

ENVIRONMENTAL ANALYSIS AND DECISION ON THE NEED FOR AN ENVIRONMENTAL IMPACT STATEMENT (EIS)

Form 1600-8

Rev. 6-90

Department of Natural Resources (DNR)

Region or Bureau Bureau of Air Management
Type List Designation Type 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., \_\_\_\_\_ (date)

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**Applicant:** ThyssenKrupp Waupaca, Inc. Plant 1

**Address:** 406 North Division Street, Waupaca, WI 54981

**Title of Proposal:** Plant 1 MACT / Upgrade Project

**Location:** 406 North Division Street

**County:** Waupaca County

**City/Town/Village:** Waupaca

**Township Range Section(s):**

PROJECT SUMMARY

ThyssenKrupp Waupaca, Inc. is planning a MACT (Maximum Achievable Control Technology) 1/ Upgrade Project at Plant I located at 406 North Division Street in Waupaca, Wisconsin. This project includes the following improvements:

1. upgrade the cupola air pollution control system to comply with foundry MACT standards;
2. reconstruct the cupola to increase its melt capacity from 65 to 90 tons per hour;
3. increase the capacity of Disa Lines 1, 2, 4, 5 and 6 from 64 to 88 tons per hour;
4. remove Disa Line 3 and relocate Disa Line 2 to the current Line 3 location;
5. install a new and larger Disa in the current Line 2 location;
6. increase the capacity of P54 - Lines 3/4 Spinner/Cleaning/Grinding/Cast Handling; and,
7. increase the capacity of P55 - Lines 1/2 Spinner/Cleaning/Grinding/Cast Handling.

1. MACT Upgrade of Process P31 - Cupola

On April 22, 2004, USEPA promulgated the Maximum Available Control Technology or MACT regulations for the control of hazardous air pollutants from iron and steel foundries under 40 CFR Part 63 Subpart EEEEE—National Emission Standards for Hazardous Air Pollutants for Iron and Steel Foundries. Under § 63.7690(a)(2) , each cupola metal melting furnace at an existing iron and steel foundry must not discharge emissions through a conveyance to the atmosphere that exceeds either 0.006 gr/dscf of particulate matter (PM) or 0.0005 gr/dscf of total metal hazardous air pollutants. With this project, the existing cupola air pollution

1 “MACT” is Federal emission control standard that is required of all major sources of Federal hazardous air pollutants.

2 “gr/dscf” is an abbreviation for grains (mass) per dry standard cubic foot of exhaust.

control system will be replaced with new incineration, dry injection and baghouse air pollution control systems capable of meeting the MACT limitations for PM and the organic HAP3.

## 2. Reconstruction of Process P31 - Cupola

The current production capacity of the cupola is 65 tons per hour. The cupola will be reconstructed to allow an increase in capacity to 90 tons per hour. This additional capacity will address projected demand for iron at Plant 1. The cupola will be "reconstructed" rather than "modified" since the cost of the cupola improvements will exceed 50% of the cupola replacement cost meets the definition of "reconstruction" in 40 CFR § 63.2 and s. NR 400.02(130), Wis. Adm. Code.

While the cupola will be reconstructed, it will not be subject to the new source requirements under MACT. Under § 63.7682, the affected source for purposes of applying the MACT requirements is each new or existing foundry. Since the entire foundry is not being reconstructed, the cupola is subject to the requirements for existing foundries.

This project is also subject to the Best Available Control Technology (BACT)<sup>4</sup> requirements under the NR 405 Prevention of Significant Deterioration (PSD) regulations. The new cupola air pollution control system will also be designed to implement BACT for the control TSP/PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub>, CO and VOC.

With the increase in cupola capacity, there will be a concurrent and similar increase in the throughput of the supporting operations: F20 - Charge Handling and F21 - Molten Iron Handling & Alloy Addition. These operations generate fugitive emissions and will comply with the proposed MACT standard of 20% opacity from any building openings under § 63.7690(a)(7). This limitation is also similar to recent BACT determinations for these operations.

