive CBI is for it to be transmitted electronically using email attachments, File Transfer Protocol, or other online file sharing services. Electronic submissions must be transmitted directly to the OAQPS CBI Office at the email address *oaqpscbi@epa.gov,* and as described in paragraph (h)(2) of this section, should include clear CBI markings and be flagged to the attention of the Reciprocating Internal Combustion Engine Sector Lead. If assistance is needed with submitting large electronic files that exceed the file size limit for email attachments, and if you do not have your own file sharing service, please email *oaqpscbi@epa.gov* to request a file transfer link.

(ii) If you cannot transmit the file electronically, you may send CBI information through the postal service to the following address: OAQPS Document Control Officer (C404-02), OAQPS, U.S. Environmental Protection Agency, 109 T.W. Alexander Drive, P.O. Box 12055, Research Triangle Park, North Carolina 27711, Attention Reciprocating Internal Combustion Engine Sector Lead. The mailed CBI material should be double wrapped and clearly marked. Any CBI markings should not show through the outer envelope.

(i) If you own or operate an existing non-emergency CI RICE with a site rating of more than 300 HP located at an area source of HAP emissions that is certified to the Tier 1 or Tier 2 emission standards in Table 1 of 40 CFR 89.112 and subject to an enforceable state or local standard requiring engine replacement and you intend to meet management practices rather than emission limits, as specified in § 63.6603(d), you must submit a notification by March 3, 2013, stating that you intend to use the provision in § 63.6603(d) and identifying the state or local regulation that the engine is subject to.

[73 FR 3606, Jan. 18, 2008, as amended at 75 FR 9677, Mar. 3, 2010; 75 FR 51591, Aug. 20, 2010; 78 FR 6705, Jan. 30, 2013; 85 FR 73912, Nov. 19, 2020; 89 FR 70516, Aug. 30, 2024]

§ 63.6650 What reports must I submit and when?

(a) You must submit each report in Table 7 of this subpart that applies to you.

(b) Unless the Administrator has approved a different schedule for submission of reports under § 63.10(a), you must submit each report by the date in Table 7 of this subpart and according to the requirements in paragraphs (b)(1) through (b)(9) of this section.

(1) For semiannual Compliance reports, the first Compliance report must cover the period beginning on the compliance date that is specified for your affected source in § 63.6595 and ending on June 30 or December 31, whichever date is the first date following the end of the first calendar half after the compliance date that is specified for your source in § 63.6595.

(2) For semiannual Compliance reports, the first Compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date follows the end of the first calendar half after the compliance date that is specified for your affected source in § 63.6595.

(3) For semiannual Compliance reports, each subsequent Compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.

(4) For semiannual Compliance reports, each subsequent Compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period.

(5) For each stationary RICE that is subject to permitting regulations pursuant to 40 CFR part 70 or 71, and if the permitting authority has established dates for submitting semiannual reports pursuant to 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6 (a)(3)(iii)(A), you may submit the first and subsequent Compliance reports according to the dates the permitting authority has established instead of according to the dates in paragraphs (b)(1) through (b)(4) of this section.

(6) For annual Compliance reports, the first Compliance report must cover the period beginning on the compliance date that is specified for your affected source in § 63.6595 and ending on December 31.

(7) For annual Compliance reports, the first Compliance report must be postmarked or delivered no later than January 31 following the end of the first calendar year after the compliance date that is specified for your affected source in § 63.6595.

(8) For annual Compliance reports, each subsequent Compliance report must cover the annual reporting period from January 1 through December 31.

(9) For annual Compliance reports, each subsequent Compliance report must be postmarked or delivered no later than January 31.

(c) The Compliance report must contain the information in paragraphs (c)(1) through (8) of this section.

(1) Company name and address.

(2) Statement by a responsible official, with that official's name, title, and signature, certifying the accuracy of the content of the report.

(3) Date of report and beginning and ending dates of the reporting period.

(4) If you had a malfunction during the reporting period, the compliance report must include the starting and ending date and time, the duration (in hours), and a brief description for each malfunction which occurred during the reporting period and which caused or may have caused any applicable emission limitation to be exceeded. The report must also include a description of actions taken by an owner or operator during a malfunction of an affected source to minimize emissions in accordance with § 63.6605(b), including actions taken to correct a malfunction.

(5) If there are no deviations from any emission or operating limitations that apply to you, a statement that there were no deviations from the emission or operating limitations during the reporting period.

(6) If there were no periods during which the continuous monitoring system (CMS), including CEMS and CPMS, was out-of-control, as specified in § 63.8(c)(7), a statement that there were no periods during which the CMS was out-of-control during the reporting period.

(7) Engine site rating in brake HP, year construction of the engine commenced (as defined in § 63.2, where the exact year is not known, provide the best estimate), and type of engine (CI, SI 2SLB, SI 4SLB, or SI 4SRB).

(8) Latitude and longitude of the engine in decimal degrees reported to the fifth decimal place.

(9) An engine can be claimed as exempt from reporting coordinates (latitude/longitude) via CEDRI if:

(i) During the reporting period, the engine will be owned by, or operated by or for, an agency of the Federal Government responsible for national defense; and

(ii) The agency determines that disclosing the coordinates to the general public would be a threat to national security.

(d) For each deviation from an emission or operating limitation that occurs for a stationary RICE where you are not using a CMS to comply with the emission or operating limitations in this subpart, the Compliance report must contain the information in paragraphs (c)(1) through (8) of this section and the information in paragraphs (d)(1) and (2) of this section.

(1) The total operating time (in hours) of the stationary RICE at which the deviation occurred during the reporting period.

(2) Information on the number, duration (in hours), and cause of deviations (including unknown cause, if applicable), as applicable, and the corrective action taken.

(3) A description of any changes in processes, or controls since the last reporting period.

(e) For each deviation from an emission or operating limitation occurring for a stationary RICE where you are using a CMS to comply with the emission and operating limitations in this subpart, you must include information in paragraphs (c)(1) through (8) and (e)(1) through (13) of this section.

(1) The date and time that each malfunction started and stopped.

(2) The start and end date and time and the duration (in hours) that each CMS was inoperative, except for zero (low-level) and high-level checks.

(3) The start and end date and time and the duration (in hours) that each CMS was out-of-control, including the information in § 63.8(c)(8).

(4) The date and time that each deviation started and stopped, and whether each deviation occurred during a period of malfunction or during another period.

(5) A summary of the total duration (in hours) of the deviation during the reporting period, and the total duration as a percent of the total source operating time during that reporting period.

(6) A breakdown of the total duration (in hours) of the deviations during the reporting period into those that are due to control equipment problems, process problems, other known causes, and other unknown causes.

(7) A summary of the total duration (in hours) of CMS downtime during the reporting period, and the total duration of CMS downtime as a percent of the total operating time of the stationary RICE at which the CMS downtime occurred during that reporting period.

(8) An identification of each parameter and pollutant (CO or formaldehyde) that was monitored at the stationary RICE.

(9) [Reserved]

(10) A brief description of the CMS.

(11) The date of the latest CMS certification or audit.

(12) A description of any changes in CMS, processes, or controls since the last reporting period.

(13) The total operating time of the stationary RICE at which the deviation occurred during the reporting period.

(f) Each affected source that has obtained a title V operating permit pursuant to 40 CFR part 70 or 71 must report all deviations as defined in this subpart in the semiannual monitoring report required by 40 CFR 70.6 (a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A). If an affected source submits a Compliance report pursuant

to table 7 of this subpart along with, or as part of, the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), and the Compliance report includes all required information concerning deviations from any emission or operating limitation in this subpart, submission of the Compliance report shall be deemed to satisfy any obligation to report the same deviations in the semiannual monitoring report. However, submission of a Compliance report shall not otherwise affect any obligation the affected source may have to report deviations from permit requirements to the permit authority. Beginning on February 26, 2025, the semiannual and annual compliance report required in table 7 of this subpart must be submitted according to paragraph (i) of this section. Only those elements required under this subpart are required to be submitted according to paragraph (i) of this section.

(g) If you are operating as a new or reconstructed stationary RICE which fires landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, you must submit an annual report according to Table 7 of this subpart by the date specified unless the Administrator has approved a different schedule, according to the information described in paragraphs (b)(1) through (b)(5) of this section. You must report the data specified in (g)(1) through (g)(3) of this section.

(1) Fuel flow rate of each fuel and the heating values that were used in your calculations. You must also demonstrate that the percentage of heat input provided by landfill gas or digester gas is equivalent to 10 percent or more of the total fuel consumption on an annual basis.

(2) The operating limits provided in your federally enforceable permit, and any deviations from these limits.

(3) Any problems or errors suspected with the meters.

(h) If you own or operate an emergency stationary RICE with a site rating of more than 100 brake HP that operates for the purpose specified in § 63.6640(f)(4)(ii), you must submit an annual report according to the requirements in paragraphs (h)(1) through (3) of this section.

(1) The report must contain the following information:

(i) Company name and address where the engine is located.

(ii) Date of the report and beginning and ending dates of the reporting period.

(iii) Engine site rating in brake HP, year construction of the engine commenced (as defined in § 63.2, where the exact year is not known, provide the best estimate), and type of engine (CI, SI 2SLB, SI 4SLB, or SI 4SRB).

(iv) Latitude and longitude of the engine in decimal degrees reported to the fifth decimal place.

(v)-(vi) [Reserved]

(vii) Hours spent for operation for the purpose specified in § 63.6640(f)(4)(ii), including the date, start time, and end time for engine operation for the purposes specified in § 63.6640(f)(4)(ii). The report must also identify the entity that dispatched the engine and the situation that necessitated the dispatch of the engine.

(viii) If there were no deviations from the fuel requirements in § 63.6604 that apply to the engine (if any), a statement that there were no deviations from the fuel requirements during the reporting period.

(ix) If there were deviations from the fuel requirements in § 63.6604 that apply to the engine (if any), information on the number, duration (in hours), and cause of deviations, and the corrective action taken.

(2) The first annual report must cover the calendar year 2015 and must be submitted no later than March 31, 2016. Subsequent annual reports for each calendar year must be submitted no later than March 31 of the following calendar year.

(3) Before February 26, 2025, the annual report must be submitted electronically using the subpart specific reporting form in the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) (*https://cdx.epa.gov/*). However, if the reporting form specific to this subpart is not available in CEDRI at the time that the report is due, the written report must be submitted to the Administrator at the appropriate address listed in § 63.13. Beginning on February 26, 2025, the annual report must be submitted according to paragraph (i) of this section.

(i) Beginning on February 26, 2025 for the annual report specified in § 63.6650(h) and February 26, 2025 or one year after the report becomes available in CEDRI, whichever is later for all other semiannual or annual reports, submit all semiannual and annual subsequent compliance reports using the appropriate electronic report template on the CEDRI website (*https://www.epa.gov/electronic-reporting-air-emissions/cedri*) for this subpart and following the procedure specified in § 63.9(k), except any CBI must be submitted according to the procedures in § 63.6645(h). The date report templates become available will be listed on the CEDRI website. Unless the Administrator or delegated state agency or other authority has approved a different schedule for submission of reports, the report must be submitted by the deadline specified in this subpart, regardless of the method in which the report is submitted.

[69 FR 33506, June 15, 2004, as amended at 75 FR 9677, Mar. 3, 2010; 78 FR 6705, Jan. 30, 2013; 87 FR 48607, Aug. 10, 2022; 89 FR 70517, Aug. 30, 2024]

§ 63.6655 What records must I keep?

(a) If you must comply with the emission and operating limitations, you must keep the records described in paragraphs (a)(1) through (a)(5), (b)(1) through (b)(3) and (c) of this section.

(1) A copy of each notification and report that you submitted to comply with this subpart, including all documentation supporting any Initial Notification or Notification of Compliance Status that you submitted, according to the requirement in § 63.10(b)(2)(xiv).

(2) Records of the occurrence and duration (in hours) of each malfunction of operation (*i.e.,* process equipment) or the air pollution control and monitoring equipment.

(3) Records of performance tests and performance evaluations as required in § 63.10(b)(2)(viii).

(4) Records of all required maintenance performed on the air pollution control and monitoring equipment.

(5) Records of actions taken during periods of malfunction to minimize emissions in accordance with § 63.6605(b), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation.

(b) For each CEMS or CPMS, you must keep the records listed in paragraphs (b)(1) through (3) of this section.

(1) Records described in § 63.10(b)(2)(vi) through (xi).

(2) Previous (*i.e.,* superseded) versions of the performance evaluation plan as required in § 63.8(d)(3).

(3) Requests for alternatives to the relative accuracy test for CEMS or CPMS as required in § 63.8(f)(6)(i), if applicable.

(c) If you are operating a new or reconstructed stationary RICE which fires landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, you must keep the records of your daily fuel usage monitors.

(d) You must keep the records required in Table 6 of this subpart to show continuous compliance with each emission or operating limitation that applies to you.

(e) You must keep records of the maintenance conducted on the stationary RICE in order to demonstrate that you operated and maintained the stationary RICE and after-treatment control device (if any) according to your own maintenance plan if you own or operate any of the following stationary RICE;

(1) An existing stationary RICE with a site rating of less than 100 brake HP located at a major source of HAP emissions.

(2) An existing stationary emergency RICE.

(3) An existing stationary RICE located at an area source of HAP emissions subject to management practices as shown in Table 2d to this subpart.

(f) If you own or operate any of the stationary RICE in paragraphs (f)(1) through (2) of this section, you must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. The owner or operator must document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation. If the engine is used for the purpose specified in § 63.6640(f)(4)(ii), the owner or operator must keep records of the notification of the emergency situation, and the date, start time, and end time of engine operation for these purposes.

(1) An existing emergency stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions that does not meet the standards applicable to non-emergency engines.

(2) An existing emergency stationary RICE located at an area source of HAP emissions that does not meet the standards applicable to non-emergency engines.

[69 FR 33506, June 15, 2004, as amended at 75 FR 9678, Mar. 3, 2010; 75 FR 51592, Aug. 20, 2010; 78 FR 6706, Jan. 30, 2013; 87 FR 48607, Aug. 10, 2022; 89 FR 70518, Aug. 30, 2024]

§ 63.6660 In what form and how long must I keep my records?

(a) Your records must be in a form suitable and readily available for expeditious review according to § 63.10(b)(1).

(b) As specified in § 63.10(b)(1), you must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

(c) You must keep each record readily accessible in hard copy or electronic form for at least 5 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to § 63.10(b)(1).

[69 FR 33506, June 15, 2004, as amended at 75 FR 9678, Mar. 3, 2010]

OTHER REQUIREMENTS AND INFORMATION

§ 63.6665 What parts of the General Provisions apply to me?

Table 8 to this subpart shows which parts of the General Provisions in §§ 63.1 through 63.15 apply to you. If you own or operate a new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions (except new or reconstructed 4SLB engines greater than or equal to 250 and less than or equal to 500 brake HP), a new or reconstructed stationary RICE located at an area source of HAP emissions, or any of the following RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you do not need to comply with any of the requirements of the General Provisions specified in Table 8: An existing 2SLB stationary RICE, an existing 4SLB stationary RICE, an existing stationary RICE that combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, an existing emergency stationary RICE, or an existing limited use stationary RICE. If you own or operate any of the following RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you do not need to comply with the requirements in the General Provisions specified in Table 8 except for the initial notification requirements: A new stationary RICE that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, a new emergency stationary RICE, or a new limited use stationary RICE.

[75 FR 9678, Mar. 3, 2010]

§ 63.6670 Who implements and enforces this subpart?

(a) This subpart is implemented and enforced by the U.S. EPA, or a delegated authority such as your State, local, or tribal agency. If the U.S. EPA Administrator has delegated authority to your State, local, or tribal agency, then that agency (as well as the U.S. EPA) has the authority to implement and enforce this subpart. You should contact your U.S. EPA Regional Office to find out whether this subpart is delegated to your State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under 40 CFR part 63, subpart E, the authorities contained in paragraph (c) of this section are retained by the Administrator of the U.S. EPA and are not transferred to the State, local, or tribal agency.

(c) The authorities that will not be delegated to State, local, or tribal agencies are:

(1) Approval of alternatives to the non-opacity emission limitations and operating limitations in § 63.6600 under § 63.6(g).

(2) Approval of major alternatives to test methods under § 63.7(e)(2)(ii) and (f) and as defined in § 63.90.

(3) Approval of major alternatives to monitoring under § 63.8(f) and as defined in § 63.90.

(4) Approval of major alternatives to recordkeeping and reporting under § 63.10(f) and as defined in § 63.90.

(5) Approval of a performance test which was conducted prior to the effective date of the rule, as specified in § 63.6610(b).

(6) Approval of an alternative to any electronic reporting to the EPA required by this subpart.

[69 FR 33506, June 15, 2004, as amended at 89 FR 70518, Aug. 30, 2024]

§ 63.6675 What definitions apply to this subpart?

Terms used in this subpart are defined in the Clean Air Act (CAA); in 40 CFR 63.2, the General Provisions of this part; and in this section as follows:

Alaska Railbelt Grid means the service areas of the six regulated public utilities that extend from Fairbanks to Anchorage and the Kenai Peninsula. These utilities are Golden Valley Electric Association; Chugach Electric Association; Matanuska Electric Association; Homer Electric Association; Anchorage Municipal Light & Power; and the City of Seward Electric System.

Area source means any stationary source of HAP that is not a major source as defined in part 63.

Associated equipment as used in this subpart and as referred to in section 112(n)(4) of the CAA, means equipment associated with an oil or natural gas exploration or production well, and includes all equipment from the well bore to the point of custody transfer, except glycol dehydration units, storage vessels with potential for flash emissions, combustion turbines, and stationary RICE.

Backup power for renewable energy means an engine that provides backup power to a facility that generates electricity from renewable energy resources, as that term is defined in Alaska Statute 42.45.045(l)(5) (incorporated by reference, see § 63.14).

Black start engine means an engine whose only purpose is to start up a combustion turbine.

CAA means the Clean Air Act (42 U.S.C. 7401 *et seq.,* as amended by Public Law 101-549, 104 Stat. 2399).

Commercial emergency stationary RICE means an emergency stationary RICE used in commercial establishments such as office buildings, hotels, stores, telecommunications facilities, restaurants, financial institutions such as banks, doctor's offices, and sports and performing arts facilities.

Compression ignition means relating to a type of stationary internal combustion engine that is not a spark ignition engine.

Custody transfer means the transfer of hydrocarbon liquids or natural gas: After processing and/or treatment in the producing operations, or from storage vessels or automatic transfer facilities or other such equipment, including product loading racks, to pipelines or any other forms of transportation. For the purposes of this subpart, the point at which such liquids or natural gas enters a natural gas processing plant is a point of custody transfer.

Deviation means any instance in which an affected source subject to this subpart, or an owner or operator of such a source:

(1) Fails to meet any requirement or obligation established by this subpart, including but not limited to any emission limitation or operating limitation;

(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit; or

(3) Fails to meet any emission limitation or operating limitation in this subpart during malfunction, regardless or whether or not such failure is permitted by this subpart.

(4) Fails to satisfy the general duty to minimize emissions established by § 63.6(e)(1)(i).

Diesel engine means any stationary RICE in which a high boiling point liquid fuel injected into the combustion chamber ignites when the air charge has been compressed to a temperature sufficiently high for auto-ignition. This process is also known as compression ignition.

Diesel fuel means any liquid obtained from the distillation of petroleum with a boiling point of approximately 150 to 360 degrees Celsius. One commonly used form is fuel oil number 2. Diesel fuel also includes any non-distillate fuel with comparable physical and chemical properties (*e.g.* biodiesel) that is suitable for use in compression ignition engines.

Digester gas means any gaseous by-product of wastewater treatment typically formed through the anaerobic decomposition of organic waste materials and composed principally of methane and CO_2.

Dual-fuel engine means any stationary RICE in which a liquid fuel (typically diesel fuel) is used for compression ignition and gaseous fuel (typically natural gas) is used as the primary fuel.

Emergency stationary RICE means any stationary reciprocating internal combustion engine that meets all of the criteria in paragraphs (1) through (3) of this definition. All emergency stationary RICE must comply with the requirements specified in § 63.6640(f) in order to be considered emergency stationary RICE. If the engine does not comply with the requirements specified in § 63.6640(f), then it is not considered to be an emergency stationary RICE under this subpart.

(1) The stationary RICE is operated to provide electrical power or mechanical work during an emergency situation. Examples include stationary RICE used to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility (or the normal power source, if the facility runs on its own power production) is interrupted, or stationary RICE used to pump water in the case of fire or flood, etc.

(2) The stationary RICE is operated under limited circumstances for situations not included in paragraph (1) of this definition, as specified in § 63.6640(f).

(3) The stationary RICE operates as part of a financial arrangement with another entity in situations not included in paragraph (1) of this definition only as allowed in § 63.6640(f)(4)(i) or (ii).

Engine startup means the time from initial start until applied load and engine and associated equipment reaches steady state or normal operation. For stationary engine with catalytic controls, engine startup means the time from initial start until applied load and engine and associated equipment, including the catalyst, reaches steady state or normal operation.

Four-stroke engine means any type of engine which completes the power cycle in two crankshaft revolutions, with intake and compression strokes in the first revolution and power and exhaust strokes in the second revolution.

Gaseous fuel means a material used for combustion which is in the gaseous state at standard atmospheric temperature and pressure conditions.

Gasoline means any fuel sold in any State for use in motor vehicles and motor vehicle engines, or nonroad or stationary engines, and commonly or commercially known or sold as gasoline.

Glycol dehydration unit means a device in which a liquid glycol (including, but not limited to, ethylene glycol, diethylene glycol, or triethylene glycol) absorbent directly contacts a natural gas stream and absorbs water in a contact tower or absorption column (absorber). The glycol contacts and absorbs water vapor and other gas stream constituents from the natural gas and becomes "rich" glycol. This glycol is then regenerated in the glycol dehydration unit reboiler. The "lean" glycol is then recycled.

Hazardous air pollutants (HAP) means any air pollutants listed in or pursuant to section 112(b) of the CAA.

Institutional emergency stationary RICE means an emergency stationary RICE used in institutional establishments such as medical centers, nursing homes, research centers, institutions of higher education, correctional facilities, elementary and secondary schools, libraries, religious establishments, police stations, and fire stations.

ISO standard day conditions means 288 degrees Kelvin (15 degrees Celsius), 60 percent relative humidity and 101.3 kilopascals pressure.

Landfill gas means a gaseous by-product of the land application of municipal refuse typically formed through the anaerobic decomposition of waste materials and composed principally of methane and CO_2.

Lean burn engine means any two-stroke or four-stroke spark ignited engine that does not meet the definition of a rich burn engine.

Limited use stationary RICE means any stationary RICE that operates less than 100 hours per year.

Liquefied petroleum gas means any liquefied hydrocarbon gas obtained as a by-product in petroleum refining of natural gas production.

Liquid fuel means any fuel in liquid form at standard temperature and pressure, including but not limited to diesel, residual/crude oil, kerosene/naphtha (jet fuel), and gasoline.

Major Source, as used in this subpart, shall have the same meaning as in § 63.2, except that:

(1) Emissions from any oil or gas exploration or production well (with its associated equipment (as defined in this section)) and emissions from any pipeline compressor station or pump station shall not be aggregated with emissions from other similar units, to determine whether such emission points or stations are major sources, even when emission points are in a contiguous area or under common control;

(2) For oil and gas production facilities, emissions from processes, operations, or equipment that are not part of the same oil and gas production facility, as defined in § 63.1271 of subpart HHH of this part, shall not be aggregated;

(3) For production field facilities, only HAP emissions from glycol dehydration units, storage vessel with the potential for flash emissions, combustion turbines and reciprocating internal combustion engines shall be aggregated for a major source determination; and

(4) Emissions from processes, operations, and equipment that are not part of the same natural gas transmission and storage facility, as defined in § 63.1271 of subpart HHH of this part, shall not be aggregated.

Malfunction means any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner which causes, or has the potential to cause, the emission limitations in an applicable standard to be exceeded. Failures that are caused in part by poor maintenance or careless operation are not malfunctions.

