CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: May 31, 2006 FILE REF: 4560-1

TO: Jeff Hanson

CC: Biren Patel
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FROM: Kristin Hart

SUBJECT: Addendum to the Preliminary Determination for Registration Operation Permit ROP-A01

Based on comments received during the public comment period for this permit, several changes were made to the draft Registration Operation Permit (ROP). The Analysis, Preliminary Determination and Decision and this addendum to it as well as the new draft ROP will be made available for an additional 30 day public comment period after a second public notice is published on this determination.

Updated Air Quality Review

Air quality modeling experience was used to determine the requirements necessary to protect ambient air quality standards. Based upon this experience, facility emissions and stack characteristics that commonly lead to modeled air quality standard exceedances were identified. The facilities that will potentially be covered by the Registration Operation Permit are small emitters of air pollution and will all have annual emissions limited by the ROP to less than 25% of major source thresholds.

But air quality modeling experience tells us that the annual emission caps alone will not assure protection of ambient air quality standards for all pollutants, all the time. Stack configurations must also be considered. Modeling experience has shown that vertical unobstructed stacks result in lower modeled ambient air concentrations than non-vertical and/or obstructed stacks. Stack heights that are as tall as or taller than the height of a nearby building are predicted by modeling experience to create ambient air concentrations at lower levels than the predicted concentration from stacks that are shorter than nearby buildings.[1] For the purpose of this discussion, a building is considered to influence the dispersion of emissions from a stack if the stack exists within a circle around the building, the radius of which is 5 times the height of the building.

Based on this modeling experience, the draft Registration Operation Permit requires that a facility's stacks be vertical, unobstructed and taller than nearby buildings. These stack requirements, coupled with the annual emission caps, will provide for the protection of all criteria air pollutant ambient air quality standards, with the possible exception of the 24 hour particulate matter standard. (See discussion under Particulate Matter below for more information on this issue.)

Because these requirements are quite conservative, s. NR 407.105(2)(a)4., Wis. Adm. Code, allows facilities that do not meet the permit's stack requirements to perform air quality dispersion modeling to demonstrate that ambient air quality standards are protected even if some stacks at the facility are not vertical, unobstructed, or taller than nearby buildings. The facility is required to submit the modeling

[1] The predicted concentration from a stack that is 90% the height of a nearby building is typically 7% greater than from a stack that is as tall as a nearby building. The predicted concentration from a stack that is 50% the height of a nearby building is typically 30% greater than from a stack that is as tall as a nearby building.

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results with the application for coverage under the ROP to inform the Department and the public of the predicted air quality impact.

In addition, as long as the stacks at the facility do not meet the stack requirements of the ROP, the facility will be required to perform air quality modeling to demonstrate compliance with all relevant air quality standards prior to making any changes that would increase emissions or ambient air impacts. If the facility chose to model in lieu of meeting the ROP stack requirements, then the only way to demonstrate that air quality will continue to be protected if changes are made to stack parameters or emission rates is through subsequent air quality modeling analyses.

The following stack and emission requirements are included in the draft ROP to protect air quality standards:

- The stack-vented emissions from the facility shall be exhausted from unobstructed discharge points that are within 10 degrees of vertical[2].
- Each stack at the facility must be taller than any building that influences the dispersion of emissions from the stack. A building is considered to influence the dispersion of emissions from any stack that exists within a circle around the building, the radius of which is 5 times the height of the building.
- In lieu of having vertical, unobstructed stacks that are taller than nearby buildings, the owner or operator may demonstrate through an air quality modeling analysis that emissions from the facility will not result in an exceedance of ambient air quality standards.
- If necessary to meet any emission limit, including the ROP facility-wide emission limit, the permittee must utilize control devices at all times that the process they are controlling is operating.
- Processes must meet all other applicable emission limitations and other requirements in ch. 285, Wis. Stats., and chs. NR 400 to NR 499, Wis. Adm. Code and the federal Clean Air Act.
- Facility emissions may not exceed 25% of the major source thresholds in s. NR 407.02(4), Wis. Adm. Code, except that lead emissions may not exceed 0.5 tons per year.
- Facilities in ozone nonattainment areas must comply with all requirements included in the Wisconsin State Implementation Plan to bring the area into attainment with the ozone standard.

<u>Particulate Matter Emissions</u>
Modeling experience has shown that the 24 hour particulate matter ambient air quality standards may not always be protected by the annual emission cap and the stack requirements described above. For that reason, the Department has included additional requirements in the Registration Operation Permit Application process and additional requirements in the draft Registration Operation Permit for facilities that emit over a certain amount of particulate matter (PM).