## 3. Casting and Sand Handling Operations

Plant 1 has historically been a job shop manufacturing parts in short runs with a comparatively low volume per part. As the national foundry industry contracts, Plant 1 will need to respond to the market opportunities, thus creating more demands on the Disa casting production lines. To accommodate this anticipated market growth, the throughput of the Disa molding machines and associated sand handling operations will be increased. The combined casting throughput of Disa Lines 1, 2, 4, 5 and 6 will increase from 64 to 88 tons per hour. The throughput of existing sand mulling and handling systems will also be increased to support the Disa Lines. The existing and proposed throughput of each casting and sand handling operation is presented in Table 1.

No change in the existing ventilation and air pollution control systems are required. All operations are currently equipped with baghouse control systems which comply with Best Available Control Technology requirement for PM emissions under the PSD regulations. These operations are also designed to implement BACT for the control SO<sub>2</sub>, NO<sub>x</sub>, CO and VOC.

## 4. Relocation of Disa Line 2 to the Current Disa Line 3 Location

The existing Disa Line 3 will be removed. Disa Line 2 will be relocated to the former location of Disa Line 3. It will now be referred to as Disa Line 3 and will retain the current Department Line 3 identification numbers which are P35c and P33b. P35c is Line 3 Pouring/Mold Cooling and P33b is Line 3 Shakeout.<sup>6</sup> It will retain its current production capacity of 16 tons per hour. This portion of the project is considered a relocation exempt from construction permit requirements.

## 5. Installation of a New Disa Line 2

As described above, the existing Disa Line 2 will be relocated. In its current location, a replacement Disa Line (for the former Disa Line 3) will be installed. It will now be referred to as Disa Line 2 and will retain the current Department Line 2 identification numbers which are P35a and P33a. P35a is Line 2 Pouring/Mold Cooling and P33a is Line 2 Shakeout. The replacement line will have higher capacity equipment, increasing current throughput from 10 to 20 tons per hour.

## 6. Modification of P54 - Lines 3/4 Spinner/Cleaning/Grinding/Cast Handling

To accommodate the higher casting production and include automatic grinders, the existing P54 - Lines 3/4 Spinner / Cleaning / Grinding / Cast Handling will be modified to increase its capacity from 54 to 104 tons per hour. This increase in capacity will be result from a conversion to an automatic robotic cleaning machine. No change in the existing ventilation and air pollution control systems

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3 "HAP" is an acronym for hazardous air pollutant

4 "BACT" is a control technology standard required of all major sources of air pollution which are modified or, in this case, reconstructed. BACT is required to be the maximum quantity of emission reduction (lowest emission rate) achievable given economic, environmental and energy concerns.

5 "pouring/mold cooling" is the step in which molten metal is poured into a sand mold and then allowed to cool into solid metal

6 "shakeout" is a process in which the metal casting is separated from the sand mold. Shaking of the parts is often involved in this process step.

are required. This process will continue to exhaust through Baghouse C27 and Stack S27.

#### 7. Modification of P55 - Lines 1/2 Spinner/Cleaning/Grinding/Cast Handling

To accommodate the higher casting production and include automatic grinders, the existing P55 - Lines 1/2 Spinner / Cleaning / Grinding / Cast Handling will be modified to increase its capacity from 18 to 52 tons per hour. This increase in capacity will be result from a conversion to an automatic robotic cleaning machine. No change in the existing ventilation and air pollution control systems are required. This process will continue to exhaust through Baghouse C29 and Stack S29.

Table 1 summarizes the process changes included in this project.

