Attainment Plan for the Partial Oneida County 2010 1-Hour Sulfur Dioxide National Ambient Air Quality Standard Nonattainment Area

Supplemental

DRAFT FOR PUBLIC REVIEW

Prepared by the Wisconsin Department of Natural Resources

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1. Summary

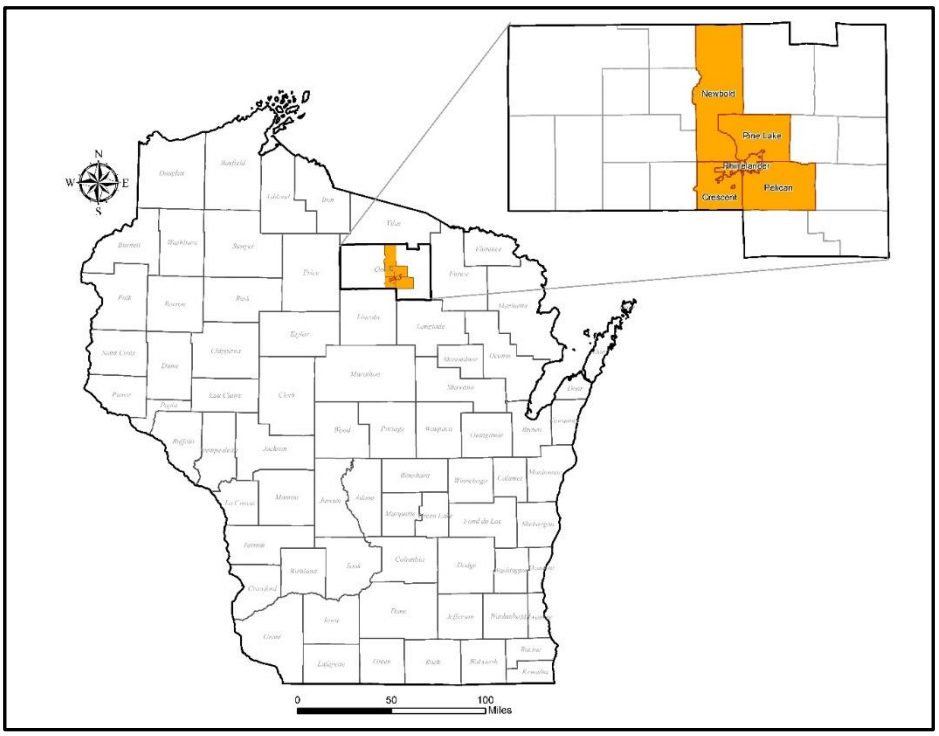
This state implementation plan (SIP) revision has been developed by the Wisconsin Department of Natural Resources (WDNR) to demonstrate attainment of the 2010 1-hour Sulfur Dioxide (SO_2) National Ambient Air Quality Standard (NAAQS) for the partial Oneida County nonattainment area. Specifically, this SIP contains updated permanent and enforceable emission limitations for the Ahlstrom-Munksjo paper mill located in Rhinelander, Wisconsin, the primary source of SO_2 emissions in the nonattainment area. These limits are made permanent and federally enforceable by inclusion in Air Pollution Control Construction Permit Revision 15-DMM-128-R1 and Wisconsin's SIP. When considered with the SIP submittals previously provided by WDNR to EPA in 2016, this SIP revision fulfills the requirements of the Clean Air Act (CAA) to demonstrate attainment for the partial Oneida County nonattainment area.

2. Background

2.1 The Oneida County 2010 1-hour SO_2 NAAQS Nonattainment Area

In 2010, the EPA revised the primary SO_2 NAAQS, setting a 1-hour standard of 75 parts per billion (ppb), which is attained when the 3-year average of the 99th percentile of 1-hour daily maximum concentrations does not exceed 75 ppb. On August 5, 2013, EPA designated a portion of Oneida County as nonattainment for the 2010 SO_2 NAAQS (78 FR 47191). This nonattainment area consists of four townships within Oneida County, including the city of Rhinelander (see Figure 1). The nonattainment designation was based on ambient air quality data collected at the Rhinelander municipal water tower monitoring site (Rhinelander Tower monitor, AQS site ID 55-085-0996) from 2009 through 2011. The design value for this 3-year period was 151 ppb.

Figure 1. The Partial Oneida County 2010 SO_2 NAAQS Nonattainment Area.



2.2 WDNR's 2016 Attainment Plan Submittal

Section 191(a) of the CAA directs states to submit SIPs for areas designated as nonattainment for the SO_2 NAAQS to EPA within 18 months of the effective date of the designation. Under CAA section 192(a), these plans are required to have measures that will provide for attainment of the NAAQS as expeditiously as practicable, but no later than five years from the effective date of designation (i.e., October 4, 2018, for the partial Oneida County 2010 SO_2 NAAQS nonattainment area).

In response to this requirement, Wisconsin submitted to EPA an attainment plan for the partial Oneida County 2010 SO_2 NAAQS nonattainment area on January 22, 2016 (the "2016 attainment plan"). EPA found this submittal to be complete on February 25, 2016. WDNR submitted supplemental information associated with this plan to EPA on July 18, 2016, and November 29, 2016.[1]

The 2016 attainment plan concluded that the dominant contributor to SO_2 emissions in the area was the paper mill located in Rhinelander currently owned and operated by Ahlstrom-Munksjo.[2] To address SO_2 emissions from this source, the 2016 attainment plan was based primarily on permanent emissions limitations and stack height changes made enforceable through WDNR Administrative Order AM-15-01 and Air Pollution Control Permit No. 744008100-P21.[3] This order established a good engineering practices (GEP) stack height determination for stack S09 of 90 meters (296 feet), and emissions requirements for boiler B26, based on fluid modeling provided by the company in 2014. At the time of submittal, WDNR, EPA, and the source agreed that the actions to be taken by the facility under the terms of Administrative Order AM-15-01 were sufficient to meet the 2010 SO_2 NAAQS attainment plan requirements.

To comply with the terms of the order, the facility raised stack S09 to the agreed-to GEP height of 90 meters and began complying with the associated emissions limitations. These actions were completed by August 2017 and had the expected air quality impact of greatly reduced monitored concentrations at the Rhinelander Tower monitor. This monitor has recorded design values that have demonstrated attainment of the 2010 SO_2 NAAQS since 2018 (see Table 1), as required by the CAA, and the area is currently eligible for a clean data determination.

Table 1. Rhinelander Tower Monitor SO_2 Design Values

Site ID	Design values				
550850996	2014-2016	2015-2017	2016-2018	2017-2019	2018-2020*
	149 ppb	108 ppb	69 ppb	36 ppb	36 ppb

* Based on draft/preliminary 2020 data

[1] The 2016 attainment plan submittals can be found on WDNR's website at: https://dnr.wisconsin.gov/topic/AirQuality/SO2.html and also in EPA's Docket ID# EPA-R05-OAR-2016-0074, accessible via www.regulations.gov.
[2] The former owners of the facility since 2012 were Wausau Paper Mills, LLC and Expera Specialty Solutions, Inc.
[3] Originally incorporated into permit 744008100-P20.

2.3 EPA's Action on the 2016 Attainment Plan

In February 2017, EPA notified WDNR of its concern with certain requirements associated with federal stack height regulations in the terms of Administrative Order AM-15-01. Specifically, EPA found that the GEP stack height (90 meters) used when determining the limits in the order exceeded formula GEP height without satisfying the associated requirements for establishing suitable control requirements and without demonstrating the degree to which a height above formula GEP height (if any) is necessary to avoid violations with application of the control requirements.[4] Following this determination, EPA, WDNR, and the facility engaged in a series of technical discussions to determine how to best resolve this discrepancy, given the investment already made by the facility to raise the stack and the subsequent improvements in air quality.

On November 25, 2020, EPA proposed to partially approve and partially disapprove the 2016 attainment plan for this area (85 FR 75273). Specifically, EPA proposed to disapprove certain elements of the attainment plan, including the attainment demonstration, since they rely upon facility credit for a stack height that does not adhere to the regulations for determining GEP stack height for this purpose. EPA also proposed to approve elements of the 2016 attainment plan that met attainment requirements, including the baseline emissions inventory, nonattainment new source review program, and conformity information. EPA further proposed approving the emissions limitations contained in Administrative Order AM-15-01 into the SIP as a "SIP-strengthening" measure, even if these limits were insufficient for the purpose of demonstrating attainment.[5] To date, EPA has not finalized this partial approval/disapproval action.

This SIP revision is being submitted to supplement WDNR's 2016 attainment plan and addresses the attainment requirements EPA found not approvable in its November 25, 2020 proposed rule. Specifically, this SIP contains updated emission limitations for the Ahlstrom-Munksjo mill, which are made through a Title I construction permit revision. When considered with the information previously provided to EPA in 2016, this submittal fulfills the attainment planning requirements for the partial Oneida County 2010 SO_2 NAAQS nonattainment area.

3. Required Attainment Plan Elements

EPA identifies the elements that must be addressed in attainment plans for the 2010 SO_2 NAAQS in its "Guidance for 1-Hour SO_2 Nonattainment Area SIP Submissions" (April 23, 2014). Many of these elements were fully addressed in WDNR's 2016 attainment plan and therefore not included in this document. The identification of these elements and where they are addressed (either in this document or in the 2016 attainment plan) are listed in Table 2.

[4] For a more complete discussion of the stack height issue, see EPA's proposed rule of November 25, 2020 (85 FR 75273), discussed further below.

[5] Specifically, EPA proposed to approve the more stringent SO_2 emission limit on boiler B26, the maximum boiler load limit for boiler B26, and the associated applicable reporting, recordkeeping, and compliance demonstration requirements including fuel sample collection, analysis, and retention, and emissions monitoring, recordkeeping, reporting, and performance testing requirements (85 FR 75277).

Table 2. Attainment Plan Elements for the Partial Oneida County 2010 SO_2 NAAQS Nonattainment Area

Attainment Plan Element	Addressed
The identification of stationary emission sources contributing to SO_2 nonattainment	2016 attainment plan (sec. IV.1)
Identification of the control strategy	This document (Section 4.1)
The demonstration of attainment	This document (Section 4.2)
Implementation of enforceable requirements	This document (Section 4.3)
Satisfaction of reasonably available control technology and measures (RACT and RACM)	This document (Section 4.4)
The fulfillment of reasonable further progress (RFP)	This document (Section 4.4)
The base year and attainment year projected emissions inventories	2016 attainment plan (sec. IV.7)
The commitment of contingency measures in the event that the identified control strategy does not result in attainment	This document (Section 4.4)
The demonstration of a new source review (NSR) program meeting Clean Air Act requirements	2016 attainment plan (sec. IV.9)
The demonstration of meeting Clean Air Act conformity requirements	2016 attainment plan (sec. IV.10)
The demonstration that previous SO_2 NAAQS requirements are maintained and that Section 110(l) noninterference requirements are satisfied	This document (Section 4.5)

4. Updated Attainment Demonstration

4.1 Identification of the Control Strategy

As described in the 2016 attainment plan (Section IV.1), WDNR determined that the Ahlstrom-Munksjo mill in Rhinelander is the primary contributor to nonattainment of the 2010 SO_2 NAAQS in the partial Oneida County nonattainment area. This section describes WDNR's updated control strategy for demonstrating attainment of the 2010 SO_2 NAAQS by implementing additional emission requirements and reductions at this source. As described further in Section 4.3, the control strategy described below is made permanent and federally enforceable by inclusion in the Air Pollution Control Construction Permit Revision 15-DMM-128-R1 and Wisconsin's SIP.

Emissions Sources to be Controlled

As described in the 2016 attainment plan, WDNR determined that boiler B26 is responsible for the majority of SO_2 that is emitted by the Ahlstrom-Munksjo mill. Therefore, this attainment strategy focuses on controlling emissions from this boiler, which emits through stack S09.

Determination of Emissions Limitations

As discussed in Section 2.3, after the height of stack S09 was raised to 90 meters (296 feet), EPA identified provisions of the stack height regulations that limit the modeled height to formula GEP height. After further consultations with EPA and the facility, the proper formula GEP height for stack S09 was determined to be 75 meters (246 feet). WDNR used the AERMOD dispersion model and

this formula GEP height of 75 meters to determine new SO_2 emission limits for boiler B26 that will ensure attainment of the NAAQS while satisfying EPA's stack height regulations.

The complete modeling analysis and results are included in Appendix A. The WDNR examined two operating conditions for stack S09, representing the maximum heat input of 260 MMBtu/hr (millions of British Thermal Units per hour) and the lowest reasonable heat input of 213 MMBtu/hr.[6] The modeling reflected the different mass emission rates, volumetric flow rates and exit velocity, and exit gas temperatures associated with both operating conditions.

In addition, as described in the appended modeling analysis, WDNR manually adjusted modeled input emissions data to account for the corner vortex downwash effects associated with this facility that are not accurately represented in AERMOD. These adjustments were derived from wind tunnel studies provided by the consulting firms AECOM and Cermak Peterka Petersen (CPP) and documented in "SO_2 NAAQS Compliance Modeling Report for the Rhinelander Mill" dated October 2020. The adjustment to the AERMOD emission rate constitutes an alternative model under EPA's "Guideline on Air Quality Models"[7] and requires approval from the EPA Regional Office in consultation with EPA's Model Clearinghouse. WDNR has requested alternate model approval from EPA.

4.2 Determination of Attainment

To determine the impacts on air quality, the multi-year average of the 4th highest daily maximum value of SO_2 concentrations each year generated by the above-mentioned AERMOD runs were compared to the 2010 SO_2 NAAQS value of 75 ppb. This approach is consistent with the methodology used to determine attainment status from monitored air quality values.

The AERMOD modeling results show that SO_2 emissions from boiler B26 as limited by permit 15-DMM-128-R1 will ensure attainment of the 2010 SO_2 NAAQS in all areas of the modeling domain, with a maximum impact of 74.8 ppb (see Table 3). In addition, the modeling shows that SO_2 emissions from stack S09 are responsible for over 93% of the total modeled concentrations.

Table 3. SO_2 modeling results for Ahlstrom-Munksjo mill, showing modeled concentrations at maximum (S09M) and minimum (S09N) heat input. Source: Modeling Attainment Analysis (Appendix A)

AHLSTROM-MUNKSJO – RHINELANDER (Oneida County) **Final Modeling Results & Culpability** (Concentrations in ppb)		
	1-Hour SO_2 Sources plus S09M	1-Hour SO_2 Sources plus S09N
Total Impact (Modeled plus Background)	74.8	63.0
NAAQS	75.0	75.0
S09 Contribution to Total	71.1 (94.9%)	59.1 (93.9%)

[6] Permit 15-DMM-128-R1 limits boiler B26 to 260 MMBtu/hr.
[7] Appendix W to 40 CFR Part 51.

4.3 Enforceable Requirements

The 2010 SO_2 NAAQS, emission requirements for the Ahlstrom-Munksjo mill are made permanent and federally enforceable through incorporation in Air Pollution Control Construction Permit Revision 15-DMM-128-R1 and Wisconsin's SIP. A complete description of the emission requirements and compliance demonstration contained in this permit can be found in the "Analysis and Preliminary Determination" for permit 15-DMM-128-R1 (Appendix B) as well as in the permit itself (Appendix C).

In summary, permit 15-DMM-128-R1 establishes the following permanent limitations on boiler B26:

- SO_2 emissions may not exceed 2.38 pounds per mmBtu (lb/mmBtu) heat input on a 24-hour average basis;
- The heat input to the boiler may not exceed 260 mmBtu per hour; and
- The height of boiler stack S09 shall be at least 246 feet above ground level and the flue gas shall be discharged vertically and without obstruction.

The addition of the new SO_2 emission limitation and boiler utilization limit will result in a decrease in the potential to emit (PTE) of boiler B26. The PTEs after permit issuance are based on the following:

- For hourly SO_2 emissions, the 1-hr peak modeled emission rate of 2.56 lb/mmBtu and maximum heat input rate of 260 mmBtu/hr; and
- For annual SO_2 emissions, the 24-hr average permit emission limit of 2.38 lb/mmBtu, a maximum heat input rate of 260 mmBtu/hr, and 8,760 hours per year of operation.

Permit 15-DMM-128-R1 also contains requirements to demonstrate compliance with the 24-hour average SO_2 emission limit, the heat input rate limit, and the stack parameter limitations, among other requirements. See appendices B and C for complete descriptions of compliance and recordkeeping requirements.

<u>Permit elements to be incorporated into Wisconsin's SIP</u>

This section identifies the specific elements of permit 15-DMM-128-R1 that WDNR requests EPA incorporate into the Wisconsin SIP. These elements identify the SO_2 emissions limitations and associated monitoring, recordkeeping, and reporting requirements in Part I of permit 15-DMM-128-R1 for boiler B26 at the Ahlstrom-Munksjo mill needed to ensure attainment of the 2010 SO_2 NAAQS:

- Emissions limitations: Conditions A.3.a.(1)-(3)
- Compliance demonstration: Conditions A.3.b.(1)-(3)
- Reference test methods, recordkeeping and monitoring requirements: Conditions A.3.c.(1)-(5) and Conditions A.3.c.(7)-(9)

Permit elements to be excluded from Wisconsin's SIP

Any elements of permit 15-DMM-128-R1 not specifically listed above are not proposed to be incorporated into Wisconsin's SIP. Most of the remainder of permit 15-DMM-128-R1 does not involve regulation of SO_2 emissions. For those sections of Part I of that permit that do:

- Condition A.3.a.(4) limits the sulfur content of the fuel oil fired in boiler B26.
- Condition A.3.c.(6) addresses supplier certification of fuel oil shipments.

The fuel oil sulfur content limitation and associated recordkeeping requirement were established in a previous permit and are not necessary to demonstrate attainment with the 2010 SO_2 NAAQS. The permittee does not rely on the fuel oil limitation to comply with the either the 24-hour average SO_2 emission limit or the boiler heat input limit. Therefore, it is not necessary to include these requirements in the SIP for purposes of attainment.

4.4 Reasonably Available Control Technology and Measures (RACT and RACM), Reasonable Further Progress (RFP), and Contingency Measures

As indicated in EPA's 2014 SO_2 SIP guidance, the control strategy should include all reasonably available control technology (RACT) and reasonably available control measures (RACM) that can be implemented as expeditiously as practical. This implementation is to occur no later than five years after designation.

EPA has determined that both RACT and RACM are the levels of emission reduction necessary to demonstrate attainment with the 2010 SO_2 NAAQS.[8] Since the emission requirements contained in permit 15-DMM-128-R1 for the Ahlstrom-Munksjo mill are being implemented to demonstrate attainment, these requirements fulfill RACT and RACM obligations for the partial Oneida County 2010 SO_2 NAAQS nonattainment area.

EPA's policy is that RFP for SO_2 may be satisfied by adherence to an ambitious compliance schedule.[9] Permit 15-DMM-128-R1 for the Ahlstrom-Munksjo mill contains SO_2 emissions requirements that must be complied with no later than December 31, 2021. As described in section 2.2, since January 2016, the facility has also been complying with the emissions requirements of Administrative Order AM-15-01, which resulted in the area measuring attainment-level air quality since 2018. Therefore, WDNR has satisfied the requirement in CAA section 172(c)(2) to provide for RFP toward attainment for this area.

EPA's 2014 SO_2 SIP guidance described how the contingency requirement in CAA section 172(c)(9) is met for SO_2 by having a comprehensive program to identify sources of violations of the SO_2 NAAQS and to undertake an aggressive follow-up for compliance and enforcement of applicable emission limits.[10] In the event that SO_2 attainment is not measured in the partial Oneida County nonattainment area, the contingency measure Wisconsin is adopting under this plan is a commitment to reevaluate stationary source SO_2 emission limit requirements for the Ahlstrom-Munksjo mill, the primary SO_2 source in this area.

[8] EPA's 2014 SO_2 SIP guidance, page 14.
[9] EPA's 2014 SO_2 SIP guidance, page 40.
[10] EPA's 2014 SO_2 SIP guidance, pages 41-42.

EPA has proposed to disapprove the RACT/RACM, RFP, and contingency requirements submitted as part of WDNR's 2016 attainment plan, since EPA found the underlying plan lacked the enforceable limits necessary to demonstrate attainment with the NAAQS. With issuance of permit 15-DMM-128-R1 and EPA's approval of this supplemental SIP, RACT/RACM, RFP and contingency measures requirements will be satisfied.

4.5 Maintenance of Previous NAAQS and Section 110(l) Noninterference Requirements

CAA Section 110(l) states that EPA will approve a SIP revision that removes or modifies control measure(s) in the SIP only after the state has demonstrated that such removal or modification will not interfere ("noninterference") with attainment of the NAAQS, rate of progress, reasonable further progress, or any other applicable requirement of the CAA.

The Oneida County area was previously designated nonattainment for the 1971 1-hour SO_2 NAAQS. As a result, the Ahlstrom-Munksjo mill was required to control SO_2 emissions under Consent Order AM-94-38. Boiler B26 is subject to an emission limitation of 3.5 pounds per mmBtu under that order.

In addition, under Administrative Order AM-15-01, boiler B26 is subject to a more stringent emission rate limit of 3.00 pounds per mmBtu on a 24-hour basis (equivalent to 3.20 pounds per mmBtu on an hourly basis). As described in section 2.3, the emission limitations contained in Administrative Order AM-15-01 have not been approved by EPA into the SIP, although WDNR anticipates that EPA will finalize approval of this order. Therefore, the requirements of Administrative Order AM-15-01 are presently enforceable at the state level, but are not federally enforceable until EPA approves them into the SIP. WDNR anticipates that the emissions requirements of Administrative Order AM-15-01 will become federally enforceable by the time WDNR submits this SIP revision request.

The federally enforceable emissions limits and requirements on boiler B26 contained in permit 15-DMM-128-R1 are more stringent than both Consent Order AM-94-38 and Administrative Order AM-15-01. In addition, boilers B20, B21, B22, & B23, which operated under Consent Order AM-94-38, have been decommissioned. Therefore, through this attainment plan and permit 15-DMM-128-R1, the previous (1971) SO_2 NAAQS will be maintained and Section 110(l) requirements are satisfied.

Because the emissions limits and other requirements in permit 15-DMM-128-R1 are more restrictive than both Consent Order AM-94-38 and Administrative Order AM-15-01, WDNR will be requesting withdrawal of both Consent Order AM-94-38 and Administrative Order AM-15-01 from the SIP.

5. Public Participation

In accordance with section 110(a)(2) of the CAA, WDNR published a notice on the internet on February 19, 2021, stating that it would hold a public hearing on this SIP revision. A notice of availability was also posted on the website. The public hearing will take place on March 22, 2021, via video conference and phone to comply with state restrictions associated with the COVID-19 virus. This SIP submittal will be made available for public comment through March 23, 2021.

In addition, permit 15-DMM-128-R1 was released for the required 21-day comment period on February 19, 2021. When finalized and issued, the elements of the permit described in section 4.3 will requested to be incorporated into Wisconsin's SIP, as described in this plan.

6. Conclusion

This SIP revision, when considered with the 2016 attainment plan WDNR submitted to EPA, meets Wisconsin's CAA section 191(a) obligation to submit a plan for the partial Oneida County 2010 SO_2 NAAQS nonattainment area. The plan fully demonstrates attainment of the 2010 SO_2 NAAQS through air dispersion modeling of an effective control strategy, in accordance with the requirements of section 172(c), and relies upon source emission limits made permanent and federally enforceable through incorporation in Air Pollution Control Construction Permit Revision 15-DMM-128-R1 and Wisconsin's SIP.

Appendix A

Sulfur Dioxide Implementation Plan Dispersion Modeling Attainment Analysis for Ahlstrom-Munksjo (Rhinelander, Wisconsin)
February 2021

SULFUR DIOXIDE IMPLEMENTATION PLAN DISPERSION MODELING ATTAINMENT ANALYSIS

Ahlstrom-Munksjo – Rhinelander, Wisconsin
February 2021

INTRODUCTION

The Wisconsin Department of Natural Resources (WDNR) operates a sulfur dioxide (SO_2) ambient air monitor at a water tower in the City of Rhinelander, Oneida County. The monitor measured concentrations that were in excess of the 1-hour SO_2 National Ambient Air Quality Standards (NAAQS) for the period 2007-2009 such that the United States Environmental Protection Agency (USEPA) designated a portion of Oneida County Wisconsin as nonattainment. In the designation process one source at one facility, namely stack S09 at Wausau Paper Mills (subsequently Expera Specialty Papers, currently Ahlstrom Munksjo) in Rhinelander was identified by WDNR as primarily culpable.