For the purposes of this updated air quality review and the draft permit, particulate matter emissions of concern are considered to be the following:

- Annual maximum controlled emissions of particulate matter from the entire facility (excluding PM from emission units listed in Attachment 2) equal to or greater than 5 tons per year and

[2] These conditions do not apply to stacks serving any of the emission units listed in Attachment 2. Horizontal discharge vents that only discharge general building ventilation are not considered stacks for this requirement. Valves designed to open and close at the point of discharge are considered to be unobstructed if they are open at the time of emission.

- Emissions of particulate matter resulting in a modeled ambient air impact equal to or greater than the thresholds listed on the map in Attachment 1. (Note that counties with lower thresholds may change over time. Attachment 1 is current as of May 1, 2006).

Annual maximum controlled emissions of particulate matter are the maximum hourly emissions of particulate matter calculated using the control efficiencies listed in the Registration Operation Permit, if control equipment is used. These maximum hourly emissions are multiplied by 8,760 hours per year for all emissions sources (except emission units listed in Attachment 2) emitting particulate matter at the facility. If the emission unit's physical design makes it impossible to operate 8,760 hours per year, the annual maximum controlled emissions may be calculated taking these physical limitations into account.

The modeling thresholds shown on the map in Attachment 1 were developed by the Department's air dispersion modeling team. These modeling threshold values were established at levels such that a facility could make a physical change and it would be reasonable to assume that the ambient PM standards would be maintained. The threshold levels consider background concentrations, as well as the facility emissions, and allow for a potential combined air quality impact of about 75% of the particulate matter air quality standards. The Modeling Threshold Map will be updated by the Department periodically.

Additional Application Procedures to Determine Eligibility for Facilities Emitting Particulate Matter
The Department will perform an air dispersion modeling analysis to ensure particulate matter ambient air quality standards are protected prior to granting coverage under a Registration Operation Permit for each facility that has annual maximum controlled emissions of particulate matter of 5 tons per year or more and meets the stack requirements of NR 407.105(2)(a)2. and 3. The Department will complete this assessment during the 15 day review period allowed by law. In the alternative, the facility may conduct the modeling analysis itself and submit the results with its application.

Additional Permit Requirements for Facilities Emitting Particulate Matter
Under the ROP, a facility will be required to conduct modeling prior to making future changes that may increase emissions or the ambient impact of PM if the facility emits or will emit 5 tons or more of particulate matter per year and if the ambient air impact of the maximum controlled particulate matter emission rate, as modeled to determine eligibility for the ROP, was equal at or greater than 30 micrograms per cubic meter in certain counties and 60 micrograms per cubic meter in other counties, as shown on the map in Attachment 1. Changes that would require modeling may include increases to the maximum controlled emission rate of particulate matter, or stack changes such as movement or alteration that would decrease dispersion of particulate matter. If the facility's PM emissions had been less than 5 tons/year and prior modeling had not been done, the facility will need to model before making physical changes that would result in annual maximum controlled PM emissions of 5 tons or more.

The Department believes that as long as a facility emits less than 5 tons of particulate matter per year or has emissions resulting in ambient impacts below the modeling thresholds, the facility will continue to meet the PM ambient air quality standards provided that their stacks are vertical, unobstructed and taller than nearby buildings. Such facilities will not be required to perform further air dispersion modeling before making changes to their emission units.

As noted before, all facilities, regardless of the type or amounts of pollutants emitted, that demonstrate eligibility for this Registration Operation Permit through air dispersion modeling rather than through meeting the requirements to have vertical, unobstructed stacks that are taller than nearby buildings, will

be required to perform air dispersion modeling to demonstrate compliance with all relevant air quality standards prior to making changes that would increase the ambient air impacts.

The additional application requirements and draft permit requirements specific to Particulate Matter Emissions are listed in the summary of changes to the Draft ROP

Summary of Changes to the Draft ROP

The following changes were made in response to comments received on the first draft of the registration operation permit:

1. In order to clarify the applicability of certain conditions in the ROP, the format of the draft permit was changed and some conditions reworded. Redundant conditions and conditions not expected to apply to any sources covered by the ROP were removed.

2. Additional requirements specific to Particulate Matter Emissions were added to ensure that the ambient air quality standards for PM will be attained and maintained by facilities covered by this permit.

a. Facilities that meet the stack requirements of NR 407.105(2)(a)2. and 3. and have annual maximum controlled emissions of particulate matter of 5 tons per year or more must do one of the following when applying for coverage under this permit:

   - Submit information on stack parameters relevant to air quality modeling and the maximum controlled hourly emission rates of particulate matter from each stack. The Department will perform an individual air dispersion modeling analysis during the 15 day review period to ensure that each facility can attain and maintain the ambient air quality standards for particulate matter.