Table 1 Current and Proposed Specifications					
Stack	Baghouse	Process	Status	Production Rate (Tons Per Hour)	
				Current	Proposed
S31	C31 - Incinerator C32 - Dry Injection C33 - Baghouse	P31 – Cupola	Reconstructed	65	90
S13/S14	C03/04	P34 - Lines 1 & 5 Shakeout	Modified	24	34
S17/S18	C17C18	P35b - Line 1 Pouring/Mold Cooling	Modified	12	18
S17/S18	C17C18	P35a - Line 2 Pouring/Mold Cooling	Replaced	10	20
S17/S18	C17C18	P35d - Line 4 Pouring/Mold Cooling	Modified	14	16
S17/S18	C17C18	P45 - Sand Handling	Modified	450	600
S17/S18	C17C18	P43 - Three Sand Mullors	Modified	225	300
S19	C19	P36 - Line 5 Pouring/Mold Cooling	Modified	12	16
S19	C19	P44 - Two Sand Mullors, Tanks & Belts	Modified	150	200
S19	C19	P46 - One Sand Mullor, Tank & Belt	Modified	75	100
S25	C25A-F	P33a - Line 2 Shakeout	Replaced	10	20
S25	C25A-F	P33c - Line 4 Shakeout	Modified	14	16
S26	C26A-F	P60 - Line 6 Pouring/Mold Cooling	Modified	16	18
S26	C26A-F	P61 - Line 6 Shakeout	Modified	16	18
S26	C26A-F	P64 - #4 to #6 Return Sand Handling	Modified	225	300
S27	C27A-F	P54 - Lines 3/4 Spinner/Cleaning/Grinding/Cast Handling	Modified	54	104
S29	C29	P55 - Lines 1/2 Spinner/Cleaning/Grinding/Cast Handling	Modified	18	52
F20	n/a	F20 - Charge Handling	Modified	65	90
F21	n/a	F21 - Molten Iron Handling & Alloy Addition	Modified	65	90

<sup>1</sup> This is considered a relocation, exempt from construction permit requirements.

#### 4.0 SOURCE DESCRIPTION

The air pollution sources included in this project are as follows:

- P31 - Cupola
- P34 - Lines 1 & 5 Shakeout
- P35b - Line 1 Pouring/Mold Cooling
- P35a - Line 2 Pouring/Mold Cooling
- P35c - Line 3 Pouring/Mold Cooling (relocated)
- P35d - Line 4 Pouring/Mold Cooling
- P45 - Sand Handling
- P43 - Three Sand Mullors
- P36 - Line 5 Pouring/Mold Cooling
- P44 - Two Sand Mullors, Tanks & Belts
- P46 - One Sand Mullor, Tank & Belts
- P33a - Line 2 Shakeout
- P33b - Line 3 Shakeout (relocated)

- P33c - Line 4 Shakeout
- P60 - Line 6 Pouring/Mold Cooling
- P61 - Line 6 Shakeout
- P64 - #4 to #6 Return Sand Handling
- P54 - Lines 3/4 Spinner/Cleaning/Grinding/Cast Handling
- P55 - Lines 1/2 Spinner/Cleaning/Grinding/Cast Handling
- F20 - Charge Handling
- F21 - Molten Iron Handling & Alloy Addition

Operation of all of these processes is currently approved under the Title V Operation Permit #469033730-P01 issued April 29, 2003, except for P54 and P55 which were recently approved with the issuance of Permit #03-RV-290 on December 26, 2003.

This project will result in higher short-term production rates. No significant change in annual production is expected in the immediate future. Future increases in production will result in an increase in solid waste generation. This waste will continue to be disposed of at a licensed landfill operated by ThyssenKrupp Waupaca, Inc. or recycled into existing beneficial reuse projects. No other cross media impacts are anticipated due to this project.

With installation of a new dry injection - baghouse control system, this project will eliminate the venturi scrubber currently used to control the air pollution control emissions from the cupola. It will also eliminate approximately 20,000 gallons per day of treated wastewater discharges to the Waupaca River which have been necessary to operate the scrubber.

The estimated cost of this project is approximately \$12.5 million.

Stack parameters for all stacks associated with this project are summarized in Table 2. All these stacks are existing except for the new Stack S31 which will exhaust the new air pollution control systems for the cupola.