Natural gas means a naturally occurring mixture of hydrocarbon and non-hydrocarbon gases found in geologic formations beneath the Earth's surface, of which the principal constituent is methane. Natural gas may be field or pipeline quality.

Non-selective catalytic reduction (NSCR) means an add-on catalytic nitrogen oxides (NO_X) control device for rich burn engines that, in a two-step reaction, promotes the conversion of excess oxygen, NO_X, CO, and volatile organic compounds (VOC) into CO_2, nitrogen, and water.

Oil and gas production facility as used in this subpart means any grouping of equipment where hydrocarbon liquids are processed, upgraded (*i.e.,* remove impurities or other constituents to meet contract specifications), or stored prior to the point of custody transfer; or where natural gas is processed, upgraded, or stored prior to entering the natural gas transmission and storage source category. For purposes of a major source determination, facility (including a building, structure, or installation) means oil and natural gas production and processing equipment that is located within the boundaries of an individual surface site as defined in this section. Equipment that is part of a facility will typically be located within close proximity to other equipment located at the same facility. Pieces of production equipment or groupings of equipment located on different oil and gas leases, mineral fee tracts, lease tracts, subsurface or surface unit areas, surface fee tracts, surface lease tracts, or separate surface sites, whether or not connected by a road, waterway, power line or pipeline, shall not be considered part of the same facility. Examples of facilities in the oil and natural gas production source category include, but are not limited to, well sites, satellite tank batteries, central tank batteries, a compressor station that transports natural gas to a natural gas processing plant, and natural gas processing plants.

Oxidation catalyst means an add-on catalytic control device that controls CO and VOC by oxidation.

Peaking unit or engine means any standby engine intended for use during periods of high demand that are not emergencies.

Percent load means the fractional power of an engine compared to its maximum manufacturer's design capacity at engine site conditions. Percent load may range between 0 percent to above 100 percent.

Potential to emit means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the stationary source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable. For oil and natural gas production facilities subject to subpart HH of this part, the potential to emit provisions in § 63.760(a) may be used. For natural gas transmission and storage facilities subject to subpart HHH of this part, the maximum annual facility gas throughput for storage facilities may be determined according to § 63.1270(a)(1) and the maximum annual throughput for transmission facilities may be determined according to § 63.1270(a)(2).

Production field facility means those oil and gas production facilities located prior to the point of custody transfer.

Production well means any hole drilled in the earth from which crude oil, condensate, or field natural gas is extracted.

Propane means a colorless gas derived from petroleum and natural gas, with the molecular structure C_3H_8.

Remote stationary RICE means stationary RICE meeting any of the following criteria:

(1) Stationary RICE located in an offshore area that is beyond the line of ordinary low water along that portion of the coast of the United States that is in direct contact with the open seas and beyond the line marking the seaward limit of inland waters.

(2) Stationary RICE located on a pipeline segment that meets both of the criteria in paragraphs (2)(i) and (ii) of this definition.

(i) A pipeline segment with 10 or fewer buildings intended for human occupancy and no buildings with four or more stories within 220 yards (200 meters) on either side of the centerline of any continuous 1-mile (1.6 kilometers) length of pipeline. Each separate dwelling unit in a multiple dwelling unit building is counted as a separate building intended for human occupancy.

(ii) The pipeline segment does not lie within 100 yards (91 meters) of either a building or a small, well-defined outside area (such as a playground, recreation area, outdoor theater, or other place of public assembly) that is occupied by 20 or more persons on at least 5 days a week for 10 weeks in any 12-month period. The days and weeks need not be consecutive. The building or area is considered occupied for a full day if it is occupied for any portion of the day.

(iii) For purposes of this paragraph (2), the term pipeline segment means all parts of those physical facilities through which gas moves in transportation, including but not limited to pipe, valves, and other appurtenance attached to pipe, compressor units, metering stations, regulator stations, delivery stations, holders, and fabricated assemblies. Stationary RICE located within 50 yards (46 meters) of the pipeline segment providing power for equipment on a pipeline segment are part of the pipeline segment. Transportation of gas means the gathering, transmission, or distribution of gas by pipeline, or the storage of gas. A building is intended for human occupancy if its primary use is for a purpose involving the presence of humans.

(3) Stationary RICE that are not located on gas pipelines and that have 5 or fewer buildings intended for human occupancy and no buildings with four or more stories within a 0.25 mile radius around the engine. A building is intended for human occupancy if its primary use is for a purpose involving the presence of humans.

Residential emergency stationary RICE means an emergency stationary RICE used in residential establishments such as homes or apartment buildings.

Responsible official means responsible official as defined in 40 CFR 70.2.

Rich burn engine means any four-stroke spark ignited engine where the manufacturer's recommended operating air/fuel ratio divided by the stoichiometric air/fuel ratio at full load conditions is less than or equal to 1.1. Engines originally manufactured as rich burn engines, but modified prior to December 19, 2002 with passive emission control technology for NO_X (such as pre-combustion chambers) will be considered lean burn engines. Also, existing engines where there are no manufacturer's recommendations regarding air/fuel ratio will be considered a rich burn engine if the excess oxygen content of the exhaust at full load conditions is less than or equal to 2 percent.

Site-rated HP means the maximum manufacturer's design capacity at engine site conditions.

Spark ignition means relating to either: A gasoline-fueled engine; or any other type of engine with a spark plug (or other sparking device) and with operating characteristics significantly similar to the theoretical Otto combustion cycle. Spark ignition engines usually use a throttle to regulate intake air flow to control power during normal operation. Dual-fuel engines in which a liquid fuel (typically diesel fuel) is used for CI and gaseous fuel (typically natural gas) is used as the primary fuel at an annual average ratio of less than 2 parts diesel fuel to 100 parts total fuel on an energy equivalent basis are spark ignition engines.

Stationary reciprocating internal combustion engine (RICE) means any reciprocating internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work and which is not mobile. Stationary RICE differ from mobile RICE in that a stationary RICE is not a non-road engine as defined at 40 CFR 1068.30, and is not used to propel a motor vehicle or a vehicle used solely for competition.

Stationary RICE test cell/stand means an engine test cell/stand, as defined in subpart PPPPP of this part, that tests stationary RICE.

Stoichiometric means the theoretical air-to-fuel ratio required for complete combustion.

Storage vessel with the potential for flash emissions means any storage vessel that contains a hydrocarbon liquid with a stock tank gas-to-oil ratio equal to or greater than 0.31 cubic meters per liter and an American Petroleum Institute gravity equal to or greater than 40 degrees and an actual annual average hydrocarbon liquid throughput equal to or greater than 79,500 liters per day. Flash emissions occur when dissolved hydrocarbons in the fluid evolve from solution when the fluid pressure is reduced.

Subpart means 40 CFR part 63, subpart ZZZZ.

Surface site means any combination of one or more graded pad sites, gravel pad sites, foundations, platforms, or the immediate physical location upon which equipment is physically affixed.

Two-stroke engine means a type of engine which completes the power cycle in single crankshaft revolution by combining the intake and compression operations into one stroke and the power and exhaust operations into a second stroke. This system requires auxiliary scavenging and inherently runs lean of stoichiometric.

[69 FR 33506, June 15, 2004, as amended at 71 FR 20467, Apr. 20, 2006; 73 FR 3607, Jan. 18, 2008; 75 FR 9679, Mar. 3, 2010; 75 FR 51592, Aug. 20, 2010; 76 FR 12867, Mar. 9, 2011; 78 FR 6706, Jan. 30, 2013; 87 FR 48608, Aug. 10, 2022]

Table 1a to Subpart ZZZZ of Part 63—Emission Limitations for Existing, New, and Reconstructed Spark Ignition, 4SRB Stationary RICE >500 HP Located at a Major Source of HAP Emissions

As stated in §§ 63.6600 and 63.6640, you must comply with the following emission limitations at 100 percent load plus or minus 10 percent for existing, new and reconstructed 4SRB stationary RICE >500 HP located at a major source of HAP emissions:

For each . . .	You must meet the following emission limitation, except during periods of startup . . .	During periods of startup you must . . .
1. 4SRB stationary RICE	a. Reduce formaldehyde emissions by 76 percent or more. If you commenced construction or reconstruction between December 19, 2002 and June 15, 2004, you may reduce formaldehyde emissions by 75 percent or more until June 15, 2007 or	Minimize the engine's time spent at idle and minimize the engine's startup time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply.[1]

[1] *Sources can petition the Administrator pursuant to the requirements of 40 CFR 63.6(g) for alternative work practices.*

For each . . .	You must meet the following emission limitation, except during periods of startup . . .	During periods of startup you must . . .
	b. Limit the concentration of formaldehyde in the stationary RICE exhaust to 350 ppbvd or less at 15 percent O_2	

[1] *Sources can petition the Administrator pursuant to the requirements of 40 CFR 63.6(g) for alternative work practices.*

[75 FR 9679, Mar. 3, 2010, as amended at 75 FR 51592, Aug. 20, 2010]

Table 1b to Subpart ZZZZ of Part 63—Operating Limitations for Existing, New, and Reconstructed SI 4SRB Stationary RICE >500 HP Located at a Major Source of HAP Emissions

As stated in §§ 63.6600, 63.6603, 63.6630 and 63.6640, you must comply with the following operating limitations for existing, new and reconstructed 4SRB stationary RICE >500 HP located at a major source of HAP emissions:

For each . . .	You must meet the following operating limitation, except during periods of startup . . .
1. existing, new and reconstructed 4SRB stationary RICE >500 HP located at a major source of HAP emissions complying with the requirement to reduce formaldehyde emissions by 76 percent or more (or by 75 percent or more, if applicable) and using NSCR; or existing, new and reconstructed 4SRB stationary RICE >500 HP located at a major source of HAP emissions complying with the requirement to limit the concentration of formaldehyde in the stationary RICE exhaust to 350 ppbvd or less at 15 percent O_2 and using NSCR;	a. maintain your catalyst so that the pressure drop across the catalyst does not change by more than 2 inches of water at 100 percent load plus or minus 10 percent from the pressure drop across the catalyst measured during the initial performance test; and b. maintain the temperature of your stationary RICE exhaust so that the catalyst inlet temperature is greater than or equal to 750 °F and less than or equal to 1250 °F.[1]
2. existing, new and reconstructed 4SRB stationary RICE >500 HP located at a major source of HAP emissions complying with the requirement to reduce formaldehyde emissions by 76 percent or more (or by 75 percent or more, if applicable) and not using NSCR; or existing, new and reconstructed 4SRB stationary RICE >500 HP located at a major source of HAP	Comply with any operating limitations approved by the Administrator.

[1] *Sources can petition the Administrator pursuant to the requirements of 40 CFR 63.8(f) for a different temperature range.*

For each . . .	You must meet the following operating limitation, except during periods of startup . . .
emissions complying with the requirement to limit the concentration of formaldehyde in the stationary RICE exhaust to 350 ppbvd or less at 15 percent O_2 and not using NSCR.	

[1] *Sources can petition the Administrator pursuant to the requirements of 40 CFR 63.8(f) for a different temperature range.*

[78 FR 6706, Jan. 30, 2013]

Table 2a to Subpart ZZZZ of Part 63—Emission Limitations for New and Reconstructed 2SLB and Compression Ignition Stationary RICE >500 HP and New and Reconstructed 4SLB Stationary RICE ≥250 HP Located at a Major Source of HAP Emissions

As stated in §§ 63.6600 and 63.6640, you must comply with the following emission limitations for new and reconstructed lean burn and new and reconstructed compression ignition stationary RICE at 100 percent load plus or minus 10 percent:

For each . . .	You must meet the following emission limitation, except during periods of startup . . .	During periods of startup you must . . .
1. 2SLB stationary RICE	a. Reduce CO emissions by 58 percent or more; or b. Limit concentration of formaldehyde in the stationary RICE exhaust to 12 ppmvd or less at 15 percent O_2. If you commenced construction or reconstruction between December 19, 2002 and June 15, 2004, you may limit concentration of formaldehyde to 17 ppmvd or less at 15 percent O_2 until June 15, 2007	Minimize the engine's time spent at idle and minimize the engine's startup time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply.[1]
2. 4SLB stationary RICE	a. Reduce CO emissions by 93 percent or more; or b. Limit concentration of formaldehyde in the stationary RICE exhaust to 14 ppmvd or less at 15 percent O_2	
3. CI stationary RICE	a. Reduce CO emissions by 70 percent or more; or	

[1] *Sources can petition the Administrator pursuant to the requirements of 40 CFR 63.6(g) for alternative work practices.*

For each . . .	You must meet the following emission limitation, except during periods of startup . . .	During periods of startup you must . . .
	b. Limit concentration of formaldehyde in the stationary RICE exhaust to 580 ppbvd or less at 15 percent O_2	

[1] *Sources can petition the Administrator pursuant to the requirements of 40 CFR 63.6(g) for alternative work practices.*

[75 FR 9680, Mar. 3, 2010]

Table 2b to Subpart ZZZZ of Part 63—Operating Limitations for New and Reconstructed 2SLB and CI Stationary RICE >500 HP Located at a Major Source of HAP Emissions, New and Reconstructed 4SLB Stationary RICE ≥250 HP Located at a Major Source of HAP Emissions, Existing CI Stationary RICE >500 HP

As stated in §§ 63.6600, 63.6601, 63.6603, 63.6630, and 63.6640, you must comply with the following operating limitations for new and reconstructed 2SLB and CI stationary RICE >500 HP located at a major source of HAP emissions; new and reconstructed 4SLB stationary RICE ≥250 HP located at a major source of HAP emissions; and existing CI stationary RICE >500 HP:

For each . . .	You must meet the following operating limitation, except during periods of startup . . .
1. New and reconstructed 2SLB and CI stationary RICE >500 HP located at a major source of HAP emissions and new and reconstructed 4SLB stationary RICE ≥250 HP located at a major source of HAP emissions complying with the requirement to reduce CO emissions and using an oxidation catalyst; and New and reconstructed 2SLB and CI stationary RICE >500 HP located at a major source of HAP emissions and new and reconstructed 4SLB stationary RICE ≥250 HP located at a major source of HAP emissions complying with the requirement to limit the concentration of formaldehyde in the stationary RICE exhaust and using an oxidation catalyst.	a. maintain your catalyst so that the pressure drop across the catalyst does not change by more than 2 inches of water at 100 percent load plus or minus 10 percent from the pressure drop across the catalyst that was measured during the initial performance test; and b. maintain the temperature of your stationary RICE exhaust so that the catalyst inlet temperature is greater than or equal to 450 °F and less than or equal to 1350 °F.[1]
2. Existing CI stationary RICE >500 HP complying with the requirement to limit or reduce the concentration of CO in the stationary RICE exhaust and using an	a. maintain your catalyst so that the pressure drop across the catalyst does not change by more than 2 inches of

[1] *Sources can petition the Administrator pursuant to the requirements of 40 CFR 63.8(f) for a different temperature range.*

For each . . .	You must meet the following operating limitation, except during periods of startup . . .
oxidation catalyst	water from the pressure drop across the catalyst that was measured during the initial performance test; and b. maintain the temperature of your stationary RICE exhaust so that the catalyst inlet temperature is greater than or equal to 450 °F and less than or equal to 1350 °F.[1]
3. New and reconstructed 2SLB and CI stationary RICE >500 HP located at a major source of HAP emissions and new and reconstructed 4SLB stationary RICE ≥250 HP located at a major source of HAP emissions complying with the requirement to reduce CO emissions and not using an oxidation catalyst; and New and reconstructed 2SLB and CI stationary RICE >500 HP located at a major source of HAP emissions and new and reconstructed 4SLB stationary RICE ≥250 HP located at a major source of HAP emissions complying with the requirement to limit the concentration of formaldehyde in the stationary RICE exhaust and not using an oxidation catalyst; and existing CI stationary RICE >500 HP complying with the requirement to limit or reduce the concentration of CO in the stationary RICE exhaust and not using an oxidation catalyst.	Comply with any operating limitations approved by the Administrator.

[1] *Sources can petition the Administrator pursuant to the requirements of 40 CFR 63.8(f) for a different temperature range.*

[78 FR 6707, Jan. 30, 2013]

Table 2c to Subpart ZZZZ of Part 63—Requirements for Existing Compression Ignition Stationary RICE Located at a Major Source of HAP Emissions and Existing Spark Ignition Stationary RICE ≤500 HP Located at a Major Source of HAP Emissions

As stated in §§ 63.6600, 63.6602, and 63.6640, you must comply with the following requirements for existing compression ignition stationary RICE located at a major source of HAP emissions and existing spark ignition stationary RICE ≤500 HP located at a major source of HAP emissions

For each . . .	You must meet the following requirement, except during periods of startup . . .	During periods of startup you must . . .
1. Emergency stationary CI RICE and black start stationary CI RICE [1]	a. Change oil and filter every 500 hours of operation or within 1 year + 30 days of the previous change, whichever comes first [2]. b. Inspect air cleaner every 1,000 hours of operation or within 1 year + 30 days of the previous inspection, whichever comes first, and replace as necessary; c. Inspect all hoses and belts every 500 hours of operation or within 1 year + 30 days of the previous inspection, whichever comes first, and replace as necessary [3]	Minimize the engine's time spent at idle and minimize the engine's startup time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply.[3]

[1] If an emergency engine is operating during an emergency and it is not possible to shut down the engine in order to perform the work practice requirements on the schedule required in table 2c of this subpart, or if performing the work practice on the required schedule would otherwise pose an unacceptable risk under Federal, state, or local law, the work practice can be delayed until the emergency is over or the unacceptable risk under Federal, state, or local law has abated. The work practice should be performed as soon as practicable after the emergency has ended or the unacceptable risk under Federal, state, or local law has abated. Sources must report any failure to perform the work practice on the schedule required and the Federal, state or local law under which the risk was deemed unacceptable.

[2] Sources have the option to utilize an oil analysis program as described in § 63.6625(i) or (j) in order to extend the specified oil change requirement in table 2c of this subpart.

[3] Sources can petition the Administrator pursuant to the requirements of 40 CFR 63.6(g) for alternative work practices.

For each . . .	You must meet the following requirement, except during periods of startup . . .	During periods of startup you must . . .
2. Non-Emergency, non-black start stationary CI RICE <100 HP	a. Change oil and filter every 1,000 hours of operation or within 1 year + 30 days of the previous change, whichever comes first [2].	
	b. Inspect air cleaner every 1,000 hours of operation or within 1 year + 30 days of the previous inspection, whichever comes first, and replace as necessary;	
	c. Inspect all hoses and belts every 500 hours of operation or within 1 year + 30 days of the previous inspection, whichever comes first, and replace as necessary [3]	
3. Non-Emergency, non-black start CI stationary RICE 100≤HP≤300 HP	Limit concentration of CO in the stationary RICE exhaust to 230 ppmvd or less at 15 percent O_2	
4. Non-Emergency, non-black start CI stationary RICE 300<HP≤500	a. Limit concentration of CO in the stationary RICE exhaust to 49 ppmvd or less at 15 percent O_2; or	

[1] If an emergency engine is operating during an emergency and it is not possible to shut down the engine in order to perform the work practice requirements on the schedule required in table 2c of this subpart, or if performing the work practice on the required schedule would otherwise pose an unacceptable risk under Federal, state, or local law, the work practice can be delayed until the emergency is over or the unacceptable risk under Federal, state, or local law has abated. The work practice should be performed as soon as practicable after the emergency has ended or the unacceptable risk under Federal, state, or local law has abated. Sources must report any failure to perform the work practice on the schedule required and the Federal, state or local law under which the risk was deemed unacceptable.

[2] Sources have the option to utilize an oil analysis program as described in § 63.6625(i) or (j) in order to extend the specified oil change requirement in table 2c of this subpart.

[3] Sources can petition the Administrator pursuant to the requirements of 40 CFR 63.6(g) for alternative work practices.

For each . . .	You must meet the following requirement, except during periods of startup . . .	During periods of startup you must . . .
	b. Reduce CO emissions by 70 percent or more	
5. Non-Emergency, non-black start stationary CI RICE >500 HP	a. Limit concentration of CO in the stationary RICE exhaust to 23 ppmvd or less at 15 percent O_2; or	
	b. Reduce CO emissions by 70 percent or more	
6. Emergency stationary SI RICE and black start stationary SI RICE.[1]	a. Change oil and filter every 500 hours of operation or within 1 year + 30 days of the previous change, whichever comes first; [2]	
	b. Inspect spark plugs every 1,000 hours of operation or within 1 year + 30 days of the previous inspection, whichever comes first, and replace as necessary;	
	c. Inspect all hoses and belts every 500 hours of operation or within 1 year + 30 days of the previous inspection, whichever comes first, and replace as necessary [3]	

[1] If an emergency engine is operating during an emergency and it is not possible to shut down the engine in order to perform the work practice requirements on the schedule required in table 2c of this subpart, or if performing the work practice on the required schedule would otherwise pose an unacceptable risk under Federal, state, or local law, the work practice can be delayed until the emergency is over or the unacceptable risk under Federal, state, or local law has abated. The work practice should be performed as soon as practicable after the emergency has ended or the unacceptable risk under Federal, state, or local law has abated. Sources must report any failure to perform the work practice on the schedule required and the Federal, state or local law under which the risk was deemed unacceptable.

[2] Sources have the option to utilize an oil analysis program as described in § 63.6625(i) or (j) in order to extend the specified oil change requirement in table 2c of this subpart.

[3] Sources can petition the Administrator pursuant to the requirements of 40 CFR 63.6(g) for alternative work practices.

For each . . .	You must meet the following requirement, except during periods of startup . . .	During periods of startup you must . . .
7. Non-Emergency, non-black start stationary SI RICE <100 HP that are not 2SLB stationary RICE	a. Change oil and filter every 1,440 hours of operation or within 1 year + 30 days of the previous change, whichever comes first; [2] b. Inspect spark plugs every 1,440 hours of operation or within 1 year + 30 days of the previous inspection, whichever comes first, and replace as necessary c. Inspect all hoses and belts every 1,440 hours of operation or within 1 year + 30 days of the previous inspection, whichever comes first, and replace as necessary [3]	
8. Non-Emergency, non-black start 2SLB stationary SI RICE <100 HP	a. Change oil and filter every 4,320 hours of operation or within 1 year + 30 days of the previous change, whichever comes first; [2] b. Inspect spark plugs every 4,320 hours of	

[1] If an emergency engine is operating during an emergency and it is not possible to shut down the engine in order to perform the work practice requirements on the schedule required in table 2c of this subpart, or if performing the work practice on the required schedule would otherwise pose an unacceptable risk under Federal, state, or local law, the work practice can be delayed until the emergency is over or the unacceptable risk under Federal, state, or local law has abated. The work practice should be performed as soon as practicable after the emergency has ended or the unacceptable risk under Federal, state, or local law has abated. Sources must report any failure to perform the work practice on the schedule required and the Federal, state or local law under which the risk was deemed unacceptable.

[2] Sources have the option to utilize an oil analysis program as described in § 63.6625(i) or (j) in order to extend the specified oil change requirement in table 2c of this subpart.

[3] Sources can petition the Administrator pursuant to the requirements of 40 CFR 63.6(g) for alternative work practices.

For each . . .	You must meet the following requirement, except during periods of startup . . .	During periods of startup you must . . .
	operation or within 1 year + 30 days of the previous inspection, whichever comes first, and replace as necessary;	
	c. Inspect all hoses and belts every 4,320 hours of operation or within 1 year + 30 days of the previous inspection, whichever comes first, and replace as necessary [3]	
9. Non-emergency, non-black start 2SLB stationary RICE 100≤HP≤500	Limit concentration of CO in the stationary RICE exhaust to 225 ppmvd or less at 15 percent O_2	
10. Non-emergency, non-black start 4SLB stationary RICE 100≤HP≤500	Limit concentration of CO in the stationary RICE exhaust to 47 ppmvd or less at 15 percent O_2	
11. Non-emergency, non-black start 4SRB stationary RICE 100≤HP≤500	Limit concentration of formaldehyde in the stationary RICE exhaust to 10.3 ppmvd or less at 15 percent O_2	
12. Non-emergency, non-black start stationary RICE 100≤HP≤500 which	Limit concentration of CO in the stationary RICE exhaust to 177 ppmvd or	

[1] If an emergency engine is operating during an emergency and it is not possible to shut down the engine in order to perform the work practice requirements on the schedule required in table 2c of this subpart, or if performing the work practice on the required schedule would otherwise pose an unacceptable risk under Federal, state, or local law, the work practice can be delayed until the emergency is over or the unacceptable risk under Federal, state, or local law has abated. The work practice should be performed as soon as practicable after the emergency has ended or the unacceptable risk under Federal, state, or local law has abated. Sources must report any failure to perform the work practice on the schedule required and the Federal, state or local law under which the risk was deemed unacceptable.