Analyzing ground level concentrations using the regulatory dispersion model AERMOD with aerodynamic building downwash effects resulted in modeled concentrations lower than monitored concentrations. The facility and their consultants embarked on a series of wind tunnel studies to examine the situation and to assess whether a viable solution could be found. The wind tunnel studies determined the Good Engineering Practice (GEP) stack height for S09 to be 90 meters (296 feet). The facility proposed to use the wind tunnel studies to predict ground level concentrations, but due to the unusual nature and limitations of wind tunnel studies and based on feedback from USEPA, WDNR utilized the current regulatory dispersion model AERMOD in the attainment analysis.

After the stack height of S09 was raised to 90 meters, USEPA identified provisions of the stack height regulations that limit the modeled height to formula GEP height unless additional emissions reductions were made. The formula GEP height for stack S09 was determined to be 75 meters (246 feet), and this height was used in this analysis although the actual stack remains 90 meters high.

AREA CHARACTERIZATION

The City of Rhinelander is in north central Wisconsin, within Oneida County. The paper mill now owned by Ahlstrom-Munksjo (A-M) has been a fixture in the middle of the city along the Wisconsin River since 1903. In the early 1980's, WDNR began monitoring for SO_2 in Rhinelander at a variety of sites including at the municipal water tower. The water tower location recorded the highest concentrations, so monitoring has continued through the present day. In the mid-1980's, concentrations exceeded the 24-hour SO_2 standard (365 $\mu g/m^3$) but, as with the present day, modeling results were less than measured values. Although building downwash was suspected to be a major factor in the high measured concentrations, the facility reduced emissions proportionate to the amount of exceedance.

After the emission reductions, no further violations of SO_2 standards were recorded until the NAAQS was revised to the 1-hour time period in 2010 (0.075 ppm or 196 $\mu g/m^3$). Modeled results were less than the measured values, but the facility proposed to replace their stoker boilers (venting through S11) with small, natural gas fueled units and their cyclone boiler (venting through S09) with a moderate size natural gas and fuel oil boiler. This would have greatly reduced both the emission and ambient concentrations of SO_2 in the area.

The facility was purchased by Expera in 2013 and then Ahlstrom-Munksjo in 2018. The facility remained committed to replacing the stoker units (S11) but began evaluation on maintaining the coal fired cyclone boiler (S09). Expera hired Cermak Peterka Petersen (CPP) and Bob Paine from AECOM to study the building downwash situation at Rhinelander and to propose a solution. Ahlstrom-Munksjo continues the affiliation with both CPP and AECOM. Their wind tunnel studies demonstrated that the primary cause of the model to monitor discrepancy is a phenomenon called the corner vortex.

The corner vortex phenomenon is referenced in the USEPA document, *Guideline for Determination of Good Engineering Practice Stack Height (revised 1985)*. Within Section 2 of the GEP document, it is stated that Peterka and Cermak in 1975 recognized that behind a rectangular building there were differences in the flow depending on the orientation of the structure to the wind. When oriented perpendicular to the wind (i.e., flow from face to face) the building effect "decayed fairly rapidly over the first 20 building heights." However, when the wind is oriented 47 degrees from perpendicular (i.e., flow from corner to corner) the building effect dropped from its maximum and then "remained constant to 80 building heights downwind." The GEP document continues to note that, "The existence of an (effect)… is believed evidence of a vortex pair with axes parallel to the flow direction which are a remnant of the corner vortices formed at the leading roof corner." Other researchers also noted that the flow around a building is highly dependent on orientation. The GEP document (p. 15) mentions a study by Robins and Castro in 1977 that found, "Strong vortices generated by the top leading edges were found for an approach flow at 45 degrees to the building edge."

As the ambient wind flow encounters the flat face of a building, the atmosphere is lifted over the building with strong descent and turbulence on the lee side. If the wind approaches from a building corner (especially of a building taller than it is wide), the corner knifes through the wind creating a pair of counter-rotating vortices (corner vortex) that act to enhance the descending air on the lee side. This leads to higher pollutant concentrations downwind of the building when the flow is oriented 45 degrees from perpendicular. More importantly, this feature of building downwash is not simulated in the regulatory dispersion models and this results in modeled concentrations being ***less*** than monitored concentrations.

AECOM and CPP provided two wind tunnel studies to WDNR and USEPA to address the issue. In the first study, the GEP stack height for Ahlstrom-Munksjo S09 was shown to be taller than the regulatory formula height because of the corner vortex. After review and collaboration with USEPA, the revised GEP stack height of 90 meters (296 feet) above ground level for S09 was accepted by both USEPA and WDNR.

In the second study, CPP produced simulated ground level concentrations from their wind tunnel data using their proprietary model called HYWINMOD. This model uses traditional air pollution meteorological formulas to simulate ground level concentrations using wind tunnel information. But due to the uncertainty of the technique, the regulatory time frame, and based on feedback from USEPA, WDNR used the wind tunnel derived GEP stack height with AERMOD to demonstrate attainment with the NAAQS.

Stack S09 was raised to 90 meters during the summer of 2016 with the boiler brought back online in September 2016. During 2017 USEPA notified WDNR and the facility of provisions in the stack height regulations that precluded modeling using wind tunnel derived GEP stack height of 90 meters unless the facility also met New Source Performance Standard emission limitations for the cyclone boiler.

Throughout 2018 and 2019, Ahlstrom-Munksjo, USEPA, and WDNR discussed potential solutions to the stack height issue. The final resolution is for the facility to limit their SO_2 emissions from S09 such that dispersion modeling assuming the GEP formula height of 75 meters (246 feet) is below the 1-hour SO_2 NAAQS. The actual stack height of S09 remains 90 meters so monitored SO_2 concentrations will be lower than modeled.

MODEL & METEOROLOGY

WDNR used the current regulatory version of AERMOD (AMS/EPA Regulatory Model), version 19191. Rhinelander is a small (both geographically and in terms of population) city that straddles the Wisconsin River in northern Wisconsin. Following Section 7.2.3(c) of 40 CFR Appendix W to Part 51, the *Guideline on Air Quality Models (Guideline)*, an assessment of the land use around Ahlstrom-Munksjo shows that less than 50% of the land area within 3 kilometers is industrial, commercial, or dense residential. Therefore, rural dispersion coefficients were used in AERMOD.

Meteorological data was processed from 2011-2015 data collected at Rhinelander-Oneida County Airport (KRHI) using Green Bay upper air data. The surface wind data at KRHI is 2-minute average speed and direction reported each minute. This minute-based wind information was processed with AERMINUTE version 15272. The meteorological data was processed with the AERMOD meteorological processor AERMET version 16216 and represents the standard meteorological data currently used for Wisconsin regulatory dispersion modeling. AERMET versions 18081 and 19191 were minor corrections to AERMET and did not affect results, so were unnecessary. Processing assumed an anemometer height of 7.9 meters above ground.

The instrumentation tower at KRHI is 4.8 kilometers west of Ahlstrom-Munksjo and is considered representative of meteorological conditions around the facility. Surface characteristics around KRHI were generated using AERSURFACE version 13016 following the methods described in the *AERMOD Implementation Guide.* Specifically, snow cover for each month during the period 2011-2015 was derived from National Snow and Ice Center maps. AERSURFACE was run both for snow and no-snow conditions and the albedo adjusted based on the number of days with snow cover during each month. Soil moisture for each year was a weighted average of the long-term Palmer index data from the Climate Prediction Center. The months of May, June, July, and August were weighted twice as high as the other months to account for the importance of soil moisture during the traditional growing season.

The base input information for AERSURFACE was the 1992 National Land Cover Dataset (NLCD). For an area 10 kilometers by 10 kilometers centered on KRHI, there are little differences between NLCD and the 2011-2015 period. However, when examining the data within 1 kilometer of KRHI, there were differences in the location of trees between NLCD and aerial photos taken in 2010, 2013, and 2015. The open land paralleling the east-west runway is much broader than indicated on the 1992 NLCD. To continue using AERSURFACE with the 1992 NLCD, the radius of the roughness circle in AERSURFACE was reduced and the center point adjusted until a representative match was found to a 1-kilometer circle in the 2008 leaf-on aerial photo. An independent analysis performed by consultants for the facility confirms the representativeness of this approach.

EMISSIONS INVENTORY

The last stoker boiler at Ahlstrom-Munksjo, venting through stack S11, was permanently shut down in April 2014 so emissions from the cyclone boiler (S09) and an existing natural gas and fuel oil boiler (S08) were analyzed. Through construction permit revision (15-DMM-128-R1), Ahlstrom-Munksjo will limit the cyclone boiler to 260 MMBtu/hr (millions of British Thermal Units per hour). This analysis examined two operating conditions for stack S09, representing maximum heat input of 260 MMBtu/hr and the lowest reasonable heat input of 213 MMBtu/hr. Both operating conditions have different mass emission rates, volumetric flow rates and exit velocity, and exit gas temperatures. The only other SO_2 emission source considered in the City of Rhinelander is from combustion of wood waste at Kerry Incorporated (formerly Red Arrow Foods), located 4.0 kilometers west-southwest of Ahlstrom-Munksjo. In January 2020, Kerry submitted an air permit application to modify their facility and this included the removal of one of their SO_2 sources. The theoretical emissions of the one remaining SO_2 source were considered.

In the initial analysis to determine the scope of potential SO_2 exceedances, the major sources at Packaging Corporation of America (PCA) Tomahawk, 33.0 kilometers southwest of Ahlstrom-Munksjo were also included. Although these emissions were shown to have limited effect on the Rhinelander area, they represent the only other large SO_2 emissions within 50 km of Ahlstrom-Munksjo and so were included.

INPUT PARAMETERS

Modeled stack parameters and building downwash data for Kerry, PCA, and Ahlstrom-Munksjo S08 were taken from the most recent WDNR analyses for those facilities. Modeled emission rates reflected the maximum short-term hourly rates with normal, or typical, exit velocity and gas temperature.

BPIP-PRIME was used to produce the building downwash information from facility provided plot plans, except for Ahlstrom-Munksjo stack S09. Due to the corner vortex issue, manual adjustments were made to the modeled input emissions data for that stack. The formula GEP stack height of 75 meters (246 feet) for S09 was assumed, along with flow, temp, and emission rates comparable to both maximum and minimum conditions. No building downwash was simulated for S09 in AERMOD because of the model formulation. AERMOD does not consider the corner vortex and in not considering this unusual downwash, the model formulation could result in lower modeled concentrations compared to monitored values, even for stacks at GEP height.

Section 3 of the GEP document (p. 23) states that maximum ground-level concentrations from a GEP height stack downwind of a building are 20 to 40 percent higher than without the building when the wind is oriented perpendicular to the structure. Pertinent to Rhinelander, "The data for the same buildings oriented 45 degrees to the approach flow are found to have concentrations increased by roughly 40 to 80 percent. The differences are due to the presence of longitudinal vortices in the wake of buildings having a 45-degree orientation."

Section 3 of the GEP document (p. 27) also states, "The maximum ground-level concentrations downwind of building structures should not be increased by more than 40 to 80 percent if the stack is equal to 2.5 times the building height." Considering the corner vortex effect, it can be expected that ground level concentrations will be higher than if the influencing building was not present.

Further, the determination of GEP stack height in the wind tunnel also considers building downwash. In the determination, the stack height is increased in the wind tunnel until the ratio of concentrations with the building to concentrations without the building is ~1.4 (or 40 percent higher). Therefore, at 90 meters, emissions from stack S09 would be expected to result in 40 percent higher concentration than if no building was present.

However, the wind tunnel studies demonstrate that the corner vortex downwash effects are not present for all wind speed conditions. According to the *Draft Recommended Approach for SO2 Nonattainment Modeling: Expera Specialty Solutions, Rhinelander, WI* provided by the consulting firms AECOM and CPP, "The downwash effects do not exist at wind speeds below about 2 m/s, and increase to a maximum… at wind speeds above 8 m/s."

To accommodate for the variation with wind speed of the downwash, AECOM and CPP provided an equation to derive hourly ratios to apply to emission rates for each hour in the 2011-2015 KRHI meteorological data:

$$R = A \exp\left[-\frac{\left(\frac{1}{U_{airport}} - \frac{1}{U_{max}}\right)^2}{B^2}\right] + 1.0$$

Where $U_{airport}$ is the KRHI airport wind speed, U_{max} is assigned as the 1% wind speed of 10.8 m/s (exceeded less than 1% of the time), and A_{75} (0.826) and B (0.174) are best fit constants. To determine the value of A at 75 meters (A_{75}, above) the measurements from the wind tunnel assuming 85 m, 87.5 m, 90 m, and 95 m were used to create a polynomial equation. This polynomial was used to extrapolate values to a 75-meter stack height, and then used to scale the value of A_{85} (A at 85 meters) to A_{75}.

The R-equation above produces a multiplier that varies with wind speed. For each hour of the 2011-2015 KRHI data set, the emission rate was calculated by multiplying the factor times the emission limitation. The emission rate for stack S09 for each hour was captured in a text file used in the HOUREMIS keyword within AERMOD. For wind speeds in excess of 10.8 m/s, the R-equation results in a slight reduction in the factor. It is reasonable to assume the maximum value of R (1.826) persists for higher wind speeds, so the value of R was set to 1.826 for wind speeds above 10.8 m/s.

The adjustment to the AERMOD emission rate constitutes an alternative model under section 3.2 of the *Guideline* and requires approval from the USEPA Regional Office in consultation with the USEPA Model Clearinghouse. WDNR has requested alternate model approval from USEPA. The requirements for approval include a finding that the R-equation adjustment is a more appropriate model due to the lack of corner vortex treatment in the preferred version of AERMOD. According to the *Guideline* an alternative model may be approved if the results of a statistical analysis indicate that the alternative model performs better for a given application than the preferred model.

An analysis was completed that demonstrates the R-equation technique performs better than the preferred model and is not inappropriately biased for regulatory application. Stack S09 was raised in September 2016, so the monitored data from 2017-2019 was compared to modeled data. The 2018 reported emissions data from stack S09 was used along with the R-equation multipliers for the 90-meter stack and the regulatory meteorological data. The reported emission of 2,559,485 pounds of SO_2 over 209 days of operation resulted in an hourly rate of 510 lb/hr. The reported maximum emissions in 2018 were modeled using maximum load stack parameters.

The results from the analysis shown (in $\mu g/m^3$) demonstrate the R-equation adjustment has no bias toward lower modeled concentrations and improves model performance.

	Modeled Value	**Monitored Value**
Design Value 2017-19 Regulatory Preferred Model	83.6 (using five years of data)	94.2
Design Value 2017-19 Alternate R-Equation Model	96.0 (using five years of data)	94.2
1st High 2018 Alternate R-Equation Model	159.6 (using one year of data)	131.1
2nd High 2018 Alternate R-Equation Model	107.1 (using one year of data)	119.0

RECEPTOR GRID

The receptor grid used in the analysis consisted of a series of nested rectangular grids with terrain derived from AERMAP using National Elevation Dataset information:

- 25 meter spacing out 500 meters from the facility sources
- 50 meter spacing to 1000 meters
- 100 meter spacing to 3 kilometers
- 250 meter spacing to 6 kilometers
- 500 meter spacing to 10 kilometers

BACKGROUND CONCENTRATION

The closest WDNR-operated monitoring location is the Horicon (Dodge County) SO_2 monitor. Horicon is located 250 kilometers south of Rhinelander, is centrally located within Wisconsin, and measured values are representative of a large area of the state. In addition, the Horicon monitoring station uses SO_2 measuring equipment that is sensitive to low concentrations. The monthly-hour-of-day background values used in the analysis are from the 2013-2015 Horicon data and represent regional low values in the WDNR document, "Guidance on Air Quality Background Concentrations" available at the WDNR web site.

The modeling analysis includes all known point sources of SO_2 within 50 kilometers of Rhinelander, and the monitor location is similarly affected by distant SO_2 sources (in central, southern, and eastern Wisconsin). Nationally, the impact from locomotives and trucks has been minimized as the sulfur content in diesel fuel has been reduced to 0.015%, and the local impact of these vehicles is even smaller as the total population of Rhinelander is ~7,500 residents.

MODELING RESULTS

The stack parameters and emission rates for the modeling analysis are provided. Stack S09M represents maximum load conditions of 260 MMBtu/hr; stack S09N represents minimum load of 213 MMBtu/hr.

AHLSTROM-MUNKSJO – RHINELANDER (Oneida County)
Emission Rates & Stack Parameters

ID	LOCATION (UTM83)	HEIGHT (M)	HEIGHT (ft)	DIAM (M)	VELOCITY (M/S)	TEMP (K)	SO_2 Rate (lbs/HR)
S09M	311349, 5056895	75.0	246.0	2.13	11.33	429.4	*
S09N	311349, 5056895	75.0	246.0	2.13	11.07	426.1	*
S08	311338, 5056922	35.66	117.0	1.68	20.08	439.0	15.23
Kerry Inc – Rhinelander Source							
S10B	307604, 5055176	17.67	58.0	1.041	17.73	322.0	3.23
PCA – Tomahawk Sources							
S14	285952, 5036176	46.60	153.0	1.37	4.64	470.4	140.3
S15	285952, 5036203	60.70	199.0	3.23	16.50	468.0	1166.0

The modeled hourly emission rate for stack S09 was calculated separately for each modeled hour using the R-equation and the wind speed. The assumed permit allowable SO_2 emission rate is 2.56 lbs/MMBtu, and this converts to 665.6 lbs/hr at maximum, 260 MMBtu/hr, and 545.3 lbs/hr assuming 213 MMBtu/hr.

The result from the final analysis shows concentrations below the NAAQS assuming either maximum or minimum load conditions from S09. Results are presented both in micrograms per cubic meter ($\mu g/m^3$) and in parts per billion (ppb), assuming a conversion factor (1 atm, 20° C) of 1 ppb = 2.616 ($\mu g/m^3$).

AHLSTROM-MUNKSJO – RHINELANDER (Oneida County) **Final Modeling Results & Culpability** (Concentrations in $\mu g/m^3$)		
	1-Hour SO_2 Sources plus S09M	1-Hour SO_2 Sources plus S09N
Total Impact (Modeled plus Background)	195.8	164.8
NAAQS	196	196
S09 Contribution to Total	185.9 (94.9%)	154.7 (93.9%)

AHLSTROM-MUNKSJO – RHINELANDER (Oneida County) **Final Modeling Results & Culpability** (Concentrations in ppb)		
	1-Hour SO_2 Sources plus S09M	1-Hour SO_2 Sources plus S09N
Total Impact (Modeled plus Background)	74.8	63.0
NAAQS	75.0	75.0
S09 Contribution to Total	71.1 (94.9%)	59.1 (93.9%)

Appendix B

Analysis and Preliminary Determination for the Revision of Construction Permit 15-DMM-128-R1

ANALYSIS AND PRELIMINARY DETERMINATION
FOR THE REVISION OF CONSTRUCTION PERMIT 15-DMM-128

FOR
AHLSTROM-MUNSKJO RHINELANDER LLC,
LOCATED AT
515 W DAVENPORT STREET,
RHINELANDER, ONEIDA COUNTY, WISCONSIN

Construction Permit Revision No.: 15-DMM-128-R1
Facility ID No.: 744008100

This review was performed by the Wisconsin Department of Natural Resources, Air Management Program, in accordance with Chapter 285, Wis. Stats., and Chapters NR 400 to NR 499, Wis. Adm. Code.

Preliminary Determination	**Signature**	**Date**
Preliminary Determination prepared by:	/s/ Dave Minkey	02/19/2021
Stationary source modeling conducted by:	/s/ Dave Minkey *for John Roth*	02/19/2021
Peer Review conducted by:	/s/ Dave Minkey *for Ron Binzley*	02/19/2021
Compliance Review conducted by:	/s/ Dave Minkey *for Michelle Farley*	02/19/2021
Regional Supervisor or Central Office Designee approved by:	/s/ Susan Lindem	02/19/2021

Note: Copies of the permit application, the department's analysis and draft permit, and other materials considered by the department when making its preliminary determination on the approvability of the revision can be viewed by using the Air Permit Search Tool located at http://dnr.wi.gov/topic/AirPermits/Search.html or by contacting David Minkey at (920) 585-0277 or by e-mail at David.Minkey@wisconsin.gov.

INTRODUCTION

Sections 285.60 through 285.69, Wis. Stats. and chapters NR 405 through NR 409, Wis. Adm. Code require certain types of stationary sources that emit or may emit air contaminants to obtain air pollution control permits. The Wisconsin Department of Natural Resources (hereinafter "department") issues air pollution control permits to new and existing sources of air pollution.

Stationary sources that are not exempt from the requirement to obtain a construction permit under ss. 285.60(2g), (3), (5m) and (6), Wis. Stats. or ch. NR 406, Wis. Adm. Code, may not commence construction, reconstruction, replacement, relocation or modification unless a construction permit for the project has been issued by the department. Sources that are not exempt from the requirement to obtain an operation permit under s. NR 407.03, Wis. Adm. Code, are required to obtain or renew an air pollution control permit to continue operation. Changes made at a source of air pollution may require a revision of a previously issued permit in accordance with chs. NR 406.11 and/or NR 407.11 through NR 407.14 and NR 407.16, Wis. Adm. Code.

Owners or operators subject to air pollution control permit requirements submit the appropriate permit application(s) to the department. The applications are reviewed following the provisions set forth in ss. 285.60 to 285.67, Wis. Stats. The criteria for permit approval are outlined in s. 285.63, Wis. Stats., and vary depending on whether the source is major or minor and whether the source is or is proposed to be located in an attainment or nonattainment area.

Prior to revision of an air pollution control construction permit, the department is required to provide 21 days written notice to the permit holder and the persons listed in ss. 285.61(5)(a)2. to 5., Wis. Stats., and make a finding that the criteria for permit approval in s. 285.63, Wis. Stats. are met. This document is the department's finding for the revision of the air pollution control construction permit described herein and sets forth the legal and factual basis for the revised permit conditions. The analysis is based on the information contained in the revision request(s) and any additional information requested by the department and/or provided by the permit applicant related to the emissions of air pollutants sufficient to verify which requirements are applicable to the source.

The construction permit will not be revised until the applicable notification requirements in s. NR 406.11, Wis. Adm. Code, have been met.

GENERAL INFORMATION

Owner/Operator:	Ahlstrom-Munskjo Rhinelander LLC 515 W Davenport Street Rhinelander, Oneida County, WI 54501-3328
Responsible Official:	Joseph Fierst, Plant Manager (715) 369-4233 joe.fierst@ahlstrom-munksjo.com
Request Submitted By:	Tom Emond, Manager, Environmental Control (715) 369-4160 tom.emond@ahlstrom-Munksjo.com
Request Submittal Date:	January 25, 2021
Additional Information Submitted:	January 13 and 21, 2021

REVISION DESCRIPTION

Ahlstrom-Munksjo Rhinelander LLC (Ahlstrom-Munksjo) has applied for a construction permit revision to establish the following limitations on boiler B26:

- SO_2 emissions may not exceed 2.38 pounds per mmBtu (lb/mmBtu) heat input on a 24-hour average basis;
- The heat input to the boiler may not exceed 260 mmBtu per hour; and
- The height of boiler stack S09 shall be at least 246 feet above ground level and the flue gas shall be discharged vertically and without obstruction.

The permit will also include associated compliance demonstrations, monitoring, recordkeeping and reporting requirements.

The limitations are being established as part of Wisconsin's plan to demonstrate attainment of the 2010 1-hour SO_2 National Ambient Air Quality Standard (NAAQS) and are based on air dispersion modeling of SO_2 emissions from the Ahlstrom-Munksjo facility as well as SO_2 emissions from other stationary sources within 50 kilometers of the Oneida County nonattainment area.