<b>Table 2 Stack Parameter Summary</b>				
<i>Stack No.</i>	<i>Height (feet)</i>	<i>Flow Rate (acfm<sup>7</sup>)</i>	<i>Diameter (feet)</i>	<i>Temperature (°F)</i>
S13	110	90,000	6.0	120
S14	110	90,000	6.0	120
S17	90	52,000	3.8	110
S18	90	52,000	3.8	110
S19	100	51,000	5.0	100
S22	50	32,000	4.3	68
S25	100	112,000	6.5	120
S26	120	119,000	6.5	120
S27	100	99,550	6.0	75
S29	120	60,000	4.5	100
S31	180	120,000	6.7	280

DNR Review Information Based on:

**List documents, plans, studies or memos referred to and provide a brief overview**

Wingra Engineering, S.C., *Prevention of Significant Deterioration, NR 406 Construction Permit Application for Plant 1 MACT / Upgrade Project, ThyssenKrupp Waupaca, Inc., Waupaca, Wisconsin.*

DNR EVALUATION OF PROJECT SIGNIFICANCE (complete each item)

**1. Environmental Effects and Their Significance**

**Discuss the short-term and long-term environmental effects of the proposed project, including secondary effects, particularly to geographically scarce resources such as historic or cultural resources, scenic and recreational**

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<sup>7</sup> “acfm” means actual cubic feet per minute of air flow.

**resources, prime agricultural lands, threatened or endangered species or ecologically sensitive areas, and the significance of these effects. (The reversibility of an action affects the extent or degree of impact.)**

ThyssenKrupp Waupaca, Inc. has proposed a Plant 1 MACT / Upgrade Project in Waupaca, Wisconsin. This project includes an upgrade of the cupola air pollution control system to comply with the iron and steel foundry Maximum Available Control Technology standards recently promulgated by USEPA; reconstruction of the cupola to increase its melt capacity from 65 to 90 tons per hour; modify Disa Lines 1, 2, 4, 5 and 6 to increase capacity from 64 to 88 tons per hour; removal of existing Disa Line 3; relocation of Disa Line 2 to the Line 3 location; replacement of Disa Line 2; and modification of the P54 and P55 spinner/cleaning/grinding/cast handling operations.

The air quality permit application for the project provided the information required by the Wisconsin Department of Natural Resources to demonstrate this project meets the criteria for issuance of an air quality permit under Chapters NR 405 and NR 406, Wis. Adm. Code. Based on the application analyses, the following conclusions were reached:

1. This project will be subject to the NR 405 Prevention of Significant Deterioration (PSD) requirements for total suspended particulate matter (TSP), particulate matter under 10 microns (PM<sub>10</sub>), sulfur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), and volatile organic compounds (VOC).
2. Under the PSD regulations, project emissions must be controlled using Best Available Control Technology or BACT. This analysis is provided including a review of available control technologies, related state air quality permits, and prior BACT determinations for iron foundries in the United States.
3. Project operations will comply with the recently promulgated Maximum Available Control Technology or MACT regulations for the control of hazardous air pollutants from iron and steel foundries under 40 CFR Part 63 Subpart EEEEE
4. An air quality impact analysis was conducted to support this application. This demonstrates that after this project, the foundry will continue to comply with the National Ambient Air Quality Standards, and PSD Class II area increments<sup>8</sup>.

Project emissions are summarized in Table 3. This shows the final approved emission from project operations, and the net increase in approved emissions resulting from this project. There will be a reduction in TSP/PM<sub>10</sub> emissions due to improvements to the cupola air pollution control system.

