ENVIRONMENTAL ANALYSIS AND DECISION ON THE NEED FOR AN ENVIRONMENTAL IMPACT STATEMENT (EIS)
Form 1600-8 Rev. 6-2010

Department of Natural Resources (DNR)

Region or Bureau
Bureau of Air Management
Type List Designation
II

NOTE TO REVIEWERS: This document is a DNR environmental analysis that evaluates probable environmental effects and decides on the need for an EIS. The attached analysis includes a description of the proposal and the affected environment. The DNR has reviewed the attachments and, upon certification, accepts responsibility for their scope and content to fulfill requirements in s. NR 150.22, Wis. Adm. Code. Your comments should address completeness, accuracy or the EIS decision. For your comments to be considered, they must be received by the contact person before 4:30 p.m., December 12, 2012.

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Applicant: Waupaca Foundry, Inc. Plant 2/3

Address: 1955 Brunner Road, Waupaca, WI 54981

Title of Proposal: Sand Reclaim and Line 7 Modification Projects

Location: County: Waupaca City/Town/Village: Waupaca

Township Range Section(s): T22N R12E

PROJECT SUMMARY

1. Brief overview of the proposal including the DNR action

Waupaca Foundry, Inc. is proposing two projects at its Plant 2/3 foundry in Waupaca, Wisconsin – the Sand Reclaim Project and the Line 7 Modification Project. Each project would receiving its own air quality construction permit under Chapter NR 406, Wis. Adm. Code. However, combined carbon monoxide emissions from both projects will exceed the 100 ton per year threshold at which an environmental assessment is required under Chapter NR 150, Wis. Adm. Code.

Sand Reclaim Project

Waupaca Foundry, Inc. is proposing to install a mechanical and natural gas-fired thermal reclamation system to recycle foundry sand for reuse. Plant 2/3 foundry uses over 160,000 tons of sand each year to produce iron castings. The exterior green sand mold is composed of a mixture of sand, clay and sea coal while the interior sand core is composed of a mixture of sand and phenolic-urethane resins. Spent sand contains approximately 4% organic matter. For the sand to be reused at the foundry, the clay and organic material must be removed from the sand grains. Reuse of the sand will both reduce operating costs for the foundry and the amount of sand disposed at a landfill.

The proposed sand reclamation system will be designed and manufactured by IMF (Impianti Macchine Fonderia) North America. Waste sand will be stored, screened, then accelerated and impinged against a surface to remove residuals from the sand grains. Waste material will be separated from the recoverable sand. This sand is processed by a thermal reclamation unit where it is raised to 1,300 °F. This temperature is sufficient to remove and combust residual organic binders and separate clays from the sand grains. The heated sand is then run through a second mechanical reclaim system for cooling and classifying before it is ready for reuse.

This new sand reclamation system will be designated Process P17. A maximum of 2.5 tons per hour of spent foundry sand will be processed. The system is sized for approximately 25% of the anticipated recycling demands of the foundry. This is a pilot project to determine if it is feasible to reclaim a combination of green sand and core sand for reuse in new sand cores.

The thermal section is equipped with a 2 mmbtu/hr natural gas-fired oven to remove the organic content of the sand. The exhaust gases from mechanical sand handling operations associated with P17 will be vented at a flow rate of 15,000 acfm through an existing baghouse (C05) and existing stack (S05) shared with existing processes. This portion of P17 will generate only particulate matter (PM) emissions. The exhaust gases from thermal treatment operations associated with P17 will be cooled and exhausted at a flow rate of 20,000 acfm through a new baghouse (C06) and new stack

(S06). This portion of P17 will generate both PM and gaseous emissions.

The sand reclaim system will be operated 24 hours a day, 7 days per week.