   OR

   - Perform air dispersion modeling using the stack parameters and the maximum controlled hourly emission rates of particulate matter from each stack at the facility to show compliance with the applicable particulate matter emissions standards and submit the results of the modeling assessment to the Department. Facilities that already have a facility wide dispersion model showing compliance with particulate matter emission standards may rely on this modeling analysis to comply with the application requirement, if no subsequent physical or operational changes have been made at the facility.

b. Once a facility is covered by the ROP, if the owner or operator wants to make a physical or operational change that would affect the dispersion of particulate matter or increase the maximum controlled emission rates, and the facility has or will have annual maximum controlled emissions of particulate matter of 5 or more tons per year and whose stacks meet or will meet the permit's stack requirements the owner or operator must comply with one of the following,:

   - If the facility's modeled ambient air impact under (a) above was equal to or greater than the threshold values shown on the map in Attachment 1, the owner or operator must demonstrate through an air dispersion modeling analysis that the facility's particulate matter emissions will not cause or exacerbate a violation of the particulate matter air quality standard.

- If the facility did not need to have modeling done under (a) above but its annual maximum controlled emissions of particulate matter after the change will be 5 or more tons, the owner or operator must demonstrate through an air dispersion modeling analysis that the facility's particulate matter emissions will not cause or exacerbate a violation of the particulate matter air quality standard.

- If the facility's modeled ambient air impact under (a) above was less than the threshold values shown on the map in Attachment 1, the owner or operator shall keep updated stack records on site but does not need to perform an air dispersion modeling analysis.

c. The draft permit requires records of modeling inputs and outputs to be kept. These records must show the maximum controlled emission rates of particulate matter used in the modeling analysis, stack parameters and other modeling inputs that were used as well as the modeling results. Records are also required of any changes made to the facility during the year that would affect the dispersion or the maximum controlled emission rate of particulate matter from the facility.

3. Changes were also made to the Latest Available Control Techniques and Operating Practices (LACT) requirement of the ROP. Conditions were added to account for process lines constructed or last modified prior to August 1, 1979. The condition was rearranged and renumbered to clarify that the 10 TPY limitation is an elective limit taken to qualify for the LACT but is not part of the LACT requirements themselves. The corresponding underlying statutory authority was added. Compliance demonstration and recordkeeping requirements for the LACT requirements and emission limitations were also added.

4. A sentence was added allowing facilities subject to only the recordkeeping and/or notification requirements of a MACT Standard to be covered by this permit.

5. The safe harbor requirements were deleted from the permit as these are not permit conditions. The safe harbor provision is an option that is available to a facility under NR 407.105(7); it is not a requirement. (Note that the safe harbor provisions of the rule are not part of Wisconsin's State Implementation Plan and will not protect a facility from federal enforcement.)