Table 3 Project Net Change in Potential Emissions							
Status	Units	TSP/PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>x</sub>	CO	VOC	Lead
Proposed	lbs/hr	22.8	21.6	40.6	564.0	54.6	0.063
	TPY <sup>9</sup>	99.9	94.6	177.8	2,470.3	239.1	0.3
Existing	lbs/hr	33.6	9.6	10.5	416.7	41.6	0.2
	TPY	147.2	42.0	46.0	1825.1	182.2	0.9
Change	lbs/hr	-10.8	12.0	30.1	147.3	13.0	-0.2
	TPY	-47.3	52.6	131.8	645.2	56.9	-0.7

To characterize the air quality impacts of this project, a comparison can be made between the project emissions and existing emissions in Waupaca County. Existing emissions are contributed by industrial sources such as foundries, area sources, and mobile sources.

Table 4 compares an estimate of actual emissions released in Waupaca County in 1999 with the actual emissions contributed by Plant 1. The Plant 1 contribution of PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub>, CO and VOC emissions range from 0.1% to 8.4%. In general, Plant 1 does not contribute a significant amount of emissions of those generated in the county. No significant change to this contribution is expected as a result of this project. However, this project is anticipated to result in a decrease in PM<sub>10</sub> emissions, primarily due to the replacement of the cupola air pollution control system to comply with the new MACT requirements for iron and steel foundries.

<sup>8</sup> Both of these standards are designed to be protective of human health.

<sup>9</sup> "TPY" is tons per year

<i>Air Pollution Source</i>	<i>PM<sub>10</sub> Emissions (TPY)</i>	<i>SO<sub>2</sub> Emissions (TPY)</i>	<i>NO<sub>x</sub> Emissions (TPY)</i>	<i>CO Emissions (TPY)</i>	<i>VOC Emissions (TPY)</i>
Existing Industrial	551	661	249	1,372	938
Existing Area	3,833	369	2,427	2,427	2,536
Existing Mobile	2,008	240	3,093	15,070	1,891
Existing Total	6,392	1,270	5,769	18,869	5365
Plant 1 Contribution	66	26	43	27	453
Plant 1 Contribution (%)	1.0%	2.0%	0.7%	0.1%	8.4%

As part of its typical air quality permit application review process, the Department conducts a dispersion modeling analysis. This predicts the dispersion of air pollutants released from foundry operations in order to estimate downwind concentrations of air pollutants. This analysis considers such factors as stack parameters (i.e. height, diameter, exhaust flow rate, etc.), building dimensions, and local weather. This analysis predicted that no exceedence of the National Ambient Air Quality Standards (NAAQS) is anticipated due to this project and this project is expected to have a minor impact on air quality. The NAAQS are established by U.S. EPA for protection of human health, as well as the secondary standards set by U.S. EPA and Wisconsin DNR for protection of crops, trees, buildings, and aesthetic interests.

Table 5 presents for dispersion modeling results for the NAAQS compliance analysis. This compares the estimated concentrations with the NAAQS and Wisconsin DNR's TSP10 standard. The predicted concentration reflects emissions from all Plant 1 operations after this project is completed. The background concentrations are based on historical measurements and accounts for contributions from other existing sources of air pollution such as mobile vehicles and other industries.

<i>Air Pollutant</i>	<i>Averaging Period (hours)</i>	<i>Predicted Concentration (ug/m<sup>3</sup>)<sup>11</sup></i>	<i>Background Concentration (ug/m<sup>3</sup>)</i>	<i>Total Concentration (ug/m<sup>3</sup>)</i>	<i>NAAQS (ug/m<sup>3</sup>)</i>
TSP	24	30.8	41.8	72.6	150
PM <sub>10</sub>	24	30.8	29.8	60.6	150
	Annual	3.3	9.8	13.1	50
CO	1	6,443.4	3,188.0	9,631.4	40,000
SO <sub>2</sub>	8	1,546.0	890.4	2,436.4	10,000
	3	9.7	137.1	146.8	1,300
NO <sub>x</sub>	24	3.7	35.2	38.9	365
	Annual	0.3	7.9	8.2	80
	Annual	0.3	4.7	5.0	100

In 1997, the USEPA promulgated a National Ambient Air Quality Standard for particles less than 2.5 microns, referred to as PM<sub>2.5</sub>. State regulatory agencies have begun to conduct ambient monitoring for this pollutant and identifying areas which do not comply with the new NAAQS. The Department has concluded that Waupaca County currently complies with the NAAQS for PM<sub>2.5</sub>.