[2] Sources have the option to utilize an oil analysis program as described in § 63.6625(i) or (j) in order to extend the specified oil change requirement in table 2c of this subpart.

[3] Sources can petition the Administrator pursuant to the requirements of 40 CFR 63.6(g) for alternative work practices.

For each . . .	You must meet the following requirement, except during periods of startup . . .	During periods of startup you must . . .
combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis	less at 15 percent O_2	

[1] If an emergency engine is operating during an emergency and it is not possible to shut down the engine in order to perform the work practice requirements on the schedule required in table 2c of this subpart, or if performing the work practice on the required schedule would otherwise pose an unacceptable risk under Federal, state, or local law, the work practice can be delayed until the emergency is over or the unacceptable risk under Federal, state, or local law has abated. The work practice should be performed as soon as practicable after the emergency has ended or the unacceptable risk under Federal, state, or local law has abated. Sources must report any failure to perform the work practice on the schedule required and the Federal, state or local law under which the risk was deemed unacceptable.

[2] Sources have the option to utilize an oil analysis program as described in § 63.6625(i) or (j) in order to extend the specified oil change requirement in table 2c of this subpart.

[3] Sources can petition the Administrator pursuant to the requirements of 40 CFR 63.6(g) for alternative work practices.

[89 FR 70518, Aug. 30, 2024]

Table 2d to Subpart ZZZZ of Part 63—Requirements for Existing Stationary RICE Located at Area Sources of HAP Emissions

As stated in §§ 63.6603 and 63.6640, you must comply with the following requirements for existing stationary RICE located at area sources of HAP emissions:

For each . . .	You must meet the following requirement, except during periods of startup . . .	During periods of startup you must . . .
1. Non-Emergency, non-black start CI stationary RICE ≤300 HP	a. Change oil and filter every 1,000 hours of operation or within 1 year + 30 days of the previous change, whichever comes first; [1] b. Inspect air cleaner every 1,000 hours of operation or within 1 year + 30 days of the previous inspection, whichever comes first, and replace as necessary; c. Inspect all hoses and belts every 500 hours of operation or within 1 year + 30 days of the previous inspection, whichever comes first, and replace as necessary	Minimize the engine's time spent at idle and minimize the engine's startup time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply.

[1] Sources have the option to utilize an oil analysis program as described in § 63.6625(i) or (j) in order to extend the specified oil change requirement in table 2d of this subpart.

[2] If an emergency engine is operating during an emergency and it is not possible to shut down the engine in order to perform the management practice requirements on the schedule required in table 2d of this subpart, or if performing the management practice on the required schedule would otherwise pose an unacceptable risk under Federal, state, or local law, the management practice can be delayed until the emergency is over or the unacceptable risk under Federal, state, or local law has abated. The management practice should be performed as soon as practicable after the emergency has ended or the unacceptable risk under Federal, state, or local law has abated. Sources must report any failure to perform the management practice on the schedule required and the Federal, state or local law under which the risk was deemed unacceptable.

For each . . .	You must meet the following requirement, except during periods of startup . . .	During periods of startup you must . . .
2. Non-Emergency, non-black start CI stationary RICE 300<HP≤500	a. Limit concentration of CO in the stationary RICE exhaust to 49 ppmvd at 15 percent O_2; or b. Reduce CO emissions by 70 percent or more	
3. Non-Emergency, non-black start CI stationary RICE >500 HP	a. Limit concentration of CO in the stationary RICE exhaust to 23 ppmvd at 15 percent O_2; or b. Reduce CO emissions by 70 percent or more	
4. Emergency stationary CI RICE and black start stationary CI RICE.[2]	a. Change oil and filter every 500 hours of operation or within 1 year + 30 days of the previous change, whichever comes first; [1] b. Inspect air cleaner every 1,000 hours of operation or within 1 year + 30 days of the previous inspection, whichever comes	

[1] Sources have the option to utilize an oil analysis program as described in § 63.6625(i) or (j) in order to extend the specified oil change requirement in table 2d of this subpart.

[2] If an emergency engine is operating during an emergency and it is not possible to shut down the engine in order to perform the management practice requirements on the schedule required in table 2d of this subpart, or if performing the management practice on the required schedule would otherwise pose an unacceptable risk under Federal, state, or local law, the management practice can be delayed until the emergency is over or the unacceptable risk under Federal, state, or local law has abated. The management practice should be performed as soon as practicable after the emergency has ended or the unacceptable risk under Federal, state, or local law has abated. Sources must report any failure to perform the management practice on the schedule required and the Federal, state or local law under which the risk was deemed unacceptable.

For each . . .	You must meet the following requirement, except during periods of startup . . .	During periods of startup you must . . .
	first, and replace as necessary; and c. Inspect all hoses and belts every 500 hours of operation or within 1 year + 30 days of the previous inspection, whichever comes first, and replace as necessary	
5. Emergency stationary SI RICE; black start stationary SI RICE; non-emergency, non-black start 4SLB stationary RICE >500 HP that operate 24 hours or less per calendar year; non-emergency, non-black start 4SRB stationary RICE >500 HP that operate 24 hours or less per calendar year.[2]	a. Change oil and filter every 500 hours of operation or within 1 year + 30 days of the previous change, whichever comes first; [1] b. Inspect spark plugs every 1,000 hours of operation or within 1 year + 30 days of the previous inspection, whichever comes first, and replace as necessary; and c. Inspect all hoses and belts every 500 hours of operation or	

[1] *Sources have the option to utilize an oil analysis program as described in § 63.6625(i) or (j) in order to extend the specified oil change requirement in table 2d of this subpart.*

[2] *If an emergency engine is operating during an emergency and it is not possible to shut down the engine in order to perform the management practice requirements on the schedule required in table 2d of this subpart, or if performing the management practice on the required schedule would otherwise pose an unacceptable risk under Federal, state, or local law, the management practice can be delayed until the emergency is over or the unacceptable risk under Federal, state, or local law has abated. The management practice should be performed as soon as practicable after the emergency has ended or the unacceptable risk under Federal, state, or local law has abated. Sources must report any failure to perform the management practice on the schedule required and the Federal, state or local law under which the risk was deemed unacceptable.*

For each . . .	You must meet the following requirement, except during periods of startup . . .	During periods of startup you must . . .
	within 1 year + 30 days of the previous inspection, whichever comes first, and replace as necessary	
6. Non-emergency, non-black start 2SLB stationary RICE	a. Change oil and filter every 4,320 hours of operation or within 1 year + 30 days of the previous change, whichever comes first; [1]	
	b. Inspect spark plugs every 4,320 hours of operation or within 1 year + 30 days of the previous inspection, whichever comes first, and replace as necessary; and	
	c. Inspect all hoses and belts every 4,320 hours of operation or within 1 year + 30 days of the previous inspection, whichever comes first, and replace as necessary	

[1] Sources have the option to utilize an oil analysis program as described in § 63.6625(i) or (j) in order to extend the specified oil change requirement in table 2d of this subpart.

[2] If an emergency engine is operating during an emergency and it is not possible to shut down the engine in order to perform the management practice requirements on the schedule required in table 2d of this subpart, or if performing the management practice on the required schedule would otherwise pose an unacceptable risk under Federal, state, or local law, the management practice can be delayed until the emergency is over or the unacceptable risk under Federal, state, or local law has abated. The management practice should be performed as soon as practicable after the emergency has ended or the unacceptable risk under Federal, state, or local law has abated. Sources must report any failure to perform the management practice on the schedule required and the Federal, state or local law under which the risk was deemed unacceptable.

For each . . .	You must meet the following requirement, except during periods of startup . . .	During periods of startup you must . . .
7. Non-emergency, non-black start 4SLB stationary RICE ≤500 HP	a. Change oil and filter every 1,440 hours of operation or within 1 year + 30 days of the previous change, whichever comes first; [1] b. Inspect spark plugs every 1,440 hours of operation or within 1 year + 30 days of the previous inspection, whichever comes first, and replace as necessary; and c. Inspect all hoses and belts every 1,440 hours of operation or within 1 year + 30 days of the previous inspection, whichever comes first, and replace as necessary	
8. Non-emergency, non-black start 4SLB remote stationary RICE >500 HP	a. Change oil and filter every 2,160 hours of operation or within 1 year + 30 days of the previous	

[1] Sources have the option to utilize an oil analysis program as described in § 63.6625(i) or (j) in order to extend the specified oil change requirement in table 2d of this subpart.

[2] If an emergency engine is operating during an emergency and it is not possible to shut down the engine in order to perform the management practice requirements on the schedule required in table 2d of this subpart, or if performing the management practice on the required schedule would otherwise pose an unacceptable risk under Federal, state, or local law, the management practice can be delayed until the emergency is over or the unacceptable risk under Federal, state, or local law has abated. The management practice should be performed as soon as practicable after the emergency has ended or the unacceptable risk under Federal, state, or local law has abated. Sources must report any failure to perform the management practice on the schedule required and the Federal, state or local law under which the risk was deemed unacceptable.

For each . . .	You must meet the following requirement, except during periods of startup . . .	During periods of startup you must . . .
	change, whichever comes first; [1] b. Inspect spark plugs every 2,160 hours of operation or within 1 year + 30 days of the previous inspection, whichever comes first, and replace as necessary; and c. Inspect all hoses and belts every 2,160 hours of operation or within 1 year + 30 days of the previous inspection, whichever comes first, and replace as necessary	
9. Non-emergency, non-black start 4SLB stationary RICE >500 HP that are not remote stationary RICE and that operate more than 24 hours per calendar year	Install an oxidation catalyst to reduce HAP emissions from the stationary RICE	
10. Non-emergency, non-black start 4SRB stationary RICE ≤500 HP	a. Change oil and filter every 1,440 hours of operation or within 1 year + 30 days of the previous	

[1] Sources have the option to utilize an oil analysis program as described in § 63.6625(i) or (j) in order to extend the specified oil change requirement in table 2d of this subpart.

[2] If an emergency engine is operating during an emergency and it is not possible to shut down the engine in order to perform the management practice requirements on the schedule required in table 2d of this subpart, or if performing the management practice on the required schedule would otherwise pose an unacceptable risk under Federal, state, or local law, the management practice can be delayed until the emergency is over or the unacceptable risk under Federal, state, or local law has abated. The management practice should be performed as soon as practicable after the emergency has ended or the unacceptable risk under Federal, state, or local law has abated. Sources must report any failure to perform the management practice on the schedule required and the Federal, state or local law under which the risk was deemed unacceptable.

For each . . .	You must meet the following requirement, except during periods of startup . . .	During periods of startup you must . . .
	change, whichever comes first; [1] b. Inspect spark plugs every 1,440 hours of operation or within 1 year + 30 days of the previous inspection, whichever comes first, and replace as necessary; and c. Inspect all hoses and belts every 1,440 hours of operation or within 1 year + 30 days of the previous inspection, whichever comes first, and replace as necessary	
11. Non-emergency, non-black start 4SRB remote stationary RICE >500 HP	a. Change oil and filter every 2,160 hours of operation or within 1 year + 30 days of the previous change, whichever comes first; [1] b. Inspect spark plugs every 2,160 hours of operation or	

[1] Sources have the option to utilize an oil analysis program as described in § 63.6625(i) or (j) in order to extend the specified oil change requirement in table 2d of this subpart.

[2] If an emergency engine is operating during an emergency and it is not possible to shut down the engine in order to perform the management practice requirements on the schedule required in table 2d of this subpart, or if performing the management practice on the required schedule would otherwise pose an unacceptable risk under Federal, state, or local law, the management practice can be delayed until the emergency is over or the unacceptable risk under Federal, state, or local law has abated. The management practice should be performed as soon as practicable after the emergency has ended or the unacceptable risk under Federal, state, or local law has abated. Sources must report any failure to perform the management practice on the schedule required and the Federal, state or local law under which the risk was deemed unacceptable.

For each . . .	You must meet the following requirement, except during periods of startup . . .	During periods of startup you must . . .
	within 1 year + 30 days of the previous inspection, whichever comes first, and replace as necessary; and c. Inspect all hoses and belts every 2,160 hours of operation or within 1 year + 30 days of the previous inspection, whichever comes first, and replace as necessary	
12. Non-emergency, non-black start 4SRB stationary RICE >500 HP that are not remote stationary RICE and that operate more than 24 hours per calendar year	Install NSCR to reduce HAP emissions from the stationary RICE	
13. Non-emergency, non-black start stationary RICE which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis	a. Change oil and filter every 1,440 hours of operation or within 1 year + 30 days of the previous change, whichever comes first; [1] b. Inspect spark plugs every 1,440 hours of operation or	

[1] *Sources have the option to utilize an oil analysis program as described in § 63.6625(i) or (j) in order to extend the specified oil change requirement in table 2d of this subpart.*

[2] *If an emergency engine is operating during an emergency and it is not possible to shut down the engine in order to perform the management practice requirements on the schedule required in table 2d of this subpart, or if performing the management practice on the required schedule would otherwise pose an unacceptable risk under Federal, state, or local law, the management practice can be delayed until the emergency is over or the unacceptable risk under Federal, state, or local law has abated. The management practice should be performed as soon as practicable after the emergency has ended or the unacceptable risk under Federal, state, or local law has abated. Sources must report any failure to perform the management practice on the schedule required and the Federal, state or local law under which the risk was deemed unacceptable.*

For each . . .	You must meet the following requirement, except during periods of startup . . .	During periods of startup you must . . .
	within 1 year + 30 days of the previous inspection, whichever comes first, and replace as necessary; and c. Inspect all hoses and belts every 1,440 hours of operation or within 1 year + 30 days of the previous inspection, whichever comes first, and replace as necessary	

[1] Sources have the option to utilize an oil analysis program as described in § 63.6625(i) or (j) in order to extend the specified oil change requirement in table 2d of this subpart.

[2] If an emergency engine is operating during an emergency and it is not possible to shut down the engine in order to perform the management practice requirements on the schedule required in table 2d of this subpart, or if performing the management practice on the required schedule would otherwise pose an unacceptable risk under Federal, state, or local law, the management practice can be delayed until the emergency is over or the unacceptable risk under Federal, state, or local law has abated. The management practice should be performed as soon as practicable after the emergency has ended or the unacceptable risk under Federal, state, or local law has abated. Sources must report any failure to perform the management practice on the schedule required and the Federal, state or local law under which the risk was deemed unacceptable.

[89 FR 70520, Aug. 30, 2024]

Table 3 to Subpart ZZZZ of Part 63—Subsequent Performance Tests

As stated in §§ 63.6615 and 63.6620, you must comply with the following subsequent performance test requirements:

For each . . .	Complying with the requirement to . . .	You must . . .
1. New or reconstructed 2SLB stationary RICE >500 HP located at major sources; new or reconstructed 4SLB stationary RICE ≥250 HP located at major sources; and new or reconstructed CI stationary RICE >500 HP located at major sources	Reduce CO emissions and not using a CEMS	Conduct subsequent performance tests semiannually.[1]
2. 4SRB stationary RICE ≥5,000 HP located at major sources	Reduce formaldehyde emissions	Conduct subsequent performance tests semiannually.[1]
3. Stationary RICE >500 HP located at major sources and new or reconstructed 4SLB stationary RICE 250≤HP≤500 located at major sources	Limit the concentration of formaldehyde in the stationary RICE exhaust	Conduct subsequent performance tests semiannually.[1]
4. Existing non-emergency, non-black start CI stationary RICE >500 HP that are not limited use stationary RICE	Limit or reduce CO emissions and not using a CEMS	Conduct subsequent performance tests every 8,760 hours or 3 years, whichever comes first.
5. Existing non-emergency, non-black start CI stationary RICE >500 HP that are limited use stationary RICE	Limit or reduce CO emissions and not using a CEMS	Conduct subsequent performance tests every 8,760 hours or 5 years, whichever comes first.

[1] *After you have demonstrated compliance for two consecutive tests, you may reduce the frequency of subsequent performance tests to annually. If the results of any subsequent annual performance test indicate the stationary RICE is not in compliance with the CO or formaldehyde emission limitation, or you deviate from any of your operating limitations, you must resume semiannual performance tests.*

[78 FR 6711, Jan. 30, 2013]

Table 4 to Subpart ZZZZ of Part 63—Requirements for Performance Tests

As stated in §§ 63.6610, 63.6611, 63.6620, and 63.6640, you must comply with the following requirements for performance tests for stationary RICE:

For each . . .	Complying with the requirement to . . .	You must . . .	Using . . .	According to the following requirements . . .
1. 2SLB, 4SLB, and CI stationary RICE	a. Reduce CO emissions	i. Select the sampling port location and the number/ location of traverse points at the inlet and outlet of the control device; and		(a) For CO, O_2, and moisture measurement, ducts ≤6 inches in diameter may be sampled at a single point located at the duct centroid and ducts >6 and ≤12 inches in diameter may be sampled at 3 traverse points located at 16.7, 50.0, and 83.3% of the measurement line ('3-point long line'). If the duct is >12 inches in diameter *and* the sampling port location meets the two and half-diameter criterion of section 11.1.1 of method 1 of 40 CFR part 60, appendix A-1, the duct may be sampled at `3-point long line'; otherwise, conduct the stratification testing and select sampling points according to section 8.1.2 of method 7E of 40 CFR part 60, appendix A-4.
		ii. Measure the O_2 at the inlet and outlet of the control device; and	(1) Method 3 or 3A or 3B of 40 CFR part 60, appendix A-2, or ASTM D6522-00 (Reapproved 2005) [1] [3] (heated probe not necessary)	(b) Measurements to determine O_2 must be made at the same time as the measurements for CO concentration.

[1] *You may also use methods 3A and 10 as options to ASTM-D6522-00 (2005).*

[2] *You may obtain a copy of ASTM-D6348-03 from at least one of the following addresses: American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106.*

[3] *Incorporated by reference, see § 63.14.*

For each . . .	Complying with the requirement to . . .	You must . . .	Using . . .	According to the following requirements . . .
		iii. Measure the CO at the inlet and the outlet of the control device; and	(2) ASTM D6522-00 (Reapproved 2005) [1] [2] [3] (heated probe not necessary) or method 10 of 40 CFR part 60, appendix A-4	(c) The CO concentration must be at 15 percent O_2, dry basis.
		iv. Measure moisture content at the inlet and outlet of the control device as needed to determine CO and O_2 concentrations on a dry basis	(3) Method 4 of 40 CFR part 60, appendix A-3, or method 320 of 40 CFR part 63, appendix A, or ASTM D6348-03 [1] [3]	(d) Measurements to determine moisture content must be made at the same time and location as the measurements for CO concentration.
2. 4SRB stationary RICE	a. Reduce formaldehyde or THC emissions	i. Select the sampling port location and the number/ location of traverse points at the inlet and outlet of the control device; and		(a) For formaldehyde, THC, O_2, and moisture measurement, ducts ≤6 inches in diameter may be sampled at a single point located at the duct centroid and ducts >6 and ≤12 inches in diameter may be sampled at 3 traverse points located at 16.7, 50.0, and 83.3% of the measurement line (`3-point long line'). If the duct is >12 inches in diameter *and* the sampling port location meets the two and half-diameter criterion of section 11.1.1 of

[1] *You may also use methods 3A and 10 as options to ASTM-D6522-00 (2005).*

[2] *You may obtain a copy of ASTM-D6348-03 from at least one of the following addresses: American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106.*

[3] *Incorporated by reference, see § 63.14.*

For each . . .	Complying with the requirement to . . .	You must . . .	Using . . .	According to the following requirements . . .
				method 1 of 40 CFR part 60, appendix A, the duct may be sampled at `3-point long line'; otherwise, conduct the stratification testing and select sampling points according to section 8.1.2 of method 7E of 40 CFR part 60, appendix A.
		ii. Measure O_2 at the inlet and outlet of the control device; and	(1) Method 3 or 3A or 3B of 40 CFR part 60, appendix A-2, or ASTM D6522-00 (Reapproved 2005) [1] [3] (heated probe not necessary)	(b) Measurements to determine O_2 concentration must be made at the same time as the measurements for formaldehyde or THC concentration.
		iii. Measure moisture content at the inlet and outlet of the control device as needed to determine formaldehyde or THC and O_2 concentrations on a dry basis; and	(2) Method 4 of 40 CFR part 60, appendix A-3, or method 320 of 40 CFR part 63, appendix A, or ASTM D6348-03 [1] [3]	(c) Measurements to determine moisture content must be made at the same time and location as the measurements for formaldehyde or THC concentration.
		iv. If demonstrating compliance	(3) Method 320 or 323 of 40 CFR	(d) Formaldehyde concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the

[1] *You may also use methods 3A and 10 as options to ASTM-D6522-00 (2005).*

[2] *You may obtain a copy of ASTM-D6348-03 from at least one of the following addresses: American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106.*

[3] *Incorporated by reference, see § 63.14.*

For each . . .	Complying with the requirement to . . .	You must . . .	Using . . .	According to the following requirements . . .
		with the formaldehyde percent reduction requirement, measure formaldehyde at the inlet and the outlet of the control device	part 63, appendix A; or ASTM D6348-03,[1] [3] provided in ASTM D6348-03 Annex A5 (Analyte Spiking Technique), the percent R must be greater than or equal to 70 and less than or equal to 130	three 1-hour or longer runs.
		v. If demonstrating compliance with the THC percent reduction requirement, measure THC at the inlet and the outlet of the control device	(4) (1) Method 25A, reported as propane, of 40 CFR part 60, appendix A-7	(e) THC concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.
3. Stationary RICE	a. Limit the concentration of formaldehyde or CO in the stationary	i. Select the sampling port location and the number/ location of traverse points		(a) For formaldehyde, CO, O_2, and moisture measurement, ducts ≤6 inches in diameter may be sampled at a single point located at the duct centroid and ducts >6 and ≤12 inches in diameter may be sampled at 3 traverse

[1] *You may also use methods 3A and 10 as options to ASTM-D6522-00 (2005).*

[2] *You may obtain a copy of ASTM-D6348-03 from at least one of the following addresses: American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106.*

[3] *Incorporated by reference, see § 63.14.*

For each . . .	Complying with the requirement to . . .	You must . . .	Using . . .	According to the following requirements . . .
	RICE exhaust	at the exhaust of the stationary RICE; and		points located at 16.7, 50.0, and 83.3% of the measurement line (`3-point long line'). If the duct is >12 inches in diameter *and* the sampling port location meets the two and half-diameter criterion of section 11.1.1 of method 1 of 40 CFR part 60, appendix A, the duct may be sampled at `3-point long line'; otherwise, conduct the stratification testing and select sampling points according to section 8.1.2 of method 7E of 40 CFR part 60, appendix A. If using a control device, the sampling site must be located at the outlet of the control device.
		ii. Determine the O_2 concentration of the stationary RICE exhaust at the sampling port location; and	(1) Method 3 or 3A or 3B of 40 CFR part 60, appendix A-2, or ASTM D6522-00 (Reapproved 2005) [1] [3] (heated probe not necessary)	(b) Measurements to determine O_2 concentration must be made at the same time and location as the measurements for formaldehyde or CO concentration.
		iii. Measure moisture content of the stationary RICE exhaust at the sampling port location as	(2) Method 4 of 40 CFR part 60, appendix A-3, or method 320 of 40 CFR part 63,	(c) Measurements to determine moisture content must be made at the same time and location as the measurements for formaldehyde or CO concentration.