The construction permit revision will also include the following changes:

- Update the requirements from the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters in 40 CFR part 63, subpart DDDDD that were included in construction permit 15-DMM-128 to align with the more recent NESHAP requirements which were specified in operation permit 744008100-P22.
- Remove section YYY. of construction permit 15-DMM-128, which contains the sulfur dioxide requirements contained in Consent Order AM-94-38. Consent Order AM-94-38 was established and entered for the purpose of demonstrating and maintaining attainment of the 1992 24-Hour SO_2 standard. EPA has established that requirements for the 24-Hour SO_2 NAAQS will be subsumed when all requirements for the 2010 SO_2 NAAQS are satisfied and approved to the SIP.[1] Demonstrating compliance with the new SO_2 limitations in construction permit revision 15-DMM-128-R1 constitutes fulfillment and compliance with the emission reduction achieved under Consent Order AM-94-38 The department will be requesting that EPA withdraw AM-94-38 from the State Implementation Plan (SIP) as part of a new SIP submittal to incorporate requirements of construction permit revision 15-DMM-128-R1.

Applicability of Permit Revision:

"Permit revision" is defined in s. NR 406.02(6), Wis. Adm. Code, as "any change to a construction permit to reflect a change at a source that is not a modification of the source or that is an exempt modification of the source". "Modification" is defined in s. NR 400.02(99), Wis. Adm. Code, as "any physical change in, or change in the method of operation of, a stationary source that increases the amount of emissions of an air contaminant or that results in the emission of an air contaminant not previously emitted." The changes being proposed are not a modification because they do not result in an increase in emissions or emissions of a new air contaminant. The proposed revision meets the criteria under s. NR 406.11(1)(d), Wis. Adm. Code, a request by the permittee to revise the permit.

[1] (USEPA, 2014) Memorandum "Guidance for 1-Hour SO_2 Nonattainment Area SIP Submissions" from Stephen D. Page, Director to Regional Air Division Directors, Regions 1-10, April 23, 2014.

SOURCE DESCRIPTION

Ahlstrom-Munskjo Rhinelander LLC is a paper mill with four paper machines producing a variety of specialty papers including greaseproof, label backing, and wet strength papers. The sulfite pulp mill was shut down in June 1984. The mill continues with its paper making operations using purchased pulp. The paper converting portion of the facility performs silicon coating, laminating, and other coating operations. Two natural gas-fired boilers and a coal fired cyclone boiler produce steam for the manufacturing operations with the cyclone boiler being the primary boiler. Two steam generation turbines produce most of the electricity the facility needs. The mill is located near downtown Rhinelander on the Wisconsin River. Some electricity is also produced from water turbines in the Wisconsin River.

The facility is located in an area designated as nonattainment for the 1-hr SO_2 standard and attainment/ unclassifiable for all other pollutants.

Description of Emission Unit(s) Included in the Construction Permit Revision:

Boiler number:	**B26**
Unit description:	Cyclone boiler
Fuel types:	Bituminous Coal and Bituminous/Subbituminous Coal Blends with Fuel Oil for Startup
Control technology status:	Controlled
Maximum continuous rating (mmBTU/hr):	300 (limited by permit to 260 mmBtu/hr)
Date of construction or last modification:	Constructed in 1958. Modified by addition of sorbent injection in 2016.
Construction Permit Revision:	15-DMM-128-R1

Stack Information:

Stack identification number:	**S09**
Exhausting unit(s):	B26
This stack has an actual exhaust point:	Y
Discharge height above ground level (ft):	296
Inside dimensions at outlet (ft):	7.0
Exhaust flow rate (normal) (ACFM):	83,864
Exhaust flow rate (maximum) (ACFM):	85,833
Exhaust gas temperature (normal) (°F):	307
Exhaust gas temperature (maximum) (°F):	313
Exhaust gas discharge direction:	Up
Stack equipped with any obstruction:	No

Control Device Information.

Control Device identification number:	**C06**
Exhausting emissions unit(s):	B26
Control device description:	3-Field Electrostatic Precipitator (ESP)

Control Device identification number:	**C26**
Exhausting emissions unit(s):	B26
Control device description:	Dry Sorbent Injection
Sorbent injection rate capacity:	Sodium Bicarbonate = 2,775 lb/hr; or Trona = 4,350 lb/hr

Control Device identification number:	**C27**
Exhausting emissions unit(s):	B26
Control device description:	Activated Carbon Injection
Maximum activated carbon injection rate:	40 lb/hr

EMISSION CALCULATIONS

The proposed permit revision does not increase the amount of emissions of any air contaminant nor does it result in the emission of an air contaminant not previously emitted. The Preliminary Determination for permit 15-DMM-128 reviewed calculations of emissions from this boiler. Please refer to the emission calculations in the Preliminary Determination for permit 15-DMM-128 for a complete description of emission calculations.

The addition of the new SO_2 emission limitation and boiler utilization limit will result in a decrease in the PTE of boiler B26. The table below shows the PTE of each pollutant before and after issuance of this construction permit revision. The before permit issuance PTEs for all pollutants other than SO_2 are taken from the preliminary determination for permit 15-DMM-128. The before permit issuance PTE for SO_2 is based on the limits in permit 744008100-P22. The PTEs after permit issuance are based on the following:

- For all pollutants besides SO_2, a PTE reduction of 13.33% from the before permit issuance PTE. This reduction is based on the ratio of the new permit heat input limit of 260 mmBtu/hr to the before permit heat input capacity of 300 mmBtu/hr;

- For hourly SO_2 emissions, the 1-hr peak modeled emission rate of 2.56 lb/mmBtu and maximum heat input rate of 260 mmBtu/hr; and

- For annual SO_2 emissions, the 24-hr average permit emission limit of 2.38 lb/mmBtu, a maximum heat input rate of 260 mmBtu/hr, and 8,760 hours per year of operation.

Pollutant	**B26 PTE Before Permit 15-DMM-128-R1 Issuance**		**B26 PTE After Permit 15-DMM-128-R1 Issuance**	
	(lb/hr)	**(ton/yr)**	**(lb/hr)**	**(ton/yr)**
Particulate Matter (PM)	30	131.4	26.0	113.9
PM_{10}	26.2	114.6	22.7	99.3
$PM_{2.5}$	22.3	97.8	19.33	84.8
NO_x	397	1,739	344	1,507
CO	6.0	26.4	5.2	22.9
SO_2	960	3,942	665.6	2,710
VOC	1.3	5.8	1.1	5.0
Lead	0.01	0.02	0.01	0.02
GHG (as CO_2e)	62,045	271,755	53,772	235,521

The emission limit of 2.38 lb/mmBtu (24-hour average) was determined by multiplying the 1-hour peak emission rate of 2.56 lb/mmBtu that was used in the dispersion modeling analysis by a factor of 0.93. This factor was derived by U.S. EPA for relating emission limitations between 1-hour to 24-hour timeframes for coal-fired boilers without advanced SO_2 controls. U.S. EPA presented this factor in Appendix D of the Memorandum "Guidance for 1-Hour SO2 Nonattainment Area SIP Submissions" from Stephen D. Page, Director to Regional Air Division Directors, Regions 1 – 10, April 23, 2014. The use of the 0.93 factor is appropriate for this boiler due to the unit's low expected variability in SO_2 emissions.

Boiler B26 does not utilize advanced SO_2 controls such as a wet or dry scrubber. The boiler does utilize a sorbent injection system which was designed, and is operated, to control HCl emissions. The table below provides a comparison of annual SO_2 emissions for the boiler, the number of hours of operation of the boiler, the annual and

hourly average sorbent (sodium bicarbonate ($NaHCO_3$)) injection rates, and the maximum design $NaHCO_3$ injection rate of the sorbent injection system.[2]

Calendar Year	SO_2 Emissions (ton/yr)	Boiler Operation (hr/yr)	Annual $NaHCO_3$ Usage (lb/yr)	Average Hourly $NaHCO_3$ Usage (lb/hr)	Max. Design $NaHCO_3$ Usage (lb/hr)
2018	1,280	5,016	418,640	83	2,775
2019	1,067	4,872	655,140	134	2,775
2020	Not Available	3,312	495,732	150	2,775

As can be seen from the table above, for 2018 to 2020 the sorbent injection system has been operated with an average hourly sorbent injection rate of 122 pounds per hour. Sorbent injection systems used for SO_2 typically operate at sorbent injection rates in the thousands of pounds per hour. The facility has indicated that their system is operated to inject sorbent at a rate necessary to achieve a target HCl emission rate slightly below the boiler MACT limit of 0.022 lb/MMBtu, and the system has never been operated to preferentially control SO_x. The facility took no credit for SO_2 control in the actual-to-project-actual new source review (NSR) analysis conducted in support of the 2016 construction permit for the sorbent injection system. The sorbent injection system may offer a small amount of incidental SO_x removal, but at the low actual sorbent injection rate very minimal SO_x removal is expected.

While it is possible for the facility to add more sorbent, other emission limits could potentially become rate limiting before the injection system would reach its physical capacity, including the Boiler MACT particulate matter (PM) limits and the opacity limit. The boiler is equipped with an electrostatic precipitator (ESP) for PM control so it does not have the robust particulate removal of a baghouse which is normally associated with sorbent injection systems. The facility has stated that they do not anticipate increasing sorbent use in the future unless regulatory limits change or coal availability becomes an issue.

Based on these factors, the presence of a sorbent injection system is not expected to result in significant variability of SO_2 emissions from the boiler. The sorbent injection system is operated at low sorbent injection rates necessary to comply with the boiler MACT HCl limits and the facility has indicated they have no plans to increase sorbent usage in the future. At these low sorbent injection rates, minimal SO_2 control is expected from the system.

APPLICABLE REQUIREMENTS AND COMPLIANCE DEMONSTRATION METHODS, MONITORING AND RECORDKEEPING

The construction permit revision will establish the following limitations:

- SO_2 emissions may not exceed 2.38 pounds per mmBtu (lb/mmBtu) heat input on a 24-hour average basis;
- The heat input to the boiler may not exceed 260 mmBtu per hour; and
- The height of boiler stack S09 shall be at least 246 feet above ground level and the flue gas shall be discharged vertically and without obstruction.

The permit will include the following requirements to demonstrate compliance with the 24-hour average SO_2 emission limit:

- Operate SO_2 and diluent (oxygen (O_2)) continuous emissions monitoring (CEM) systems and utilize the F-factor method in Method 19 of 40 CFR Part 60, Appendix A to determine the SO_2 emission rate, in lb/mmBtu.

[2] The SO_2 emissions were taken from the Wisconsin Air Emissions Inventory, the hours of operation were provided by the facility, the annual $NaHCO_3$ usage was provided by the facility and was estimated based on purchase records, and the maximum $NaHCO_3$ usage is based on the application for construction permit 15-DMM-128.

- Calculate a daily average SO_2 emission rate, in pounds per million Btu, for each operating day by summing the hourly SO_2 pounds per million Btu emission rates for each boiler operating hour for each calendar day and dividing by the number of hours the boiler operated during the calendar day.

    - The daily average SO_2 emission rate shall be determined on the basis of valid readings representing a minimum of 18 hours. If an operating day has less than 18 hours of valid readings, compliance shall be determined on the basis of a pooled data set consisting of data for the applicable calendar day and all data from the most recent preceding operating day with at least 18 hours of valid readings. Notwithstanding the use of the data from a preceding operating day in determining compliance for the initial day, a separate compliance determination shall be made for each operating day.

- Maintain, calibrate and operate the CEMs according to the methods and procedures of s. NR 439.09, Wis. Adm. Code, and 40 CFR 60.13 and Performance Specification 2 of 40 CFR Part 60, Appendix B for the SO_2 CEM and Performance Specification 3 of 40 CFR Part 60, Appendix B for the O_2 CEM.

- If the SO_2 or O_2 CEMS is not operating for a continuous period of 48 hours, utilize an alternate compliance demonstration method consisting of the following:

    - Fire only the same type of coal or mixture of coal that was being fired in boiler B26 immediately prior to the CEM becoming inoperable until the CEM becomes operational; and

    - Operate the sorbent injection system as necessary to comply with the hydrogen chloride (HCl) limit from 40 CFR 63, Subpart DDDDD as demonstrated through the use of a HCl CEMs operated in accordance with 40 CFR 63, Subpart DDDDD.

The permit will include the following requirements to demonstrate compliance with heat input rate limit:

- Operate and maintain a steam load monitoring and data recorder system capable of determining the hourly steam load generated by the boiler. This system shall consist of two redundant steam flow monitors that provide an average value for determining steam load. In the event that one steam flow monitor is not operational, the steam load shall be determined from the one operational flow monitor and the non-operational monitor shall be returned to operation as expeditiously as practical.

- Determine the hourly heat input for each operating hour by multiplying the hourly steam load, in 1,000 pounds per hour (Klbs/hr) by the boiler efficiency, in mmBtu/Klbs.

- Determine the boiler efficiency for each calendar year compliance period. This efficiency shall be calculated by dividing the annual heat input, in mmBtu/yr by the annual steam load, in Klbs/yr.

- Determine the monthly and annual heat input to the boiler. The monthly heat input is determined by summing the heat input from each individual fuel, calculated by multiplying the fuel heat content by the monthly fuel consumption. The solid fossil fuel heat content is determined from weekly samples composited into a monthly sample that is analyzed for heat content and the fuel oil heat content is determined from annual analysis of a sample taken from the fuel oil storage tank. Annual analysis of fuel oil is deemed to be sufficient for this purpose due to the low expected variability in fuel oil heat content and the low historical boiler B26 heat input from fuel oil (approximately 0.5% of total boiler heat input).

- Submit an updated emissions monitoring plan within 60 days after permit issuance.

Note that during startup, little or no steam is being produced and the compliance demonstration for the heat input limit, which correlates steam load to heat input, does note ensure compliance with the heat input limit. However, based on information provided by Ahlstrom-Munksjo, the heat input to the boiler is expected to remain well below the heat input limit of 260 mmBtu/hr. In order to protect the boiler, the rate of firing is limited upon start-up. This

allows for the gradual thermal expansion of components such as refractory, superheater, boiler tubes and so forth. Temperature and pressure limits specified by the manufacturer control the firing rate. The startup is initiated with lighting one or both fuel oil lances on the cyclones. The lances are run individually or collectively in order to match temperatures and pressures in the start-up curve. Maximum fuel oil firing rate with both lances is approximately five gallons per minute (~40 MMBtu/hr). At approximately two hours into the startup process the boiler is beginning to generate pressure. The vents are then closed. With the vents closed the drum pressure begins building sufficiently to allow for steam flow. Solid fuel is typically introduced soon thereafter. This is achieved by starting one of the two cyclone feeders at one-quarter speed. As temperature and pressure conditions allow, the feeder is increased to approximately two-thirds maximum rate. The second cyclone may then be started. It may be necessary to suspend firing on one of the cyclones to match the start-up curve, however. Total start-up time is approximately five hours.

The permit will require the permittee to keep records of the steam load and calculated heat input for each hour of operation, the calendar year calculated boiler efficiency, the monthly and annual heat input to the boiler, the annual steam load, the results of all fuel heat content analyses, the monthly usage of each fuel, fuel oil supplier certifications, and records of any additional analysis or performance testing required by the department. The permit will also require that for periods when the SO_2 and/or O_2 CEMs are not operational for more than 48 consecutive hours, the permittee keep records of the type of coal or mixture of coal that was being fired in the boiler prior to the CEMs not being operational and the type of coal or mixture of coal fired during the period when the CEMs was not operational.

The permit will include a requirement to maintain on-site technical drawings, blueprints or equivalent records of the physical stack parameters for boiler stack S09 to demonstrate compliance with the stack parameter limitations.

The permit will require reports to be submit quarterly reports and quarterly excess emission reports to the department.

AIR QUALITY REVIEW

Section 285.63(1)(b), Wis. Stats., allows the department to approve a permit application if it finds the source will not cause or exacerbate a violation of any ambient air quality standard or ambient air increment. See the Criteria for Permit Approval section for additional information and other criteria for permit approval. This section describes the department's finding under s. 285.63(1)(b), Wis. Stats.

The department performed an air dispersion modeling analysis in support of operation permit 744008100-P20. This modeling analysis continues to be valid except for SO_2 emissions which have been re-modeled to demonstrate that the 1-hr SO_2 standard will be met. Please refer to the preliminary determination for permit 744008100-P20 for results of the previous modeling analysis for all pollutants other than SO_2. A discussion of the air dispersion modeling analysis for SO_2 emissions is provided below.

Model & Meteorology

WDNR used the current regulatory version of AERMOD (AMS/EPA Regulatory Model), version 19191. Rhinelander is a small (both geographically and in terms of population) city that straddles the Wisconsin River in northern Wisconsin. Following Section 7.2.3(c) of 40 CFR Appendix W to Part 51, the *Guideline on Air Quality Models (Guideline)*, an assessment of the land use around Ahlstrom-Munksjo shows that less than 50% of the land area within 3 kilometers is industrial, commercial, or dense residential. Therefore, rural dispersion coefficients were used in AERMOD.

Meteorological data was processed from 2011-2015 data collected at Rhinelander-Oneida County Airport (KRHI) using Green Bay upper air data. The surface wind data at KRHI is 2-minute average speed and direction reported each minute. This minute-based wind information was processed with AERMINUTE version 15272. The meteorological data was processed with the AERMOD meteorological processor AERMET version 16216 and represents the standard meteorological data currently used for Wisconsin regulatory dispersion modeling. AERMET versions 18081 and 19191 were minor corrections to AERMET and did not affect results, so were unnecessary. Processing assumed an anemometer height of 7.9 meters above ground.

The instrumentation tower at KRHI is 4.8 kilometers west of Ahlstrom-Munksjo and is considered representative of meteorological conditions around the facility. Surface characteristics around KRHI were generated using AERSURFACE version 13016 following the methods described in the *AERMOD Implementation Guide.* Specifically, snow cover for each month during the period 2011-2015 was derived from National Snow and Ice Center maps. AERSURFACE was run both for snow and no-snow conditions and the albedo adjusted based on the number of days with snow cover during each month. Soil moisture for each year was a weighted average of the long-term Palmer index data from the Climate Prediction Center. The months of May, June, July, and August were weighted twice as high as the other months to account for the importance of soil moisture during the traditional growing season.

The base input information for AERSURFACE was the 1992 National Land Cover Dataset (NLCD). For an area 10 kilometers by 10 kilometers centered on KRHI, there are little differences between NLCD and the 2011-2015 period. However, when examining the data within 1 kilometer of KRHI, there were differences in the location of trees between NLCD and aerial photos taken in 2010, 2013, and 2015. The open land paralleling the east-west runway is much broader than indicated on the 1992 NLCD. To continue using AERSURFACE with the 1992 NLCD, the radius of the roughness circle in AERSURFACE was reduced and the center point adjusted until a representative match was found to a 1-kilometer circle in the 2008 leaf-on aerial photo. An independent analysis performed by consultants for the facility confirms the representativeness of this approach.

Emissions Inventory

The last stoker boiler at Ahlstrom-Munksjo, venting through stack S11, was permanently shut down in April 2014 so emissions from the cyclone boiler (S09) and an existing natural gas and fuel oil boiler (S08) were analyzed. Through construction permit revision (15-DMM-128-R1), Ahlstrom-Munksjo will limit the cyclone boiler to 260 MMBtu/hr (millions of British Thermal Units per hour). This analysis examined two operating conditions for stack S09, representing maximum heat input of 260 MMBtu/hr and the lowest reasonable heat input of 213 MMBtu/hr. Both operating conditions have different mass emission rates, volumetric flow rates and exit velocity, and exit gas temperatures. The only other SO_2 emission source considered in the City of Rhinelander is from combustion of wood waste at Kerry Incorporated (formerly Red Arrow Foods), located 4.0 kilometers west-southwest of Ahlstrom-Munksjo. In January 2020, Kerry submitted an air permit application to modify their facility and this included the removal of one of their SO_2 sources. The theoretical emissions of the one remaining SO_2 source were considered.

In the initial analysis to determine the scope of potential SO_2 exceedances, the major sources at Packaging Corporation of America (PCA) Tomahawk, 33.0 kilometers southwest of Ahlstrom-Munksjo were also included. Although these emissions were shown to have limited effect on the Rhinelander area, they represent the only other large SO_2 emissions within 50 km of Ahlstrom-Munksjo and so were included.

Input Parameters

Modeled stack parameters and building downwash data for Kerry, PCA, and Ahlstrom-Munksjo S08 were taken from the most recent WDNR analyses for those facilities. Modeled emission rates reflected the maximum short-term hourly rates with normal, or typical, exit velocity and gas temperature.

BPIP-PRIME was used to produce the building downwash information from facility provided plot plans, except for Ahlstrom-Munksjo stack S09. Due to the corner vortex issue, manual adjustments were made to the modeled input emissions data for that stack. The formula GEP stack height of 75 meters (246 feet) for S09 was assumed, along with flow, temp, and emission rates comparable to both maximum and minimum conditions. No building downwash was simulated for S09 in AERMOD because of the model formulation. AERMOD does not consider the corner vortex and in not considering this unusual downwash, the model formulation could result in lower modeled concentrations compared to monitored values, even for stacks at GEP height.

Section 3 of the GEP document (p. 23) states that maximum ground-level concentrations from a GEP height stack downwind of a building are 20 to 40 percent higher than without the building when the wind is oriented perpendicular to the structure. Pertinent to Rhinelander, “The data for the same buildings oriented 45 degrees to the

approach flow are found to have concentrations increased by roughly 40 to 80 percent. The differences are due to the presence of longitudinal vortices in the wake of buildings having a 45-degree orientation."

Section 3 of the GEP document (p. 27) also states, "The maximum ground-level concentrations downwind of building structures should not be increased by more than 40 to 80 percent if the stack is equal to 2.5 times the building height." Considering the corner vortex effect, it can be expected that ground level concentrations will be higher than if the influencing building was not present.

Further, the determination of GEP stack height in the wind tunnel also considers building downwash. In the determination, the stack height is increased in the wind tunnel until the ratio of concentrations with the building to concentrations without the building is ~1.4 (or 40 percent higher). Therefore, at 90 meters, emissions from stack S09 would be expected to result in 40 percent higher concentration than if no building was present.

However, the wind tunnel studies demonstrate that the corner vortex downwash effects are not present for all wind speed conditions. According to the *Draft Recommended Approach for SO2 Nonattainment Modeling: Expera Specialty Solutions, Rhinelander, WI* provided by the consulting firms AECOM and CPP, "The downwash effects do not exist at wind speeds below about 2 m/s, and increase to a maximum… at wind speeds above 8 m/s."

To accommodate for the variation with wind speed of the downwash, AECOM and CPP provided an equation to derive hourly ratios to apply to emission rates for each hour in the 2011-2015 KRHI meteorological data:

$$R = A \exp\left[-\frac{\left(\frac{1}{U_{airport}} - \frac{1}{U_{max}}\right)^2}{B^2}\right] + 1.0$$

Where $U_{airport}$ is the KRHI airport wind speed, U_{max} is assigned as the 1% wind speed of 10.8 m/s (exceeded less than 1% of the time), and A_{75} (0.826) and B (0.174) are best fit constants. To determine the value of A at 75 meters (A_{75}, above) the measurements from the wind tunnel assuming 85 m, 87.5 m, 90 m, and 95 m were used to create a polynomial equation. This polynomial was used to extrapolate values to a 75-meter stack height, and then used to scale the value of A_{85} (A at 85 meters) to A_{75}.

The R-equation above produces a multiplier that varies with wind speed. For each hour of the 2011-2015 KRHI data set, the emission rate was calculated by multiplying the factor times the emission limitation. The emission rate for stack S09 for each hour was captured in a text file used in the HOUREMIS keyword within AERMOD. For wind speeds in excess of 10.8 m/s, the R-equation results in a slight reduction in the factor. It is reasonable to assume the maximum value of R (1.826) persists for higher wind speeds, so the value of R was set to 1.826 for wind speeds above 10.8 m/s.