Maximum sand throughput = 2.5 tons per hour
Organic content of sand = 4%
Maximum organic content to be removed = 2.5 tph x 2,000 lbs/ton x 4% = 200 lbs/hr

Existing baghouse specifications for sand handling operations:

Baghouse - C05
Cloth Area - 13,744 ft2
Flow Rate = 89,200 acfm (15,000 acfm to be used for the proposed P17)
Air:Cloth Ratio - 6.5
Cloth Type – Polyester
Cleaning Method - Pulse Jet
Operating Pressure Drop - 2 to 10 inches wc

Existing stack parameters for sand handling operations:

Stack – S05
Height – 90 feet
Diameter – 5.0 feet
Temperature – 90 °F
Flow Rate - 89,200 acfm

New baghouse specifications for sand thermal operations:

Baghouse - C06
Cloth Area – 6,860 ft2
Flow Rate = 20,000 acfm
Air:Cloth Ratio – 2.9:1
Cloth Type – Aramid Fiber
Cleaning Method - Pulse Jet
Operating Pressure Drop Range – 2 to 10 inches wc

New stack parameters for sand thermal operations:

Stack - S06
Height - 120 feet
Diameter - 2.7 feet
Temperature - 250 °F
Flow Rate - 20,000 acfm

Line 7 Modification Project

Waupaca Foundry, Inc. is proposing to increase the iron casting production capacity of its existing Line 7 from 16 to 25 tons per hour.

Line 7 consists of three processes:

- P101 - Line 7 Pouring/Mold Cooling
- P102 - Line 7 Shakeout
- P103 - Line 7 Cast Cooler & Cleaning

The company proposes to increase the capacity of these three processes from 16 to 25 tons per hour. With the increase in capacity, uncontrolled emissions from Line 7 are expected to increase proportionally with the increase in throughput. While the capacity of Line 7 will increase, combined production and actual emissions from Plant 2/3 will not change as a result of this project. This project will result in no change in actual production at the foundry. Existing casting projects will be shifted to the modified Line 7 and away from other casting lines.

Baghouse C68 is shared by P101 and P102 with other foundry operations. Its specifications:

Baghouse – C68
Cloth Area - 20,587 ft2
Flow Rate = 100,100 acfm
Air:Cloth Ratio - 4.9
Cloth Type – Polyester
Cleaning Method - Pulse Jet
Operating pressure drop – 2 to 10 inches wc
Compliance method – Bag Leak Detector

Baghouse C70 is shared by P103 with other foundry operations. Its specifications:

Baghouse – C70
Cloth Area – 26,400 ft2
Flow Rate = 160,000 acfm

Air:Cloth Ratio - 6.1
Cloth Type – Polyester
Cleaning Method - Pulse Jet
Operating pressure drop – 2 to 10 inches wc
Compliance method – Bag Leak Detector

Plant 2/3 is located in the city of Waupaca, Waupaca County, Wisconsin. The present air quality status of the foundry site and surrounding area is designated as attaining the National Ambient Air Quality Standards (NAAQS) for all criteria pollutants. Criteria pollutants include sulfur dioxide (SO2), particles less than ten microns (PM10), particles less than 2.5 microns (PM2.5), nitrogen dioxide (NO2), carbon monoxide (CO), ozone (O3), and lead (Pb).

Dust collected by the baghouses at Plant 2/3 is currently disposed of at a licensed landfill operated by Waupaca Foundry, Inc. or recycled into existing beneficial reuse projects. The sand reclaim and Line 7 modification projects will have no effect on the amount of baghouse dust sent to landfill. However, if the sand reclaim project is successful, much more sand waste will be reclaimed for reuse rather than disposal at a landfill.

2. List the documents, plans, studies or memos on which this DNR review is based

Wingra Engineering, S.C., NR 405 Construction Permit Application, Plant 2/3 Sand Reclaim Project, ThyssenKrupp Waupaca, Inc. Waupaca, Wisconsin, June 12, 2012.

Wingra Engineering, S.C., NR 405 Construction Permit Application, Line 7 Modification Project, Waupaca Foundry, Inc., Waupaca, Wisconsin, August 21, 2012 (DRAFT).

Wisconsin Department of Natural Resources, Bureau of Air Management, Analysis and Preliminary Determination for the Proposed Sand Reclaim Project, Construction Permit No. 12-POY-127 (DRAFT).

Wisconsin Department of Natural Resources, Bureau of Air Management, Analysis and Preliminary Determination for the Proposed Line 7 Modification Project, Construction Permit No. Not Yet Assigned, (DRAFT).