[1] *You may also use methods 3A and 10 as options to ASTM-D6522-00 (2005).*

[2] *You may obtain a copy of ASTM-D6348-03 from at least one of the following addresses: American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106.*

[3] *Incorporated by reference, see § 63.14.*

For each . . .	Complying with the requirement to . . .	You must . . .	Using . . .	According to the following requirements . . .
		needed to determine formaldehyde or CO and O_2 concentrations on a dry basis; and	appendix A, or ASTM D6348-03 [1] [3]	
		iv. Measure formaldehyde at the exhaust of the stationary RICE; or	(3) Method 320 or 323 of 40 CFR part 63, appendix A; or ASTM D6348-03,[1] [3] provided in ASTM D6348-03 Annex A5 (Analyte Spiking Technique), the percent R must be greater than or equal to 70 and less than or equal to 130	(d) Formaldehyde concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.
		v. Measure CO at the exhaust of the stationary RICE	(4) Method 10 of 40 CFR part 60, appendix A-4, ASTM D6522-00 (2005),[1] [3] method 320	(e) CO concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.

[1] You may also use methods 3A and 10 as options to ASTM-D6522-00 (2005).

[2] You may obtain a copy of ASTM-D6348-03 from at least one of the following addresses: American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106.

[3] Incorporated by reference, see § 63.14.

For each . . .	Complying with the requirement to . . .	You must . . .	Using . . .	According to the following requirements . . .
			of 40 CFR part 63, appendix A, or ASTM D6348-03 [1] [3]	

[1] *You may also use methods 3A and 10 as options to ASTM-D6522-00 (2005).*

[2] *You may obtain a copy of ASTM-D6348-03 from at least one of the following addresses: American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106.*

[3] *Incorporated by reference, see § 63.14.*

[88 FR 18413, Mar. 29, 2023]

Table 5 to Subpart ZZZZ of Part 63—Initial Compliance With Emission Limitations, Operating Limitations, and Other Requirements

As stated in §§ 63.6612, 63.6625 and 63.6630, you must initially comply with the emission and operating limitations as required by the following:

For each . . .	Complying with the requirement to . . .	You have demonstrated initial compliance if . . .
1. New or reconstructed non-emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, non-emergency stationary CI RICE >500 HP located at a major source of HAP, and existing non-emergency stationary CI RICE >500 HP located at an area source of HAP	a. Reduce CO emissions and using oxidation catalyst, and using a CPMS	i. The average reduction of emissions of CO determined from the initial performance test achieves the required CO percent reduction; and ii. You have installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in § 63.6625(b); and iii. You have recorded the catalyst pressure drop and catalyst inlet temperature during the initial performance test.

For each . . .	Complying with the requirement to . . .	You have demonstrated initial compliance if . . .
2. Non-emergency stationary CI RICE >500 HP located at a major source of HAP, and existing non-emergency stationary CI RICE >500 HP located at an area source of HAP	a. Limit the concentration of CO, using oxidation catalyst, and using a CPMS	i. The average CO concentration determined from the initial performance test is less than or equal to the CO emission limitation; and ii. You have installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in § 63.6625(b); and iii. You have recorded the catalyst pressure drop and catalyst inlet temperature during the initial performance test.
3. New or reconstructed non-emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, non-emergency stationary CI RICE >500 HP located at a major source of HAP, and existing non-emergency stationary CI RICE >500 HP located at an area source of HAP	a. Reduce CO emissions and not using oxidation catalyst	i. The average reduction of emissions of CO determined from the initial performance test achieves the required CO percent reduction; and ii. You have installed a CPMS to continuously monitor operating parameters approved by the Administrator (if any) according to the requirements in § 63.6625(b); and iii. You have recorded the approved operating parameters (if any) during the initial performance test.
4. Non-emergency stationary CI RICE >500 HP located at a major source of HAP, and existing non-emergency stationary CI RICE >500 HP located at an area source of HAP	a. Limit the concentration of CO, and not using oxidation catalyst	i. The average CO concentration determined from the initial performance test is less than or equal to the CO emission limitation; and ii. You have installed a CPMS to continuously monitor operating parameters approved by the Administrator (if any) according to the requirements in § 63.6625(b); and iii. You have recorded the approved

For each . . .	Complying with the requirement to . . .	You have demonstrated initial compliance if . . .
		operating parameters (if any) during the initial performance test.
5. New or reconstructed non-emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, non-emergency stationary CI RICE >500 HP located at a major source of HAP, and existing non-emergency stationary CI RICE >500 HP located at an area source of HAP	a. Reduce CO emissions, and using a CEMS	i. You have installed a CEMS to continuously monitor CO and either O_2 or CO_2 at both the inlet and outlet of the oxidation catalyst according to the requirements in § 63.6625(a); and ii. You have conducted a performance evaluation of your CEMS using PS 3 and 4A of 40 CFR part 60, appendix B; and iii. The average reduction of CO calculated using § 63.6620 equals or exceeds the required percent reduction. The initial test comprises the first 4-hour period after successful validation of the CEMS. Compliance is based on the average percent reduction achieved during the 4-hour period.
6. Non-emergency stationary CI RICE >500 HP located at a major source of HAP, and existing non-emergency stationary CI RICE >500 HP located at an area source of HAP	a. Limit the concentration of CO, and using a CEMS	i. You have installed a CEMS to continuously monitor CO and either O_2 or CO_2 at the outlet of the oxidation catalyst according to the requirements in § 63.6625(a); and ii. You have conducted a performance evaluation of your CEMS using PS 3 and 4A of 40 CFR part 60, appendix B; and iii. The average concentration of CO calculated using § 63.6620 is less than or equal to the CO emission limitation. The initial test comprises the first 4-hour period after successful validation of the CEMS. Compliance is based on the average concentration measured during the 4-hour period.
7. Non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP	a. Reduce formaldehyde	i. The average reduction of emissions of formaldehyde

For each . . .	Complying with the requirement to . . .	You have demonstrated initial compliance if . . .
	emissions and using NSCR	determined from the initial performance test is equal to or greater than the required formaldehyde percent reduction, or the average reduction of emissions of THC determined from the initial performance test is equal to or greater than 30 percent; and ii. You have installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in § 63.6625(b); and iii. You have recorded the catalyst pressure drop and catalyst inlet temperature during the initial performance test.
8. Non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP	a. Reduce formaldehyde emissions and not using NSCR	i. The average reduction of emissions of formaldehyde determined from the initial performance test is equal to or greater than the required formaldehyde percent reduction or the average reduction of emissions of THC determined from the initial performance test is equal to or greater than 30 percent; and ii. You have installed a CPMS to continuously monitor operating parameters approved by the Administrator (if any) according to the requirements in § 63.6625(b); and iii. You have recorded the approved operating parameters (if any) during the initial performance test.
9. New or reconstructed non-emergency stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE 250≤HP≤500 located at a major source of HAP, and existing non-emergency 4SRB	a. Limit the concentration of formaldehyde in the stationary	i. The average formaldehyde concentration, corrected to 15 percent O_2, dry basis, from the three test runs is less than or equal to the formaldehyde emission limitation; and

For each . . .	Complying with the requirement to . . .	You have demonstrated initial compliance if . . .
stationary RICE >500 HP located at a major source of HAP	RICE exhaust and using oxidation catalyst or NSCR	ii. You have installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in § 63.6625(b); and iii. You have recorded the catalyst pressure drop and catalyst inlet temperature during the initial performance test.
10. New or reconstructed non-emergency stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE 250≤HP≤500 located at a major source of HAP, and existing non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP	a. Limit the concentration of formaldehyde in the stationary RICE exhaust and not using oxidation catalyst or NSCR	i. The average formaldehyde concentration, corrected to 15 percent O_2, dry basis, from the three test runs is less than or equal to the formaldehyde emission limitation; and ii. You have installed a CPMS to continuously monitor operating parameters approved by the Administrator (if any) according to the requirements in § 63.6625(b); and iii. You have recorded the approved operating parameters (if any) during the initial performance test.
11. Existing non-emergency stationary RICE 100≤HP≤500 located at a major source of HAP, and existing non-emergency stationary CI RICE 300<HP≤500 located at an area source of HAP	a. Reduce CO emissions	i. The average reduction of emissions of CO or formaldehyde, as applicable determined from the initial performance test is equal to or greater than the required CO or formaldehyde, as applicable, percent reduction.
12. Existing non-emergency stationary RICE 100≤HP≤500 located at a major source of HAP, and existing non-emergency stationary CI RICE 300<HP≤500 located at an area source of HAP	a. Limit the concentration of formaldehyde or CO in the stationary RICE exhaust	i. The average formaldehyde or CO concentration, as applicable, corrected to 15 percent O_2, dry basis, from the three test runs is less than or equal to the formaldehyde or CO emission limitation, as applicable.
13. Existing non-emergency 4SLB stationary RICE >500 HP located at an area source of HAP that are not remote stationary RICE and	a. Install an oxidation catalyst	i. You have conducted an initial compliance demonstration as specified in § 63.6630(e) to show

For each . . .	Complying with the requirement to . . .	You have demonstrated initial compliance if . . .
that are operated more than 24 hours per calendar year		that the average reduction of emissions of CO is 93 percent or more, or the average CO concentration is less than or equal to 47 ppmvd at 15 percent O_2; ii. You have installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in § 63.6625(b), or you have installed equipment to automatically shut down the engine if the catalyst inlet temperature exceeds 1350 °F.
14. Existing non-emergency 4SRB stationary RICE >500 HP located at an area source of HAP that are not remote stationary RICE and that are operated more than 24 hours per calendar year	a. Install NSCR	i. You have conducted an initial compliance demonstration as specified in § 63.6630(e) to show that the average reduction of emissions of CO is 75 percent or more, the average CO concentration is less than or equal to 270 ppmvd at 15 percent O_2, or the average reduction of emissions of THC is 30 percent or more; ii. You have installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in § 63.6625(b), or you have installed equipment to automatically shut down the engine if the catalyst inlet temperature exceeds 1250 °F.

[78 FR 6712, Jan. 30, 2013]

Table 6 to Subpart ZZZZ of Part 63—Continuous Compliance With Emission Limitations, and Other Requirements

As stated in § 63.6640, you must continuously comply with the emissions and operating limitations and work or management practices as required by the following:

For each . . .	Complying with the requirement to . . .	You must demonstrate continuous compliance by . . .
1. New or reconstructed non-emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, and new or reconstructed non-emergency CI stationary RICE >500 HP located at a major source of HAP	a. Reduce CO emissions and using an oxidation catalyst, and using a CPMS	i. Conducting semiannual performance tests for CO to demonstrate that the required CO percent reduction is achieved [a]; and ii. Collecting the catalyst inlet temperature data according to § 63.6625(b); and iii. Reducing these data to 4-hour rolling averages; and iv. Maintaining the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature; and v. Measuring the pressure drop across the catalyst once per month and demonstrating that the pressure

[a] *After you have demonstrated compliance for two consecutive tests, you may reduce the frequency of subsequent performance tests to annually. If the results of any subsequent annual performance test indicate the stationary RICE is not in compliance with the CO or formaldehyde emission limitation, or you deviate from any of your operating limitations, you must resume semiannual performance tests.*

For each . . .	Complying with the requirement to . . .	You must demonstrate continuous compliance by . . .
		drop across the catalyst is within the operating limitation established during the performance test.
2. New or reconstructed non-emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, and new or reconstructed non-emergency CI stationary RICE >500 HP located at a major source of HAP	a. Reduce CO emissions and not using an oxidation catalyst, and using a CPMS	i. Conducting semiannual performance tests for CO to demonstrate that the required CO percent reduction is achieved [a]; and ii. Collecting the approved operating parameter (if any) data according to § 63.6625(b); and iii. Reducing these data to 4-hour rolling averages; and iv. Maintaining the 4-hour rolling averages within the operating limitations for the operating parameters established during the performance test.
3. New or reconstructed non-emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or	a. Reduce CO emissions or	i. Collecting the monitoring data

[a] *After you have demonstrated compliance for two consecutive tests, you may reduce the frequency of subsequent performance tests to annually. If the results of any subsequent annual performance test indicate the stationary RICE is not in compliance with the CO or formaldehyde emission limitation, or you deviate from any of your operating limitations, you must resume semiannual performance tests.*

For each . . .	Complying with the requirement to . . .	You must demonstrate continuous compliance by . . .
reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, new or reconstructed non-emergency stationary CI RICE >500 HP located at a major source of HAP, and existing non-emergency stationary CI RICE >500 HP	limit the concentration of CO in the stationary RICE exhaust, and using a CEMS	according to § 63.6625(a), reducing the measurements to 1-hour averages, calculating the percent reduction or concentration of CO emissions according to § 63.6620; and ii. Demonstrating that the catalyst achieves the required percent reduction of CO emissions over the 4-hour averaging period, or that the emission remain at or below the CO concentration limit; and iii. Conducting an annual RATA of your CEMS using PS 3 and 4A of 40 CFR part 60, appendix B, as well as daily and periodic data quality checks in accordance with 40 CFR part 60, appendix F, procedure 1.

[a] *After you have demonstrated compliance for two consecutive tests, you may reduce the frequency of subsequent performance tests to annually. If the results of any subsequent annual performance test indicate the stationary RICE is not in compliance with the CO or formaldehyde emission limitation, or you deviate from any of your operating limitations, you must resume semiannual performance tests.*

For each . . .	Complying with the requirement to . . .	You must demonstrate continuous compliance by . . .
4. Non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP	a. Reduce formaldehyde emissions and using NSCR	i. Collecting the catalyst inlet temperature data according to § 63.6625(b); and ii. Reducing these data to 4-hour rolling averages; and iii. Maintaining the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature; and iv. Measuring the pressure drop across the catalyst once per month and demonstrating that the pressure drop across the catalyst is within the operating limitation established during the performance test.
5. Non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP	a. Reduce formaldehyde emissions and not using NSCR	i. Collecting the approved operating parameter (if any) data according to § 63.6625(b); and ii. Reducing these

[a] *After you have demonstrated compliance for two consecutive tests, you may reduce the frequency of subsequent performance tests to annually. If the results of any subsequent annual performance test indicate the stationary RICE is not in compliance with the CO or formaldehyde emission limitation, or you deviate from any of your operating limitations, you must resume semiannual performance tests.*

For each . . .	Complying with the requirement to . . .	You must demonstrate continuous compliance by . . .
		data to 4-hour rolling averages; and iii. Maintaining the 4-hour rolling averages within the operating limitations for the operating parameters established during the performance test.
6. Non-emergency 4SRB stationary RICE with a brake HP ≥5,000 located at a major source of HAP	a. Reduce formaldehyde emissions	Conducting semiannual performance tests for formaldehyde to demonstrate that the required formaldehyde percent reduction is achieved, or to demonstrate that the average reduction of emissions of THC determined from the performance test is equal to or greater than 30 percent.[a]
7. New or reconstructed non-emergency stationary RICE >500 HP located at a major source of HAP and new or reconstructed non-emergency 4SLB stationary RICE 250≤HP≤500 located at a major source of HAP	a. Limit the concentration of formaldehyde in the stationary	i. Conducting semiannual performance tests for formaldehyde to demonstrate that your

[a] *After you have demonstrated compliance for two consecutive tests, you may reduce the frequency of subsequent performance tests to annually. If the results of any subsequent annual performance test indicate the stationary RICE is not in compliance with the CO or formaldehyde emission limitation, or you deviate from any of your operating limitations, you must resume semiannual performance tests.*

For each . . .	Complying with the requirement to . . .	You must demonstrate continuous compliance by . . .
	RICE exhaust and using oxidation catalyst or NSCR	emissions remain at or below the formaldehyde concentration limit [a]; and ii. Collecting the catalyst inlet temperature data according to § 63.6625(b); and iii. Reducing these data to 4-hour rolling averages; and iv. Maintaining the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature; and v. Measuring the pressure drop across the catalyst once per month and demonstrating that the pressure drop across the catalyst is within the operating limitation established during the performance test.
8. New or reconstructed non-emergency stationary RICE >500 HP located at a major source of HAP and new or reconstructed	a. Limit the concentration	i. Conducting semiannual

[a] *After you have demonstrated compliance for two consecutive tests, you may reduce the frequency of subsequent performance tests to annually. If the results of any subsequent annual performance test indicate the stationary RICE is not in compliance with the CO or formaldehyde emission limitation, or you deviate from any of your operating limitations, you must resume semiannual performance tests.*

For each . . .	Complying with the requirement to . . .	You must demonstrate continuous compliance by . . .
non-emergency 4SLB stationary RICE 250≤HP≤500 located at a major source of HAP	of formaldehyde in the stationary RICE exhaust and not using oxidation catalyst or NSCR	performance tests for formaldehyde to demonstrate that your emissions remain at or below the formaldehyde concentration limit [a]; and ii. Collecting the approved operating parameter (if any) data according to § 63.6625(b); and iii. Reducing these data to 4-hour rolling averages; and iv. Maintaining the 4-hour rolling averages within the operating limitations for the operating parameters established during the performance test.
9. Existing emergency and black start stationary RICE ≤500 HP located at a major source of HAP, existing non-emergency stationary RICE <100 HP located at a major source of HAP, existing emergency and black start stationary RICE located at an area source of HAP, existing non-emergency stationary CI RICE ≤300 HP located at an area source of HAP, existing non-emergency 2SLB stationary RICE located at an area source of HAP, existing non-emergency stationary SI RICE located at an	a. Work or Management practices	i. Operating and maintaining the stationary RICE according to the manufacturer's emission-related operation and maintenance

[a] *After you have demonstrated compliance for two consecutive tests, you may reduce the frequency of subsequent performance tests to annually. If the results of any subsequent annual performance test indicate the stationary RICE is not in compliance with the CO or formaldehyde emission limitation, or you deviate from any of your operating limitations, you must resume semiannual performance tests.*

For each . . .	Complying with the requirement to . . .	You must demonstrate continuous compliance by . . .
area source of HAP which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, existing non-emergency 4SLB and 4SRB stationary RICE ≤500 HP located at an area source of HAP, existing non-emergency 4SLB and 4SRB stationary RICE >500 HP located at an area source of HAP that operate 24 hours or less per calendar year, and existing non-emergency 4SLB and 4SRB stationary RICE >500 HP located at an area source of HAP that are remote stationary RICE		instructions; or ii. Develop and follow your own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions.
10. Existing stationary CI RICE >500 HP that are not limited use stationary RICE	a. Reduce CO emissions, or limit the concentration of CO in the stationary RICE exhaust, and using oxidation catalyst	i. Conducting performance tests every 8,760 hours or 3 years, whichever comes first, for CO or formaldehyde, as appropriate, to demonstrate that the required CO or formaldehyde, as appropriate, percent reduction is achieved or that your emissions remain at or below the CO or formaldehyde concentration limit; and

[a] *After you have demonstrated compliance for two consecutive tests, you may reduce the frequency of subsequent performance tests to annually. If the results of any subsequent annual performance test indicate the stationary RICE is not in compliance with the CO or formaldehyde emission limitation, or you deviate from any of your operating limitations, you must resume semiannual performance tests.*

For each . . .	Complying with the requirement to . . .	You must demonstrate continuous compliance by . . .
		ii. Collecting the catalyst inlet temperature data according to § 63.6625(b); and iii. Reducing these data to 4-hour rolling averages; and iv. Maintaining the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature; and v. Measuring the pressure drop across the catalyst once per month and demonstrating that the pressure drop across the catalyst is within the operating limitation established during the performance test.
11. Existing stationary CI RICE >500 HP that are not limited use stationary RICE	a. Reduce CO emissions, or limit the concentration of CO in the stationary RICE exhaust,	i. Conducting performance tests every 8,760 hours or 3 years, whichever comes first, for CO or formaldehyde, as

[a] *After you have demonstrated compliance for two consecutive tests, you may reduce the frequency of subsequent performance tests to annually. If the results of any subsequent annual performance test indicate the stationary RICE is not in compliance with the CO or formaldehyde emission limitation, or you deviate from any of your operating limitations, you must resume semiannual performance tests.*

For each . . .	Complying with the requirement to . . .	You must demonstrate continuous compliance by . . .
	and not using oxidation catalyst	appropriate, to demonstrate that the required CO or formaldehyde, as appropriate, percent reduction is achieved or that your emissions remain at or below the CO or formaldehyde concentration limit; and ii. Collecting the approved operating parameter (if any) data according to § 63.6625(b); and iii. Reducing these data to 4-hour rolling averages; and iv. Maintaining the 4-hour rolling averages within the operating limitations for the operating parameters established during the performance test.
12. Existing limited use CI stationary RICE >500 HP	a. Reduce CO emissions or limit the concentration	i. Conducting performance tests every 8,760 hours or 5 years,

[a] *After you have demonstrated compliance for two consecutive tests, you may reduce the frequency of subsequent performance tests to annually. If the results of any subsequent annual performance test indicate the stationary RICE is not in compliance with the CO or formaldehyde emission limitation, or you deviate from any of your operating limitations, you must resume semiannual performance tests.*

For each . . .	Complying with the requirement to . . .	You must demonstrate continuous compliance by . . .
	of CO in the stationary RICE exhaust, and using an oxidation catalyst	whichever comes first, for CO or formaldehyde, as appropriate, to demonstrate that the required CO or formaldehyde, as appropriate, percent reduction is achieved or that your emissions remain at or below the CO or formaldehyde concentration limit; and ii. Collecting the catalyst inlet temperature data according to § 63.6625(b); and iii. Reducing these data to 4-hour rolling averages; and iv. Maintaining the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature; and v. Measuring the pressure drop across the catalyst once per month and

[a] *After you have demonstrated compliance for two consecutive tests, you may reduce the frequency of subsequent performance tests to annually. If the results of any subsequent annual performance test indicate the stationary RICE is not in compliance with the CO or formaldehyde emission limitation, or you deviate from any of your operating limitations, you must resume semiannual performance tests.*

For each . . .	Complying with the requirement to . . .	You must demonstrate continuous compliance by . . .
		demonstrating that the pressure drop across the catalyst is within the operating limitation established during the performance test.
13. Existing limited use CI stationary RICE >500 HP	a. Reduce CO emissions or limit the concentration of CO in the stationary RICE exhaust, and not using an oxidation catalyst	i. Conducting performance tests every 8,760 hours or 5 years, whichever comes first, for CO or formaldehyde, as appropriate, to demonstrate that the required CO or formaldehyde, as appropriate, percent reduction is achieved or that your emissions remain at or below the CO or formaldehyde concentration limit; and ii. Collecting the approved operating parameter (if any) data according to § 63.6625(b); and iii. Reducing these data to 4-hour

[a] *After you have demonstrated compliance for two consecutive tests, you may reduce the frequency of subsequent performance tests to annually. If the results of any subsequent annual performance test indicate the stationary RICE is not in compliance with the CO or formaldehyde emission limitation, or you deviate from any of your operating limitations, you must resume semiannual performance tests.*

For each . . .	Complying with the requirement to . . .	You must demonstrate continuous compliance by . . .
		rolling averages; and iv. Maintaining the 4-hour rolling averages within the operating limitations for the operating parameters established during the performance test.
14. Existing non-emergency 4SLB stationary RICE >500 HP located at an area source of HAP that are not remote stationary RICE and that are operated more than 24 hours per calendar year	a. Install an oxidation catalyst	i. Conducting annual compliance demonstrations as specified in § 63.6640(c) to show that the average reduction of emissions of CO is 93 percent or more, or the average CO concentration is less than or equal to 47 ppmvd at 15 percent O_2; and either ii. Collecting the catalyst inlet temperature data according to § 63.6625(b), reducing these data to 4-hour rolling averages;

[a] *After you have demonstrated compliance for two consecutive tests, you may reduce the frequency of subsequent performance tests to annually. If the results of any subsequent annual performance test indicate the stationary RICE is not in compliance with the CO or formaldehyde emission limitation, or you deviate from any of your operating limitations, you must resume semiannual performance tests.*

For each . . .	Complying with the requirement to . . .	You must demonstrate continuous compliance by . . .
		and maintaining the 4-hour rolling averages within the limitation of greater than 450 °F and less than or equal to 1350 °F for the catalyst inlet temperature; or iii. Immediately shutting down the engine if the catalyst inlet temperature exceeds 1350 °F.
15. Existing non-emergency 4SRB stationary RICE >500 HP located at an area source of HAP that are not remote stationary RICE and that are operated more than 24 hours per calendar year	a. Install NSCR	i. Conducting annual compliance demonstrations as specified in § 63.6640(c) to show that the average reduction of emissions of CO is 75 percent or more, the average CO concentration is less than or equal to 270 ppmvd at 15 percent O_2, or the average reduction of emissions of THC is 30 percent or more; and either

[a] *After you have demonstrated compliance for two consecutive tests, you may reduce the frequency of subsequent performance tests to annually. If the results of any subsequent annual performance test indicate the stationary RICE is not in compliance with the CO or formaldehyde emission limitation, or you deviate from any of your operating limitations, you must resume semiannual performance tests.*

For each . . .	Complying with the requirement to . . .	You must demonstrate continuous compliance by . . .
		ii. Collecting the catalyst inlet temperature data according to § 63.6625(b), reducing these data to 4-hour rolling averages; and maintaining the 4-hour rolling averages within the limitation of greater than or equal to 750 °F and less than or equal to 1250 °F for the catalyst inlet temperature; or iii. Immediately shutting down the engine if the catalyst inlet temperature exceeds 1250 °F.