The adjustment to the AERMOD emission rate constitutes an alternative model under section 3.2 of the *Guideline* and requires approval from the USEPA Regional Office in consultation with the USEPA Model Clearinghouse. WDNR has requested alternate model approval from USEPA. The requirements for approval include a finding that the R-equation adjustment is a more appropriate model due to the lack of corner vortex treatment in the preferred version of AERMOD. According to the *Guideline* an alternative model may be approved if the results of a statistical analysis indicate that the alternative model performs better for a given application than the preferred model.

An analysis was completed that demonstrates the R-equation technique performs better than the preferred model and is not inappropriately biased for regulatory application. Stack S09 was raised in September 2016, so the monitored data from 2017-2019 was compared to modeled data. The 2018 reported emissions data from stack S09 was used along with the R-equation multipliers for the 90-meter stack and the regulatory meteorological data. The reported emission of 2,559,485 pounds of SO_2 over 209 days of operation resulted in an hourly rate of 510 lb/hr. The reported maximum emissions in 2018 were modeled using maximum load stack parameters.

The results from the analysis shown (in $\mu g/m^3$) demonstrate the R-equation adjustment has no bias toward lower modeled concentrations and improves model performance.

	Modeled Value	**Monitored Value**
Design Value 2017-19 Regulatory Preferred Model	83.6 (using five years of data)	94.2
Design Value 2017-19 Alternate R-Equation Model	96.0 (using five years of data)	94.2
1st High 2018 Alternate R-Equation Model	159.6 (using one year of data)	131.1
2nd High 2018 Alternate R-Equation Model	107.1 (using one year of data)	119.0

Receptor Grid

The receptor grid used in the analysis consisted of a series of nested rectangular grids with terrain derived from AERMAP using National Elevation Dataset information:

- 25 meter spacing out 500 meters from the facility sources
- 50 meter spacing to 1000 meters
- 100 meter spacing to 3 kilometers
- 250 meter spacing to 6 kilometers
- 500 meter spacing to 10 kilometers

Background Concentration

The closest WDNR-operated monitoring location is the Horicon (Dodge County) SO_2 monitor. Horicon is located 250 kilometers south of Rhinelander, is centrally located within Wisconsin, and measured values are representative of a large area of the state. In addition, the Horicon monitoring station uses SO_2 measuring equipment that is sensitive to low concentrations. The monthly-hour-of-day background values used in the analysis are from the 2013-2015 Horicon data and represent regional low values in the WDNR document, "Guidance on Air Quality Background Concentrations" available at the WDNR web site.

The modeling analysis includes all known point sources of SO_2 within 50 kilometers of Rhinelander, and the monitor location is similarly affected by distant SO_2 sources (in central, southern, and eastern Wisconsin). Nationally, the impact from locomotives and trucks has been minimized as the sulfur content in diesel fuel has been reduced to 0.015%, and the local impact of these vehicles is even smaller as the total population of Rhinelander is ~7,500 residents.

Modeling Results

The stack parameters and emission rates for the modeling analysis are provided. Stack S09M represents maximum load conditions of 260 MMBtu/hr; stack S09N represents minimum load of 213 MMBtu/hr.

AHLSTROM-MUNKSJO – RHINELANDER (Oneida County)
Emission Rates & Stack Parameters

ID	LOCATION (UTM83)	HEIGHT (M)	HEIGHT (ft)	DIAM (M)	VELOCITY (M/S)	TEMP (K)	SO_2 Rate (lbs/HR)
S09M	311349, 5056895	75.0	246.0	2.13	11.33	429.4	*
S09N	311349, 5056895	75.0	246.0	2.13	11.07	426.1	*
S08	311338, 5056922	35.66	117.0	1.68	20.08	439.0	15.23
Kerry Inc – Rhinelander Source							
S10B	307604, 5055176	17.67	58.0	1.041	17.73	322.0	3.23

PCA – Tomahawk Sources							
S14	285952, 5036176	46.60	153.0	1.37	4.64	470.4	140.3
S15	285952, 5036203	60.70	199.0	3.23	16.50	468.0	1166.0

The modeled hourly emission rate for stack S09 was calculated separately for each modeled hour using the R-equation and the wind speed. The assumed permit allowable SO_2 emission rate is 2.56 lbs/MMBtu, and this converts to 665.6 lbs/hr at maximum, 260 MMBtu/hr, and 545.3 lbs/hr assuming 213 MMBtu/hr.

The result from the final analysis shows concentrations below the NAAQS assuming either maximum or minimum load conditions from S09. Results are presented both in micrograms per cubic meter ($\mu g/m^3$) and in parts per billion (ppb), assuming a conversion factor (1 atm, 20° C) of 1 ppb = 2.616 ($\mu g/m^3$).

AHLSTROM-MUNKSJO – RHINELANDER (Oneida County) **Final Modeling Results & Culpability** (Concentrations in $\mu g/m^3$)		
	1-Hour SO_2 Sources plus S09M	1-Hour SO_2 Sources plus S09N
Total Impact (Modeled plus Background)	195.8	164.8
NAAQS	196	196
S09 Contribution to Total	185.9 (94.9%)	154.7 (93.9%)

AHLSTROM-MUNKSJO – RHINELANDER (Oneida County) **Final Modeling Results & Culpability** (Concentrations in ppb)		
	1-Hour SO_2 Sources plus S09M	1-Hour SO_2 Sources plus S09N
Total Impact (Modeled plus Background)	74.8	63.0
NAAQS	75.0	75.0
S09 Contribution to Total	71.1 (94.9%)	59.1 (93.9%)

TOTAL FACILITY EMISSIONS SUMMARY

The tables below summarize the emissions from the total facility after the revision is issued. This table is based on the potential to emit as specified in the preliminary determination for operation permit 744008100-P20, updated to reflect the new limitations being proposed under construction permit revision 15-DMM-128-R1.

Pollutant	**NR 445 or s. 112(b) HAP?**	**PTE (tons/yr)**
Particulate Matter	N/A	219
PM_{10}	N/A	89
$PM_{2.5}$	N/A	26.6
Sulfur Dioxide	N/A	2,770
Nitrogen Oxides	N/A	1,122
Volatile Organic Compounds	N/A	647
Carbon Monoxide	N/A	251
Lead	s. 112(b)	0.019
Acetaldehyde	NR 445; s. 112(b)	3.7

Pollutant	NR 445 or s. 112(b) HAP?	PTE (tons/yr)
Ammonia	NR 445	25.8
Arsenic	NR 445; s. 112(b)	0.003
Beryllium	NR 445; s. 112(b)	0.002
Cadmium	NR 445; s. 112(b)	0.004
Chloroform	NR 445; s. 112(b)	0.41
Chromium	NR 445; s. 112(b)	0.03
Formaldehyde	NR 445; s. 112(b)	8.1
n-Hexane	NR 445; s. 112(b)	2.4
Hydrogen chloride	NR 445; s. 112(b)	14.9
Hydrogen fluoride	NR 445; s. 112(b)	7.9
Manganese	NR 445; s. 112(b)	0.03
Methanol	s. 112(b)	4.0
Nickel	NR 445; s. 112(b)	0.005
Phenol	NR 445; s. 112(b)	1.3
Propionaldehyde	s. 112(b)	1.0
Sulfuric acid	NR 445	37.2
Toluene	NR 445; s. 112(b)	58.1
Xylenes	NR 445; s. 112(b)	11.2
Greenhouse Gases	N/A	596,535

SOURCE CLASSIFICATION

Existing Facility Status

The facility is located in an area designated as nonattainment for sulfur dioxide emissions and attainment/unclassifiable for all other pollutants.

The existing facility is a major, Part 70 source because potential emissions of PM_{10}, SO_2, NO_x, CO, and VOC are greater than 100 tons per year for each pollutant. In addition, the facility's potential emissions of hydrogen chloride, toluene and xylene are greater than 10 tons per year for each pollutant; and total emissions of Federal hazardous air pollutants (HAPs) are greater than 25 tons per year. Therefore, the facility is a major source of Federal HAP.

The facility is a major source under Prevention of Significant Deterioration because the facility belongs to one of the listed categories (fossil fuel boilers totaling more than 250 million BTU per hour heat input) and potential emissions of PM, PM_{10}, NO_x, CO and VOC exceed 100 tons per year.

The facility is a major source under Nonattainment Area (NAA) permitting because the facility is located in an SO_2 nonattainment area and potential emissions of SO_2 exceed 100 tons per year.

Facility Status After Issuance of Permit(s)

The facility status will not change as a result of this permit. However, the PM_{10} PTE will decrease to below the Part 70 major source threshold after permit issuance.

Source Status Summary

Facility Classification [a]						
	Existing Facility			After Permit Issuance		
Program [b]	**Major [c]**	**Synthetic Minor [d]**	**Minor**	**Major**	**Synthetic Minor**	**Minor**
PSD	X			X		
NAA NSR	X			X		
Part 70 [e]	X			X		
Federal HAPs	X			X		
EPA Class Code [f]	A			A		

[a] *A facility can only have one overall classification for each program. If a facility has potential emissions of a single pollutant which exceed the major source thresholds for Part 70, the facility is a Part 70 source. The same applies for the EPA class code and the source status for PSD. The exception is for CAA HAPs. A facility can be a Part 70 source for criteria pollutants and an area (i.e. minor) source of HAPs. If a facility is a major source of HAPs, it is a Part 70 source.*

[b] *As required by 40 CFR § 70.5(c)(3)i., emission estimates sufficient to verify which requirements are applicable to the source are included in this analysis. Based on the definitions in ss. NR 400.02(123m) and (124), Wis. Adm. Code, direct PM2.5 emissions cannot exceed PM10 emissions. Since PM10 and PM 2.5 have the same major source thresholds, emission estimates of PM10 are sufficient for determining Part 70 and PSD source status with respect to both PM2.5 and PM10.*

[c] *For PSD, major stationary source has the meaning given in s. NR 405.02(22), Wis. Adm. Code. For nonattainment areas (NAA), major stationary source has the meaning given in s. NR 408.02(21), Wis. Adm. Code. For Part 70, major source has the meaning given in s. NR 407.02(4), Wis. Adm. Code.*

[d] *A source classified as synthetic minor is a stationary source that has maximum theoretical emissions greater than the major source threshold and has its potential to emit limited by practicably enforceable permit conditions so that it is not a major source. There are two categories of synthetic minor sources for EPA Class Code, SM80 and SM.*

[e] *Part 70 source is defined in s. NR 407.02(6), Wis. Adm. Code. Note: When determining whether a stationary source is a major source for particulate matter, a stationary source is a Part 70 major source if it emits or has the potential to emit, 100 tpy or more of PM_{10} per s. NR 407.02(4)(b), Wis. Adm. Code.*

[f] *EPA Class Codes: "A" means the source's maximum theoretical emissions and potential to emit for one or more pollutants are greater than Part 70 major source thresholds. "SM80" means the source's maximum theoretical emissions of one or more pollutants are greater than Part 70 major source thresholds and potential to emit is at least 80% but less than 100% of Part 70 major source thresholds. "SM" means the source's maximum theoretical emissions of one or more pollutants are greater than Part 70 major source thresholds but potential to emit for all pollutants is less than 80% of Part 70 major source thresholds. "B" means the source's maximum theoretical emissions and potential to emit for all pollutants are less than major source thresholds.*

STATUS UNDER WISCONSIN ENVIRONMENTAL POLICY ACT (WEPA)

An air pollution control construction permit that does not require review under chs. NR 405 or 408, Wis. Adm. Code, is considered a minor action under s. NR 150.20(1m)(o), Wis. Adm. Code, and as such, is compliant with WEPA and does not require a determination prior to permit issuance.

Pollutant Specific EPA Class Code

Pollutant specific classifications are used for compliance purposes. A facility can only have one overall EPA class code. The facility's EPA class code is shown in the previous section.

	Pollutant Specific EPA Class Code After Permit Issuance			
Pollutant	A	SM80	SM	B
PM	X			
PM_{10}		X		
$PM_{2.5}$				X
SO_2	X			
NO_x	X			
CO	X			
VOC	X			
Pb				X
Individual CAA HAPs	X			
Total CAA HAPs	X			

EPA Class Codes:

A *means the source's maximum theoretical emissions and potential to emit for one or more pollutants are greater than Part 70 major source thresholds.*

SM80 *means the source's maximum theoretical emissions of one or more pollutants are greater than Part 70 major source thresholds and potential to emit is at least 80% but less than 100% of Part 70 major source thresholds.*

SM *means the source's maximum theoretical emissions of one or more pollutants are greater than Part 70 major source thresholds but potential to emit for all pollutants is less than 80% of Part 70 major source thresholds.*

B *means the source's maximum theoretical emissions and potential to emit for all pollutants are less than major source thresholds.*

CRITERIA FOR CONSTRUCTION PERMIT REVISION APPROVAL

According to s. NR 406.11(2), Wis. Adm. Code, any revised permit may be issued only if it meets the criteria in s. 285.63, Wis. Stats. Section 285.63(1), Wis. Stats., sets forth the specific requirements for permit approval. The Department finds that:

1. The source will meet emission limitations.
2. The source will not cause nor exacerbate a violation of an air quality standard or ambient air increment.
3. If the source is operating or seeks to operate under an emission reduction option, the required permit applications for other sources participating in that emission reduction option are approvable. Not Applicable.
4. The source will not preclude the construction or operation of another source for which an air pollution control permit application has been received.

FINDING OF APPROVABILITY AND DESCRIPTION OF NOTIFICATION TIMELINE FOR PERMIT NUMBER 15-DMM-128-R1

The Wisconsin Department of Natural Resources has reviewed the revision request and other materials submitted by Ahlstrom-Munskjo Rhinelander LLC for permit 15-DMM-128-R1 and hereby makes a finding that the revision of construction permit 15-DMM-128, as described herein, meets the criteria for permit approval in s. 285.63, Wis. Stats.. After providing 21 days written notice to the permit holder and to the persons listed under s. 285.61(5)(a)2. to 5., Wis. Stats., the department may revise construction permit 15-DMM-128 accordingly.

COMMONLY USED ACRONYMS AND ABBREVIATIONS:

acfm	Actual cubic feet per minute
AP-42	Compilation of Air Pollutant Emission Factors
BACT	Best Available Control Technology
BTU or btu	British Thermal Unit
ºC	Degrees Celsius
CAA	Federal Clean Air Act
CAMS	Compliance Assurance Monitoring System
CEM	Continuous Emission Monitoring
CFR	Code of Federal Regulations
CH_4	Methane
CI	Compression Ignition
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalents
COMS	Continuous Opacity Monitoring System
Department	Wisconsin Department of Natural Resources
dscf	Dry standard cubic foot
dscm	Dry standard cubic meter
EPA	United States Environmental Protection Agency
ESP	Electrostatic Precipitator
ºF	Degrees Fahrenheit
FESOP	Federal Enforceable State Operating Permit
FID	Facility Identification Number
FOP	Federal Operating Permit
ft	Feet
g	Grams
GACT	Generally Available Control Technology
GCP	General Construction Permit
GHG	Greenhouse Gas
GOP	General Operation Permit
gr	Grains
MTE	Maximum Theoretical Emissions
MW	Megawatts
n/a	Not Applicable
N_2O	Nitrous Oxide
NAA	Non-Attainment Area
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standard for Hazardous Air Pollutants
NMOC	Non-methane Organic Compounds
NO_2	Nitrogen Dioxide
NOx	Oxides of Nitrogen
NSCR	Non-Selective Catalytic Reduction
NSPS	New Source Performance Standards
NSR	New Source Review
Pb	Lead
PHAP	Hazardous Air Pollutant Emitted as a Particulate
PM	Particulate Matter
PM_{10}	Particulate Matter less than 10 microns in diameter
$PM_{2.5}$	Particulate Matter less than 2.5 microns in diameter
ppm	Parts per million
ppmdv	Parts per million dry volume
ppmv	Parts per million by volume
ppmw	Parts per million by weight
PSD	Prevention of Significant Deterioration
psia	Pounds per square inch absolute
psig	Pounds per square inch gauge
PTE	Potential to Emit
RACT	Reasonable Available Control Technology
RCP	Registration Construction Permit
RICE	Reciprocating Internal Combustion Engine
ROG	Reactive Organic Gases
ROP	Registration Operating Permit

COMMONLY USED ACRONYMS AND ABBREVIATIONS:

GWP	Global Warming Potential	s.	Section
HAP	Hazardous Air Pollutant	scf	Standard cubic feet
Hg	Mercury	sec	Seconds
hr	Hour	SCR	Selective Catalytic Reduction
hp	Horsepower	SDS	Safety Data Sheet
H_2S	Hydrogen Sulfide	SI	Spark Ignition
HVLP	High Volume Low Pressure	SNCR	Selective Non-Catalytic Reduction
Kg	Kilogram	SO_2	Sulfur Dioxide
kW	Kilowatt	SOP	State Operating Permit
LACT	Latest Available Control Techniques	Temp	Temperature
LAER	Lowest Achievable Emission Rate	THC	Total Hydrocarbons
lb	Pound	TPY	Tons per year
m	Meter	µg	Microgram
MACT	Maximum Achievable Control Technology	VE	Visible Emissions
MPAP	Malfunction, Prevention, and Abatement Plan	VHAP	Hazardous Pollutant Emitted as a Vapor
mg	Milligram	VOC	Volatile Organic Compounds
mm	Millimeter	Wis. Adm. Code	Wisconsin Administrative Code
MM	Million	Wis. Stats.	Wisconsin Statutes
MMBtu/hr	Million British Thermal Units Per Hour	yr	Year
MSDS	Material Safety Data Sheet	MTE	Maximum Theoretical Emissions

PERMIT FEE CALCULATION

BASIC FEES.	
Revision of a valid construction permit [$1,500; s. NR 410.03(1)(ae), Wis. Adm. Code]	$1,500.00
TOTAL BASIC FEES	$1,500.00
ADDITIONAL FEES.	$0.00
TOTAL ADDITIONAL FEES	$0.00
TOTAL FEES (Total Basic Fees + Total Additional Fees)	$1,500.00
CREDITS.	
Payment - Fee for revision of a valid construction permit. [$1,500]	-$1,500.00

Appendix C

Draft
Air Pollution Control Construction Permit
Revision No. 15-DMM-128-R1

DRAFT AIR POLLUTION CONTROL CONSTRUCTION PERMIT REVISION

EI FACILITY NO: 744008100 CONSTRUCTION PERMIT NO.: 15-DMM-128-R1

TYPE: Revision of Construction Permit: 15-DMM-128

In compliance with the provisions of Chapter 285, Wis. Stats., and Chapters NR 400 to NR 499, Wis. Adm. Code,

Name of Source:	Ahlstrom-Munskjo Rhinelander LLC
Street Address:	515 W Davenport Street, Rhinelander, Oneida County, Wisconsin
Responsible Official, & Title:	Joseph Fierst, Plant Manager

is authorized to revise construction permit 15-DMM-128 in conformity with the plans and specifications dated January 13, 21 and 25, 2021 and the conditions herein. The authorization to construct, reconstruct, replace and/or modify any process covered by this construction permit revision expires upon issuance. The conditions established by a construction permit are permanent unless revised through a revision of the construction permit condition, revision of a construction permit, or through the issuance of a new construction permit. [s. 285.66(1), Wis. Stats.] The permit conditions revised by air pollution control construction permit revision 15-DMM-128-R1 are identified by the citation of 15-DMM-128-R1 in square brackets [] at the end of the permit condition.

Conditions of the permit marked with an asterisk (*) have been created outside of Wisconsin's federally approved State Implementation Plan (SIP) and are not federally enforceable.

This authorization requires compliance by the permit holder with the emission limitations, monitoring requirements and other terms and conditions set forth in all Parts hereof.

Dated at Eau Claire, Wisconsin DRAFT

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES
For the Secretary

By DRAFT
Susan Lindem, Air Management Program Supervisor

NOTICE:

******Attention to All Individuals Reviewing the Draft Permit******

The portions of the attached Draft Permit that are shaded in gray identify those conditions that are being changed as a result of this construction permit revision. The portions of the Draft Permit that are not shaded are terms and conditions in construction permit 15-DMM-128.

The portions of the Draft Permit that are not shaded in gray underwent prior Department review and were available for public comment at that time.

Part I
Source Specific Permit Conditions

A. Boiler B26, Stack S09, Control Device C06 (Plant #7) – 300 MMBtu/hour Cyclone Boiler Burning Bituminous Coal and Bituminous/Subbituminous Coal Blends with ESP collector, sorbent (hydrated lime; sodium bicarbonate; or Trona) injection for acid gases and activated carbon injection; Constructed 1958, modified under permit 15-DMM-128.		
1. Pollutant: Particulate Matter		
a. Limitations	**b.** Compliance Demonstration	**c.** Reference Test Methods, Recordkeeping and Monitoring Requirements
(1) Emissions of particulate matter may not exceed 0.10 pounds of particulate matter per million Btu heat input. [s. NR 415.06(2)(c), Wis. Adm. Code; 15-DMM-128]	(1) The permittee may burn only coal and fuel oil in this boiler. [s. 285.65(3), Wis. Stats.; 15-DMM-128] (2) The permittee shall perform compliance emission testing of particulate matter emissions from this boiler while firing coal to demonstrate compliance with the particulate matter emission limit in condition A.1.a.(1): (a) Testing shall be conducted every 24 months. (b) Each biennial test of particulate matter emissions shall be performed within 90 days of the anniversary date of the issuance of this permit or within 90 days of an alternate date specified by the department in writing. (c) The permittee may request and the department may approve a waiver from the required biennial testing provided the results of the most recently completed biennial test demonstrate that the particulate matter emissions are 50 percent or less of the applicable limitation in condition A.1.a.(1). The testing shall be conducted in accordance with the conditions in ZZZ.1.a.(1). (d) The first two emissions tests required under condition A.1.b.(2)(a) of this permit subsequent to issuance of permit no. 15-DMM-128 may not be waived.[1] [ss. NR 439.07, NR 439.075(2)(a)2., NR 439.075(3), and NR 439.075(4)(a)1.b., Wis. Adm. Code, s. 285.65(3), Wis. Stats.; 15-DMM-128] (3) The permittee shall use an electrostatic precipitator (ESP) to control emissions at all times the process is in operation. [s. 285.65(3), Wis. Stats.; 15-DMM-128] (4) The permittee shall monitor the following operational parameters for the electrostatic precipitator (ESP): (a) The primary voltage in volts; (b) The secondary voltage in volts; (c) The primary current in amps; (d) The secondary current in amps; and (e) The sparking rate in sparks per minute.	(1) Reference Test Method for Particulate Matter Emissions: Whenever particulate matter emission testing is required, the permittee shall use US EPA Method 5 for filterable and US EPA Method 202 for condensible backhalf, or another method approved by the department in writing. [s. NR 439.06(1), Wis. Adm. Code; 15-DMM-128] (2) The permittee shall retain a copy of the results for each compliance emission test conducted pursuant to condition A.1.b.(2). [s. NR 439.04(1)(a), Wis. Adm. Code; 15-DMM-128] (3) The permittee shall monitor and record the following ESP operating parameters once for every eight (8) hours of source operation or once per day whichever yields the greater number of measurements: (a) Primary voltage; (b) Secondary voltage (c) Primary current; (d) Secondary current; and (e) Spark rate. [s. NR 439.055(2)(b), Wis. Adm. Code; 15-DMM-128] (4) The permittee shall keep records of: (a) The date and initials of the person performing the inspections required by Condition A.1.b.(5); (b) A list of the items inspected;

[1] This non-waiver requirement is to ensure that emission data is collected during the 5 year period after issuance of permit no. 15-DMM-128. This will ensure that the emission increase from the project is verified using at least two data sets.