There are currently no regulations for incorporating the PM<sub>2.512</sub> NAAQS into new source review for construction permit applications. However, the Department requested that this project evaluate compliance with the NAAQS for informational purposes and presentation in the project Environmental Assessment. To conduct this analysis, it was conservatively assumed that all PM<sub>10</sub> emissions were PM<sub>2.5</sub> and

10 "TSP" means "total suspended particulate"

11 "ug/m<sup>3</sup>" means micrograms per cubic meter

12 "PM2.5" means particulate matter less than 2.5 microns in diameter.

background concentrations in Waupaca are similar to those provided by the Department for the Oshkosh, Wisconsin monitoring site. The results of the PM<sub>2.5</sub> compliance analysis are shown in Table 6. Based on this analysis, the foundry will comply with the proposed PM<sub>2.5</sub> NAAQS after this project is completed.

<i>Averaging Period (hours)</i>	<i>Predicted Concentration (ug/m<sup>3</sup>)</i>						<i>Background (ug/m<sup>3</sup>)</i>	<i>Total Project Impacts (ug/m<sup>3</sup>)</i>	<i>NAAQS (ug/m<sup>3</sup>)</i>
	<i>Year 1</i>	<i>Year 2</i>	<i>Year 3</i>	<i>Year 4</i>	<i>Year 5</i>	<i>Average</i>			
24	19.9	21.1	24.5	24.1	24.3	22.8	33.0	55.8	65
Annual	2.5	2.6	2.7	3.3	3.1	2.8	10.8	13.6	15

When evaluating the air quality impacts of the proposed project, its proximity to residences and sensitive receptors was considered. Table 7 summarizes sensitive receptors and subpopulations in the Waupaca area including child care centers, schools, hospitals and retirement homes.

Facility air quality impacts vary depending on air pollutant, averaging period and distance. Facility emissions of TSP/PM<sub>10</sub> are expected to have the greatest impact on air quality. The highest concentrations of air pollutants are predicted to occur relatively close to the foundry.

Table 8 summarizes the maximum concentrations predicted at the closest sensitive receptors. The percentage of the National Ambient Air Quality Standard for PM<sub>10</sub> is provided. For the annual average, all impacts due to foundry emissions are expected to be below the significant impact level of 1 ug/m<sup>3</sup> and consume 1 to 2% of the NAAQS. For the 24-hour average, the maximum concentration will be at or higher than the significant impact level of 5 ug/m<sup>3</sup> and consume 3 to 9% of the NAAQS.

<i>Type</i>	<i>City</i>	<i>Name</i>	<i>Address</i>	<i>Distance to Plant 1 (miles)</i>
Child Care	Waupaca	Sunny Day Child Care	720 Demarest Street	1.0
Child Care	Waupaca	Growing Hands Day Care	303 S. Western Avenue	1.2
Child Care	Waupaca	Wee Care Kiddie Care	1408 Berlin Street	1.4
Child Care	Waupaca	Kids First Group Center	1260 West Fulton	2.5
School	Waupaca	Accelerated Learning Center	407 School Road	0.4
School	Waupaca	Westwood Elementary School	615 Union Street	0.8
School	Waupaca	Waupaca Middle School	1149 Shoemaker Road	1.1
School	Waupaca	Riverside Elementary School	950 Park Avenue	1.1
School	Waupaca	Waupaca Learning Center Elementary	1515 Shoemaker Road	1.25
School	Waupaca	Waupaca High School	E2325 King Road	2.25
School	Waupaca	Chain O'Lakes Elementary School	N3160 Silver Lake Road	4.25
Hospital	Waupaca	Riverside Medical Center	800 Riverside Drive	4.0
Hospital	Waupaca	Crystal River Rehabilitation Center	1401 Churchill Road	3.0
Retirement	King	Wisconsin Veterans Home	N2665 County Road QQ	3.75