Email from M. Myers – WDNR to S. Klafka – Wingra Engineering, S.C., Modeling Requirements for the NR 406 Construction Permit Application - WF Plant 2/3 Line 7 Modification Project, August 8, 2012.

DNR EVALUATION OF PROJECT SIGNIFICANCE

3. Environmental Effects and Their Significance

a. Discuss which of the primary and secondary environmental effects listed in the supporting documents are long-term or short-term.

Air pollution emissions from both projects are presented in their permit applications submitted on behalf of Waupaca Foundry, Inc. and the Department preliminary determination documents. The increase in CO emissions from both projects is greater than the 100 ton per year (tpy) threshold at which preparation of this environmental assessment was required under Chapter NR 150, Wis. Adm. Code.

The emissions of particulate matter, volatile organic compound and carbon monoxide from this project will be required to apply the Best Avaiable Control Technology (BACT).

The air quality impacts of both projects were evaluated using dispersion modeling analyses which followed USEPA and Department approved procedures. The modeling results for these projects are presented in their permit applications submitted on behalf of Waupaca Foundry, Inc. and the Department preliminary determination documents. The new emissions from both projects were found to be below significant impact levels. Therefore, no further modeling analyses were considered necessary. See the following table.

WAUPACA FOUNDRY PLANT 2/3 - WAUPACA
Significant Impact Analysis Results
(All Concentrations in $\mu g/m^3$)

	PM_{10} 24 hour	PM_{10} Annual	$PM_{2.5}$ 24 hour	$PM_{2.5}$ Annual	CO 1 hour	CO 8 hour
New/Modified Impact	1.84	0.08	1.16	0.06	65.5	55.9
PSD Significant Impact	5.0	1.0	1.2	0.3	2,000	500.0

The hazardous air pollutant emissions from these projects will meet the requirements in Chapter NR 445, Wis. Adm. Code.

b. Discuss which of the primary and secondary environmental effects listed in the supporting documents are effects on geographically scarce resources (e.g. historic or cultural resources, scenic and recreational resources, prime agricultural lands, threatened or endangered resources, or ecologically sensitive areas).

The effects of these projects are the impacts of new air pollution emissions as they disperse into the surrounding environment. No effects on geographically scare resources are anticipated.

c. Discuss the extent to which the primary and secondary environmental effects listed in the supporting documents are reversible.

All environmental effects due to these projects are reversible. The air pollution emissions and air quality impacts will stop when project equipment ceases operation.

4. Significance of Cumulative Effects

Discuss the significance of reasonably anticipated cumulative effects on the environment (and energy usage, if applicable). Consider cumulative effects from repeated projects of the same type. Would the cumulative effects be more severe or substantially change the quality of the environment? Include other activities planned or proposed in the area that would compound effects on the environment.

These projects are planned for the existing foundry. They are not expected to affect current employment. By modifying Line 7, the foundry is responding to the market for iron castings and assuring it will remain a successful business. If successful, the sand reclaim project will result in a reduction in raw materials needed for foundry operation including silica sand used for manufacturing cores. This will also result in less sand being landfilled..

5. Significance of Risk

a. Explain the significance of any unknowns that create substantial uncertainty in predicting effects on the quality of the environment. What additional studies or analysis would eliminate or reduce these unknowns?

Emission estimates for project operations have been made using measurements from similar operations. If there is uncertainty concerning the emission estimates or compliance with applicable operating conditions, the proposed permits contain testing, recordkeeping and monitoring requirements.

Modeling analyses have been used to verify compliance with air quality standards under worse-case operating and weather conditions. In accordance with s. NR 445.08.(3)(a)1., the Department determined that the inhalation risk from the facility after the project will be well under 10 in a million, the level allowed in s. NR 445.08.(3)(a)1. The current risk has been determined to be about 4 in a million.

b. Explain the environmental significance of reasonably anticipated operating problems such as malfunctions, spills, fires or other hazards (particularly those relating to health or safety). Consider reasonable detection and emergency response, and discuss the potential for these hazards.