A. Boiler B26, Stack S09, Control Device C06 (Plant #7) – 300 MMBtu/hour Cyclone Boiler Burning Bituminous Coal and Bituminous/Subbituminous Coal Blends with ESP collector, sorbent (hydrated lime; sodium bicarbonate; or Trona) injection for acid gases and activated carbon injection; Constructed 1958, modified under permit 15-DMM-128.		
1. Pollutant: Particulate Matter		
a. Limitations	**b.** Compliance Demonstration	**c.** Reference Test Methods, Recordkeeping and Monitoring Requirements
	[s. NR 439.055(1)(c), Wis. Adm. Code, s. 285.65(3), Wis. Stats.; 15-DMM-128] (5) The permittee shall perform periodic internal inspections of the ESP to ensure that the control equipment is operating properly. The inspections shall be performed annually within 90 days of the anniversary date of first inspection or within 90 days of an alternate date specified by the department in writing. These inspections shall include, but not be limited to inspections and maintenance/ repair (as necessary) of: (a) High voltage probes for alignment and tightness; (b) Electrode plates, power grid, tubes, tube sheets, and other critical areas for corrosion; (c) Baffles, plenums and plates for dust buildup; (d) Insulators for cracks and signs of arcing; and (e) Evaluation of the rapper settings and rapping frequency and intensity to optimize the collection efficiency of the ESP. [s. 285.65(3), Wis. Stats.; 15-DMM-128]	(c) Any maintenance or repairs performed as a result of these inspections; and (d) Adjustments made to the rapping frequency and intensity of the ESP. [s. NR 439.04(1)(d), Wis. Adm. Code; 15-DMM-128] (5) The permittee shall maintain monthly records of the types of fuels fired in this boiler. [s. NR 439.04(1)(d), Wis. Adm. Code; 15-DMM-128]

A. Boiler B26, Stack S09, Control Device C06 (Plant #7) – 300 MMBtu/hour Cyclone Boiler Burning Bituminous Coal and Bituminous/Subbituminous Coal Blends with ESP collector, sorbent (hydrated lime; sodium bicarbonate; or Trona) injection for acid gases and activated carbon injection; Constructed 1958, modified under permit 15-DMM-128.		
2. Pollutant: Visible Emissions		
a. Limitations	**b.** Compliance Demonstration	**c.** Reference Test Methods, Recordkeeping and Monitoring Requirements
(1) Emissions may not exceed number 1 of the Ringelmann chart or 20% opacity, with the following exceptions: (a) For the 12-month period following issuance of construction permit 15-DMM-128, emissions may exceed 20% opacity, but may not exceed 40% opacity. The permittee may request and the department may grant a one-time extension of up to 6 additional months to this 12-month exception period. (b) When combustion equipment is being cleaned or a new fire started, emissions may not exceed number 4 of the Ringelmann chart or 80% opacity for more than 6 minutes in any one hour. Combustion equipment may not be cleaned nor a fire started more than three times per day. (c) For stated periods of time, as permitted by the department, for such purposes as an operating test, use of emergency equipment, or other good cause, provided no hazard or unsafe condition arises. [ss. NR 431.05, NR 431.05(1) and (2), Wis. Adm. Code; 15-DMM-128]	(1) The compliance demonstrations for particulate matter in Conditions A.1.b.(1), (3), (4) and (5) shall serve as compliance demonstrations for visible emissions. [s. 285.65(3), Wis. Stats.; 15-DMM-128] (2) The permittee shall calibrate, maintain, and operate a continuous opacity monitoring system (COMS) in accordance with the provisions and requirements of Performance Specification 1 in 40 CFR part 60, Appendix B. [ss. NR 439.09(1) and NR 439.095(5)(a)1., Wis. Adm. Code, s. 285.65(3), Wis. Stats.; 15-DMM-128] (3) During the exception period identified in Condition A.2.a.(1)(a), the permittee shall conduct the following evaluations to identify and resolve issues that may be resulting in opacity above 20%: (a) Evaluate possible quantitative or qualitative procedures to screen out problem coal; (b) Evaluate possible additives to reduce the likelihood of plugging; and (c) Evaluate with its suppliers the viability of storing coal in a manner protected from precipitation. [s, 285.65(3), Wis. Stats.; 15-DMM-128] (4) To request an extension to the 12-month opacity exception period identified in Condition A.2.a.(1)(a), the permittee shall submit the following information to the department in writing: (a) The duration of the extension period that the permittee is requesting; (b) Reason(s) why an extension is needed; and	(1) Reference Test Method for Visible Emissions: Whenever visible emissions compliance testing is required, the permittee shall use US EPA Method 9 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04, Wis. Adm. Code. [s. NR 439.06(9)(a)1., Wis. Adm. Code; 15-DMM-128] (2) The monitoring and recordkeeping requirements for particulate matter in Conditions A.1.c.(3) through (5) shall serve as the monitoring and recordkeeping requirements for visible emissions. [ss. NR 439.04(1)(d) and NR 439.055(2)(b),, Wis. Adm. Code; 15-DMM-128] (3) The COMS required by condition A.2.b.(2) shall complete one cycle of sampling and analyzing for each successive 10-second period and one cycle of data recording for each successive 6-minute period. [ss. NR 439.09(9)(a) and NR 439.04(1)(d), Wis. Adm. Code, and s. 285.65(3), Wis. Stats.; 15-DMM-128] (4) The permittee shall submit quarterly excess emission reports to the department within 30 days of the end of each calendar quarter. Unless otherwise specified by the department, periods of excess visible emissions shall be any 6-minute period during which the average opacity exceeds the applicable emission limitation in condition A.2.a.(1). If there were no excess emissions during the calendar quarter, the permittee shall submit a quarterly report stating that no excess emissions occurred during the quarterly reporting period. [s. NR 439.09(10), Wis. Adm. Code; 15-DMM-128] (5) The permittee shall submit quarterly excess emission reports to the department within 30 days following the end of each calendar quarter. The permittee shall submit either a full excess emission report under (a) or a summary excess emission report under (b): (a) Full excess emission reports shall contain the following information: i. The date and starting and ending times or duration of each period of excess emissions and the magnitude of the emissions. ii. The periods of excess emissions that occur during startups, shutdowns, sootblowing, control equipment malfunction, process malfunction, fuel problems, other known causes or for unknown causes. The report shall identify the cause of any malfunction and the measures taken to reduce excess emissions.

A. Boiler B26, Stack S09, Control Device C06 (Plant #7) – 300 MMBtu/hour Cyclone Boiler Burning Bituminous Coal and Bituminous/Subbituminous Coal Blends with ESP collector, sorbent (hydrated lime; sodium bicarbonate; or Trona) injection for acid gases and activated carbon injection; Constructed 1958, modified under permit 15-DMM-128.		
2. Pollutant: Visible Emissions		
a. Limitations	**b.** Compliance Demonstration	**c.** Reference Test Methods, Recordkeeping and Monitoring Requirements
	(b) What actions the permittee will take during the extension period. [s. 285.65(3), Wis. Stats.; 15-DMM-128] (5) At least 60 days prior to the end of the exception period identified in Condition A.2.a.(1)(a), the permittee shall submit a report to the department which includes the findings of the evaluations required in Condition A.2.b.(3). [s. NR 439.03(1)(a), Wis. Adm. Code, and s. 285.65(3), Wis. Stats.; 15-DMM-128]	iii. The date and starting and ending time of any period during which the monitoring system was inoperative for any reason or causes, including monitor malfunction or calibration, except for zero and span checks. The report shall identify the repairs or adjustments made to the system. iv. The date and starting and ending time of any period during which the process being monitored was inoperative. v. When no period of excess emissions occurred during the quarter and the monitoring system had no period of downtime, an excess emissions report shall be filed stating such information. (b) Summary excess emission report shall be submitted on a form provided by the department or in a format approved by the department. [s. NR 439.09(10)(a), Wis. Adm. Code; 15-DMM-128]

A. Boiler B26, Stack S09, Control Device C06 (Plant #7) – 300 MMBtu/hour Cyclone Boiler Burning Bituminous Coal and Bituminous/Subbituminous Coal Blends with ESP collector, sorbent (hydrated lime; sodium bicarbonate; or Trona) injection for acid gases and activated carbon injection; Constructed 1958, modified under permit 15-DMM-128.		
3. Pollutant: Sulfur Dioxide (SO_2)		
a. Limitations	**b.** Compliance Demonstration	**c.** Reference Test Methods, Recordkeeping and Monitoring Requirements
(1) Stack Parameters – The height of Stack S09 shall be a minimum of 246 feet above ground level and the flue gas shall be discharged vertically and without obstruction. [ss. 285.63(1)(b) and 285.65(3), Wis. Stats.; 15-DMM-128-R1] (2) Emission Rate Limit - The operator shall not allow SO_2 emissions to exceed 2.38 pounds per million Btu (MMBtu) heat input on a 24-hour average basis.[2] Compliance with this emission limit shall be determined according to Condition A.3.b.(1). [s. NR 417.07(4), Wis. Adm. Code, ss. 285.63(1)(b) and 285.65(3), Wis. Stats.; 15-DMM-128-R1] (3) Boiler Utilization Limit - The operator shall not allow the heat input rate to boiler B26 to exceed 260 MMBtu	(1) Continuous Emissions Monitoring (CEM) Emission Rate Limitation Compliance Demonstration. The operator shall demonstrate compliance with the SO_2 emission rate in Condition A.3.a.(2) by monitoring SO_2 emissions with a continuous emissions monitoring (CEM) system according to the following methods and procedures. (a) The operator shall install, certify, and operate a CEM system which continuously measures the concentration of SO_2 and O_2 in the exhaust gas and calculates and records the hourly average SO_2 emission rate in pounds per MMBtu heat input for each hour boiler B26 is operating. The CEM shall at a minimum include SO_2 and diluent (oxygen (O_2)) continuous emissions analyzers, a data recording system and, as applicable, a moisture analyzer. (b) The SO_2 and O_2 CEMs shall be calibrated, maintained, and operated according to the applicable methods and procedures of s. NR 439.09, Wis. Adm. Code, and 40 CFR 60.13, and the applicable performance, quality assurance, and data management and calculation procedures of Performance Specification 2 of 40 CFR Part 60, Appendix B for the SO_2 CEM and Performance Specification 3 of 40 CFR Part 60, Appendix B for the O_2 CEM and the quality assurance procedures in 40 CFR Part 60, Appendix F for the CEM systems. (c) The operator shall follow a department-approved CEM quality assurance/quality control plan in accordance with s. NR 439.095(6), Wis. Adm. Code. (d) The SO_2 emission rate in pounds per MMBtu heat input for each hour shall be determined using the F-factor method according to procedures in Method 19 of 40 CFR Part 60, Appendix A.	(1) Emissions Monitoring Plan. (a) The operator shall submit an updated emissions monitoring plan to the department for written approval within 60 days after issuance of permit 15-DMM-128-R1. The plan shall provide all information required under conditions A.3.b.(1) to (3). (b) The operator shall comply with the approved monitoring plan unless alternative monitoring requirements are approved under Condition A.3.c.(8). [s. 285.65(3), Wis. Stats., s. NR 439.03(1)(a), Wis. Adm. Code; 15-DMM-128-R1] (2) Solid Fuel Collection and Analysis Methods. All solid fuel sampling and analyses shall be performed according to the methods specified below: (a) The grab sampling of each as-fired solid fossil fuel sample shall be performed according to ASTM D2234-89, Collection of a Gross Sample of Coal or other method that results in data at least as reliable as classification I-B-1, defined in ASTM D2234-04 as automatic sampling --- full stream cut – systemic spacing. (b) The individual grab solid fossil fuel samples shall be prepared and composited according to ASTM D2013-86, Preparing Coal Samples for Analysis. (c) When required, the solid fossil fuel sample shall be analyzed for sulfur content according to ASTM D3177-89, Total Sulfur in the Analysis of Sample of Coal and Coke, or ASTM D4239-85, Sulfur in the Analysis Sample of Coal and Coke using High Temperature Tube Furnace Combustion Methods.

[2] The emission limitation for complying on a 24-hour basis was determined by multiplying the 1-hour modeled emission rate of 2.56 by a factor of 0.93. This factor reflects the national average, among coal-fired boilers without advanced SO_2 controls, determined according to EPA guidance, for applying to a candidate 1-hour limit to determine a presumptively comparably stringent 24-hour limit. The U.S. EPA presented this factor in Appendix D of the Memorandum "Guidance for 1-Hour SO2 Nonattainment Area SIP Submissions" from Stephen D. Page, Director to Regional Air Division Directors, Regions 1 – 10, April 23, 2014. In absence of adequate data for determining a site-specific adjustment factor, the department believes that this adjustment factor is the best estimate of the appropriate degree of adjustment for determining a 24-hour average limit at this facility.

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3. Pollutant: Sulfur Dioxide (SO_2)

a. Limitations	**b.** Compliance Demonstration	**c.** Reference Test Methods, Recordkeeping and Monitoring Requirements
heat input per hour. Compliance with this emission utilization limit shall be determined according to Condition A.3.b.(3). [s. NR 417.07(4), Wis. Adm. Code, ss. 285.63(1)(b) and 285.65(3), Wis. Stats.; 15-DMM-128-R1] (4) The sulfur content of the fuel oil fired in the boiler may not exceed 0.05% by weight. [s. 285.65(7), Wis. Stats.; 15-DMM-128]	(e) To demonstrate compliance with the 24-hour average emission limitation in A.3.a.(2): i. The permittee shall calculate the daily average SO_2 emission rate, in pounds per million Btu, for each operating day by summing the hourly SO_2 pounds per million Btu emission rates for each boiler operating hour as calculated in A.3.b.(1)(d) for each calendar day and dividing by the number of hours the boiler operated during the calendar day. ii. The daily average SO_2 emission rate shall be determined on the basis of valid readings representing a minimum of 18 hours. If an operating day has less than 18 hours of valid readings, compliance shall be determined on the basis of a pooled data set consisting of data for the applicable calendar day and all data from the most recent preceding operating day with at least 18 hours of valid readings. Notwithstanding the use of the data from a preceding operating day in determining compliance for the initial day, a separate compliance determination shall be made for each operating day. (f) If the SO_2 and/or O_2 CEM system is not operating for a continuous period of 48 hours of boiler operation, the facility operator shall comply with the requirements in Condition A.3.b.(2). The operator shall notify the department of a CEM outage lasting longer than 48 hours and shall return the CEM system to operation as expeditiously as practical. (g) The operator shall submit an emissions monitoring plan to the department for written approval which incorporates and meets the requirements of condition A.3.b.(1) and (2), and shall follow the plan. [s. 285.65(3), Wis. Stats., ss. NR 439.06(2), NR 439.09(2) and (3), and NR 439.096(5), Wis. Adm. Code; 15-DMM-128-R1] (2) Emission Rate Limitation Alternative Compliance Demonstration if CEM System is Not Operational. If the SO_2 and/or O_2 CEM is not operating for a continuous period of 48 hours of boiler operation, the permittee shall: (a) Fire only the same type of coal or mixture of coal that was being fired in boiler B26 immediately prior to the CEM becoming inoperable until the CEM becomes operational; and (b) Operate the sorbent injection system as necessary to comply with the hydrogen chloride (HCl) limit in condition A.4.a.(2) as demonstrated through the use of a HCl CEMs operated in accordance with 40 CFR 63, Subpart DDDDD. [s. 285.65(3), Wis. Stats.; 15-DMM-128-R1]	(d) The solid fossil fuel sample shall be analyzed for heat content according to ASTM D2015-85, Gross Calorific Value of Solid Fuel by the Adiabatic Bomb Calorimeter. (e) Alternative methods may be used if approved, in writing, by the department. [s. NR 439.08, Wis. Adm. Code; 15-DMM-128-R1] (3) Sampling and Analysis of Liquid Fossil Fuel: (a) *Liquid fossil fuel sampling:* Liquid fossil fuel sampling shall be performed according to ASTM D4057-95, Standard Practice for Manual Sampling of Petroleum and Petroleum Products, or ASTM D4177-95, Standard Practice for Automatic Sampling of Petroleum and Petroleum Products, incorporated by reference in s. NR 484.10(51) and (52), Wis. Adm. Code. (b) *Sulfur content in liquid fossil fuel:* The sulfur content of a liquid fossil fuel sample shall be determined according to ASTM D129-00, Standard Test Method for Sulfur in Petroleum Products (General Bomb Method), ASTM D1552-03, Standard Test Method for Sulfur in Petroleum Products (High-Temperature Method), or ASTM D4294-03, Standard Test Method for Sulfur in Petroleum Products by Energy-Dispersive X-ray Fluorescence Spectroscopy, incorporated by reference in s. NR 484.10 (3), (25) and (54), Wis. Adm. Code. (c) *Heat content in liquid fossil fuel:* The heat content of a liquid fossil fuel sample shall be determined according to ASTM D240-02, Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by a Bomb Calorimeter, incorporated by reference in s. NR 484.10(4), Wis. Adm. Code. (d) Alternative methods may be used if approved, in writing, by the department. [ss. NR 439.08 and NR 439.08(2), Wis. Adm. Code; 15-DMM-128-R1] (4) Recordkeeping. The operator shall maintain the following records on site for a period of five years: (a) The compliance reports as required under condition A.3.c.(5).

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3. Pollutant: Sulfur Dioxide (SO_2)		
a. Limitations	**b.** Compliance Demonstration	**c.** Reference Test Methods, Recordkeeping and Monitoring Requirements
	(3) Boiler Utilization Compliance Demonstration. The operator shall demonstrate compliance with the Boiler B26 utilization limit in Condition A.3.a.(3) according to the following methods and procedures. (a) The operator shall operate and maintain a steam load monitoring and data recorder system capable of determining the hourly steam load generated by boiler B26. i. The operator shall utilize two redundant steam flow monitors that provide an average value for determining steam load. ii. In the event that one steam flow monitor is not operational, the steam flow measured by the operational monitor shall be utilized to determine steam load until the non-operational monitor is returned to service and the operator shall return the non-operational monitor to operation as expeditiously as practical. (b) The operator shall continuously monitor and record the hourly steam load generated by Boiler B26 in thousand pounds of steam per hour (Klbs per hour). The steam load for each operating hour shall be converted to an hourly boiler utilization rate in MMBtu heat input per hour according to the following equation: Equation 1: $BU = HSL \times BE$ Where: *BU* is the Boiler Utilization, in MMBtu/hr; *HSL* is the Hourly Steam Load, in Klbs/hr; and *BE* is the Boiler Efficiency, in MMBtu/Klbs. (c) The boiler efficiency factor applied in Equation 1 shall be determined for each calendar year compliance period. This boiler efficiency factor shall be updated for each subsequent calendar year compliance period that spans January 1st to December 31st. (d) The boiler efficiency factor for each calendar year compliance period shall be determined using the total heat input and steam load for the twelve month period ending on September 30th of the year preceding the applicable compliance period. The operator may use an alternative period of heat input	(b) The steam load for each hour of operation, in Klbs/hr; (c) The heat input rate for each hour of operation, in MMBtu/hr, as calculated in A.3.b.(3)(b); (d) The calculated boiler efficiency for each calendar year compliance period, including the monthly and annual heat input to the boiler and annual steam load, and any other supporting information used in determining the boiler efficiency. (d) The results of all fuel heat content analyses. (e) The monthly usage of each fuel fired in the boiler. (f) During periods when complying with CEM monitoring according to condition A.3.b.(1), each daily average SO_2 emission rate in pounds per MMBtu. (g) During periods when complying with the alternate emission rate compliance demonstration in Condition A.3.b.(2), records of the source and identity of the coal consumed in boiler B26 immediately prior to the CEM becoming inoperable and the source and identity of coal consumed in boiler B26 during the period when the CEM was not operational. These records may include daily operating logs and bills of lading, coal specifications, or equivalent documents which indicate the coal supplier and the supplier's characterization of the coal. These records shall be sufficient to determine the sulfur content, or maximum sulfur content, of the fuel consumed. (h) Records of any additional analysis or performance testing required by the department for purposes of determining compliance with the requirements of this section A.3. [s. NR 439.04(1)(d), Wis. Adm. Code; 15-DMM-128-R1] (5) Reporting. The operator shall submit to the department a quarterly report no later than 60 days after the end of each calendar quarter. The report shall provide the following: (a) The date and the maximum monitored SO_2 ambient air concentration value for days during which the Rhinelander Tower monitor registered an ambient air quality concentration equal of 75 ppb or greater on an hourly basis. (b) The SO_2 emission rate in pounds per MMBtu and maximum boiler utilization in MMBtu per hour determined during days

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3. Pollutant: Sulfur Dioxide (SO_2)		
a. Limitations	**b.** Compliance Demonstration	**c.** Reference Test Methods, Recordkeeping and Monitoring Requirements
	and steam load data with written approval by the department. The request for an alternative period must be due to changes in boiler operation or fuel which have affected the boiler efficiency. The boiler efficiency is calculated as follows: Equation 2: $BE = AHI \div ASL$ Where: *BE* is the Boiler Efficiency, in MMBtu/Klbs, for a calendar year compliance period; *AHI* is the total heat input for the twelve month period ending on September 30th of the year preceding the applicable calendar year compliance period, in MMBtu/yr; and *ASL* is the total steam load for the twelve month period ending on September 30th of the year preceding the applicable calendar year compliance period, in Klbs/yr. (e) The operator shall determine total annual heat input by summing the heat input determined on a monthly basis. The heat input for each month is determined by applying the monthly fuel heat content of each fuel to the monthly fuel consumption using the following equation: Equation 3: $MHI = \sum_{i=1}^{n} MFC \times MFHC$ Where: *MHI* is the Monthly Heat Input, in MMBtu/month; *MFC* is the Monthly Fuel Consumption of an individual fuel, in tons/month; *MFHC* is the Monthly Fuel Heat Content of an individual fuel, in MMBtu/ton; *i* is an individual fuel type used in boiler B26 in a given month; and	when the Rhinelander Tower monitor registers an SO_2 ambient air concentration of 75 ppb or greater on an hourly basis. (c) Any daily average SO_2 emission rate value, in pounds per MMBtu, or boiler utilization value, in MMBtu per hour, determined for compliance purposes under this section A.3. which exceeds the emission rate limit or boiler utilization limit, respectively. (d) The identification of any periods when fuel samples could not be obtained or the applicable monitoring systems were not operating and the reasons why. (e) The period of use and value of alternative data used in determining compliance when fuel samples could not be obtained or the required monitoring systems were not operating. [s. NR 439.03(1)(a), Wis. Adm. Code; 15-DMM-128-R1] (6) The permittee shall keep and maintain fuel supplier certifications for each shipment of fuel oil that include the following information: (a) The date received; (b) The name of the fuel oil supplier; and (c) The sulfur content or maximum sulfur content of the fuel oil, in percent by weight. [s. NR 439.04(1)(d),Wis. Adm. Code; 15-DMM-128] (7) <u>CEM Emission Reports.</u> The permittee shall submit quarterly excess emission reports to the department within 30 days following the end of each calendar quarter. (a) The excess emission report shall contain the following information: i. The date and starting and ending times or duration of each period of excess emissions and the magnitude of the emissions. ii. The periods of excess emissions that occur during startups, shutdowns, sootblowing, control equipment malfunction, process malfunction, fuel problems, other known causes or for unknown causes. The report shall identify the cause of