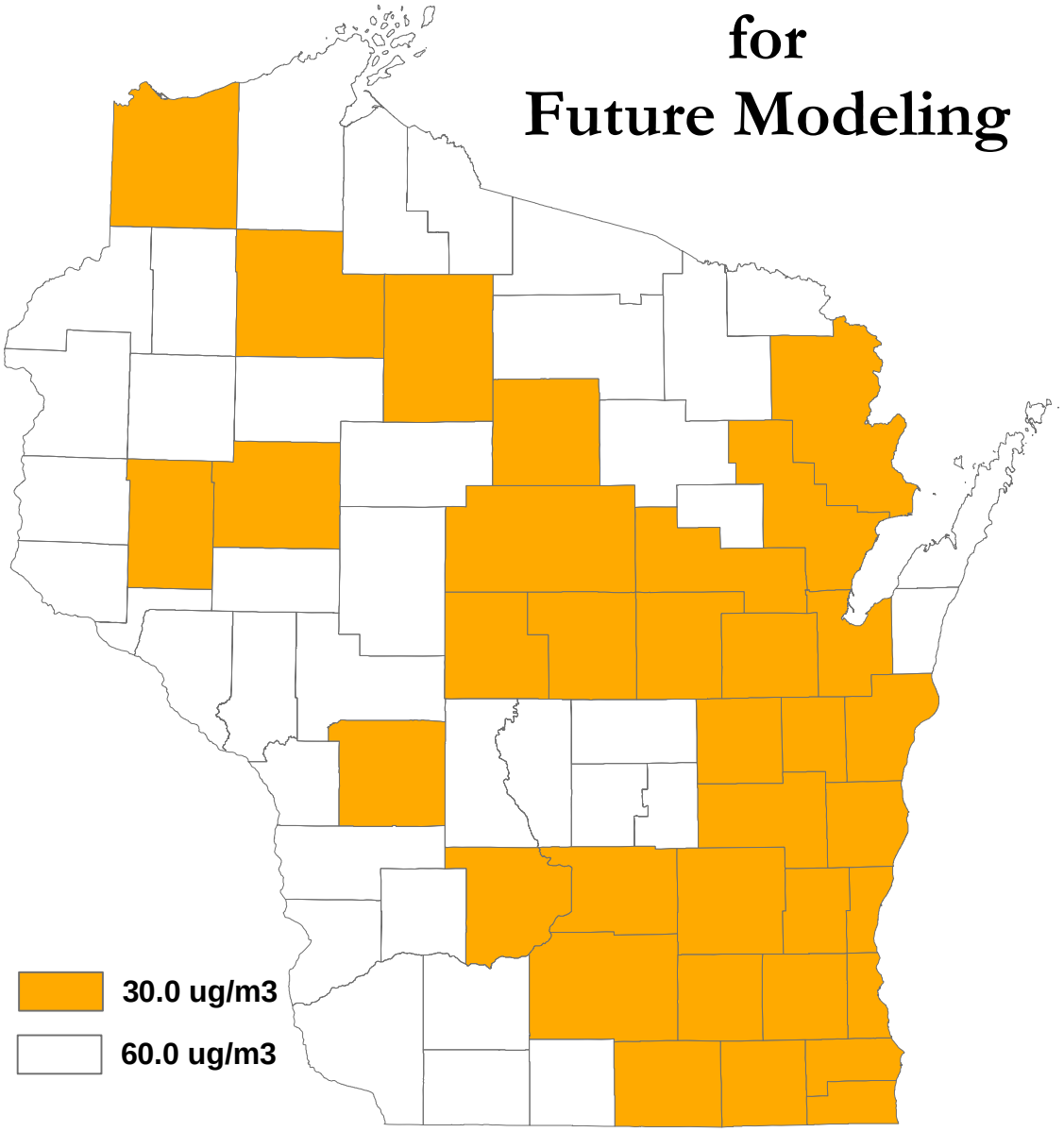
6. The ability to use alternative control efficiencies in calculating annual facility wide emissions has been deleted. The permittee must use the control efficiencies specified in the permit for demonstrating compliance with the permit's emission caps.

7. The list of 112(b) Hazardous Air Pollutants and the list of emission units not subject to certain ROP requirements are now attachments to the permit rather than sections of the permit.

8. A section of prohibited actions was added to the permit to ensure that the facility remains compliant with the conditions of the permit.

ATTACHMENT 1
Particulate Matter Modeling Threshold Concentrations by County
This map is current up to the date specified below and may be updated periodically. For the most current thresholds, see http://dnr.wi.gov/org/aw/air/apii/regpermits.html

ROP Threshold for Future Modeling



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ATTACHMENT 2
EMISSION UNITS NOT SUBJECT TO REGISTRATION OPERATION PERMIT REQUIREMENTS

1. Convenience space heating units with heat input capacity of less than 5 million Btu per hour that burn gaseous fuels, liquid fuels or wood

2. Convenience water heating

3. Maintenance of grounds, equipment and buildings, including lawn care, pest control, grinding, cutting, welding, painting, woodworking, general repairs and cleaning, but not including use of organic compounds as clean−up solvents

4. Boiler, turbine, generator, heating and air conditioning maintenance

5. Pollution control equipment maintenance

6. Internal combustion engines used for warehousing and material transport, forklifts and courier vehicles, front end loaders, graders and trucks, carts and maintenance trucks

7. Fire control equipment

8. Janitorial activities

9. Office activities

10. Fuel oil storage tanks with a capacity of 10,000 gallons or less

11. Stockpiled contaminated soils

12. Demineralization and oxygen scavenging of water for boilers.

13. Purging of natural gas lines.

14. Any emission unit, operation, or activity that has, for each air contaminant, maximum controlled emissions that are less than the level specified in Table 3 of ch. NR 407, Wis. Adm. Code. Multiple emissions units, operations, or activities that perform identical or similar functions shall be combined for the purposes of this determination.

15. If the maximum controlled emissions of any air contaminants listed in Table 3 of ch. NR 407, Wis. Adm. Code, from all emission units, operations or activities at a facility are less than 5 times the level specified in Table 3, for those air contaminants, any emission unit operation or activity that emits only those air contaminants.