[a] *After you have demonstrated compliance for two consecutive tests, you may reduce the frequency of subsequent performance tests to annually. If the results of any subsequent annual performance test indicate the stationary RICE is not in compliance with the CO or formaldehyde emission limitation, or you deviate from any of your operating limitations, you must resume semiannual performance tests.*

[78 FR 6715, Jan. 30, 2013]

Table 7 to Subpart ZZZZ of Part 63—Requirements for Reports

As stated in § 63.6650, you must comply with the following requirements for reports:

For each . . .	You must submit a . . .	The report must contain . . .	You must submit the report . . .
1. Existing non-emergency, non-black start stationary RICE 100≤HP≤500 located at a major source of HAP; existing non-emergency, non-black start stationary CI RICE >500 HP located at a major source of HAP; existing non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP; existing non-emergency, non-black start stationary CI RICE >300 HP located at an area source of HAP; new or reconstructed non-emergency stationary RICE >500 HP located at a major source of HAP; and new or reconstructed non-emergency 4SLB stationary RICE 250≤HP≤500 located at a major source of HAP	Compliance report	a. If there are no deviations from any emission limitations or operating limitations that apply to you, a statement that there were no deviations from the emission limitations or operating limitations during the reporting period. If there were no periods during which the CMS, including CEMS and CPMS, was out-of-control, as specified in § 63.8(c)(7), a statement that there were not periods during which the CMS was out-of-control during the reporting period; or	i. Semiannually according to the requirements in § 63.6650(b)(1)-(5) and (i) for engines that are not limited use stationary RICE subject to numerical emission limitations; and ii. Annually according to the requirements in § 63.6650(b)(6)-(9) and (i) for engines that are limited use stationary RICE subject to numerical emission limitations.
		b. If you had a deviation from any emission limitation or operating limitation during the reporting period, the information in § 63.6650(d). If there were periods during which the CMS, including CEMS and CPMS, was out-of-control, as specified in § 63.8(c)(7), the information in § 63.6650(e); or	i. Semiannually according to the requirements in § 63.6650(b) and (i).
		c. If you had a malfunction during the reporting period, the information in § 63.6650(c)(4)	i. Semiannually according to the requirements in § 63.6650(b) and (i).

For each . . .	You must submit a . . .	The report must contain . . .	You must submit the report . . .
2. New or reconstructed non-emergency stationary RICE that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis	Report	a. The fuel flow rate of each fuel and the heating values that were used in your calculations, and you must demonstrate that the percentage of heat input provided by landfill gas or digester gas, is equivalent to 10 percent or more of the gross heat input on an annual basis; and	i. Annually, according to the requirements in § 63.6650.
		b. The operating limits provided in your federally enforceable permit, and any deviations from these limits; and	i. See item 2.a.i.
		c. Any problems or errors suspected with the meters	i. See item 2.a.i.
3. Existing non-emergency, non-black start 4SLB and 4SRB stationary RICE >500 HP located at an area source of HAP that are not remote stationary RICE and that operate more than 24 hours per calendar year	Compliance report	a. The results of the annual compliance demonstration, if conducted during the reporting period	i. Semiannually according to the requirements in § 63.6650(b)(1)-(5) and (i).
4. Emergency stationary RICE that operate for the purposes specified in § 63.6640(f)(4)(ii)	Report	a. The information in § 63.6650(h)(1)	i. Annually according to the requirements in § 63.6650(h)(2)-(3) and (i).

[89 FR 70522, Aug. 30, 2024]

Table 8 to Subpart ZZZZ of Part 63—Applicability of General Provisions to Subpart ZZZZ

As stated in § 63.6665, you must comply with the following applicable general provisions.

General provisions citation	Subject of citation	Applies to subpart	Explanation
§ 63.1	General applicability of the General Provisions	Yes	
§ 63.2	Definitions	Yes	Additional terms defined in § 63.6675.
§ 63.3	Units and abbreviations	Yes	
§ 63.4	Prohibited activities and circumvention	Yes	
§ 63.5	Construction and reconstruction	Yes	
§ 63.6(a)	Applicability	Yes	
§ 63.6(b)(1)-(4)	Compliance dates for new and reconstructed sources	Yes	
§ 63.6(b)(5)	Notification	Yes	
§ 63.6(b)(6)	[Reserved]		
§ 63.6(b)(7)	Compliance dates for new and reconstructed area sources that become major sources	Yes	
§ 63.6(c)(1)-(2)	Compliance dates for existing sources	Yes	
§ 63.6(c)(3)-(4)	[Reserved]		
§ 63.6(c)(5)	Compliance dates for existing area sources that become major sources	Yes	
§ 63.6(d)	[Reserved]		
§ 63.6(e)	Operation and maintenance	No	
§ 63.6(f)(1)	Applicability of standards	No	
§ 63.6(f)(2)	Methods for determining compliance	Yes	
§ 63.6(f)(3)	Finding of compliance	Yes	
§ 63.6(g)(1)-(3)	Use of alternate standard	Yes	
§ 63.6(h)	Opacity and visible emission standards	No	Subpart ZZZZ does not contain opacity or visible emission standards.
§ 63.6(i)	Compliance extension procedures and criteria	Yes	

General provisions citation	Subject of citation	Applies to subpart	Explanation
§ 63.6(j)	Presidential compliance exemption	Yes	
§ 63.7(a)(1)-(2)	Performance test dates	Yes	Subpart ZZZZ contains performance test dates at §§ 63.6610, 63.6611, and 63.6612.
§ 63.7(a)(3)	CAA section 114 authority	Yes	
§ 63.7(b)(1)	Notification of performance test	Yes	Except that § 63.7(b)(1) only applies as specified in § 63.6645.
§ 63.7(b)(2)	Notification of rescheduling	Yes	Except that § 63.7(b)(2) only applies as specified in § 63.6645.
§ 63.7(c)	Quality assurance/test plan	Yes	Except that § 63.7(c) only applies as specified in § 63.6645.
§ 63.7(d)	Testing facilities	Yes	
§ 63.7(e)(1)	Conditions for conducting performance tests	No	Subpart ZZZZ specifies conditions for conducting performance tests at § 63.6620.
§ 63.7(e)(2)	Conduct of performance tests and reduction of data	Yes	Subpart ZZZZ specifies test methods at § 63.6620.
§ 63.7(e)(3)	Test run duration	Yes	
§ 63.7(e)(4)	Administrator may require other testing under section 114 of the CAA	Yes	
§ 63.7(f)	Alternative test method provisions	Yes	
§ 63.7(g)	Performance test data analysis, recordkeeping, and reporting	Yes	
§ 63.7(h)	Waiver of tests	Yes	
§ 63.8(a)(1)	Applicability of monitoring requirements	Yes	Subpart ZZZZ contains specific requirements for monitoring at § 63.6625.
§ 63.8(a)(2)	Performance specifications	Yes	
§ 63.8(a)(3)	[Reserved]		
§ 63.8(a)(4)	Monitoring for control devices	No	
§ 63.8(b)(1)	Monitoring	Yes	
§ 63.8(b)(2)-(3)	Multiple effluents and multiple monitoring systems	Yes	
§ 63.8(c)(1)	Monitoring system	Yes	

General provisions citation	Subject of citation	Applies to subpart	Explanation
	operation and maintenance		
§ 63.8(c)(1)(i)	Routine and predictable SSM	No	
§ 63.8(c)(1)(ii)	SSM not in Startup Shutdown Malfunction Plan	Yes	
§ 63.8(c)(1)(iii)	Compliance with operation and maintenance requirements	No	
§ 63.8(c)(2)-(3)	Monitoring system installation	Yes	
§ 63.8(c)(4)	Continuous monitoring system (CMS) requirements	Yes	Except that subpart ZZZZ does not require Continuous Opacity Monitoring System (COMS).
§ 63.8(c)(5)	COMS minimum procedures	No	Subpart ZZZZ does not require COMS.
§ 63.8(c)(6)-(8)	CMS requirements	Yes	Except that subpart ZZZZ does not require COMS.
§ 63.8(d)	CMS quality control	Yes	
§ 63.8(e)	CMS performance evaluation	Yes	Except for § 63.8(e)(5)(ii), which applies to COMS. Except that § 63.8(e) only applies as specified in § 63.6645.
§ 63.8(f)(1)-(5)	Alternative monitoring method	Yes	Except that § 63.8(f)(4) only applies as specified in § 63.6645.
§ 63.8(f)(6)	Alternative to relative accuracy test	Yes	Except that § 63.8(f)(6) only applies as specified in § 63.6645.
§ 63.8(g)	Data reduction	Yes	Except that provisions for COMS are not applicable. Averaging periods for demonstrating compliance are specified at §§ 63.6635 and 63.6640.
§ 63.9(a)	Applicability and State delegation of notification requirements	Yes	
§ 63.9(b)(1)-(5)	Initial notifications	Yes	Except that § 63.9(b)(3) is reserved. Except that § 63.9(b) only applies as specified in § 63.6645.
§ 63.9(c)	Request for compliance	Yes	Except that § 63.9(c) only applies as

General provisions citation	Subject of citation	Applies to subpart	Explanation
	extension		specified in § 63.6645.
§ 63.9(d)	Notification of special compliance requirements for new sources	Yes	Except that § 63.9(d) only applies as specified in § 63.6645.
§ 63.9(e)	Notification of performance test	Yes	Except that § 63.9(e) only applies as specified in § 63.6645.
§ 63.9(f)	Notification of visible emission (VE)/opacity test	No	Subpart ZZZZ does not contain opacity or VE standards.
§ 63.9(g)(1)	Notification of performance evaluation	Yes	Except that § 63.9(g) only applies as specified in § 63.6645.
§ 63.9(g)(2)	Notification of use of COMS data	No	Subpart ZZZZ does not contain opacity or VE standards.
§ 63.9(g)(3)	Notification that criterion for alternative to RATA is exceeded	Yes	If alternative is in use. Except that § 63.9(g) only applies as specified in § 63.6645.
§ 63.9(h)(1)-(6)	Notification of compliance status	Yes	Except that notifications for sources using a CEMS are due 30 days after completion of performance evaluations. § 63.9(h)(4) is reserved. Except that § 63.9(h) only applies as specified in § 63.6645.
§ 63.9(i)	Adjustment of submittal deadlines	Yes	
§ 63.9(j)	Change in previous information	Yes	
§ 63.9(k)	Electronic reporting procedures	Yes	Only as specified in §§ 63.9(j), 63.6620, 63.6625, 63.6645, and 63.6650.
§ 63.10(a)	Administrative provisions for recordkeeping/ reporting	Yes	
§ 63.10(b)(1)	Record retention	Yes	Except that the most recent 2 years of data do not have to be retained on site.
§ 63.10(b)(2)(i)-(v)	Records related to SSM	No	
§ 63.10(b)(2)(vi)-(xi)	Records	Yes	
§	Record when under	Yes	

General provisions citation	Subject of citation	Applies to subpart	Explanation
63.10(b)(2)(xii)	waiver		
§ 63.10(b)(2)(xiii)	Records when using alternative to RATA	Yes	For CO standard if using RATA alternative.
§ 63.10(b)(2)(xiv)	Records of supporting documentation	Yes	
§ 63.10(b)(3)	Records of applicability determination	Yes	
§ 63.10(c)	Additional records for sources using CEMS	Yes	Except that § 63.10(c)(2)-(4) and (9) are reserved.
§ 63.10(d)(1)	General reporting requirements	Yes	
§ 63.10(d)(2)	Report of performance test results	Yes	
§ 63.10(d)(3)	Reporting opacity or VE observations	No	Subpart ZZZZ does not contain opacity or VE standards.
§ 63.10(d)(4)	Progress reports	Yes	
§ 63.10(d)(5)	Startup, shutdown, and malfunction reports	No	
§ 63.10(e)(1) and (2)(i)	Additional CMS Reports	Yes	
§ 63.10(e)(2)(ii)	COMS-related report	No	Subpart ZZZZ does not require COMS.
§ 63.10(e)(3)	Excess emission and parameter exceedances reports	No	Excess emissions and exceedance reporting is specified in § 63.6650.
§ 63.10(e)(4)	Reporting COMS data	No	Subpart ZZZZ does not require COMS.
§ 63.10(f)	Waiver for recordkeeping/ reporting	Yes	
§ 63.11	Flares	No	
§ 63.12	State authority and delegations	Yes	
§ 63.13	Addresses	Yes	
§ 63.14	Incorporation by reference	Yes	
§ 63.15	Availability of information	Yes	

[89 FR 70522, Aug. 30, 2024]

Appendix A to Subpart ZZZZ of Part 63—Protocol for Using an Electrochemical Analyzer to Determine Oxygen and Carbon Monoxide Concentrations From Certain Engines

1.0 Scope and Application. What is this Protocol?

This protocol is a procedure for using portable electrochemical (EC) cells for measuring carbon monoxide (CO) and oxygen (O_2) concentrations in controlled and uncontrolled emissions from existing stationary 4-stroke lean burn and 4-stroke rich burn reciprocating internal combustion engines as specified in the applicable rule.

1.1 Analytes. What does this protocol determine?

This protocol measures the engine exhaust gas concentrations of carbon monoxide (CO) and oxygen (O_2).

Analyte	CAS No.	Sensitivity
Carbon monoxide (CO)	630-08-0	Minimum detectable limit should be 2 percent of the nominal range or 1 ppm, whichever is less restrictive.
Oxygen (O_2)	*7782-44-7*	

1.2 Applicability. When is this protocol acceptable?

This protocol is applicable to 40 CFR part 63, subpart ZZZZ. Because of inherent cross sensitivities of EC cells, you must not apply this protocol to other emissions sources without specific instruction to that effect.

1.3 Data Quality Objectives. How good must my collected data be?

Refer to Section 13 to verify and document acceptable analyzer performance.

1.4 Range. What is the targeted analytical range for this protocol?

The measurement system and EC cell design(s) conforming to this protocol will determine the analytical range for each gas component. The nominal ranges are defined by choosing up-scale calibration gas concentrations near the maximum anticipated flue gas concentrations for CO and O_2, or no more than twice the permitted CO level.

1.5 Sensitivity. What minimum detectable limit will this protocol yield for a particular gas component?

The minimum detectable limit depends on the nominal range and resolution of the specific EC cell used, and the signal to noise ratio of the measurement system. The minimum detectable limit should be 2 percent of the nominal range or 1 ppm, whichever is less restrictive.

2.0 Summary of Protocol

In this protocol, a gas sample is extracted from an engine exhaust system and then conveyed to a portable EC analyzer for measurement of CO and O_2 gas concentrations. This method provides measurement system performance specifications and sampling protocols to ensure reliable data. You may use additions to, or modifications of vendor supplied measurement systems (e.g., heated or unheated sample lines, thermocouples, flow meters, selective gas scrubbers, etc.) to meet the design specifications of this protocol. Do not make changes to the measurement system from the as-verified configuration (Section 3.12).

3.0 Definitions

3.1 ***Measurement System.*** The total equipment required for the measurement of CO and O_2 concentrations. The measurement system consists of the following major subsystems:

3.1.1 ***Data Recorder.*** A strip chart recorder, computer or digital recorder for logging measurement data from the analyzer output. You may record measurement data from the digital data display manually or electronically.

3.1.2 ***Electrochemical (EC) Cell.*** A device, similar to a fuel cell, used to sense the presence of a specific analyte and generate an electrical current output proportional to the analyte concentration.

3.1.3 ***Interference Gas Scrubber.*** A device used to remove or neutralize chemical compounds that may interfere with the selective operation of an EC cell.

3.1.4 ***Moisture Removal System.*** Any device used to reduce the concentration of moisture in the sample stream so as to protect the EC cells from the damaging effects of condensation and to minimize errors in measurements caused by the scrubbing of soluble gases.

3.1.5 ***Sample Interface.*** The portion of the system used for one or more of the following: sample acquisition; sample transport; sample conditioning or protection of the EC cell from any degrading effects of the engine exhaust effluent; removal of particulate matter and condensed moisture.

3.2 ***Nominal Range.*** The range of analyte concentrations over which each EC cell is operated (normally 25 percent to 150 percent of up-scale calibration gas value). Several nominal ranges can be used for any given cell so long as the calibration and repeatability checks for that range remain within specifications.

3.3 ***Calibration Gas.*** A vendor certified concentration of a specific analyte in an appropriate balance gas.

3.4 ***Zero Calibration Error.*** The analyte concentration output exhibited by the EC cell in response to zero-level calibration gas.

3.5 ***Up-Scale Calibration Error.*** The mean of the difference between the analyte concentration exhibited by the EC cell and the certified concentration of the up-scale calibration gas.

3.6 ***Interference Check.*** A procedure for quantifying analytical interference from components in the engine exhaust gas other than the targeted analytes.

3.7 ***Repeatability Check.*** A protocol for demonstrating that an EC cell operated over a given nominal analyte concentration range provides a stable and consistent response and is not significantly affected by repeated exposure to that gas.

3.8 ***Sample Flow Rate.*** The flow rate of the gas sample as it passes through the EC cell. In some situations, EC cells can experience drift with changes in flow rate. The flow rate must be monitored and documented during all phases of a sampling run.

3.9 ***Sampling Run.*** A timed three-phase event whereby an EC cell's response rises and plateaus in a sample conditioning phase, remains relatively constant during a measurement data phase, then declines during a refresh phase. The sample conditioning phase exposes the EC cell to the gas sample for a length of time sufficient to reach a constant response. The measurement data phase is the time interval during which gas sample measurements can be made that meet the acceptance criteria of this protocol. The refresh phase then purges the EC cells with CO-free air. The refresh phase replenishes requisite O_2 and moisture in the electrolyte reserve and provides a mechanism to de-gas or desorb any interference gas scrubbers or filters so as to enable a stable CO EC cell response. There are four primary types of sampling runs: pre- sampling calibrations; stack gas sampling; post-sampling calibration checks; and measurement system repeatability checks. Stack gas sampling runs can be chained together for extended evaluations, providing all other procedural specifications are met.

3.10 ***Sampling Day.*** A time not to exceed twelve hours from the time of the pre-sampling calibration to the post-sampling calibration check. During this time, stack gas sampling runs can be repeated without repeated recalibrations, providing all other sampling specifications have been met.

3.11 ***Pre-Sampling Calibration/Post-Sampling Calibration Check.*** The protocols executed at the beginning and end of each sampling day to bracket measurement readings with controlled performance checks.

3.12 ***Performance-Established Configuration.*** The EC cell and sampling system configuration that existed at the time that it initially met the performance requirements of this protocol.

4.0 Interferences.

When present in sufficient concentrations, NO and NO_2 are two gas species that have been reported to interfere with CO concentration measurements. In the likelihood of this occurrence, it is the protocol user's responsibility to employ and properly maintain an appropriate CO EC cell filter or scrubber for removal of these gases, as described in Section 6.2.12.

5.0 Safety. [Reserved]

6.0 Equipment and Supplies.

6.1 What equipment do I need for the measurement system?

The system must maintain the gas sample at conditions that will prevent moisture condensation in the sample transport lines, both before and as the sample gas contacts the EC cells. The essential components of the measurement system are described below.

6.2 Measurement System Components.

6.2.1 ***Sample Probe.*** A single extraction-point probe constructed of glass, stainless steel or other non-reactive material, and of length sufficient to reach any designated sampling point. The sample probe must be designed to prevent plugging due to condensation or particulate matter.

6.2.2 ***Sample Line.*** Non-reactive tubing to transport the effluent from the sample probe to the EC cell.

6.2.3 ***Calibration Assembly (optional).*** A three-way valve assembly or equivalent to introduce calibration gases at ambient pressure at the exit end of the sample probe during calibration checks. The assembly must be designed such that only stack gas or calibration gas flows in the sample line and all gases flow through any gas path filters.

6.2.4 ***Particulate Filter (optional).*** Filters before the inlet of the EC cell to prevent accumulation of particulate material in the measurement system and extend the useful life of the components. All filters must be fabricated of materials that are non-reactive to the gas mixtures being sampled.

6.2.5 ***Sample Pump.*** A leak-free pump to provide undiluted sample gas to the system at a flow rate sufficient to minimize the response time of the measurement system. If located upstream of the EC cells, the pump must be constructed of a material that is non-reactive to the gas mixtures being sampled.

6.2.8 ***Sample Flow Rate Monitoring.*** An adjustable rotameter or equivalent device used to adjust and maintain the sample flow rate through the analyzer as prescribed.

6.2.9 ***Sample Gas Manifold (optional).*** A manifold to divert a portion of the sample gas stream to the analyzer and the remainder to a by-pass discharge vent. The sample gas manifold may also include provisions for introducing calibration gases directly to the analyzer. The manifold must be constructed of a material that is non-reactive to the gas mixtures being sampled.

6.2.10 ***EC cell.*** A device containing one or more EC cells to determine the CO and O_2 concentrations in the sample gas stream. The EC cell(s) must meet the applicable performance specifications of Section 13 of this protocol.

6.2.11 ***Data Recorder.*** A strip chart recorder, computer or digital recorder to make a record of analyzer output data. The data recorder resolution (i.e., readability) must be no greater than 1 ppm for CO; 0.1 percent for O_2; and one degree (either °C or °F) for temperature. Alternatively, you may use a digital or analog meter having the same resolution to observe and manually record the analyzer responses.

6.2.12 ***Interference Gas Filter or Scrubber.*** A device to remove interfering compounds upstream of the CO EC cell. Specific interference gas filters or scrubbers used in the performance-established configuration of the analyzer must continue to be used. Such a filter or scrubber must have a means to determine when the removal agent is exhausted. Periodically replace or replenish it in accordance with the manufacturer's recommendations.

7.0 Reagents and Standards. What calibration gases are needed?

7.1 ***Calibration Gases.*** CO calibration gases for the EC cell must be CO in nitrogen or CO in a mixture of nitrogen and O_2. Use CO calibration gases with labeled concentration values certified by the manufacturer to be within ±5 percent of the label value. Dry ambient air (20.9 percent O_2) is acceptable for calibration of the O_2 cell. If needed, any lower percentage O_2 calibration gas must be a mixture of O_2 in nitrogen.

7.1.1 ***Up-Scale CO Calibration Gas Concentration.*** Choose one or more up-scale gas concentrations such that the average of the stack gas measurements for each stack gas sampling run are between 25 and 150 percent of those concentrations. Alternatively, choose an up-scale gas that does not exceed twice the concentration of the applicable outlet standard. If a measured gas value exceeds 150 percent of the up-scale CO calibration gas value at any time during the stack gas sampling run, the run must be discarded and repeated.