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3. Pollutant: Sulfur Dioxide (SO_2)		
a. Limitations	**b.** Compliance Demonstration	**c.** Reference Test Methods, Recordkeeping and Monitoring Requirements
	n is the number of fuel types used in boiler B26 in a given month. i. The monthly fuel heat content for solid fossil fuels shall be determined by obtaining one fuel sample each week which is composited into a monthly fuel sample and analyzed for heat content. All solid fuel sampling shall be conducted in accordance with applicable methods and procedures under condition A.3.c.(2). ii. If solid non-fossil fuels are fired, the operator shall determine fuel heat content according to a sampling plan approved in writing by the department. iii. The heat content for fuel oil shall be determined by obtaining one fuel sample during each calendar year that is analyzed for heat content using the method specified in condition A.3.c.(3). The heat content to be used shall be the result from the most recent analysis. (f) The operator shall determine the annual total steam load in thousand pounds by summing the measured hourly average steam load over the applicable twelve month period. (g) The operator shall prepare and follow a department approved emissions monitoring plan which includes the requirements of conditions A.3.b.(3)(a) through (f). The plan shall describe the steam load monitoring and data recording system, identify any steam loss points between the boiler and steam load monitor and any additional monitoring needed at these points to determine boiler efficiency, a method for determining periods of time when the steam monitoring and recording system are unavailable, provide a method for substituting data for determining compliance in the event that the steam monitoring system is not available, and establish the fuel sampling and consumption monitoring plan used in determining total heat input. (h) The department may require the operator to update the boiler efficiency value at any time based on information indicating a change may have occurred in actual boiler operating efficiency. The update may require use of heat input and steam load data from a time period other than that required under Condition A.3.b.(3)(d). The department may also require additional analysis of fuel samples in determining fuel heat input as necessary to characterize the representative boiler efficiency. [s. 285.65(3), Wis. Stats.; 15-DMM-128-R1]	any malfunction and the measures taken to reduce excess emissions. iii. The date and starting and ending time of any period during which the monitoring system was inoperative for any reason or causes, including monitor malfunction or calibration, except for zero and span checks. The report shall identify the repairs or adjustments made to the system. iv. The date and starting and ending time of any period during which the process being monitored was inoperative. v. When no period of excess emissions occurred during the quarter and the monitoring system had no period of downtime, an excess emissions report shall be filed stating such information. (b) For purposes of the excess emission reports, periods of excess emissions shall be reported as any calendar day during which the average sulfur dioxide emissions as determined in I.A.3.b.(1)(e) exceed the limitation in A.3.a.(2). [ss. NR 439.09(10), (10)(a), and (10)(b)2., Wis. Adm. Code; 15-DMM-128-R1] (8) Alternative Monitoring, Compliance Determination, Recordkeeping, or Reporting. The operator may use alternative methods and procedures to any monitoring, compliance demonstration, recordkeeping, or reporting requirement in Conditions A.3.b.(1), (2), or (3), or A.3.c.(4) or (5) with written approval from the department and U.S. EPA. [s. 285.65(3), Wis. Stats.; 15-DMM-128-R1] (9) The permittee shall keep and maintain on-site technical drawings, blueprints or equivalent records of the physical stack parameters for stack S09. [s. NR 439.04(1)(d), Wis. Adm. Code; 15-DMM-128-R1]

A. Boiler B26, Stack S09, Control Device C06 (Plant #7) – 300 MMBtu/hour Cyclone Boiler Burning Bituminous Coal and Bituminous/Subbituminous Coal Blends with ESP collector, sorbent (hydrated lime; sodium bicarbonate; or Trona) injection for acid gases and activated carbon injection; Constructed 1958, modified under permit 15-DMM-128.		
4. Pollutant: Hazardous Air Pollutants Regulated by the Clean Air Act: National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters (40 CFR part 63, subpart DDDDD)[3]		
a. Limitations	**b.** Compliance Demonstration	**c.** Reference Test Methods, Recordkeeping and Monitoring Requirements
(1)(a) The permittee shall comply with the applicable emission limitations, operating limits and work practice standards in 40 CFR Part 63, Subpart DDDDD no later than January 31, 2017.[4] (b) Any initial performance tests and other activities are also extended by this approval and shall be completed within 180 days after the extended compliance date. [40 CFR ss. 63.6(i)(4)(i)(A), 63.6(i)(10)(iv), 63.6(i)(14), 63.7495(b) and 63.7510(e); s. 285.65(13), Wis. Stats.; ss. NR 460.05(7)(c)1.a., NR 460.05(7)(h)4., NR 460.05(7)(L) and NR 460.06(1)(b), Wis. Adm. Code] (2) The permittee shall comply with ONE of the following, except during startup and shutdown: (a) HCl emissions may not exceed 0.022 lb per MMBtu of heat input; OR (b) HCl emissions may not exceed 0.025 lb per MMBtu of steam output; OR (c) HCl emissions may not exceed 0.27 lb per megawatt-hour (MWh). [s. 285.65(13), Wis. Stats.; Table 2 to 40 CFR Part 63, Subpart DDDDD; 40 CFR s. 63.7500(a)(1) and 63.7522] (3) The permittee shall comply with ONE of the following, except during startup and shutdown: (a) Mercury emissions may not exceed 5.7×10^{-6} lb per MMBtu of heat input; OR (b) Mercury emissions may not exceed 6.4×10^{-6} lb per MMBtu of steam output; OR (c) Mercury emissions may not exceed 7.3×10^{-5} lb per MWh. [s. 285.65(13), Wis. Stats.; Table 2 to 40 CFR Part 63, Subpart DDDDD; 40 CFR s. 63.7500(a)(1)] (4) The permittee shall comply with ONE of the following, except during startup and shutdown: (a) Filterable PM emissions may not exceed 0.04 lb per MMBtu of heat input; OR	(1) See compliance demonstration requirements in Table AAA. of the most recently issued operation permit. [s. 285.65(13), Wis. Stats.; 40 CFR Part 63, Subpart DDDDD]	(1) See testing, reporting, recordkeeping and monitoring requirements in Table AAA. of the most recently issued operation permit. [s. 285.65(13), Wis. Stats.; 40 CFR Part 63, Subpart DDDDD]

[3] On July 29, 2016, the United States Court of Appeals for the District of Columbia Circuit remanded portions of 40 CFR Part 63 subpart DDDDD to US EPA. United States Sugar Corp. v. EPA, No. 11-1108, at 156. The standards in subpart DDDDD applicable to this source may be changed by EPA in order to comply with that decision.

[4] The Department approved the permittee's request to extend the compliance date under 40 CFR part 63, subpart DDDDDD for boilers B26 and B28 in a letter, dated July 24, 2014.

A. Boiler B26, Stack S09, Control Device C06 (Plant #7) – 300 MMBtu/hour Cyclone Boiler Burning Bituminous Coal and Bituminous/Subbituminous Coal Blends with ESP collector, sorbent (hydrated lime; sodium bicarbonate; or Trona) injection for acid gases and activated carbon injection; Constructed 1958, modified under permit 15-DMM-128.		
4. Pollutant: Hazardous Air Pollutants Regulated by the Clean Air Act: National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters (40 CFR part 63, subpart DDDDD)[3]		
a. Limitations	**b.** Compliance Demonstration	**c.** Reference Test Methods, Recordkeeping and Monitoring Requirements
(b) Total Selected Metals (TSM) emissions may not exceed 0.000053 lb per MMBtu of heat input; OR (c) Filterable PM emissions may not exceed 0.042 lb per MMBtu of steam output; OR (d) Filterable PM emissions may not exceed 0.49 lb per MWh; OR (e) TSM emissions may not exceed 0.000056 lb per MMBtu of steam output; OR (f) TSM emissions may not exceed 0.00065 lb per MWh. (g) Total selected metals (TSM) means the sum of the following metallic hazardous air pollutants: arsenic, beryllium, cadmium, chromium, lead, manganese, nickel and selenium. [s. 285.65(13), Wis. Stats.; Table 2 to 40 CFR Part 63, Subpart DDDDD; 40 CFR s. 63.7500(a)(1) and 63.7575] (5) The permittee shall comply with ONE of the following, except during startup and shutdown: (a) Carbon monoxide emissions may not exceed 130 parts per million by volume on a dry basis (ppmdv) at 3% O_2, based on a three-run average; OR (b) If a CO CEMS is used, carbon monoxide emissions may not exceed 320 ppmdv at 3% O_2, based on a 30-day rolling average; OR (c) Carbon monoxide emissions may not exceed 0.11 lb per MMBtu of steam output, based on a three-run average; OR (d) Carbon monoxide emissions may not exceed 1.4 lb per MWh, based on a three-run average. [s. 285.65(13), Wis. Stats.; Table 2 to 40 CFR Part 63, Subpart DDDDD; 40 CFR s. 63.7500(a)(1)] (6) Startup means: (a) Either the first-ever firing of fuel in a boiler or process heater for the purpose of supplying useful thermal energy for heating and/or producing electricity, or for any other purpose, or the firing of fuel in a boiler after a shutdown event for any purpose. Startup ends when any of the useful thermal energy from the boiler or process heater is supplied for heating, and/or producing electricity, or for any other purpose, or (b) The period in which operation of a boiler or process heater is initiated for any purpose. Startup begins with either the first-ever firing of fuel in a boiler or process heater for the purpose of supplying useful thermal energy (such as steam		

A. Boiler B26, Stack S09, Control Device C06 (Plant #7) – 300 MMBtu/hour Cyclone Boiler Burning Bituminous Coal and Bituminous/Subbituminous Coal Blends with ESP collector, sorbent (hydrated lime; sodium bicarbonate; or Trona) injection for acid gases and activated carbon injection; Constructed 1958, modified under permit 15-DMM-128.		
4. Pollutant: Hazardous Air Pollutants Regulated by the Clean Air Act: National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters (40 CFR part 63, subpart DDDDD)[3]		
a. Limitations	**b.** Compliance Demonstration	**c.** Reference Test Methods, Recordkeeping and Monitoring Requirements
or heat) for heating, cooling or process purposes or producing electricity, or the firing of fuel in a boiler or process heater for any purpose after a shutdown event. Startup ends four hours after when the boiler or process heater supplies useful thermal energy (such as heat or steam) for heating, cooling, or process purposes, or generates electricity, whichever is earlier. [s. 285.65(13), Wis. Stats.; 40 CFR s. 63.7575] (7) Shutdown means the period in which cessation of operation of a boiler or process heater is initiated for any purpose. Shutdown begins when the boiler or process heater no longer supplies useful thermal energy (such as heat or steam) for heating, cooling, or process purposes and/or generates electricity or when no fuel is being fed to the boiler or process heater, whichever is earlier. Shutdown ends when the boiler or process heater no longer supplies useful thermal energy (such as steam or heat) for heating, cooling, or process purposes and or generates electricity, and no fuel is being combusted in the boiler or process heater. [s. 285.65(13), Wis. Stats.; 40 CFR s. 63.7575]		

O. Process P100, Stack S100, Control Device C100 – Sorbent storage silo		
1. Pollutant: Particulate matter and PM_{10}		
a. Limitations	**b.** Compliance Demonstration	**c.** Reference Test Methods, Recordkeeping and Monitoring Requirements
(1) Emissions of particulate matter and PM_{10} may not exceed 0.09 pounds per hour. [s. 285.65(3), Wis. Stats.; 15-DMM-128] (2) Particulate matter emissions may not exceed the more restrictive of: (a) 0.20 pounds per 1,000 pounds of exhaust gas; and (b) The value of E in the equation $E = 3.59 \times P^{0.62}$, where E = allowable particulate matter emission rate, in pounds per hour and P = Process weight as defined in s. NR 415.02(5), Wis. Adm. Code. [ss. NR 415.05(1)(m) and (2), Wis. Adm. Code; 15-DMM-128]	(1) The air outlet from the storage silo shall be equipped with a bin vent filter that has a guaranteed emission rate of no greater than 0.005 grains per actual cubic foot. [s. 285.65(3), Wis. Stats.; 15-DMM-128] (2) The permittee shall inspect the bin vent filter at least once per year, or as recommended by the manufacturer's operation and maintenance manual, whichever is more frequent. [s. 285.65(3), Wis. Stats.; 15-DMM-128]	(1) Reference Test Method for Particulate Matter Emissions: Whenever particulate matter emission testing is required, the permittee shall use US EPA Method 5 for filterable and US EPA Method 202 for condensible backhalf, or another method approved by the department in writing. [s. NR 439.06(1), Wis. Adm. Code] (2) Reference Test Method for PM_{10} Emissions: Whenever PM_{10} emission testing is required, the permittee shall use US EPA Method 201 or 201A for filterable and US EPA Method 202 for condensible backhalf, or another method approved by the department in writing. [ss. NR 439.06(1) and (1m), Wis. Adm. Code] (3) The permittee shall maintain a copy of the specifications for the bin vent filter that indicates the guaranteed particulate matter emission rate for the filter is 0.005 grains per actual cubic foot or less. [s. NR 439.04(1)(d), Wis. Adm. Code; 15-DMM-128] (4) The permittee shall maintain records of inspections, maintenance and repairs of the bin vent filter including the date and description of the actions taken. [s. NR 439.04(1)(d), Wis. Adm. Code; 15-DMM-128]

O. Process P100, Stack S100, Control Device C100 – Sorbent storage silo		
2. Pollutant: Visible Emissions		
a. Limitations	**b.** Compliance Demonstration	**c.** Reference Test Methods, Recordkeeping and Monitoring Requirements
(1) Emissions may not exceed number 1 of the Ringelmann chart or 20% opacity. [s. NR 431.05, Wis. Adm. Code; 15-DMM-128]	(1) The air outlet from the storage silo shall be equipped with a bin vent filter that has a guaranteed emission rate of no greater than 0.005 grains per actual cubic foot. [s. 285.65(3), Wis. Stats.; 15-DMM-128] (2) The permittee shall inspect the bin vent filter at least once per year, or as recommended by the manufacturer's operation and maintenance manual, whichever is more frequent. [s. 285.65(3), Wis. Stats.; 15-DMM-128]	(1) Reference Test Method for Visible Emissions: Whenever visible emissions compliance testing is required, the permittee shall use US EPA Method 9 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04, Wis. Adm. Code. [s. NR 439.06(9)(a)1., Wis. Adm. Code] (2) The permittee shall maintain a copy of the specifications for the bin vent filter that indicates the guaranteed particulate matter emission rate for the filter is 0.005 grains per actual cubic foot or less. [s. NR 439.04(1)(d), Wis. Adm. Code; 15-DMM-128] (3) The permittee shall maintain records of inspections, maintenance and repairs of the bin vent filter including the date and description of the actions taken. [s. NR 439.04(1)(d), Wis. Adm. Code; 15-DMM-128]

Z. General Conditions Applicable to Construction Permit 15-DMM-128	
1. Construction Permit Transitional Language	
a. Limitations/Condition	**b.** Compliance Demonstration
(1) Modified Emission Unit B26. The permittee shall operate under the conditions in I.B. of the most recently issued operation permit until the unit is modified and operational. Once modified and operational, B26 shall comply with the revised conditions in Section I.B. of construction permit 15-DMM-128. The date of transition shall be the same date the modified unit becomes operational. [s. 285.65(1) Wis. Stats.; 15-DMM-128] (2) New Emission Unit(s) P100. Once constructed and initially operating, process P100 shall operate under the conditions in Section I.A. of construction permit 15-DMM-128. [s. 285.65(1) Wis. Stats.; 15-DMM-128]	(1) Compliance Reports/Records. The permittee shall submit periodic monitoring reports and certification of compliance as required by I.ZZZ.3.a.(1) and (2) for any modified and new emission unit for the period when that unit becomes operational. Note that compliance monitoring and reporting requirements and limitations of any unmodified units remain in effect. [ss. NR 407.09(1)(c)3. and NR 407.09(4)(a)3., Wis. Adm. Code, 15-DMM-128] (2) Completion of Operation Permit Application. The permittee shall update the permit application if any changes occur which are not specified or described in the plans and specifications approved under construction permit 15-DMM-128. [s. NR 407.05(9), Wis. Adm. Code; 15-DMM-128] (3) Submittal of Compliance Testing Information and other updates. The permittee shall submit to the department any updates of the permit application. Updates are required if any changes that occur which are not specified or described in the plans and specifications dated April 29, 2016 and May 9, 2016. The updates shall be made within 60 days of the date of the change. Other information to be submitted shall include the notification requirements and stack tests results and the update of the facility's Malfunction prevention and Abatement Plan. The continued operation of the modified and new emission units addressed in this construction permit are prohibited once the authorization to construct expires per Condition I.Z.4.a.(2), unless any required updates have been submitted and the permittee has satisfied the notification requirements of Condition I.Z.4.b.(1)[5]. [s. NR 439.04(1)(d), Wis. Adm. Code; 15-DMM-128] (4) Submittal Format. All submittals described in this permit shall be made in writing and include the name of the facility, the facility's address, the construction permit number and a description of the affected emission unit(s). [s. NR 439.04(1)(d), Wis. Adm. Code; 15-DMM-128]

Z. General Conditions Applicable to Construction Permit 15-DMM-128	
2. Updated Malfunction Prevention and Abatement Plan	
a. Limitations	**b.** Compliance Demonstration
(1) Malfunction Prevention and Abatement Plan. The permittee shall update the facility's Malfunction Prevention and Abatement Plan to include the operation and maintenance of the new control equipment associated with the modified emission unit B26 and the new emission unit P100. [s. NR 439.11, Wis. Adm. Code; 15-DMM-128]	(1) Malfunction Prevention and Abatement Plan. The owner or operator shall update the facility's Malfunction Prevention and Abatement Plan to include the modified emission unit B26 and the new emission unit P100 within 60 days of the date each unit becomes operational. [s. NR 439.11(1), Wis. Adm. Code; 15-DMM-128]

[5] To maintain the operation permit shield.

Z. General Conditions Applicable to Construction Permit 15-DMM-128	
3. Initial Stack Testing Requirements	
a. Limitations	**b.** Compliance Demonstration
(1) Emission Stack Testing. The permittee shall conduct a compliance emission stack test of modified emission unit B26 for particulate matter emissions (filterable and condensible) no later than July 30, 2017. This testing may be done in conjunction with the initial compliance testing required under 40 CFR 63, Subpart DDDDD. (a) The permittee shall monitor and record the following parameters during the compliance emission test: i. The operating parameters of the electrostatic precipitator at least once every 15 minutes, including the primary and secondary voltage, in volts, the primary and secondary current, in amps, and the sparking rate, in sparks per minute; and ii. The type of sorbent used and the sorbent and activated carbon injection rates, in pounds per hour. (b) If compliance emission test(s) cannot be conducted within the time frames specified, the permit holder may request and the department may approve, in writing, an extension of time to conduct the test(s). (c) All testing shall be performed with the emissions unit operating at capacity or as close to capacity as practicable and in accordance with approved procedures. If operation at capacity is not feasible, the source shall operate at a capacity level which is approved by the department in writing. The test shall also be conducted while operating the sorbent injection and carbon injection systems operating at the highest reasonable injection rates that the systems are expected to be used at in the future. (d) The department shall be informed at least 20 working days prior to any stack testing so a department representative can witness the testing. At the time of notification, a compliance emission test plan shall also be submitted to the department for approval. When approved in writing, an equivalent test method may be substituted for the reference test method. The notification and test plan shall be submitted to the Wisconsin Department of Natural Resources, Northeast Region Air Program, Green Bay Service Center, 2984 Shawano Avenue, Green Bay, WI 54313-6727 or an alternative address provided by the department. Alternatively, the department accepts and encourages electronic submittals of test plans, uploaded through the permittee's Web Access Management System (WAMS) ID. For more details refer to the "Stack Testing Electronic Submittal Guidebook" on the DNR website. [s. NR 439.07, Wis. Adm. Code; 15-DMM-128]	(1) Emission Stack Testing. Upon completion of any required compliance emission tests of the modified emission unit B26, the permittee shall submit two copies of the report on the tests for evaluation within 60 days of the date the tests were completed. The emission test report shall be submitted to the Wisconsin Department of Natural Resources, Northeast Region Air Program, Green Bay Service Center, 2984 Shawano Avenue, Green Bay, WI 54313-6727, or an alternative address provided by the department. Alternatively, the department accepts and encourages electronic submittals of test plans, uploaded through the permittee's Web Access Management System (WAMS) ID. For more details refer to the "Stack Testing Electronic Submittal Guidebook" on the DNR website. [s. NR 439.04(1)(d), Wis. Adm. Code; 15-DMM-128]

Z. General Conditions Applicable to Construction Permit 15-DMM-128	
4. Construction Permit Notification and Authorization	
a. Limitations	**b.** Compliance Demonstration
(1) Notifications. The permittee shall inform the department of the following dates: (a) The date construction commences on any new or modified emission units addressed in Permit 15-DMM-128. (b) The date the modified emission unit B26 becomes operational. (c) The date new emission unit P100 becomes operational. For purposes of this permit, "operational" shall be defined as the first time of any process related air contaminant is emitted into the ambient air.	(1) Notifications. The permittee shall submit to the Wisconsin Department of Natural Resources, Northeast Region Air Program, Green Bay Service Center, 2984 Shawano Avenue, Green Bay, WI 54313-6727 or an alternative address provided by the department, in writing, within 15 days of the date the event, the following: (a) The date construction commences on the new or modified emission unit(s) addressed in Permit 15-DMM-128;

Z. General Conditions Applicable to Construction Permit 15-DMM-128	
4. Construction Permit Notification and Authorization	
a. Limitations	**b.** Compliance Demonstration
[s. NR 439.03(1), Wis. Adm. Code; 15-DMM-128] (2) Construction Authorization Expiration. The Authorization to Construct, under Construction Permit 15-DMM-128 expires 18 months after the date of issuance. Construction or modification and an initial operation period for equipment shakedown, testing and department evaluation of operation to assure conformity with the permit conditions is authorized for each emissions unit covered in this permit. Please note that the sources covered by this permit are required to meet all emission limits and conditions contained in the permit at all times, including during the initial operation period. If 18 months is an insufficient time period for construction or modification, equipment shakedown, testing and department evaluation of operation, the permit holder may request and the department may approve in writing an extension of this permit. The conditions of the construction permit are permanent, unless revised, superseded or revoked. [ss. 285.60(1)(a)2. and 285.66(1), Wis. Stats.; s. NR 406.12, Wis. Adm. Code; 15-DMM-128] (3) Operation Permit Authorization. The emission units authorized in 15-DMM-128 may only operate under the operation permit if both of the following are met: (a) The emission units are constructed in accordance with the application as approved by the department; and (b) The construction and/or modification of the emission units is completed prior to expiration of the authority provided by the construction permit 15-DMM-128 to construct, modify, replace and/or reconstruct these emission units. [ss. NR 406.10, and 406.12, Wis. Adm. Code, and s. 285.65, Wis. Stats.; 15-DMM-128]	(b) The date the modified emission unit B26becomes operational; and (c) The date new emission unit P100 becomes operational. [s. NR 439.04(1)(d), Wis. Adm. Code; 15-DMM-128]

Z. General Conditions Applicable to Construction Permit 15-DMM-128	
5. Source Obligation	
a. Conditions	**b.** Compliance Demonstration
(1) The permittee shall monitor the emissions of any regulated NSR contaminant that could increase as a result of the project covered under construction permit 15-DMM-128 and calculate and maintain a record of the annual emissions, in tons per year on a calendar year basis, for a period of 5 years following resumption of regular operations after the change. [s. NR 405.16(3)(d), Wis. Adm. Code; 15-DMM-128]	(1) The permittee shall submit a report to the department if the annual emissions of any regulated NSR contaminant, in tons per year, from the project covered under construction permit 15-DMM-128, exceed the baseline actual emissions by a significant amount, as defined in s. NR 405.02(27), Wis. Adm. Code, for that regulated NSR air contaminant, and if the emissions differ from the preconstruction projection that was provided to the department. The report shall be submitted to the department within 60 days after the end of the year. The report shall contain all of the following: (a) The name, address and telephone number of the major stationary source. (b) The annual emissions as calculated. (c) Any other information that the owner or operator wishes to include in the report, e.g., an explanation as to why the emissions differ from the preconstruction projection. [ss. NR 405.16(3)(f) and NR 408.10(5)(f), Wis. Adm. Code; 15-DMM-128] (2) The owner or operator of the source shall make the information required to be documented and maintained pursuant to I.Z.5.a.(1) available for inspection, upon request by the department or the general public. [s. NR 405.16(4), Wis. Adm. Code; 15-DMM-128]

YYY. Construction Permit 15-DMM-128-R1 Requirements	
Condition Type	a. Requirements
1. Effective Date for Conditions in permit 15-DMM-128-R1	(1) The permittee shall comply with the conditions of permit 15-DMM-128-R1 beginning no later than December 31, 2021. [ss. 285.65(1) and (3), Wis. Stats., 15-DMM-128-R1]

ZZZ. Conditions Applicable to the Entire Facility
1. Compliance Testing
a. Conditions
(1) Whenever stack testing is required: (a) All testing shall be performed while the emissions unit is operating at 100% capacity. If operation at 100% capacity is not feasible, the source shall operate at a capacity level that is approved by the department in writing. (b) The department shall be informed at least 20 working days prior to any stack testing so a department representative can witness the testing. At the time of notification an emission test plan shall also be submitted to the department for approval. When approved by the department, another USEPA approved Method may be substituted for the recommended test method. (c) Two copies of the report on the tests shall be submitted to the department for evaluation within 60 days following the tests. [ss. NR 439.07(1), (2) and (9), Wis. Adm. Code]

ZZZ. Conditions Applicable to the Entire Facility	
2. Malfunction Prevention and Abatement Plan	
a. Limitations/Conditions	**b.** Compliance Demonstration
(1) A malfunction prevention and abatement plan shall be prepared and followed for the plant. [s. NR 439.11, Wis. Adm. Code] (2) All air pollution control equipment shall be operated and maintained in conformance with good engineering practices (i.e. operated and maintained according to manufacturer's specifications and directions) to minimize the possibility for the exceedance of any emission limitations. [s. NR 439.11(4), Wis. Adm. Code]	(1) The malfunction prevention and abatement plan shall be developed to prevent, detect and correct malfunctions or equipment failures which may cause any applicable emissions limitation to be violated or which may cause air pollution. [s. NR 439.11(1), Wis. Adm. Code] (2) This malfunction prevention and abatement plan shall include installation, maintenance and routine calibration procedures for the process monitoring and control equipment instrumentation. This plan shall require an instrumentation calibration at the frequency specified by the manufacturer, yearly or at a frequency based on good engineering practice as established by operational history, whichever is more frequent. Inspection and calibration shall also be conducted whenever instrumentation anomalies are noted. [ss. NR 407.09(1)(c)1.c., NR 439.055(4) and NR 439.11, Wis. Adm. Code] (3) The malfunction prevention and abatement plan shall require a copy of the operation and maintenance manual for the control equipment to be maintained on site. The plan shall contain all of the elements in s. NR 439.11(1)(a) - (h), Wis. Adm. Code. [s. NR 439.11, Wis. Adm. Code]

ZZZ. Conditions Applicable to the Entire Facility	
3. Compliance Reports/Records	
a. Limitations/Conditions	**b.** Compliance Demonstration
(1) Except as provided under I.Z.1.b.(1), the permittee shall submit periodic monitoring reports. [s. NR 407.09(1)(c)3., Wis. Adm. Code] (2) Except as provided under I.Z.1.b.(1), the permittee shall submit periodic certification of compliance. [s. NR 407.09(4)(a)3., Wis. Adm. Code]	(1) The permittee shall submit a monitoring report which contains the results of monitoring or a summary of monitoring results required by this permit to the Wisconsin Department of Natural Resources, Northeast Region Air Program, Green Bay Service Center, 2984 Shawano Avenue, Green Bay, WI 54313-6727, or an alternative address provided by the department. (a) The time periods to be addressed by the report are the period from January 1 to June 30 and the period from July 1 to December 31. (b) The report shall be submitted to the department by September 1 for the January 1 to June 30 report and by March 1 for the June 30 to December 31 report. (c) All deviations from and violations of applicable requirements shall be clearly identified in the report.