The air pollution control equipment used by the proposed operations, including baghouses for the collection of PM emissions, are equipped with monitoring systems to detect developing malfunctions and alarm staff before uncontrolled emissions are released.

Waupaca Foundry, Inc. is designed and operated to provide a safe workplace environment in compliance with OSHA requirements. Hazardous materials are handled, stored and managed to avoid spills, fires or other health and safety concerns. Procedures have been established to detect and respond to spills and fires.

6. Significance of Precedent

Would a decision on this proposal influence future decisions or foreclose options that may additionally affect the quality of the environment? Describe any conflicts the proposal has with plans or policy of local, state or federal agencies. Explain the significance of each.

These projects will be constructed inside the existing foundry buildings. No new land will be committed for these projects. These projects are reversible so they do not foreclose operations for other uses of the property.

7. Significance of Controversy over Environmental Effects

Discuss the effects on the quality of the environment, including socio-economic effects, that are (or are likely to be) highly controversial, and summarize the controversy.

The Department will have a public comment period and a public hearing to receive public comments regarding the permit review and this Environment Assessment. At this time, it is unknown what public comment(s) will be received.

ALTERNATIVES

8. Briefly describe the impacts of no action and of alternatives that would decrease or eliminate adverse environmental effects. (Refer to any appropriate alternatives from the applicant or anyone else.)

The sand reclaimer will reduce the amount of spent foundry sand being landfilled. If the sand reclaimer is not approved, the sand must be landfilled as it is being done.

If the Line 7 modification is not approved, the foundry will not be allowed to increase production in Line 7. The current production level will be kept.

SUMMARY OF ISSUE IDENTIFICATION ACTIVITIES

9. List agencies, citizen groups and individuals contacted regarding the project (include DNR personnel and title) and summarize public contacts, completed or proposed.

Date	Contact	Comment Summary

10. ☐ On-site inspection or past experience with site by evaluator.

Project Name: Waupaca Foundry, Inc. Sand Reclaim and Line 7 Modification Projects County: Waupaca

PRELIMINARY DECISION

In accordance with s. 1.11, Wis. Stats., and Ch. NR 150, Wis. Adm. Code, the Department is authorized and required to determine whether it has complied with s. 1.11, Wis. Stats., and ch. NR 150, Wis. Adm. Code.

The Department has made a preliminary determination that the Environmental Impact Statement process will not be required for this action/project. This recommendation does not represent approval from other DNR sections which may also require a review of the action/project.

Signature of Evaluator	Date Signed
Paul O Gray	11/7/12

FINAL DECISION

The public review process has been completed. The Department received and fully considered 0 responses to the news release or other notice.

Pursuant to s. NR 150.22(2)a., Wis. Adm. Code , the attached analysis of the expected impacts of this proposal is of sufficient scope and detail to conclude that this is not a major action, and therefore the environmental impact statement process is not required prior to final action by the Department.

The Department has determined that it has complied with s. 1.11, Wis. Stats., and ch. NR 150, Wis. Adm. Code. This decision does not represent approval from other DNR sections which may also require a review of the action/project.

Signature of Environmental Analysis Program Staff	Date Signed
[signature]	12/14/2012

NOTICE OF APPEAL RIGHTS

If you believe that you have a right to challenge this decision, you should know that the Wisconsin statutes and administrative rules establish time periods within which requests to review Department decisions must be filed. For judicial review of a decision pursuant to sections 227.52 and 227.53, Wis. Stats., you have 30 days after the decision is mailed, or otherwise served by the Department, to file your petition with the appropriate circuit court and serve the petition on the Department. Such a petition for judicial review must name the Department of Natural Resources as the respondent.

To request a contested case hearing pursuant to section 227.42, Wis. Stats., you have 30 days after the decision is mailed, or otherwise served by the Department, to serve a petition for hearing on the Secretary of the Department of Natural Resources. All requests for contested case hearings must be made in accordance with section NR 2.05(5), Wis. Adm. Code, and served on the Secretary in accordance with section NR 2.03, Wis. Adm. Code. The filing of a request for a contested case hearing does not extend the 30 day period for filing a petition for judicial review.