7.1.2 ***Up-Scale O_2 Calibration Gas Concentration.***

Select an O_2 gas concentration such that the difference between the gas concentration and the average stack gas measurement or reading for each sample run is less than 15 percent O_2. When the average exhaust gas O_2 readings are above 6 percent, you may use dry ambient air (20.9 percent O_2) for the up-scale O_2 calibration gas.

7.1.3 ***Zero Gas.*** Use an inert gas that contains less than 0.25 percent of the up-scale CO calibration gas concentration. You may use dry air that is free from ambient CO and other combustion gas products (e.g., CO_2).

8.0 Sample Collection and Analysis

8.1 ***Selection of Sampling Sites.***

8.1.1 ***Control Device Inlet.*** Select a sampling site sufficiently downstream of the engine so that the combustion gases should be well mixed. Use a single sampling extraction point near the center of the duct (e.g., within the 10 percent centroidal area), unless instructed otherwise.

8.1.2 ***Exhaust Gas Outlet.*** Select a sampling site located at least two stack diameters downstream of any disturbance (e.g., turbocharger exhaust, crossover junction or recirculation take-off) and at least one-half stack diameter upstream of the gas discharge to the atmosphere. Use a single sampling extraction point near the center of the duct (e.g., within the 10 percent centroidal area), unless instructed otherwise.

8.2 ***Stack Gas Collection and Analysis.*** Prior to the first stack gas sampling run, conduct that the pre-sampling calibration in accordance with Section 10.1. Use Figure 1 to record all data. Zero the analyzer with zero gas. Confirm and record that the scrubber media color is correct and not exhausted. Then position the probe at the sampling point and begin the sampling run at the same flow rate used during the up-scale calibration. Record the start time. Record all EC cell output responses and the flow rate during the “sample conditioning phase” once per minute until constant readings are obtained. Then begin the “measurement data phase” and record readings every 15 seconds for at least two minutes (or eight readings), or as otherwise required to achieve two continuous minutes of data that meet the specification given in Section 13.1. Finally, perform the

"refresh phase" by introducing dry air, free from CO and other combustion gases, until several minute-to-minute readings of consistent value have been obtained. For each run use the "measurement data phase" readings to calculate the average stack gas CO and O_2 concentrations.

8.3 ***EC Cell Rate.*** Maintain the EC cell sample flow rate so that it does not vary by more than ±10 percent throughout the pre-sampling calibration, stack gas sampling and post-sampling calibration check. Alternatively, the EC cell sample flow rate can be maintained within a tolerance range that does not affect the gas concentration readings by more than ±3 percent, as instructed by the EC cell manufacturer.

9.0 Quality Control (Reserved)

10.0 Calibration and Standardization

10.1 ***Pre-Sampling Calibration.*** Conduct the following protocol once for each nominal range to be used on each EC cell before performing a stack gas sampling run on each field sampling day. Repeat the calibration if you replace an EC cell before completing all of the sampling runs. There is no prescribed order for calibration of the EC cells; however, each cell must complete the measurement data phase during calibration. Assemble the measurement system by following the manufacturer's recommended protocols including for preparing and preconditioning the EC cell. Assure the measurement system has no leaks and verify the gas scrubbing agent is not depleted. Use Figure 1 to record all data.

10.1.1 ***Zero Calibration.*** For both the O_2 and CO cells, introduce zero gas to the measurement system (e.g., at the calibration assembly) and record the concentration reading every minute until readings are constant for at least two consecutive minutes. Include the time and sample flow rate. Repeat the steps in this section at least once to verify the zero calibration for each component gas.

10.1.2 ***Zero Calibration Tolerance.*** For each zero gas introduction, the zero level output must be less than or equal to ±3 percent of the up-scale gas value or ±1 ppm, whichever is less restrictive, for the CO channel and less than or equal to ±0.3 percent O_2 for the O_2 channel.

10.1.3 ***Up-Scale Calibration.*** Individually introduce each calibration gas to the measurement system (e.g., at the calibration assembly) and record the start time. Record all EC cell output responses and the flow rate during this "sample conditioning phase" once per minute until readings are constant for at least two minutes. Then begin the "measurement data phase" and record readings every 15 seconds for a total of two minutes, or as otherwise required. Finally, perform the "refresh phase" by introducing dry air, free from CO and other combustion gases, until readings are constant for at least two consecutive minutes. Then repeat the steps in this section at least once to verify the calibration for each component gas. Introduce all gases to flow through the entire sample handling system (i.e., at the exit end of the sampling probe or the calibration assembly).

10.1.4 ***Up-Scale Calibration Error.*** The mean of the difference of the "measurement data phase" readings from the reported standard gas value must be less than or equal to ±5 percent or ±1 ppm for CO or ±0.5 percent O_2, whichever is less restrictive, respectively. The maximum allowable deviation from the mean measured value of any single "measurement data phase" reading must be less than or equal to ±2 percent or ±1 ppm for CO or ±0.5 percent O_2, whichever is less restrictive, respectively.

10.2 ***Post-Sampling Calibration Check.*** Conduct a stack gas post-sampling calibration check after the stack gas sampling run or set of runs and within 12 hours of the initial calibration. Conduct up-scale and zero calibration checks using the protocol in Section 10.1. Make no changes to the sampling system or EC cell calibration until all post-sampling calibration checks have been recorded. If either the zero or up-scale calibration error exceeds the respective specification in Sections 10.1.2 and 10.1.4 then all measurement data collected since the previous successful calibrations are invalid and re-calibration and re-sampling are required. If the sampling system is disassembled or the EC cell calibration is adjusted, repeat the calibration check before conducting the next analyzer sampling run.

11.0 Analytical Procedure

The analytical procedure is fully discussed in Section 8.

12.0 Calculations and Data Analysis

Determine the CO and O_2 concentrations for each stack gas sampling run by calculating the mean gas concentrations of the data recorded during the “measurement data phase”.

13.0 Protocol Performance

Use the following protocols to verify consistent analyzer performance during each field sampling day.

13.1 ***Measurement Data Phase Performance Check.*** Calculate the mean of the readings from the “measurement data phase”. The maximum allowable deviation from the mean for each of the individual readings is ±2 percent, or ±1 ppm, whichever is less restrictive. Record the mean value and maximum deviation for each gas monitored. Data must conform to Section 10.1.4. The EC cell flow rate must conform to the specification in Section 8.3.

Example: A measurement data phase is invalid if the maximum deviation of any single reading comprising that mean is greater than ±2 percent *or* ±1 ppm (the default criteria). For example, if the mean = 30 ppm, single readings of below 29 ppm and above 31 ppm are disallowed).

13.2 ***Interference Check.*** Before the initial use of the EC cell and interference gas scrubber in the field, and semi-annually thereafter, challenge the interference gas scrubber with NO and NO_2 gas standards that are generally recognized as representative of diesel-fueled engine NO and NO_2 emission values. Record the responses displayed by the CO EC cell and other pertinent data on Figure 1 or a similar form.

13.2.1 ***Interference Response.*** The combined NO and NO_2 interference response should be less than or equal to ±5 percent of the up-scale CO calibration gas concentration.

13.3 ***Repeatability Check.*** Conduct the following check once for each nominal range that is to be used on the CO EC cell within 5 days prior to each field sampling program. If a field sampling program lasts longer than 5 days, repeat this check every 5 days. Immediately repeat the check if the EC cell is replaced or if the EC cell is exposed to gas concentrations greater than 150 percent of the highest up-scale gas concentration.

13.3.1 ***Repeatability Check Procedure.*** Perform a complete EC cell sampling run (all three phases) by introducing the CO calibration gas to the measurement system and record the response. Follow Section 10.1.3. Use Figure 1 to record all data. Repeat the run three times for a total of four complete runs. During the four repeatability check runs, do not adjust the system except where necessary to achieve the correct calibration gas flow rate at the analyzer.

13.3.2 ***Repeatability Check Calculations.*** Determine the highest and lowest average "measurement data phase" CO concentrations from the four repeatability check runs and record the results on Figure 1 or a similar form. The absolute value of the difference between the maximum and minimum average values recorded must not vary more than ±3 percent or ±1 ppm of the up-scale gas value, whichever is less restrictive.

14.0 Pollution Prevention (Reserved)

15.0 Waste Management (Reserved)

16.0 Alternative Procedures (Reserved)

17.0 References

(1) ***"Development of an Electrochemical Cell Emission Analyzer Test Protocol"*** , Topical Report, Phil Juneau, Emission Monitoring, Inc., July 1997.

(2) ***"Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Emissions from Natural Gas-Fired Engines, Boilers, and Process Heaters Using Portable Analyzers"*** , EMC Conditional Test Protocol 30 (CTM-30), Gas Research Institute Protocol GRI-96/0008, Revision 7, October 13, 1997.

(3) ***"ICAC Test Protocol for Periodic Monitoring"*** , EMC Conditional Test Protocol 34 (CTM-034), The Institute of Clean Air Companies, September 8, 1999.

(4) ***"Code of Federal Regulations"*** , Protection of Environment, 40 CFR, Part 60, Appendix A, Methods 1-4; 10.

TABLE 1: APPENDIX A—SAMPLING RUN DATA.

Facility_____ Engine I.D._____ Date_____

Run Type: (X)	(_) Pre-Sample Calibration	(_) Stack Gas Sample	(_) Post-Sample Cal. Check	(_) Repeatability Check

Run #	1	1	2	2	3	3	4	4	Time	Scrub. OK	Flow- Rate
Gas	O_2	CO	O_2	CO	O_2	CO	O_2	CO			
Sample Cond. Phase											
"											
"											
"											
"											
Measurement Data Phase											
"											
"											
"											
"											
"											
"											
"											
"											
"											
Mean											
Refresh Phase											
"											
"											
"											
"											

[78 FR 6721, Jan. 30, 2013]

Attachment E

Draft EAW Project Description

Draft EAW Project Description

a. Provide the brief project summary to be published in the EQB Monitor, (approximately 50 words).

A new regional sanitary district is being created to serve the communities of Goodhue, Pine Island, Wanamingo, and Zumbrota. A new wastewater treatment facility (WWTF) will be built near the City of Zumbrota. Pump stations and conveyance lines will be installed to connect all four communities to the new WWTF.

b. Give a complete description of the proposed project and related new construction, including infrastructure needs. If the project is an expansion include a description of the existing facility. Emphasize: 1) construction, operation methods and features that will cause physical manipulation of the environment or will produce wastes, 2) modifications to existing equipmentor industrial processes, 3) significant demolition, removal or remodeling of existing structures, and 4) timing and duration of construction activities.

Wastewater from the cities of Goodhue, Pine Island, Wanamingo, and Zumbrota is currently treated at four separate WWTF sites located within each of the individual communities. Each of the cities are facing similar issues with deterioration of their facilities, which are nearing the end of their life cycles, and have elected to form a joint sanitary district – the NZSSD – to provide wastewater treatment for all four communities via a new centralized WWTF. Upon successful completion of the new WWTF and permanent connections to the surrounding communities, the old WWTFs in each of the member cities will be removed from service and demolished.

The proposed WWTF site is located on the outskirts of the City of Zumbrota, partially within the existing city limits and partially in Zumbrota Township. Pumping stations in Goodhue, Pine Island, and Wanamingo will be used to convey wastewater through forcemains to the new WWTF. Forcemains will be located within the public right-of-way (ROW) where possible and installed by open trench methods except at road or stream crossings, where trenchless directional drilling will be utilized. Figure 1 shows each of the member cities and the proposed locations of the centralized WWTF, pumping stations, and conveyance lines.

The WWTF will be an activated sludge facility with enhanced biological nutrient removal (EBNR) and aerobic digestion processes. The treatment train will include primary, secondary, and tertiary process units (screening and grit removal, clarifiers, oxidation ditches, and effluent filter) and UV disinfection. Biosolids will be disposed by land application to nearby agricultural fields. Discharge from the WWTF to the North Fork Zumbro River would replace the four existing WWTF discharge points to Mazeppa Creek (Goodhue), Middle Fork Zumbro River (Pine Island), Shingle Creek–North Fork Zumbro River (Wanamingo), and North Fork Zumbro River (Zumbrota).

Project construction should start in 2025 and be complete in 2026. A 1-year startup period will be in 2026-27. Demolition of the existing wastewater treatment facilities will follow in 2028.

******

The new WWTF will include an overflow retention basin (250' diameter circular tank), screening and grit removal (30'x50' building), oxidation ditches (300'x125' structure), two final clarifiers (80' diameter each),UV disinfection (30'x50' building), aerobic digestion tanks (60'x120' structure), and biosolids storage (two 3-MG 160'-diameter circular tanks). The new WWTF will include an influent pump station (40'x60' building), main process building housing RAS, WAS, and sludge storage pumps, chem feed, blowers, and main electrical (50'x120'), administration building (60'x80'), maintenance garage (50'x100'), storage building (50'x100'), and generator pad (20'x50'). The Design Year for this Facility is 2045.

The new WWTF facility footprint will allow for future expansion on site beyond Design Year 2045, which could add the following additional units: a second overflow retention basin (250' diameter circular tank), additional oxidation ditches (300'x125' structure), two additional final clarifiers (80' diameter each),additional aerobic digestion (60'x120' structure), expansion of the main process building (adds 50'x120'), and additional biosolids storage (two additional 3-MG 160'-diameter circular tanks). These units would allow for doubling the WWTF capacity.

The new WWTF has two potential alternative sites under consideration. Both alternative sites are located within 1-1/4 miles of each other along the North Fork Zumbro River, in Zumbrota Township east of the City of Zumbrota. WWTP Site 1 is the primary site under consideration. The site is 48 gross acres.

The Zumbrota conveyance project will construct a new pump station (40'x60' building) at Zumbrota's existing WWTF, and construct a new forcemain from the pump station to the new centralized WWTF. The new WWTF Site 1 is located approximately one-half (1/2) mile directly east and across the North Fork Zumbro River from the existing Zumbrota WWTF site. The corridor for the forcemain alignment is ½ mile times 20' wide (1 acre).

The existing Zumbrota WWTF is located directly off of Highway 58, in the northeastern part of the City of Zumbrota. The WWTF is approximately ten (10) acres and includes trickling filters, activated sludge, aerobic sludge digestion, and sludge holding ponds. The existing WWTF process units, buildings, and ponds will be decommissioned and demolished. Driveway paving will remain. The new Zumbrota pump station will be built on this site.

APPENDIX Q

Applicability Determination Review Completeness Checklist

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

Applicability Determination Review

Completeness Checklist

Air Quality Permit Program

Doc Type: Permitting Checklist

Facility name: North Zumbro Sanitary Sewer District WWTF DQ No.: 7894

AQ Facility ID No.: 04900099 AI ID No.: 257297 Date received (mm/dd/yyyy): 10/6/2025

Date review completed (mm/dd/yyyy): 10/8/2025 Reviewer's initials: *Beckie Olson*

Tier I Review

The Permit Document Coordinator will return an applicability determination request if missing any of the following:

- Form SCP-01 or signature
- Check for appropriate fee

Tier II Review

Completed Form CH-16 included ☒ Yes ☐ No – Request is incomplete

Completed Form CH-GI-01 included ☒ Yes ☐ No – Request is incomplete

Reviewer's comments:

If both forms are present and filled out, the applicability determination request is considered complete.

MPCA Reviewer: If you return an applicability determination request as incomplete, indicate in the WAL the reason:

Codes:

- Missing/improper signatures
- Missing/incorrect application fee
- Missing required application forms, checklists, components, and/or supporting documents
- Incomplete information on required application forms, checklists, components, and/or supporting documents
- Technically inadequate application forms, components, and/or supporting documents

APPENDIX R

GHG Emissions Calculations

Minnesota Climate Calculator: Project Summary Report

Date Prepared: 9/11/2025

The results shown below were generated using the Minnesota Climate Calculator. The emissions quantified account for the full greenhouse gas impact of a potential project throughout the construction and operational phases of the project. This includes emissions from project activities that occur on-site as well as emissions that occur upstream and downstream of the project. The results are based on user inputs and assumptions; actual project emissions may vary.

Background Information

Project Name	North Zumbro Sanitary Sewer District
Project Category (primary)	Subp. 18, Wastewater
Project Category (secondary)	
Location (County)	Goodhue
Construction Start Date	3/1/2027
Operational Year	2029
Operational Lifetime (Years)	20

Electricity Provider	Grid Average
Portion of Building Electricity Consumption to be Generated On-Site via Renewables or Supplied through the Purchase of Renewable Energy Credits (RECs)	0%
Portion of Building Natural Gas Consumption to be Supplied from Renewable Sources	0%

Building Construction Project?	Yes

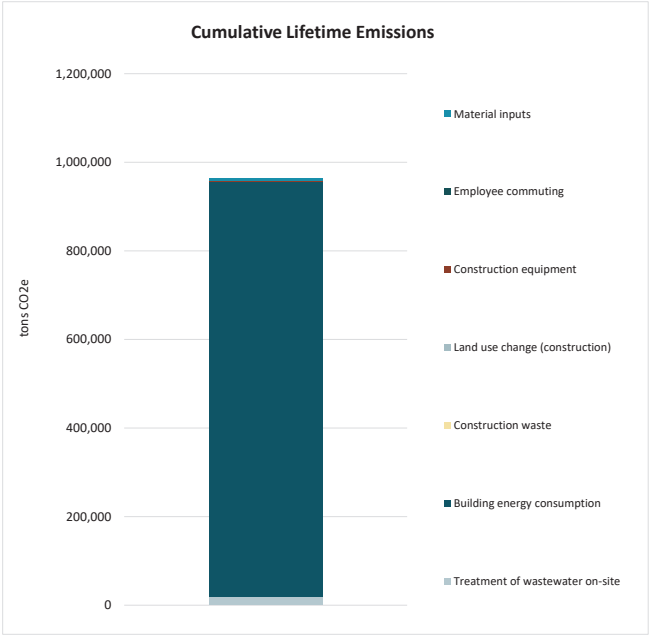
Construction Stage	Duration (Days)
Demolition	-
Site Preparation	127
Grading	329
Building Construction	200
Architectural Coatings	233
Paving and Landscaping	233

Summary Results

Project Lifetime	22
Unit	tons

Phase	CO_2e Emissions	
	Cumulative	Annualized
Construction		
Material inputs	5,280.13	240.01
Transportation of material inputs	114.21	5.19
Employee commuting	1,283.24	58.33
Construction equipment	2,197.12	99.87
Land use change (construction)	2.73	0.12
Construction waste	16.31	0.74
Operation		
Building energy consumption	935,504.90	42,522.95
Coal production	NA	NA
Natural gas and oil products	NA	NA
Industrial processes	NA	NA
HFC leakage	NA	NA
Land use change (operations)	NA	NA
On-road vehicles	NA	NA
Treatment of waste on-site	NA	NA
Treatment of wastewater on-site	20,379.18	926.33
Treatment of waste off-site	NA	NA
Enteric fermentation	NA	NA
Manure management	NA	NA
Total	**964,777.83**	**43,853.54**

Note: NA indicates that emissions were not quantified and/or are not applicable.



User Inputs

Note: NA indicates that emissions were not quantified and/or activity is not applicable.

Material Inputs

Material Type	Quantity	Unit	Geographical Sourcing
Aluminum	6.00	Tons	Domestic
Asphalt	0.00	Tons	Domestic
Brick	10.00	Tons	Domestic
Concrete	23,045.00	Tons	Domestic
Glass	3.00	Tons	Domestic
Insulation (residential)	0.00	Tons	Domestic
Insulation (commercial)	13.00	Tons	Domestic
Steel	825.00	Tons	Domestic
Wood Products	110.00	Tons	Unknown

Employee Commuting

Construction Stage	Daily Average Number of Employees Commuting
Demolition	0
Site Preparation	65
Grading	85
Building Construction	110
Architectural Coatings	30
Paving and Landscaping	12

Transportation Mode	Percent of Employees
Single Occupancy Vehicle	80%
Carpool	20%
Motorcycle	0%
Bus	0%
Transit Rail	0%
Bike/Walk	0%

Average One-Way Commute Length (miles)	25.0

Construction Equipment

Equipment Type	Fuel Type	Number of Hours per Day by Construction Stage					
		Demolition	Site Preparation	Grading	Building Construction	Architectural Coatings	Paving and Landscaping
Air Compressors	Diesel	0	8	4	6	8	2
Cement and Mortar Mixers	Diesel	0	4	0	8	1	0
Concrete/Industrial Saws	Diesel	0	2	0	4	1	2
Cranes	Diesel	0	1	0	8	2	0
Excavators	Diesel	0	9	9	4	0	3
Forklifts	Diesel	0	4	2	8	3	2
Generator Sets	Diesel	0	8	6	8	6	4
Graders	Diesel	0	4	9	4	0	2
Pavers	Diesel	0	0	0	1	0	10
Paving Equipment	Diesel	0	0	0	1	0	10
Rollers	Diesel	0	4	8	6	0	10
Rubber Tired Dozers	Diesel	0	8	8	4	0	2
Scrapers	Diesel	0	4	8	2	0	0
Tractors/Loaders/Backhoes	Diesel	0	8	8	6	2	6
Welders	Diesel	0	2	0	6	1	0

Land Use Change

Land Use Type	Acres		
	Pre-Construction	Post-Construction	Post-Operation
Wetlands, forested	0.00	0.00	NA
Wetlands, not forested	5.84	5.84	NA
Forest	0.00	0.00	NA
Rivers and streams	1.34	1.34	NA
Brush and grassland	0.00	0.00	NA
Cropland	20.79	0.00	NA
Livestock rangeland/pastureland	0.00	0.00	NA
Lawn/landscaping	0.00	0.00	NA
Green Infrastructure: Constructed wetlands, paved	0.00	0.00	NA
Green Infrastructure: Constructed wetlands, vegetated	5.14	5.14	NA
Green Infrastructure: Constructed green roofs	0.00	0.00	NA
Green Infrastructure: Constructed permeable pavements	0.00	0.00	NA
Impervious surface	0.00	20.79	NA
Stormwater pond (wet sedimentation basin)	0.00	0.00	NA

Trees	Number
Number of mature trees removed	0
Number of new trees planted	0

Construction Waste

Material Type	Quantity (tons)
Aluminum	0.00
Asphalt	0.00
Brick	0.40
Concrete	691.35
Glass	0.09
Insulation	1.30
Steel	0.00
Wood Products	5.50
Mixed Waste	0.00

Building Energy Consumption

Building Type	Energy Intensity (Btu/sq ft/year)			
	Electricity	Natural Gas	Propane	Kerosene or Fuel Oil
Residential	18,096.91	24,460.01	3,619.38	233.51
Commercial	30,766.13	35,534.88	0.00	1,661.56
Industrial	229,952.20	656,392.90	0.00	8,191.66
Institutional	46,860.06	48,219.03	0.00	3,659.93
Other	0.00	0.00	0.00	0.00

Emissions from Coal Production

Coal Type	Incremental Production (tons/year)
Mixed Coal	NA
Anthracite Coal	NA
Bituminous Coal	NA
Subbituminous Coal	NA
Lignite Coal	NA
Coal Coke	NA

Emissions from Natural Gas and Oil Products

Fuel Type	Incremental Throughput	Unit
Natural Gas	NA	Cubic Feet/year
Renewable Natural Gas	NA	Cubic Feet/year
Propane	NA	Gallons/year
Gasoline	NA	Gallons/year
Distillate Fuel Oil No. 1	NA	Gallons/year
Distillate Fuel Oil No. 2	NA	Gallons/year
Distillate Fuel Oil No. 4	NA	Gallons/year
Residual Fuel Oil No. 5	NA	Gallons/year
Residual Fuel Oil No. 6	NA	Gallons/year
Liquified Petroleum Gas (LPG)	NA	Gallons/year
Kerosene	NA	Gallons/year
Kerosene Jet Fuel	NA	Gallons/year
Biodiesel 100	NA	Gallons/year
Biodiesel 20	NA	Gallons/year
Renewable Diesel	NA	Gallons/year

Natural Gas Assumptions

Percent Reduction in Leakage and Venting Emissions	NA
Leakage and Venting Emissions ($kgCO_2e$/MMBtu)	NA

Industrial Processes

Product Type	Quantity (tons/year)	Emission Factor ($kgCO_2e$/ton)
Cement	NA	NA
Lime	NA	NA
Limestone Use	NA	NA
Magnesium	NA	NA
Iron and Steel	NA	NA
Ammonia	NA	NA
Aluminum	NA	NA
Nitric Acid	NA	NA

HFC Leakage

Building Type	Percent of Building Area Utilized
Residential	NA
Commercial	NA
Industrial	NA
Institutional	NA

On-Road Vehicles

Speed Bin (miles/hr)	Additional VMT (miles/year)
Fleet Average	NA
0-30	NA
31-55	NA
56-75	NA

Treatment of Waste On-Site

Waste Treatment Practice	Quantity of Waste Treated (tons/year)
	NA
	NA
	NA

Treatment of Wastewater On-Site

Population Served by Treatment Plant	10200

Product Type	Production (MT/year)
	0.00

Treatment of Waste Off-Site

Activity	Quantity	Waste Generation Rate	Unit
Number of single family households	NA	NA	lb/household/day
Number of employees (commercial)	NA	NA	lb/employee/day
Number of employees (industrial)	NA	NA	lb/employee/day
Number of employees (institutional)	NA	NA	lb/employee/day
Visitors per year (public venues)	NA	NA	lb/visitor

Waste Treatment Practice	Percent of Waste
Recycled	NA
Composted	NA
Landfilled	NA
Combusted	NA

Enteric Fermentation and Manure Management

Livestock Type	Population	Percentage of Manure Management System											
		Anaerobic digester	Anaerobic lagoon - liquid	Cattle deep litter	Composting	Daily spread	Deep pit	Dry lot	Liquid/ slurry	Pasture, range, paddock	Poultry with litter	Poultry without litter	Solid storage
Bulls	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beef cows	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beef heifers	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Steer stockers	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heifer stockers	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Feedlot beef	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beef calves	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dairy heifers	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dairy cows	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dairy calves	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swine, <55 lbs	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swine 55-330 lbs	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swine 330+ lbs	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Poultry, layers	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Poultry, pullets	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Poultry, chickens	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Poultry, broilers	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Turkeys	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Percent of manure applied or sold for application to agricultural soils (pasture or cropland) as fertilizer	0%

Notes

General Notes	
Material inputs	
Transportation of material inputs	
Employee commuting	
Construction equipment	
Land use change (construction)	
Construction waste	
Building energy consumption	
Coal production	
Natural gas and oil products	
Industrial processes	
HFC leakage	
Land use change (operations)	
On-road vehicles	
Treatment of waste on-site	
Treatment of wastewater on-site	
Treatment of waste off-site	
Enteric fermentation	
Manure management	
Mitigation Measures	
Adaptation Strategies	

Minnesota Climate Calculator: Project Summary Report

Date Prepared: 9/10/2025

The results shown below were generated using the Minnesota Climate Calculator. The emissions quantified account for the full greenhouse gas impact of a potential project throughout the construction and operational phases of the project. This includes emissions from project activities that occur on-site as well as emissions that occur upstream and downstream of the project. The results are based on user inputs and assumptions; actual project emissions may vary.