ZZZ. Conditions Applicable to the Entire Facility	
3. Compliance Reports/Records	
a. Limitations/Conditions	**b.** Compliance Demonstration
(3) The records required under this permit shall be retained for at least five (5) years and shall be made available to department personnel upon request during normal business hours. [ss. NR 439.04 and NR 439.05, Wis. Adm. Code]	(d) Each submittal shall be certified by a responsible official as to the truth, accuracy and completeness of the report. (e) The content of the submittal is described in item D. of Part II of the operation permit and section NR 439.03(1)(b) Wisconsin Administrative Code. [ss. NR 407.09(1)(c)3. and NR 439.03(1)(b), Wis. Adm. Code] (2) The permittee shall submit an annual certification of compliance with the requirements of this permit to the Wisconsin Department of Natural Resources, Northeast Region Air Program, Green Bay Service Center, 2984 Shawano Avenue, Green Bay, WI 54313-6727, or an alternative address provided by the department. (a) The time period to be addressed by the report is January 1 to December 31 of the preceding year. (b) The report shall be submitted to the Wisconsin Department of Natural by March 1 after the reporting period (c) The information included in the report shall comply with the requirements of Part II, Section N of this permit. (d) Each report shall be certified by a responsible official as to the truth, accuracy and completeness of the report. [ss. NR 407.09(4)(a)3. and NR 439.03(1)(c), Wis. Adm. Code]

ZZZ. Conditions Applicable to the Entire Facility
4. Fugitive Dust Control Plan
a. Limitations/Conditions
(1) The permittee shall maintain and follow a fugitive dust control plan for all potential sources of fugitive dust emissions. A copy of the plan shall be kept at the facility. [ss. NR 415.03, and NR 407.09(4)(a)3.b., Wis. Adm. Code] (2) Upon request, the permittee shall submit the plan to the Wisconsin Department of Natural Resources, Northeast Region Headquarters, 2984 Shawano Avenue, Green Bay, WI 54313-6727, or an alternative address provided by the department, for review within 15 days of the request to address any unanticipated fugitive emissions. The department may approve, conditionally approve, conditionally deny, deny or amend the plan. [s. NR 415.03, Wis. Adm. Code, s. 285.65(3), Wis. Stats.]

PART II
General Permit Conditions
For Direct Stationary Sources

A. Scope.

This permit is valid only for the structure, building, facility, equipment or operation specifically identified herein. All emissions authorized hereby shall be in compliance with the terms and conditions of all Parts of this permit. [s. 285.60(7), Wis. Stats.]

B. Emissions Prohibited.

Unless the Department has approved an exception under s. NR 436.03(2), Wis. Adm. Code, no person may cause, allow, or permit emissions of any air contaminant into the ambient air in excess of the limits set in chs. NR 400 to 499, Wis. Adm. Code. [s. NR 436.03(1), Wis. Adm. Code]

C. General Emission Limits.

C.1. Applicable to Insignificant Emissions Units.

The following general emission limitations may apply to one or more of the insignificant emission units identified in the preamble of the operation permit. It is the permittee's responsibility to comply with these requirements, if they do apply. Insignificant emission units typically are associated with inconsequential environmental impacts and present little potential for violations of these generally applicable requirements. If there were no observed, documented or known instances of noncompliance, certification of compliance is appropriate. Testing or monitoring to assure compliance is not required by the operation permit.

C.1.a. Section NR 415.05, Wis. Adm. Code - Particulate matter emission limits for processes;

C.1.b. Section NR 415.06, Wis. Adm. Code - Particulate matter emission limits for fuel burning installations;

C.1.c. Section NR 415.07, Wis. Adm. Code - Particulate matter emission limits for incinerators;

C.1.d. Section NR 423.03, Wis. Adm. Code - Solvent metal cleaning;

C.1.e. Section NR 485.05, Wis. Adm. Code - Visible emission limits for motor vehicles, internal combustion engines and mobile sources; and

C.1.f. Section NR 485.055, Wis. Adm. Code - Particulate emission limit for gasoline and diesel internal combustion engines.

C.2. Applicable to Significant and Insignificant Emissions Units.

The following general emission limitations may apply to both significant and insignificant emission units. It is the permittee's responsibility to comply with these requirements, if they apply. Testing or monitoring to assure compliance with these general emission limits is not required by the operation permit.

For each significant emission unit, if a more specific emission limit is included in the permit for any of the pollutants listed below, then compliance with that more specific limit will constitute compliance with the general emission limit.

For insignificant emission units, if there were no observed, documented or known instances of non-compliance, certification of compliance is appropriate.

C.2.a. No person may cause, allow, or permit particulate matter to be emitted into the ambient air which substantially contributes to exceeding of an air standard, or creates air pollution. [s. NR 415.03, Wis. Adm. Code]

C.2.b. No person may cause, allow, or permit any materials to be handled, transported, or stored without taking precautions to prevent particulate matter from becoming airborne. Nor may a person allow a structure, a parking lot, or a road to be used, constructed, altered, repaired, sand blasted or demolished without taking such precautions. Such precautions shall include, but not be limited to the following [s. NR 415.04, Wis. Adm. Code]:

C.2.b.(1) Use, where possible, of water or chemicals for control of dust in the demolition of existing buildings or structures, or construction operations. [s. NR 415.04(1)(a), Wis. Adm. Code]

C.2.b.(2) Application of asphalt, oil, water, suitable chemicals, or plastic covering on dirt roads, material stockpiles, and other surfaces which can create airborne dust, provided such application does not create a hydrocarbon, odor, or water pollution problem. [s. NR 415.04(1)(b), Wis. Adm. Code]

C.2.b.(3) Installation and use of hoods, fans and air cleaning devices to enclose and vent the areas where dusty materials are handled. [s. NR 415.04(1)(c), Wis. Adm. Code]

C.2.b.(4) Covering or securing of materials likely to become airborne while being moved on public roads, railroads, or navigable waters. [s. NR 415.04(1)(d), Wis. Adm. Code]

C.2.b.(5) Conduct of agricultural practices such as tilling of land or application of fertilizers in such manner as not to create air pollution. [s. NR 415.04(1)(e), Wis. Adm. Code]

C.2.b.(6) The paving or maintenance of roadway areas so as not to create air pollution. [s. NR 415.04(1)(f), Wis. Adm. Code]

C.2.c. No person may cause, allow or permit emission of sulfur or sulfur compounds into the ambient air which substantially contribute to the exceeding of an air standard or cause air pollution. [s. NR 417.03, Wis. Adm. Code]

C.2.d. No person may cause, allow or permit organic compound emissions into the ambient air which substantially contribute to the exceeding of an air standard or cause air pollution. No person may cause, allow or permit organic compounds to be used or handled without using good operating practices and taking reasonable precautions to prevent the spillage, escape or emission of organic compounds, solvents or mixtures. [s. NR 419.03, Wis. Adm. Code]

C.2.e. No person may cause, allow or permit the disposal of more than 5.7 liters (1.5 gallons) of any liquid Volatile Organic Compound (VOC) waste, or of any liquid, semisolid or solid waste materials containing more than 5.7 liters (1.5 gallons) of any VOC, in any one day from a facility in a manner that would permit their evaporation into the ambient air during the ozone season. This includes, but is not limited to, the disposal of VOC which must be removed from VOC control devices so as to maintain the control devices at their required operating efficiency. Disposal during the ozone season shall be by methods approved by the Department, such as incineration, recovery for reuse, or transfer in closed containers to an acceptable disposal facility, such that the quantity of VOC which evaporates into the ambient air does

not exceed 15% (by weight) or 5.7 liters (1.5 gallons) in any one day, whichever is larger. [s. NR 419.04, Wis. Adm. Code]

C.2.f. No person may cause, allow or permit emissions of carbon monoxide to the ambient air which substantially contribute to the exceeding of an air standard or cause air pollution. [s. NR 426.03, Wis. Adm. Code].

C.2.g. No person may cause, allow or permit emissions into the ambient air of lead or lead compounds which substantially contribute to the exceeding of an air standard or air increment, or which create air pollution. [s. NR 427.025, Wis. Adm. Code]

C.2.h. No person may cause, allow, or permit nitrogen oxides or nitrogen compounds to be emitted to the ambient air which substantially contribute to the exceeding of an air standard or cause air pollution. [s. NR 428.03, Wis. Adm. Code]

C.2.i. No person may cause, allow or permit emission into the ambient air of any substance or combination of substances in such quantities that an objectionable odor is determined to result unless preventive measures satisfactory to the Department are taken to abate or control such emission. [s. NR 429.03(1), Wis. Adm. Code *]

C.2.j. Open burning is prohibited except as provided in s. NR 429.04, Wis. Adm. Code. [s. NR 429.04, Wis. Adm. Code *]

C.2.k. [Note: Under the Wisconsin Recycling Law (Wisconsin Act 335), small businesses, commercial enterprises, and industries may not use burn barrels or engage in other kinds of open burning and may not be granted burning permits by municipalities. However, the prohibition on burn barrels does not apply to small businesses in which the owners reside at the same location and cannot separate their business waste from their household waste.]

C.2.l. No person may cause, allow or permit emissions into the ambient air from any direct or portable source in excess of one of the visible emission limits specified in ch. NR 431, Wis. Adm. Code. Where the presence of uncombined water is the only reason for failure to meet the requirements of ch. NR 431, Wis. Adm. Code, such failure is not a violation of the chapter. [s. NR 431.03, Wis. Adm. Code]

C.2.m. When the Department requires instrumentation to monitor the operation of air pollution control equipment, or to monitor source performance, the instrument shall measure operational variables with the following minimum accuracy: [ss. NR 439.055(3), Wis. Adm. Code]

C.2.n. The temperature monitoring device shall have an accuracy of 0.5% of the temperature being measured in degrees Fahrenheit or ±5ºF of the temperature being measured, or the equivalent in degrees Celsius (centigrade), whichever is greater. [s. NR 439.055(3)(a), Wis. Adm. Code]

C.2.o. The pressure drop monitoring device shall be accurate to within 5% of the pressure drop being measured or within ±1 inch of water column, whichever is greater. [s. NR 439.055(3)(b), Wis. Adm. Code]

C.2.p. The current, voltage, flow or pH monitoring device shall be accurate to within 5% of the specific variable being measured.

C.2.q. At a minimum, all instruments used for measuring source or air pollution control equipment operational variables shall be calibrated yearly or at a frequency based on good engineering practice as established by operational history, whichever is more frequent. [ss. NR 439.055(4), Wis. Adm. Code]

C.2.r. No person may cause, allow, or permit emissions into the ambient air of any hazardous substance in such quantity, concentration, or duration as to be injurious to human health, plant or animal life unless the purpose of that emission is for the control of plant or animal life. Hazardous substances include, but are not limited to, hazardous air contaminants listed in Tables A to C of s. NR 445.07, Wis. Adm. Code. [s. NR 445.03, Wis. Adm. Code *]

C.2.s. Chapter NR 447, Wis. Adm. Code, applies to all air contaminant sources which may emit asbestos, to their owners and operators and to any person whose action causes the emission of asbestos to the ambient air, including demolition and renovation activities. Chapter NR 447, Wis. Adm. Code, establishes emission limitations for asbestos air contaminant sources, establishes procedures to be followed when working with asbestos materials and contains additional reporting and record keeping requirements for owners or operators of asbestos air contaminant sources in order to protect air quality. [ch. NR 447, Wis. Adm. Code]

C.2.t. Owners and operators of a stationary source that manufactures, uses, stores, or otherwise handles more than a threshold quantity of a listed regulated substance, as determined under 40 CFR 68.115, must implement the Accidental Release Prevention Requirements of 40 CFR Part 68, no later than the latest of the following dates:

C.2.t.(1) June 21, 1999;

C.2.t.(2) Three years after the date on which a regulated substance is first listed under 40 CFR 68.130; or

C.2.t.(3) The date on which a regulated substance is first present above a threshold quantity in a process.

[40 CFR Part 68.10, s. 285.65(13), Wis. Stats.]

C.2.u. No person may cause, allow or permit emissions of mercury in such quantity and duration as to cause the ambient air concentration to exceed 1 mg/m^3, averaged over a 30-day period. [s. NR 446.03(1), Wis. Adm. Code]

D. Reporting Requirements.

D.1. The Department shall be notified of the events in Table D1.:

Table D1.

Event	Timing
D.1.a. Hazardous substance air spill.	Immediate call: 1-800-943-0003
D.1.b. Malfunction or other unscheduled event which causes or may cause any emission limitation to be exceeded (except certain visible emissions limit exceedences detected by a continuous emission monitor, see s. NR 439.03(4)(a)2., Wis. Adm. Code.).	Notification by next business day of any such event at the source which is not reported in advance to the Department. Report the cause and duration of the exceedence, the period of time considered necessary for correction, and measures taken to minimize emissions during the period or will be

Table D1.

Event	Timing
	taken to prevent future deviations.
D.1.c. Deviation from any other condition specified in this permit.	Notification by next business day identifying the deviation, cause, duration and steps taken to prevent recurrence.

[ss. 285.65(10) and 292.11(2), Wis. Stats., and s. NR 439.03(4) and NR 445.16, Wis. Adm. Code]

D.2. Persons possessing or controlling a hazardous substance shall immediately notify the Department of any hazardous emission not in conformity with a permit or allowed by the Department under chs. NR 400 to 499, Wis. Adm. Code. Notice shall be given as required by s. 292.11, Stats., and ch.706, Wis. Adm. Code.

D.3. The permittee shall report to the Department, in advance, schedules for planned shutdown and startup of air pollution control equipment and the measures to be taken to minimize the down time of the control equipment while the source is operating. Scheduled maintenance or any other scheduled event, including startup, shutdown or soot blowing procedures which have been approved by the Department under s. NR 436.03(2)(b), Wis. Adm. Code which causes an emission limit to be exceeded shall also be reported in advance to the Department. Advance reporting pursuant to this permit condition does not relieve any person from the duty to comply with any applicable emission limitations. Emissions in excess of the limits set in chs. NR 400-499, Wis. Adm. Code, may be allowed when the emissions are temporary and due to scheduled maintenance, startup or shutdown of operations carried out in accord with a plan and schedule approved by the Department. [s. NR 436.03(2)(b) and NR 439.03(6), Wis. Adm. Code]

D.4. The permittee shall furnish to the Department, within a reasonable time specified by the Department, any information that the Department may request in writing to determine whether cause exists to revise, revoke or suspend the operation permit or to determine compliance with this permit. Upon request, the permittee shall also furnish to the Department copies of records required to be kept pursuant to this permit. [s. NR 407.09(1)(f)5., Wis. Adm. Code]

D.5. The permittee shall submit the results of monitoring required by the permit to the Department according to the schedule established in the permit. Any such report shall clearly identify all instances of deviations from permit requirements. All such reports shall be signed by the responsible official for the source. [s. 285.17(2), Wis. Stats., and s. NR 439.03(1)(b), Wis. Adm. Code]

D.6. Each permit reporting required under s. NR 439.03, Wis. Adm. Code, shall be certified by a responsible official as to its truth, accuracy and completeness. This certification and any other certification required under ch. NR 439, Wis. Adm. Code shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate and complete. [s. NR 439.03(10), Wis. Adm. Code]

D.7. Except for information determined to be confidential under s. 285.70(2), Wis. Stats., or s. NR 2.19, Wis. Adm. Code, any information or reports obtained by the Department in the administration of ss. 285.01 to 285.87 and 299.15, Wis. Stats., will be available for public inspection at the offices of the Department. [s. 285.70(1), Wis. Stats., s. NR 2.19, Wis. Adm. Code]

D.8. All certifications made under s. NR 439.03, Wis. Adm. Code, and all material statements and representations made in any report or notice required by the operation permit shall be truthful. [s. NR 439.03(11), Wis. Adm. Code]

D.9. Any document required under the operation permit and submitted to the Department, including reports, shall contain a certification by a responsible official that meets the requirements of s. NR 407.05(4)(j), Wis. Adm. Code. [s. NR 407.09(4)(a)1., Wis. Adm. Code]

D.10. Copies of all records and reports required under this permit shall be retained by the permittee for a period of 5 years except for records required to be maintained or reports required to be submitted under ss. NR 405.16(3) or NR 408.10(5), Wis. Adm. Code. Records and reports required under s. NR 405.16(3) or NR 408.10(5), Wis. Adm. Code, shall be maintained for a minimum of 10 years. [s. NR 439.04(2), Wis. Adm. Code]

E. Right of Entry and Inspection.

The permittee shall allow authorized representatives of the Department to enter upon the permittee's premises, to have access to and examine any record relating to emissions or required to be kept, and to make any inspection necessary to ascertain compliance with air pollution control laws and the terms of this permit. The Department may, for the purpose of determining a source's compliance with applicable requirements, sample or monitor at reasonable times production materials or other substances or operational parameters. [ss. 285.13 and 285.19, Wis. Stats., and s. NR 439.05, Wis. Adm. Code]

F. Malfunction Prevention and Abatement Plans.

The owner or operator of any direct or portable source which may emit hazardous substances or emits more than 15 pounds in any day or 3 pounds in any hour of any air contaminant for which emission limits have been adopted shall prepare a written malfunction prevention and abatement plan to prevent, detect, and correct malfunctions or equipment failures which may cause any applicable emission limitation to be violated or which may cause air pollution. Any such plan shall be carried out by the owner or operator. The plan shall be updated at least every 5 years and shall include the items listed in s. NR 439.11(1), Wis. Adm. Code. The Department may require the plan to be submitted for review and approval. All air pollution control equipment shall be operated and maintained in conformance with good engineering practices to minimize the possibility for the exceedance of any emissions limitations. [s. NR 439.11, Wis. Adm. Code]

Note: For this condition, 'source' refers to an individual emissions unit.

G. Emission Control Action Plan.

Any person responsible for the operation of a direct source which emits 0.25 tons or more per day of any air contaminant for which air standards have been adopted, the permittee shall prepare an emission control action program, consistent with good industrial practice and safe operating procedures, for reducing the emission of air contaminants into the outdoor atmosphere during periods of an air pollution alert, air pollution warning or air pollution emergency declared under s. NR 493.03(2), Wis. Adm. Code. The

emission control action program shall be designed to reduce or eliminate emissions of air contaminants into the outdoor atmosphere in accordance with the requirements set forth in Tables 2 to 6 of ch. NR 493, Wis. Adm. Code. [s. NR 493.04, Wis. Adm. Code]

Note: For this condition, 'direct source' refers to an entire facility.

H. Change in Ownership or Control.

In the event of a change in ownership or operational control of a source, the permittee shall notify the Department in writing. The notification should include a written agreement between the current and new owner or operator which sets forth a specific date for transfer of permit responsibility, coverage and liability. [s. 285.60(2)(a), Wis. Stats., and s. NR 407.11(1)(d), Wis. Adm. Code.]

I. Permit Flexibility, Revision, Suspension, and Revocation.

I.1. Changes to the source which are not modifications and changes in permit content are regulated under the permit flexibility provisions of s. 285.60(4), Wis. Stats., and s. NR 407.025, Wis. Adm. Code, and the operation permit revision provisions in ss. NR 407.11, NR 407.12, NR 407.13, NR 407.14, and NR 407.16, Wis. Adm. Code.

I.2. An operation permit may be suspended or revoked, in whole or in part, for cause. [ss. NR 407.09(1)(f)3. and NR 407.15, Wis. Adm. Code.]

I.3. A construction permit may be suspended, revoked or revised, in whole or in part, for cause. [s. NR 406.11, Wis. Adm. Code]

J. Construction, Reconstruction, Replacement, Relocation or Modification.

J.1. Unless the replacement is authorized by a construction permit or is exempt under s. NR 406.04, Wis. Adm. Code, replacement of the source(s) covered by this permit is prohibited. [s. 285.60(1)(a), Wis. Stats.]

J.2. No person may commence construction, reconstruction, replacement, relocation or modification of a stationary source unless the person has a construction permit for the source or unless the source is exempt from the requirement to obtain a permit under s. 285.60(5), Wis. Stats., or under ch. NR 406, Wis. Adm. Code. Applications for the construction permit shall be submitted on forms which are available from the Department at its Madison headquarters, Department Regional Headquarters and Service Center Offices or online. [s. 285.60(1)(a), Wis. Stats., NR 406.03(1m)(a), Wis. Adm. Code]

Note: The address of the Madison headquarters is: Wisconsin Department of Natural Resources, Bureau of Air Management, PO Box 7921, Madison, WI 53707-7921, Attention: Construction permits. The internet web address is: http://dnr.wi.gov/topic/AirPermits/Forms.html.

J.3. For new or modified sources for which no construction permit is required, the application for an operation permit shall be filed before the source commences construction or modification. [s. NR 407.04(1)(b), Wis. Adm. Code]

K. Circumvention.

K.1. The installation or use of any article, machine, equipment, process, or method which conceals an emission which would otherwise constitute a violation of an applicable rule is prohibited unless written approval has been obtained from the Department. Such concealment includes, but is not limited to, the use of gaseous diluents to achieve compliance and the unnecessary separation of an operation into parts to avoid coverage by a rule that applies only to operations larger than a specified size. [s. NR 439.10, Wis. Adm. Code]

K.2. No one may render inaccurate any monitoring device or method required under ch. NR 439, Wis. Adm. Code, or in this permit. [s. NR 439.03(12), Wis. Adm. Code]

K.3. No person may knowingly falsify, tamper with, render inaccurate or fail to install any monitoring device or method required to be maintained or followed under the Clean Air Act. [Clean Air Act s. 113(c)(2)(C); 42 USC 7413(c)(2)(C), s. 285.65(13), Wis. Stats.]