Background Information

Project Name	Goodhue WWTF
Project Category (primary)	Subp. 18, Wastewater
Project Category (secondary)	
Location (County)	Goodhue
Construction Start Date	1/1/2025
Operational Year	2025
Operational Lifetime (Years)	20

Electricity Provider	Grid Average
Portion of Building Electricity Consumption to be Generated On-Site via Renewables or Supplied through the Purchase of Renewable Energy Credits (RECs)	0%
Portion of Building Natural Gas Consumption to be Supplied from Renewable Sources	0%

Building Construction Project?	No

Construction Stage	Duration (Days)
Demolition	-
Site Preparation	-
Grading	-
Building Construction	-
Architectural Coatings	-
Paving and Landscaping	-

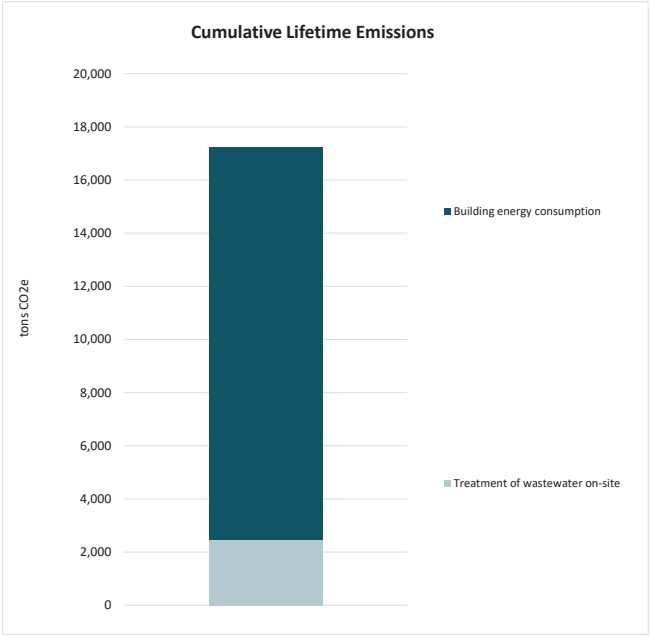
Summary Results

****Results may be incomplete due to missing user inputs****

Project Lifetime	20
Unit	tons

Phase	CO_2e Emissions	
	Cumulative	Annualized
Construction		
Material inputs	NA	NA
Transportation of material inputs	NA	NA
Employee commuting	NA	NA
Construction equipment	NA	NA
Land use change (construction)	NA	NA
Construction waste	NA	NA
Operation		
Building energy consumption	14,752.86	737.64
Coal production	NA	NA
Natural gas and oil products	NA	NA
Industrial processes	NA	NA
HFC leakage	NA	NA
Land use change (operations)	NA	NA
On-road vehicles	NA	NA
Treatment of waste on-site	NA	NA
Treatment of wastewater on-site	2,485.46	124.27
Treatment of waste off-site	NA	NA
Enteric fermentation	NA	NA
Manure management	NA	NA
Total	**17,238.32**	**861.92**

Note: NA indicates that emissions were not quantified and/or are not applicable.



User Inputs

Note: NA indicates that emissions were not quantified and/or activity is not applicable.

Material Inputs

Material Type	Quantity	Unit	Geographical Sourcing
Aluminum	NA	Tons	Unknown
Asphalt	NA	Tons	Domestic
Brick	NA	Tons	Unknown
Concrete	NA	Tons	Domestic
Glass	NA	Tons	Unknown
Insulation (residential)	NA	Tons	Unknown
Insulation (commercial)	NA	Tons	Unknown
Steel	NA	Tons	Unknown
Wood Products	NA	Tons	Unknown

Employee Commuting

Construction Stage	Daily Average Number of Employees Commuting
Demolition	NA
Site Preparation	NA
Grading	NA
Building Construction	NA
Architectural Coatings	NA
Paving and Landscaping	NA

Transportation Mode	Percent of Employees
Single Occupancy Vehicle	NA
Carpool	NA
Motorcycle	NA
Bus	NA
Transit Rail	NA
Bike/Walk	NA

Average One-Way Commute Length (miles)	NA

Construction Equipment

Equipment Type	Fuel Type	Number of Hours per Day by Construction Stage					
		Demolition	Site Preparation	Grading	Building Construction	Architectural Coatings	Paving and Landscaping
Air Compressors	Diesel	NA	NA	NA	NA	NA	NA
Cement and Mortar Mixers	Diesel	NA	NA	NA	NA	NA	NA
Concrete/Industrial Saws	Diesel	NA	NA	NA	NA	NA	NA
Cranes	Diesel	NA	NA	NA	NA	NA	NA
Excavators	Diesel	NA	NA	NA	NA	NA	NA
Forklifts	Diesel	NA	NA	NA	NA	NA	NA
Generator Sets	Diesel	NA	NA	NA	NA	NA	NA
Graders	Diesel	NA	NA	NA	NA	NA	NA
Pavers	Diesel	NA	NA	NA	NA	NA	NA
Paving Equipment	Diesel	NA	NA	NA	NA	NA	NA
Rollers	Diesel	NA	NA	NA	NA	NA	NA
Rubber Tired Dozers	Diesel	NA	NA	NA	NA	NA	NA
Scrapers	Diesel	NA	NA	NA	NA	NA	NA
Tractors/Loaders/Backhoes	Diesel	NA	NA	NA	NA	NA	NA
Welders	Diesel	NA	NA	NA	NA	NA	NA

Land Use Change

Land Use Type	Acres		
	Pre-Construction	Post-Construction	Post-Operation
Wetlands, forested	NA	NA	NA
Wetlands, not forested	NA	NA	NA
Forest	NA	NA	NA
Rivers and streams	NA	NA	NA
Brush and grassland	NA	NA	NA
Cropland	NA	NA	NA
Livestock rangeland/pastureland	NA	NA	NA
Lawn/landscaping	NA	NA	NA
Green Infrastructure: Constructed wetlands, paved	NA	NA	NA
Green Infrastructure: Constructed wetlands, vegetated	NA	NA	NA
Green Infrastructure: Constructed green roofs	NA	NA	NA
Green Infrastructure: Constructed permeable pavements	NA	NA	NA
Impervious surface	NA	NA	NA
Stormwater pond (wet sedimentation basin)	NA	NA	NA

Trees	Number
Number of mature trees removed	NA
Number of new trees planted	NA

Construction Waste

Material Type	Quantity (tons)
Aluminum	NA
Asphalt	NA
Brick	NA
Concrete	NA
Glass	NA
Insulation	NA
Steel	NA
Wood Products	NA
Mixed Waste	NA

Building Energy Consumption

Building Type	Energy Intensity (Btu/sq ft/year)			
	Electricity	Natural Gas	Propane	Kerosene or Fuel Oil
Residential	18,096.91	24,460.01	3,619.38	233.51
Commercial	30,766.13	35,534.88	0.00	1,661.56
Industrial	229,952.20	656,392.90	0.00	8,191.66
Institutional	46,860.06	48,219.03	0.00	3,659.93
Other	0.00	0.00	0.00	0.00

Emissions from Coal Production

Coal Type	Incremental Production (tons/year)
Mixed Coal	NA
Anthracite Coal	NA
Bituminous Coal	NA
Subbituminous Coal	NA
Lignite Coal	NA
Coal Coke	NA

Emissions from Natural Gas and Oil Products

Fuel Type	Incremental Throughput	Unit
Natural Gas	NA	Cubic Feet/year
Renewable Natural Gas	NA	Cubic Feet/year
Propane	NA	Gallons/year
Gasoline	NA	Gallons/year
Distillate Fuel Oil No. 1	NA	Gallons/year
Distillate Fuel Oil No. 2	NA	Gallons/year
Distillate Fuel Oil No. 4	NA	Gallons/year
Residual Fuel Oil No. 5	NA	Gallons/year
Residual Fuel Oil No. 6	NA	Gallons/year
Liquified Petroleum Gas (LPG)	NA	Gallons/year
Kerosene	NA	Gallons/year
Kerosene Jet Fuel	NA	Gallons/year
Biodiesel 100	NA	Gallons/year
Biodiesel 20	NA	Gallons/year
Renewable Diesel	NA	Gallons/year

Natural Gas Assumptions

Percent Reduction in Leakage and Venting Emissions	NA
Leakage and Venting Emissions ($kgCO_2e$/MMBtu)	NA

Industrial Processes

Product Type	Quantity (tons/year)	Emission Factor ($kgCO_2e$/ton)
Cement	NA	NA
Lime	NA	NA
Limestone Use	NA	NA
Magnesium	NA	NA
Iron and Steel	NA	NA
Ammonia	NA	NA
Aluminum	NA	NA
Nitric Acid	NA	NA

HFC Leakage

Building Type	Percent of Building Area Utilized
Residential	NA
Commercial	NA
Industrial	NA
Institutional	NA

On-Road Vehicles

Speed Bin (miles/hr)	Additional VMT (miles/year)
Fleet Average	NA
0-30	NA
31-55	NA
56-75	NA

Treatment of Waste On-Site

Waste Treatment Practice	Quantity of Waste Treated (tons/year)
	NA
	NA
	NA

Treatment of Wastewater On-Site

Population Served by Treatment Plant	1244

Product Type	Production (MT/year)
	0.00

Treatment of Waste Off-Site

Activity	Quantity	Waste Generation Rate	Unit
Number of single family households	NA	NA	lb/household/day
Number of employees (commercial)	NA	NA	lb/employee/day
Number of employees (industrial)	NA	NA	lb/employee/day
Number of employees (institutional)	NA	NA	lb/employee/day
Visitors per year (public venues)	NA	NA	lb/visitor

Waste Treatment Practice	Percent of Waste
Recycled	NA
Composted	NA
Landfilled	NA
Combusted	NA

Enteric Fermentation and Manure Management

Livestock Type	Population	Percentage of Manure Management System											
		Anaerobic digester	Anaerobic lagoon - liquid	Cattle deep litter	Composting	Daily spread	Deep pit	Dry lot	Liquid/ slurry	Pasture, range, paddock	Poultry with litter	Poultry without litter	Solid storage
Bulls	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beef cows	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beef heifers	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Steer stockers	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heifer stockers	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Feedlot beef	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beef calves	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dairy heifers	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dairy cows	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dairy calves	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swine, <55 lbs	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swine 55-330 lbs	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swine 330+ lbs	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Poultry, layers	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Poultry, pullets	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Poultry, chickens	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Poultry, broilers	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Turkeys	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Percent of manure applied or sold for application to agricultural soils (pasture or cropland) as fertilizer	0%

Notes

General Notes	
Material inputs	
Transportation of material inputs	
Employee commuting	
Construction equipment	
Land use change (construction)	
Construction waste	
Building energy consumption	
Coal production	
Natural gas and oil products	
Industrial processes	
HFC leakage	
Land use change (operations)	
On-road vehicles	
Treatment of waste on-site	
Treatment of wastewater on-site	
Treatment of waste off-site	
Enteric fermentation	
Manure management	
Mitigation Measures	
Adaptation Strategies	

Minnesota Climate Calculator: Project Summary Report

Date Prepared: 9/10/2025

The results shown below were generated using the Minnesota Climate Calculator. The emissions quantified account for the full greenhouse gas impact of a potential project throughout the construction and operational phases of the project. This includes emissions from project activities that occur on-site as well as emissions that occur upstream and downstream of the project. The results are based on user inputs and assumptions; actual project emissions may vary.

Background Information

Project Name	Pine Island WWTF
Project Category (primary)	Subp. 18, Wastewater
Project Category (secondary)	
Location (County)	Goodhue
Construction Start Date	1/1/2025
Operational Year	2025
Operational Lifetime (Years)	20

Electricity Provider	Grid Average
Portion of Building Electricity Consumption to be Generated On-Site via Renewables or Supplied through the Purchase of Renewable Energy Credits (RECs)	0%
Portion of Building Natural Gas Consumption to be Supplied from Renewable Sources	0%

Building Construction Project?	No

Construction Stage	Duration (Days)
Demolition	-
Site Preparation	-
Grading	-
Building Construction	-
Architectural Coatings	-
Paving and Landscaping	-

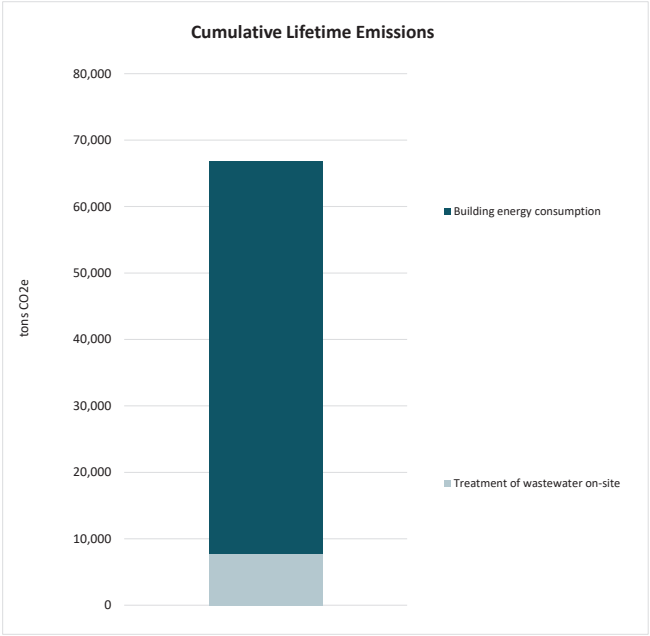
Summary Results

****Results may be incomplete due to missing user inputs****

Project Lifetime	20
Unit	tons

Phase	CO_2e Emissions	
	Cumulative	Annualized
Construction		
Material inputs	NA	NA
Transportation of material inputs	NA	NA
Employee commuting	NA	NA
Construction equipment	NA	NA
Land use change (construction)	NA	NA
Construction waste	NA	NA
Operation		
Building energy consumption	59,011.43	2,950.57
Coal production	NA	NA
Natural gas and oil products	NA	NA
Industrial processes	NA	NA
HFC leakage	NA	NA
Land use change (operations)	NA	NA
On-road vehicles	NA	NA
Treatment of waste on-site	NA	NA
Treatment of wastewater on-site	7,732.10	386.61
Treatment of waste off-site	NA	NA
Enteric fermentation	NA	NA
Manure management	NA	NA
Total	**66,743.53**	**3,337.18**

Note: NA indicates that emissions were not quantified and/or are not applicable.



User Inputs

Note: NA indicates that emissions were not quantified and/or activity is not applicable.

Material Inputs

Material Type	Quantity	Unit	Geographical Sourcing
Aluminum	NA	Tons	Unknown
Asphalt	NA	Tons	Domestic
Brick	NA	Tons	Unknown
Concrete	NA	Tons	Domestic
Glass	NA	Tons	Unknown
Insulation (residential)	NA	Tons	Unknown
Insulation (commercial)	NA	Tons	Unknown
Steel	NA	Tons	Unknown
Wood Products	NA	Tons	Unknown

Employee Commuting

Construction Stage	Daily Average Number of Employees Commuting
Demolition	NA
Site Preparation	NA
Grading	NA
Building Construction	NA
Architectural Coatings	NA
Paving and Landscaping	NA

Transportation Mode	Percent of Employees
Single Occupancy Vehicle	NA
Carpool	NA
Motorcycle	NA
Bus	NA
Transit Rail	NA
Bike/Walk	NA

Average One-Way Commute Length (miles)	NA

Construction Equipment

Equipment Type	Fuel Type	Number of Hours per Day by Construction Stage					
		Demolition	Site Preparation	Grading	Building Construction	Architectural Coatings	Paving and Landscaping
Air Compressors	Diesel	NA	NA	NA	NA	NA	NA
Cement and Mortar Mixers	Diesel	NA	NA	NA	NA	NA	NA
Concrete/Industrial Saws	Diesel	NA	NA	NA	NA	NA	NA
Cranes	Diesel	NA	NA	NA	NA	NA	NA
Excavators	Diesel	NA	NA	NA	NA	NA	NA
Forklifts	Diesel	NA	NA	NA	NA	NA	NA
Generator Sets	Diesel	NA	NA	NA	NA	NA	NA
Graders	Diesel	NA	NA	NA	NA	NA	NA
Pavers	Diesel	NA	NA	NA	NA	NA	NA
Paving Equipment	Diesel	NA	NA	NA	NA	NA	NA
Rollers	Diesel	NA	NA	NA	NA	NA	NA
Rubber Tired Dozers	Diesel	NA	NA	NA	NA	NA	NA
Scrapers	Diesel	NA	NA	NA	NA	NA	NA
Tractors/Loaders/Backhoes	Diesel	NA	NA	NA	NA	NA	NA
Welders	Diesel	NA	NA	NA	NA	NA	NA

Land Use Change

Land Use Type	Acres		
	Pre-Construction	Post-Construction	Post-Operation
Wetlands, forested	NA	NA	NA
Wetlands, not forested	NA	NA	NA
Forest	NA	NA	NA
Rivers and streams	NA	NA	NA
Brush and grassland	NA	NA	NA
Cropland	NA	NA	NA
Livestock rangeland/pastureland	NA	NA	NA
Lawn/landscaping	NA	NA	NA
Green Infrastructure: Constructed wetlands, paved	NA	NA	NA
Green Infrastructure: Constructed wetlands, vegetated	NA	NA	NA
Green Infrastructure: Constructed green roofs	NA	NA	NA
Green Infrastructure: Constructed permeable pavements	NA	NA	NA
Impervious surface	NA	NA	NA
Stormwater pond (wet sedimentation basin)	NA	NA	NA

Trees	Number
Number of mature trees removed	NA
Number of new trees planted	NA

Construction Waste

Material Type	Quantity (tons)
Aluminum	NA
Asphalt	NA
Brick	NA
Concrete	NA
Glass	NA
Insulation	NA
Steel	NA
Wood Products	NA
Mixed Waste	NA

Building Energy Consumption

Building Type	Energy Intensity (Btu/sq ft/year)			
	Electricity	Natural Gas	Propane	Kerosene or Fuel Oil
Residential	18,096.91	24,460.01	3,619.38	233.51
Commercial	30,766.13	35,534.88	0.00	1,661.56
Industrial	229,952.20	656,392.90	0.00	8,191.66
Institutional	46,860.06	48,219.03	0.00	3,659.93
Other	0.00	0.00	0.00	0.00

Emissions from Coal Production

Coal Type	Incremental Production (tons/year)
Mixed Coal	NA
Anthracite Coal	NA
Bituminous Coal	NA
Subbituminous Coal	NA
Lignite Coal	NA
Coal Coke	NA

Emissions from Natural Gas and Oil Products

Fuel Type	Incremental Throughput	Unit
Natural Gas	NA	Cubic Feet/year
Renewable Natural Gas	NA	Cubic Feet/year
Propane	NA	Gallons/year
Gasoline	NA	Gallons/year
Distillate Fuel Oil No. 1	NA	Gallons/year
Distillate Fuel Oil No. 2	NA	Gallons/year
Distillate Fuel Oil No. 4	NA	Gallons/year
Residual Fuel Oil No. 5	NA	Gallons/year
Residual Fuel Oil No. 6	NA	Gallons/year
Liquified Petroleum Gas (LPG)	NA	Gallons/year
Kerosene	NA	Gallons/year
Kerosene Jet Fuel	NA	Gallons/year
Biodiesel 100	NA	Gallons/year
Biodiesel 20	NA	Gallons/year
Renewable Diesel	NA	Gallons/year

Natural Gas Assumptions

Percent Reduction in Leakage and Venting Emissions	NA
Leakage and Venting Emissions ($kgCO_2e$/MMBtu)	NA

Industrial Processes

Product Type	Quantity (tons/year)	Emission Factor ($kgCO_2e$/ton)
Cement	NA	NA
Lime	NA	NA
Limestone Use	NA	NA
Magnesium	NA	NA
Iron and Steel	NA	NA
Ammonia	NA	NA
Aluminum	NA	NA
Nitric Acid	NA	NA

HFC Leakage

Building Type	Percent of Building Area Utilized
Residential	NA
Commercial	NA
Industrial	NA
Institutional	NA

On-Road Vehicles

Speed Bin (miles/hr)	Additional VMT (miles/year)
Fleet Average	NA
0-30	NA
31-55	NA
56-75	NA

Treatment of Waste On-Site

Waste Treatment Practice	Quantity of Waste Treated (tons/year)
	NA
	NA
	NA

Treatment of Wastewater On-Site

Population Served by Treatment Plant	3870

Product Type	Production (MT/year)
	0.00

Treatment of Waste Off-Site

Activity	Quantity	Waste Generation Rate	Unit
Number of single family households	NA	NA	lb/household/day
Number of employees (commercial)	NA	NA	lb/employee/day
Number of employees (industrial)	NA	NA	lb/employee/day
Number of employees (institutional)	NA	NA	lb/employee/day
Visitors per year (public venues)	NA	NA	lb/visitor

Waste Treatment Practice	Percent of Waste
Recycled	NA
Composted	NA
Landfilled	NA
Combusted	NA

Enteric Fermentation and Manure Management

Livestock Type	Population	Percentage of Manure Management System											
		Anaerobic digester	Anaerobic lagoon - liquid	Cattle deep litter	Composting	Daily spread	Deep pit	Dry lot	Liquid/ slurry	Pasture, range, paddock	Poultry with litter	Poultry without litter	Solid storage
Bulls	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beef cows	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beef heifers	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Steer stockers	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heifer stockers	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Feedlot beef	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beef calves	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dairy heifers	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dairy cows	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dairy calves	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swine, <55 lbs	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swine 55-330 lbs	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swine 330+ lbs	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Poultry, layers	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Poultry, pullets	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Poultry, chickens	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Poultry, broilers	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Turkeys	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Percent of manure applied or sold for application to agricultural soils (pasture or cropland) as fertilizer	0%

Notes

General Notes	
Material inputs	
Transportation of material inputs	
Employee commuting	
Construction equipment	
Land use change (construction)	
Construction waste	
Building energy consumption	
Coal production	
Natural gas and oil products	
Industrial processes	
HFC leakage	
Land use change (operations)	
On-road vehicles	
Treatment of waste on-site	
Treatment of wastewater on-site	
Treatment of waste off-site	
Enteric fermentation	
Manure management	
Mitigation Measures	
Adaptation Strategies	

Minnesota Climate Calculator: Project Summary Report

Date Prepared: 9/10/2025

The results shown below were generated using the Minnesota Climate Calculator. The emissions quantified account for the full greenhouse gas impact of a potential project throughout the construction and operational phases of the project. This includes emissions from project activities that occur on-site as well as emissions that occur upstream and downstream of the project. The results are based on user inputs and assumptions; actual project emissions may vary.

Background Information

Project Name	Wanamingo WWTF
Project Category (primary)	Subp. 18, Wastewater
Project Category (secondary)	
Location (County)	Goodhue
Construction Start Date	1/1/2025
Operational Year	2025
Operational Lifetime (Years)	20

Electricity Provider	Grid Average
Portion of Building Electricity Consumption to be Generated On-Site via Renewables or Supplied through the Purchase of Renewable Energy Credits (RECs)	0%
Portion of Building Natural Gas Consumption to be Supplied from Renewable Sources	0%

Building Construction Project?	No

Construction Stage	Duration (Days)
Demolition	-
Site Preparation	-
Grading	-
Building Construction	-
Architectural Coatings	-
Paving and Landscaping	-

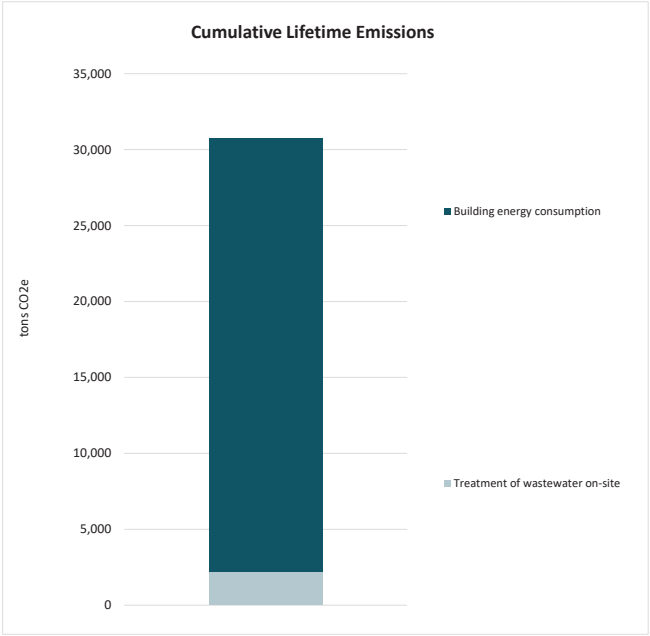
Summary Results

****Results may be incomplete due to missing user inputs****

Project Lifetime	20
Unit	tons

Phase	CO_2e Emissions	
	Cumulative	Annualized
Construction		
Material inputs	NA	NA
Transportation of material inputs	NA	NA
Employee commuting	NA	NA
Construction equipment	NA	NA
Land use change (construction)	NA	NA
Construction waste	NA	NA
Operation		
Building energy consumption	28,522.42	1,426.12
Coal production	NA	NA
Natural gas and oil products	NA	NA
Industrial processes	NA	NA
HFC leakage	NA	NA
Land use change (operations)	NA	NA
On-road vehicles	NA	NA
Treatment of waste on-site	NA	NA
Treatment of wastewater on-site	2,215.74	110.79
Treatment of waste off-site	NA	NA
Enteric fermentation	NA	NA
Manure management	NA	NA
Total	**30,738.15**	**1,536.91**

Note: NA indicates that emissions were not quantified and/or are not applicable.



User Inputs

Note: NA indicates that emissions were not quantified and/or activity is not applicable.

Material Inputs

Material Type	Quantity	Unit	Geographical Sourcing
Aluminum	NA	Tons	Unknown
Asphalt	NA	Tons	Domestic
Brick	NA	Tons	Unknown
Concrete	NA	Tons	Domestic
Glass	NA	Tons	Unknown
Insulation (residential)	NA	Tons	Unknown
Insulation (commercial)	NA	Tons	Unknown
Steel	NA	Tons	Unknown
Wood Products	NA	Tons	Unknown

Employee Commuting

Construction Stage	Daily Average Number of Employees Commuting
Demolition	NA
Site Preparation	NA
Grading	NA
Building Construction	NA
Architectural Coatings	NA
Paving and Landscaping	NA

Transportation Mode	Percent of Employees
Single Occupancy Vehicle	NA
Carpool	NA
Motorcycle	NA
Bus	NA
Transit Rail	NA
Bike/Walk	NA

Average One-Way Commute Length (miles)	NA

Construction Equipment

Equipment Type	Fuel Type	Number of Hours per Day by Construction Stage					
		Demolition	Site Preparation	Grading	Building Construction	Architectural Coatings	Paving and Landscaping
Air Compressors	Diesel	NA	NA	NA	NA	NA	NA
Cement and Mortar Mixers	Diesel	NA	NA	NA	NA	NA	NA
Concrete/Industrial Saws	Diesel	NA	NA	NA	NA	NA	NA
Cranes	Diesel	NA	NA	NA	NA	NA	NA
Excavators	Diesel	NA	NA	NA	NA	NA	NA
Forklifts	Diesel	NA	NA	NA	NA	NA	NA
Generator Sets	Diesel	NA	NA	NA	NA	NA	NA
Graders	Diesel	NA	NA	NA	NA	NA	NA
Pavers	Diesel	NA	NA	NA	NA	NA	NA
Paving Equipment	Diesel	NA	NA	NA	NA	NA	NA
Rollers	Diesel	NA	NA	NA	NA	NA	NA
Rubber Tired Dozers	Diesel	NA	NA	NA	NA	NA	NA
Scrapers	Diesel	NA	NA	NA	NA	NA	NA
Tractors/Loaders/Backhoes	Diesel	NA	NA	NA	NA	NA	NA
Welders	Diesel	NA	NA	NA	NA	NA	NA

Land Use Change

Land Use Type	Acres		
	Pre-Construction	Post-Construction	Post-Operation
Wetlands, forested	NA	NA	NA
Wetlands, not forested	NA	NA	NA
Forest	NA	NA	NA
Rivers and streams	NA	NA	NA
Brush and grassland	NA	NA	NA
Cropland	NA	NA	NA
Livestock rangeland/pastureland	NA	NA	NA
Lawn/landscaping	NA	NA	NA
Green Infrastructure: Constructed wetlands, paved	NA	NA	NA
Green Infrastructure: Constructed wetlands, vegetated	NA	NA	NA
Green Infrastructure: Constructed green roofs	NA	NA	NA
Green Infrastructure: Constructed permeable pavements	NA	NA	NA
Impervious surface	NA	NA	NA
Stormwater pond (wet sedimentation basin)	NA	NA	NA

Trees	Number
Number of mature trees removed	NA
Number of new trees planted	NA

Construction Waste

Material Type	Quantity (tons)
Aluminum	NA
Asphalt	NA
Brick	NA
Concrete	NA
Glass	NA
Insulation	NA
Steel	NA
Wood Products	NA
Mixed Waste	NA

Building Energy Consumption

Building Type	Energy Intensity (Btu/sq ft/year)			
	Electricity	Natural Gas	Propane	Kerosene or Fuel Oil
Residential	18,096.91	24,460.01	3,619.38	233.51
Commercial	30,766.13	35,534.88	0.00	1,661.56
Industrial	229,952.20	656,392.90	0.00	8,191.66
Institutional	46,860.06	48,219.03	0.00	3,659.93
Other	0.00	0.00	0.00	0.00

Emissions from Coal Production

Coal Type	Incremental Production (tons/year)
Mixed Coal	NA
Anthracite Coal	NA
Bituminous Coal	NA
Subbituminous Coal	NA
Lignite Coal	NA
Coal Coke	NA

Emissions from Natural Gas and Oil Products

Fuel Type	Incremental Throughput	Unit
Natural Gas	NA	Cubic Feet/year
Renewable Natural Gas	NA	Cubic Feet/year
Propane	NA	Gallons/year
Gasoline	NA	Gallons/year
Distillate Fuel Oil No. 1	NA	Gallons/year
Distillate Fuel Oil No. 2	NA	Gallons/year
Distillate Fuel Oil No. 4	NA	Gallons/year
Residual Fuel Oil No. 5	NA	Gallons/year
Residual Fuel Oil No. 6	NA	Gallons/year
Liquified Petroleum Gas (LPG)	NA	Gallons/year
Kerosene	NA	Gallons/year
Kerosene Jet Fuel	NA	Gallons/year
Biodiesel 100	NA	Gallons/year
Biodiesel 20	NA	Gallons/year
Renewable Diesel	NA	Gallons/year

Natural Gas Assumptions

Percent Reduction in Leakage and Venting Emissions	NA
Leakage and Venting Emissions ($kgCO_2e$/MMBtu)	NA

Industrial Processes

Product Type	Quantity (tons/year)	Emission Factor ($kgCO_2e$/ton)
Cement	NA	NA
Lime	NA	NA
Limestone Use	NA	NA
Magnesium	NA	NA
Iron and Steel	NA	NA
Ammonia	NA	NA
Aluminum	NA	NA
Nitric Acid	NA	NA

HFC Leakage

Building Type	Percent of Building Area Utilized
Residential	NA
Commercial	NA
Industrial	NA
Institutional	NA

On-Road Vehicles

Speed Bin (miles/hr)	Additional VMT (miles/year)
Fleet Average	NA
0-30	NA
31-55	NA
56-75	NA

Treatment of Waste On-Site

Waste Treatment Practice	Quantity of Waste Treated (tons/year)
	NA
	NA
	NA

Treatment of Wastewater On-Site

Population Served by Treatment Plant	1109

Product Type	Production (MT/year)
	0.00

Treatment of Waste Off-Site

Activity	Quantity	Waste Generation Rate	Unit
Number of single family households	NA	NA	lb/household/day
Number of employees (commercial)	NA	NA	lb/employee/day
Number of employees (industrial)	NA	NA	lb/employee/day
Number of employees (institutional)	NA	NA	lb/employee/day
Visitors per year (public venues)	NA	NA	lb/visitor

Waste Treatment Practice	Percent of Waste
Recycled	NA
Composted	NA
Landfilled	NA
Combusted	NA

Enteric Fermentation and Manure Management

Livestock Type	Population	Percentage of Manure Management System											
		Anaerobic digester	Anaerobic lagoon - liquid	Cattle deep litter	Composting	Daily spread	Deep pit	Dry lot	Liquid/ slurry	Pasture, range, paddock	Poultry with litter	Poultry without litter	Solid storage
Bulls	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beef cows	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beef heifers	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Steer stockers	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heifer stockers	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Feedlot beef	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beef calves	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dairy heifers	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dairy cows	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dairy calves	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swine, <55 lbs	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swine 55-330 lbs	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swine 330+ lbs	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Poultry, layers	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Poultry, pullets	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Poultry, chickens	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Poultry, broilers	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Turkeys	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Percent of manure applied or sold for application to agricultural soils (pasture or cropland) as fertilizer	0%

Notes

General Notes	
Material inputs	
Transportation of material inputs	
Employee commuting	
Construction equipment	
Land use change (construction)	
Construction waste	
Building energy consumption	
Coal production	
Natural gas and oil products	
Industrial processes	
HFC leakage	
Land use change (operations)	
On-road vehicles	
Treatment of waste on-site	
Treatment of wastewater on-site	
Treatment of waste off-site	
Enteric fermentation	
Manure management	
Mitigation Measures	
Adaptation Strategies	

Minnesota Climate Calculator: Project Summary Report

Date Prepared: 9/10/2025

The results shown below were generated using the Minnesota Climate Calculator. The emissions quantified account for the full greenhouse gas impact of a potential project throughout the construction and operational phases of the project. This includes emissions from project activities that occur on-site as well as emissions that occur upstream and downstream of the project. The results are based on user inputs and assumptions; actual project emissions may vary.

Background Information

Project Name	Zumbrota WWTF
Project Category (primary)	Subp. 18, Wastewater
Project Category (secondary)	
Location (County)	Goodhue
Construction Start Date	1/1/2025
Operational Year	2025
Operational Lifetime (Years)	20

Electricity Provider	Grid Average
Portion of Building Electricity Consumption to be Generated On-Site via Renewables or Supplied through the Purchase of Renewable Energy Credits (RECs)	0%
Portion of Building Natural Gas Consumption to be Supplied from Renewable Sources	0%

Building Construction Project?	No

Construction Stage	Duration (Days)
Demolition	-
Site Preparation	-
Grading	-
Building Construction	-
Architectural Coatings	-
Paving and Landscaping	-

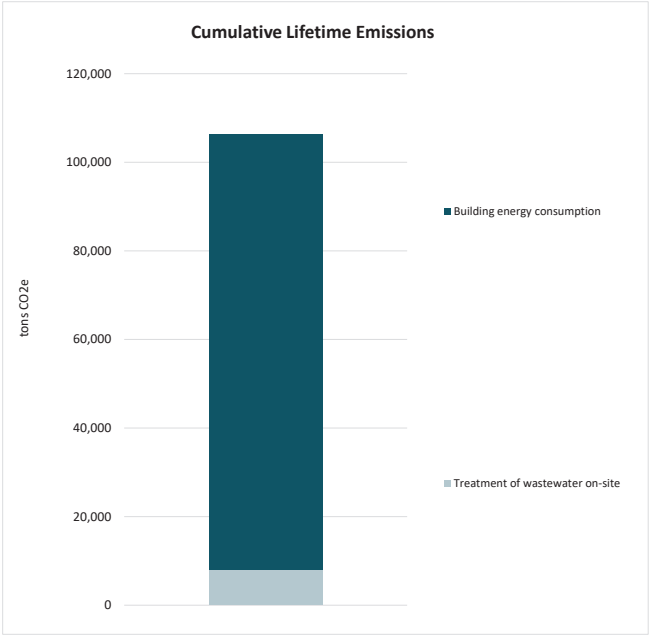
Summary Results

****Results may be incomplete due to missing user inputs****

Project Lifetime	20
Unit	tons

Phase	CO_2e Emissions	
	Cumulative	Annualized
Construction		
Material inputs	NA	NA
Transportation of material inputs	NA	NA
Employee commuting	NA	NA
Construction equipment	NA	NA
Land use change (construction)	NA	NA
Construction waste	NA	NA
Operation		
Building energy consumption	98,352.38	4,917.62
Coal production	NA	NA
Natural gas and oil products	NA	NA
Industrial processes	NA	NA
HFC leakage	NA	NA
Land use change (operations)	NA	NA
On-road vehicles	NA	NA
Treatment of waste on-site	NA	NA
Treatment of wastewater on-site	8,017.81	400.89
Treatment of waste off-site	NA	NA
Enteric fermentation	NA	NA
Manure management	NA	NA
Total	**106,370.19**	**5,318.51**

Note: NA indicates that emissions were not quantified and/or are not applicable.



User Inputs

Note: NA indicates that emissions were not quantified and/or activity is not applicable.

Material Inputs

Material Type	Quantity	Unit	Geographical Sourcing
Aluminum	NA	Tons	Unknown
Asphalt	NA	Tons	Domestic
Brick	NA	Tons	Unknown
Concrete	NA	Tons	Domestic
Glass	NA	Tons	Unknown
Insulation (residential)	NA	Tons	Unknown
Insulation (commercial)	NA	Tons	Unknown
Steel	NA	Tons	Unknown
Wood Products	NA	Tons	Unknown

Employee Commuting

Construction Stage	Daily Average Number of Employees Commuting
Demolition	NA
Site Preparation	NA
Grading	NA
Building Construction	NA
Architectural Coatings	NA
Paving and Landscaping	NA

Transportation Mode	Percent of Employees
Single Occupancy Vehicle	NA
Carpool	NA
Motorcycle	NA
Bus	NA
Transit Rail	NA
Bike/Walk	NA

Average One-Way Commute Length (miles)	NA

Construction Equipment

Equipment Type	Fuel Type	Number of Hours per Day by Construction Stage					
		Demolition	Site Preparation	Grading	Building Construction	Architectural Coatings	Paving and Landscaping
Air Compressors	Diesel	NA	NA	NA	NA	NA	NA
Cement and Mortar Mixers	Diesel	NA	NA	NA	NA	NA	NA
Concrete/Industrial Saws	Diesel	NA	NA	NA	NA	NA	NA
Cranes	Diesel	NA	NA	NA	NA	NA	NA
Excavators	Diesel	NA	NA	NA	NA	NA	NA
Forklifts	Diesel	NA	NA	NA	NA	NA	NA
Generator Sets	Diesel	NA	NA	NA	NA	NA	NA
Graders	Diesel	NA	NA	NA	NA	NA	NA
Pavers	Diesel	NA	NA	NA	NA	NA	NA
Paving Equipment	Diesel	NA	NA	NA	NA	NA	NA
Rollers	Diesel	NA	NA	NA	NA	NA	NA
Rubber Tired Dozers	Diesel	NA	NA	NA	NA	NA	NA
Scrapers	Diesel	NA	NA	NA	NA	NA	NA
Tractors/Loaders/Backhoes	Diesel	NA	NA	NA	NA	NA	NA
Welders	Diesel	NA	NA	NA	NA	NA	NA

Land Use Change

Land Use Type	Acres		
	Pre-Construction	Post-Construction	Post-Operation
Wetlands, forested	NA	NA	NA
Wetlands, not forested	NA	NA	NA
Forest	NA	NA	NA
Rivers and streams	NA	NA	NA
Brush and grassland	NA	NA	NA
Cropland	NA	NA	NA
Livestock rangeland/pastureland	NA	NA	NA
Lawn/landscaping	NA	NA	NA
Green Infrastructure: Constructed wetlands, paved	NA	NA	NA
Green Infrastructure: Constructed wetlands, vegetated	NA	NA	NA
Green Infrastructure: Constructed green roofs	NA	NA	NA
Green Infrastructure: Constructed permeable pavements	NA	NA	NA
Impervious surface	NA	NA	NA
Stormwater pond (wet sedimentation basin)	NA	NA	NA

Trees	Number
Number of mature trees removed	NA
Number of new trees planted	NA

Construction Waste

Material Type	Quantity (tons)
Aluminum	NA
Asphalt	NA
Brick	NA
Concrete	NA
Glass	NA
Insulation	NA
Steel	NA
Wood Products	NA
Mixed Waste	NA

Building Energy Consumption

Building Type	Energy Intensity (Btu/sq ft/year)			
	Electricity	Natural Gas	Propane	Kerosene or Fuel Oil
Residential	18,096.91	24,460.01	3,619.38	233.51
Commercial	30,766.13	35,534.88	0.00	1,661.56
Industrial	229,952.20	656,392.90	0.00	8,191.66
Institutional	46,860.06	48,219.03	0.00	3,659.93
Other	0.00	0.00	0.00	0.00

Emissions from Coal Production

Coal Type	Incremental Production (tons/year)
Mixed Coal	NA
Anthracite Coal	NA
Bituminous Coal	NA
Subbituminous Coal	NA
Lignite Coal	NA
Coal Coke	NA

Emissions from Natural Gas and Oil Products

Fuel Type	Incremental Throughput	Unit
Natural Gas	NA	Cubic Feet/year
Renewable Natural Gas	NA	Cubic Feet/year
Propane	NA	Gallons/year
Gasoline	NA	Gallons/year
Distillate Fuel Oil No. 1	NA	Gallons/year
Distillate Fuel Oil No. 2	NA	Gallons/year
Distillate Fuel Oil No. 4	NA	Gallons/year
Residual Fuel Oil No. 5	NA	Gallons/year
Residual Fuel Oil No. 6	NA	Gallons/year
Liquified Petroleum Gas (LPG)	NA	Gallons/year
Kerosene	NA	Gallons/year
Kerosene Jet Fuel	NA	Gallons/year
Biodiesel 100	NA	Gallons/year
Biodiesel 20	NA	Gallons/year
Renewable Diesel	NA	Gallons/year

Natural Gas Assumptions

Percent Reduction in Leakage and Venting Emissions	NA
Leakage and Venting Emissions ($kgCO_2e$/MMBtu)	NA

Industrial Processes

Product Type	Quantity (tons/year)	Emission Factor ($kgCO_2e$/ton)
Cement	NA	NA
Lime	NA	NA
Limestone Use	NA	NA
Magnesium	NA	NA
Iron and Steel	NA	NA
Ammonia	NA	NA
Aluminum	NA	NA
Nitric Acid	NA	NA

HFC Leakage

Building Type	Percent of Building Area Utilized
Residential	NA
Commercial	NA
Industrial	NA
Institutional	NA

On-Road Vehicles

Speed Bin (miles/hr)	Additional VMT (miles/year)
Fleet Average	NA
0-30	NA
31-55	NA
56-75	NA

Treatment of Waste On-Site

Waste Treatment Practice	Quantity of Waste Treated (tons/year)
	NA
	NA
	NA

Treatment of Wastewater On-Site

Population Served by Treatment Plant	4013

Product Type	Production (MT/year)
	0.00

Treatment of Waste Off-Site

Activity	Quantity	Waste Generation Rate	Unit
Number of single family households	NA	NA	lb/household/day
Number of employees (commercial)	NA	NA	lb/employee/day
Number of employees (industrial)	NA	NA	lb/employee/day
Number of employees (institutional)	NA	NA	lb/employee/day
Visitors per year (public venues)	NA	NA	lb/visitor

Waste Treatment Practice	Percent of Waste
Recycled	NA
Composted	NA
Landfilled	NA
Combusted	NA

Enteric Fermentation and Manure Management

Livestock Type	Population	Percentage of Manure Management System											
		Anaerobic digester	Anaerobic lagoon - liquid	Cattle deep litter	Composting	Daily spread	Deep pit	Dry lot	Liquid/ slurry	Pasture, range, paddock	Poultry with litter	Poultry without litter	Solid storage
Bulls	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beef cows	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beef heifers	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Steer stockers	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heifer stockers	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Feedlot beef	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beef calves	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dairy heifers	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dairy cows	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dairy calves	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swine, <55 lbs	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swine 55-330 lbs	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swine 330+ lbs	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Poultry, layers	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Poultry, pullets	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Poultry, chickens	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Poultry, broilers	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Turkeys	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Percent of manure applied or sold for application to agricultural soils (pasture or cropland) as fertilizer	0%

Notes

General Notes	
Material inputs	
Transportation of material inputs	
Employee commuting	
Construction equipment	
Land use change (construction)	
Construction waste	
Building energy consumption	
Coal production	
Natural gas and oil products	
Industrial processes	
HFC leakage	
Land use change (operations)	
On-road vehicles	
Treatment of waste on-site	
Treatment of wastewater on-site	
Treatment of waste off-site	
Enteric fermentation	
Manure management	
Mitigation Measures	
Adaptation Strategies	