L. Civil/Criminal Liability.

L.1. Any owner or operator who fails to construct a stationary source in accordance with the application as approved by the Department; any owner or operator who fails to construct and operate a stationary source in accordance with conditions imposed by the Department under s. 285.65, Wis. Stats.; any owner or operator who modifies a stationary source in violation of conditions imposed by the Department under s. 285.65, Wis. Stats.; or any owner or operator who commences construction or modification of a stationary source without applying for and receiving a permit as required under chapters NR 405, NR 406 or NR 408, Wis. Adm. Code, shall be considered in violation of s. 285.60, Wis. Stats. [s. NR 406.10, Wis. Adm. Code]

L.2. Nothing in the operation permit shall be construed to relieve the permit holder from civil and/or criminal penalties under ss. 285.87 and 299.15, Wis. Stats., for violation of the terms or conditions of this permit, or for violation of ss. 285.01 to 285.87, 292.11(2) and 299.15, Wis. Stats., or of any rule or any special order issued under those sections except where the operation permit shield provisions of s. 285.62(10)(b), Wis. Stats., are applicable. [s. 285.62(10)(b), Wis. Stats.]

L.3. The permittee has the duty to comply with all applicable conditions in chs. NR 400-499, air quality standards of ch. NR 404, control strategies of all local, state and federal regulations which are part of the state implementation plan and applicable limits in the permit. [s. NR 406.13, Wis. Adm. Code, s. 285.60(7), Wis. Stats., s. 285.65(13), Wis. Stats.]

L.4. Any noncompliance with this permit constitutes a violation of the Wisconsin statutes, the federal clean air act, or both, and is grounds for enforcement action; for permit suspension, revocation or revision; or, if allowed under s. 285.62(6), Wis. Stats., for denial of an operation permit renewal application. [s.NR 407.14, NR 407.15, and NR 407.09(1)(f)1., Wis. Adm. Code, s. 285.60(7), Wis. Stats. and 42 USC 7661a, s. 285.65(13), Wis. Stats.]

L.5. The following items are provided per s. NR 407.09(1)(d) and (f), Wis. Adm. Code:

L.5.a. It is not a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with this permit. [s. NR 407.09(1)(f)2., Wis. Adm. Code]

L.5.b. The filing of a request by the permittee for a permit revision or revocation, or the filing of a notification of planned changes under s. NR 407.025, Wis. Adm. Code, or of anticipated noncompliance, does not stay any permit condition. [s. NR

407.09(1)(f)3., Wis. Adm. Code]

L.5.c. The issuance of this permit does not convey any property rights of any sort, or any exclusive privilege, nor does it authorize any injury to private property or any invasion of personal rights. [s. NR 407.09(1)(f)4., Wis. Adm. Code]

L.5.d. The provisions of this permit are severable. In the event of a successful challenge to any portion of the permit, all other portions of the permit remain valid and effective. [s. NR 407.09(1)(d), Wis. Adm. Code]

M. Recordkeeping Requirements.

M.1. The permittee shall maintain the following records, per s. NR 439.04(1), Wis. Adm. Code:

M.1.a. Records of all sampling, testing and monitoring conducted or required under chs. NR 400 to 499, Wis. Adm. Code, or under this permit. Records of sampling, testing or monitoring shall include the following [s. NR 439.04(1)(a), Wis. Adm. Code]:

M.1.a.(1) The date, monitoring site and time and duration of sampling, testing, monitoring or measurements. [s. NR 439.04(1)(a)(1), Wis. Adm. Code]

M.1.a.(2) The dates the analyses were performed. [s. NR 439.04(1)(a)(2), Wis. Adm. Code]

M.1.a.(3) The company or entity that performed the analysis. [s. NR 439.04(1)(a)(3), Wis. Adm. Code]

M.1.a.(4) The analytical techniques or methods used, including supporting information such as calibration and maintenance records of all original recording charts for continuous monitoring instrumentation including emissions or equipment monitors. [s. NR 439.04(1)(a)(4), Wis. Adm. Code]

M.1.a.(5) The results of the analyses. [s. NR 439.04(1)(a)(5), Wis. Adm. Code]

M.1.a.(6) The relevant operating conditions that existed at the time of sampling, testing, monitoring or measurement. [s. NR 439.04(1)(a)(6), Wis. Adm. Code]

M.1.b. Records detailing all malfunctions which cause any applicable emission limitation to be exceeded, including logs to document the implementation of the plan required under s. NR 439.11, Wis. Adm. Code. [s. NR 439.04(1)(b), Wis. Adm. Code];

M.1.c. Records detailing all activities specified in any compliance schedule approved by the Department under chs. NR 400 to 499, Wis. Adm. Code. [s. NR 439.04(1)(c), Wis. Adm. Code]; and

M.1.d. Any other records relating to the emission of air contaminants which may be requested in writing by the Department. [s. NR 439.04(1)(d), Wis. Adm. Code];

M.2. The owner or operator of a source constructed or last modified prior to July 1, 2004, with non-exempt, potential to emit emissions of a hazardous air contaminant less than or equal to the applicable threshold in column (c), (d), (e), or (f) of Table A, B or C of s. NR 445.07, Wis. Adm. Code, shall maintain records in accordance with s. NR 439.04(1) and (2), Wis. Adm. Code, starting no later than June 30, 2007. [s. NR 445.08(6)(b), Wis. Adm. Code *]

M.2.a. In addition to meeting the recordkeeping requirements of s. NR 439.04(1) and (2), Wis. Adm. Code, an owner or operator of any compression ignition internal combustion engine for which s. NR 445.09, Wis. Adm. Code applies shall: [s. NR 445.09(6), Wis. Adm. Code]

M.2.a.(1) Keep records of maintenance performed on any particulate matter emission control device used to comply with s. NR 445.09(3), Wis. Adm. Code. [s. NR 445.09(6)(a), Wis. Adm. Code]

M.2.a.(2) For any engine that stays or that is intended to stay in a single location for any 12 consecutive month period, keep the following records; [s. NR 445.09(6)(b), Wis. Adm. Code]:

M.2.a.(2)1. The amount fuel oil combusted on a monthly basis for any engine not using a certified control device. [s. NR 445.09(6)(b)1., Wis. Adm. Code]

M.2.a.(2)2. The power rating and days of operation of any CI engine used to substitute power under s. NR 445.09(1)(d), Wis. Adm. Code. [s. NR 445.09(6)(b)2., Wis. Adm. Code]; and

M.2.a.(2)3. The cost of rebuilding any CI engine on a monthly basis. [s. NR 445.09(6)3., Wis. Adm. Code]

M.3. Owners and operators of facilities required to file emission inventory reports shall keep accurate and reliable records sufficient to enable verification of the reports by the Department. [s. NR 438.03(4), Wis. Adm. Code]

M.4. Copies of all records and reports required under this permit shall be retained by the permittee for a period of 5 years or for such other period as may be specified by the Department. [s. NR 439.04(2), Wis. Adm. Code]

M.5. Source obligation for Prevention of Significant Deterioration includes project records demonstrating the calculated difference between projected actual emissions and baseline actual emissions does not exceed the level that is considered significant for the air contaminant. Before beginning actual construction of a project, the owner or operator shall meet the record requirements and make available those records for the Department or general public upon request. [s. NR 405.16(3) and (4), Wis. Adm. Code]

M.6. Source obligation for Major Source Nonattainment Area Construction Permits includes project records demonstrating the calculated difference between projected actual emissions and baseline actual emissions does not exceed the level that is considered significant for the air contaminant. Before beginning actual construction of a project, the owner or operator shall meet the record requirements and make available those records for the Department or general public upon request. [s. NR 408.10(5) and (6), Wis. Adm. Code]

M.7. Except for information determined to be confidential under s. 285.70(2), Wis. Stats. or s. NR 2.19, Wis. Adm. Code, any information or reports obtained by the Department in the administration of ss. 285.01 to 285.87 and 299.15, Wis. Stats., will be available for public inspection at the offices of the Department. [s. 285.70(1), Wis. Stats., s. 2.19, Wis. Adm. Code]

N. Compliance Certification.

N.1. The permittee shall submit operation compliance certifications to the Department. [s. NR 439.03 (1)(c) and (9), Wis. Adm. Code]

N.2. The certification shall be submitted according to the schedule established in the operation permit. [s. NR 439.03(1)(c), Wis. Adm. Code]

N.3. The certification shall include the following information: [s. NR

439.03(8), Wis. Adm. Code]:

N.3.a. Identification of each permit term or condition that is the basis of the certification. [s. NR 439.04(8)(a), Wis. Adm. Code];

N.3.b. The compliance status of the source with respect to each term or condition identified in N.3.a. [s. NR 439.04(8)(b), Wis. Adm. Code];

N.3.c. Information on whether compliance was continuous or intermittent. [s. NR 439.04(8)(c), Wis. Adm. Code];

N.3.d. The method(s) used for determining the compliance status, currently and over the previous 12 month period. [s. NR 439.04(8)(d), Wis. Adm. Code];

N.3.e. Compliance status with respect to 40 CFR 68 (Accidental Release Prevention) including registration and submission of the risk management plan, as specified in 40 CFR 68.160 and 68.150, respectively, if applicable; and

N.3.f. Other information the Department may require, as specified in the operation permit, to determine the compliance status of the source. [s. NR 439.03(8)(e), Wis. Adm. Code]

O. Required Air Emission Inventory Reports.

The permittee shall annually submit to the Department an emission inventory report of annual, actual emissions or throughput information in accordance with ch. NR 438, Wis. Adm. Code. [s. NR 438.03, Wis. Adm. Code]

P. Annual Emission Fees.

The permittee shall pay an annual fee to the Department at the rate specified in s. 285.69(2), (2e) and (2m), Wis. Stats. [s. NR 410.04, Wis. Adm. Code]

Q. General Provisions for National Emission Standards for Hazardous Air Pollutants (NESHAP) and New Source Performance Standard (NSPS).

Q.1. The general provisions in 40 CFR Part 63, Subpart A apply to any permittee that is affected or becomes affected by a standard promulgated by EPA under section 112 of the act (42 USC 7412), as explicitly stated in the relevant 40 CFR Part 63 standard. The general provisions in 40 CFR Part 63, Subpart A do not apply to regulations promulgated by EPA under section 112(r) of the act, unless otherwise specified in those regulations. [s. 285.65(13), Wis. Stats., 40 CFR s. 63.1(a)(4)]

Q.2. The general provisions in 40 CFR Part 60, Subpart A apply to any permittee that is affected or becomes affected by a standard promulgated by EPA under section 111 of the act (42 USC 7411). [s. 285.65(13), Wis. Stats., 40 CFR ss. 60.1(a) and (b)]

R. Stratospheric Ozone Protection.

R.1. State Requirements. (Call 1-608-264-6049 for information)

R.1.a. During the salvaging, dismantling or transporting of refrigeration equipment, no person may knowingly or negligently release ozone-depleting refrigerant to the environment, except for minimal releases that occur as a result of efforts to transfer ozone depleting refrigerant into storage tanks. [s. NR 488.03(1), Wis. Adm. Code *]

R.1.b. No person may knowingly or negligently release from a storage tank to the environment ozone-depleting refrigerant that was removed during the salvaging, dismantling or transporting of refrigeration equipment, except for minimal releases that occur as a result of efforts to transfer ozone-depleting refrigerant into refrigeration equipment or other storage tanks. [s. NR 488.03(2), Wis. Adm. Code *]

R.1.c. No person may salvage or dismantle any refrigeration equipment unless [s. NR 488.03(3), Wis. Adm. Code]:

R.1.c.(1) That person holds and prominently displays an annual registration of certification obtained from the Department under s. NR 488.04, Wis. Adm. Code. [s. NR 488.03(3)(a), Wis. Adm. Code *];

R.1.c.(2) That person uses refrigerant recovery equipment approved by the Department under s. NR 488.07, Wis. Adm. Code, to transfer remaining ozone-depleting refrigerant from each piece of refrigeration equipment into storage tanks[s. NR 488.03(3)(b), Wis. Adm. Code]; and

R.1.c.(3) Individuals who use the approved refrigerant recovery equipment have, or are working under the direct supervision of individuals who have, the qualifications required under s. NR 488.08, Wis. Adm. Code. [s. NR 488.03(3)(c), Wis. Adm. Code *]

R.1.d. Any person who sells, gives or transports refrigeration equipment to a scrap metal processor shall do the following: [s. NR 488.05(1), Wis. Adm. Code *]

R.1.d.(1) Transfer ozone-depleting refrigerant from the refrigeration equipment into a storage tank using approved refrigerant recovery equipment or obtain and possess documentation that another person performed the transfer. [s. NR 488.05(1)(a), Wis. Adm. Code*]; and

R.1.d.(2) Provide documentation to the scrap metal processor that he or she has complied with R.1.d.(1). [s. NR 488.05(1)b), Wis. Adm. Code *]

Note: Sample forms for the documentation of compliance with R.1.d.(1) are available from the Bureau of Air Management CFC Program.

Exemption: R.1.d does not apply to a person who sells, gives or transports refrigeration equipment to a scrap metal processor when that processor has agreed in writing to transfer the ozone-depleting refrigerant into a storage tank using approved refrigerant recovery equipment and that the processor is registered with the Department under s. NR 488.04, Wis. Adm. Code. [s. NR 488.05, Wis. Adm. Code*]

R.1.e. Any person who transports, for the purposes of salvaging or dismantling, refrigeration equipment that contains ozone depleting refrigerant shall certify to the Department that person will not knowingly or negligently release ozone-depleting refrigerant to the environment, except for minimal releases that occur as a result of refrigerant recovery efforts. This certification shall be submitted annually, along with a description of the safe transport methods to be used, and the fees required under s. NR 488.11, Wis. Adm. Code. [s. NR 488.10(1), Wis. Adm. Code *]

S. Payment of Construction Permit Fees.

Any person who obtains a construction permit shall pay the application fee within thirty days of the date of the billing statement. [s. NR 410.03(4), Wis. Adm. Code]

T. Credible Evidence.

Notwithstanding the compliance determination methods which the

owner or operator of a source is authorized to use under this permit, any relevant information or appropriate method may be used to determine a source's compliance with applicable emission limitations. [s. NR 439.06, Wis. Adm. Code, 42 USC 7413(e), s. 285.65(13), Wis. Stats.]

U. Compliance Testing Requirements.

U.1. Unless the Department requires or approves the performance of a test at less than capacity, all compliance emission tests shall be performed with the equipment operating at capacity or as close to capacity as practicable. [s. NR 439.07(1), Wis. Adm. Code]

U.2. The owner or operator of the source tested shall submit 2 copies of the emission test report to the Department within 60 days after completion of a compliance emission test. If samples were collected by the department, the test report shall be submitted within 30 days after the results from the test samples have been reported to the source owner or operator by the department. If requested, the department may grant an extension of up to 30 days for test report submittal. The emission test report shall include, but need not be limited to the information listed in s. NR 439.07(9)(a)-(m), Wis. Adm. Code. The emission test report shall be submitted to the Department of Natural Resources electronically by uploading through the permittee's Web Access management System (WAMS) ID. Alternatively, the emission test report may be submitted to the address specified in Part I of this permit or an alternative address provided by the facility's assigned compliance inspector.. [s. NR 439.07(9), Wis. Adm. Code]

U.3. Unless more advance notice is required by an applicable requirement, the Department shall be notified in writing at least 20 business days in advance of a compliance emission test, including initial certification tests and relative accuracy tests performed under s. NR 439.09, Wis. Adm. Code, to provide the Department an opportunity to have a representative present to witness the testing procedures. The notice shall provide a test plan which includes, but need not be limited to, the information listed in s. NR 439.07(2)(a)-(f), Wis. Adm. Code. The notification and test plan shall be submitted to the Wisconsin Department of Natural Resources electronically by uploading through the permittee's Web Access management System (WAMS) ID. Alternatively, the notification and test plan may be submitted to the address specified in Part I of this permit or an alternative address provided by the facility's assigned compliance inspector. The source owner or operator shall notify the department of any modification to the test plan at least 5 business days prior to the test. In the event the owner or operator is unable to conduct the compliance emission test on the date specified in the test plan, due to unforeseeable circumstances beyond the owner or operator's control, the owner or operator shall notify the department at least 5 business days prior to the scheduled compliance emission test date and specify the date when the test is rescheduled. [ss. NR 439.07(2) and (4), Wis. Adm. Code]

U.4. The following exceptions apply to testing required by this permit under ss. 285.11(7), 285.17(2), 285.65(3), 285.65(10), Wis. Stats. and/or ss. NR 407.09(1), NR 407.09(4), NR 439.075(1)(b) or NR 439.075(2)(a) or (c), Wis. Adm. Code:

U.4.a. The department may grant a waiver of a scheduled test if any of the following applies:

U.4.a.(1) The direct stationary source associated with the emission point subject to the testing requirement will be ceasing operation within one year of a scheduled test.

U.4.a.(2) The most recently completed test results from a test conducted according to the methods and procedures specified in s. NR 439.07, Wis. Adm. Code for the direct stationary source demonstrate that the emissions of the air contaminant for which compliance emission testing is required under this section are 50% or less of the applicable emission limitation.

U.4.a.(3) The direct stationary source associated with the emission point subject to the testing requirement has not operated more than 360 hours in the previous 12 month period prior to the scheduled test date.

U.4.a.(4) The most recently completed test, conducted according to the methods and procedures specified in s. NR 439.07, Wis. Adm. Code, was conducted less than 12 months prior to the date that testing would be required under s. NR 439.075(3)(b), Wis. Adm. Code.

U.4.b. The department may grant an extension of up to 180 days for compliance emission testing if the owner or operate of a direct stationary source requests an extension, in writing, and can demonstrate that a representative emissions test cannot be performed within the time frames specified in this permit and/or s. NR 439.075(3)(b), Wis. Adm. Code.

U.4.c. All requests for waivers under condition U.4. shall be submitted in writing for department review and approval at least 60 days prior to the required test date.

[ss. NR 407.09(4)(a)1. and NR 439.075(4), Wis. Adm. Code, s. 285.65(3), Wis. Stats.]

U.5. Whenever emission testing is required, the permittee shall use the reference test methods listed under U.4. of this section. An alternate method to these reference test methods may be used if approved in writing by the Department. [ss. NR 439.06 and NR 484.04, Wis. Adm. Code]

U.5.a. Reference Test Methods for Nonfugitive Particulate Matter: Whenever compliance emission testing is required for a nonfugitive particulate matter emission limitation, the permittee shall use the appropriate Method 5, 5A, 5B, 5D, 5E, 5F, 5G, 5H, 5I, or 17 in 40 CFR part 60, Appendix A, and when required Method 202 in 40 CFR part 51, Appendix M. [s. NR439.06(1), Wis. Adm. Code]

U.5.b. Reference Test Methods for Nonfugitive PM_{10} and $PM_{2.5}$ Emissions: Whenever compliance emission testing is required for a nonfugitive PM_{10} or $PM_{2.5}$ emission limitation, the permittee shall use Method 201 or 201A and when required Method 202 in 40 CFR part 51, Appendix M. [ss. NR 439.06(1m) and NR439.06(8), Wis. Adm. Code]

U.5.c. Reference Test Method for Sulfur Dioxide Emissions: Whenever compliance emission testing of a sulfur dioxide (SO_2) emission limitation is required, the permittee shall use Method 6, 6A, 6B, 6C, or 8 in 40 CFR part 60, Appendix A. [s. NR 439.06(2)(a), Wis. Adm. Code]

U.5.d. Reference Test Method for Volatile Organic Compound Emissions: Whenever compliance emission testing of a volatile organic compounds (VOC) emission limitation is required, the permittee shall use Method 18, 25, 25A or 25B in 40 CFR part 60, Appendix A. [s. NR 439.06(3)(a), Wis. Adm. Code]

U.5.e. Reference Test Method to Determine the Capture Efficiency of a Control System for Volatile Organic Compound Emissions: Whenever capture efficiency testing of VOC emissions is required, the permittee shall use Method 204, 204A, 204B, 204C, 204D, 204E, or 204F in 40 CFR Part 51, Appendix M, or the data quality objection method or lower confidence limit method in 40 CFR part 63, Subpart KK, Appendix A. When determining the overall emission reduction efficiency of a VOC control system, simultaneous measurements of both the capture efficiency of the system and the pollutant reduction efficiency of the control device may be required. [s. NR 439.06(3)(am), Wis. Adm. Code]

U.5.f. Reference Test Method to Determine Surface Coating Properties: Whenever the organic solvent content, the volume of solids, the weight of solids, the water content and the density of surface coatings, inks, and cleaning materials is required, the permittee shall use Method 24 or 24A in 40 CFR part 60, Appendix A. [s. NR 439.06(3)(b), Wis. Adm. Code]

U.5.g. Reference Test Method for Detecting Organic Compound Emission Leaks: Whenever the detection of organic compound emission leaks is required, the permittee shall use Method 21 in 40 CFR part 60, Appendix A. [s. NR 439.06(3)(c), Wis. Adm. Code]

U.5.h. Reference Test Method to Verify the Vapor Tightness of Gasoline Delivery Tanks: Whenever verification of the vapor tightness of gasoline delivery tanks is required, the permittee shall use Method 27 in 40 CFR part 60, Appendix A. [s. NR 439.06(3)(d), Wis. Adm. Code]

U.5.i. Reference Test Method for Carbon Monoxide Emissions: Whenever compliance emission testing of a carbon monoxide (CO) emission limitation is required, the permittee shall use Method 10, 10A, or 10B in 40 CFR part 60, Appendix A. [s. NR 439.06(4), Wis. Adm. Code]

U.5.j. Reference Test Method for Lead Emissions: Whenever compliance emission testing of a lead (Pb) emission limitation is required, the permittee shall use Method 12 in 40 CFR part 60, Appendix A. [s. NR 439.06(5), Wis. Adm. Code]

U.5.k. Reference Test Methods for Nitrogen Compound Emissions: Whenever compliance emission testing of a nitrogen compound (NOx) emission limitation is required, the permittee shall use EPA Method 7, 7A, 7B, 7C, 7D, or 7E in 40 CFR part 60, Appendix A. [s. NR 439.06(6)(a), Wis. Adm. Code]

U.5.l. Reference Test Methods for Total Reduced Sulfur Emissions: Whenever compliance emission testing of a total reduced sulfur (TRS) emission limitation is required, the permittee shall use EPA Method 15A, 16, 16A, or 16B in 40 CFR part 60, Appendix A. [s. NR 439.06(7)(a), Wis. Adm. Code]

U.5.m. Reference Test Method for Visible Emissions: Whenever emission testing of a visible emission limitation is required, the permittee shall use Method 9 in 40 CFR part 60, Appendix A. [s. NR 439.06(9)(a)1., Wis. Adm. Code]

U.5.n. Reference Test Method for a "No Visible Emissions" Requirement: Whenever compliance emission testing is required for a no visible emission limitation, the permittee shall use Method 22 in 40 CFR part 60, Appendix A. [s. NR 439.06(9)(b), Wis. Adm. Code]

V. PSD Source Obligation

V.1. For projects involving existing emissions units at sources that are major stationary sources as defined in s. NR 405.02(22), Wis. Adm. Code, which do not have a PAL [s. NR 405.02(24j), Wis. Adm. Code], where the calculated difference between projected actual emissions using the method specified in s. NR 405.02(25f)(b)1. to 2., Wis. Adm. Code and baseline actual emissions does not exceed the level that is considered significant for the air contaminant, as defined in s. NR 405.02(27), Wis. Adm. Code, the owner or operator shall meet the source obligation requirements in s. NR 405.16(3) and (4), Wis. Adm. Code. [s. NR 405.16(3) and (4), Wis. Adm. Code]