<i>Sensitive Receptor</i>	<i>Annual Maximum (ug/m<sup>3</sup>)</i>	<i>NAAQS (%)</i>	<i>24-hr Maximum (ug/m<sup>3</sup>)</i>	<i>NAAQS (%)</i>
Accelerated Learning Center	0.9	2%	10.0	9%
Westwood Elementary School	0.7	1%	10.2	9%
Growing Hands Day Care	0.5	1%	6.8	8%
Sunny Day Child Care	0.6	1%	6.8	5%
Crystal River Rehabilitation Center	0.9	1%	8.0	5%
Wee Care Kiddie Care	0.5	1%	5.8	4%
Riverside Medical Center	0.5	1%	5.0	4%
Waupaca Learning Center	0.7	1%	5.3	4%
Riverside Elementary School	0.4	1%	5.0	3%
Waupaca Middle School	0.8	1%	6.4	3%

For this project, the air pollutants subject to PSD review are TSP, PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub>, CO and VOC. SO<sub>2</sub> and NO<sub>x</sub> are air pollutants which are phytotoxic and capable of damaging vegetation. The PSD regulations require that a soils and vegetation impact analysis be conducted for the project. Procedures for this analysis are described in the 1990 USEPA draft, *New Source Workshop Manual*. Predicted air pollutant concentrations are typically compared with the thresholds for vegetation damage. These thresholds were obtained from the 1980 USEPA publication, *A Screening Procedure for the Impacts of Air Pollution Sources on Plants, Soils and Animals*. The maximum concentrations due to facility emissions can be compared with the applicable thresholds for vegetation damage.

USEPA suggests that the vegetation screening concentrations be compared to the maximum air pollution concentrations. These concentrations are based on maximum facility impacts added to the appropriate background concentrations. The predicted facility impacts, background concentrations, total maximum concentrations and USEPA screening values are provided in Table 9. Predicted concentrations are less than the USEPA screening levels. It is concluded that under worst-case meteorological conditions and at the predicted maximum concentrations, no significant effects on vegetation are expected due to project SO<sub>2</sub> or NO<sub>x</sub> emissions and background concentrations.

<i>Air Pollutant</i>	<i>Averaging Period</i>	<i>Maximum Facility Concentration (ug/m<sup>3</sup>)</i>	<i>Background Concentration (ug/m<sup>3</sup>)</i>	<i>Total Concentration (ug/m<sup>3</sup>)</i>	<i>Vegetation Screening Concentration (ug/m<sup>3</sup>)</i>	<i>Screening Criteria Exceeded?</i>
SO <sub>2</sub>	1-hour	27.0	711	738	917	No
	3-hour	12.9	137.1	150	786	No
	Annual	0.3	7.9	8.2	18	No
NO <sub>x</sub>	4-hour	10.7	167.6	178	3760	No
	8-hour	9.3	145.7	155	3760	No
	1-month	0.5	7.8	8	564	No
	Annual	0.3	4.7	5	94 - 188	No

VOC emissions are a precursor to the formation of ozone in the presence of NO<sub>x</sub> and sunlight. Ozone is a phytotoxic air pollutant. The net emissions increase of VOC due to this project emissions of VOC are less the pre-construction monitoring threshold of 100 TPY under the NR 405 PSD regulations. Secondly, no modeling analysis is typically required for VOC due to the absence of models capable of accurately

predicting its formation into ozone.

VOC emissions will indirectly impact vegetation due to the formation of O<sub>3</sub> in the presence of nitrogen oxides and sunlight. The foundry currently contributes approximately 8.4% of the VOC emissions released in the county. This project will result in little actual change to this contribution. At the proposed allowable emissions, there is a potential increase of 57 TPY so that Plant 1 will contribute 9.4% of county emissions. Waupaca County is currently considered an attainment area for ozone. The potential increase in VOC emissions is relatively small compared to existing county emissions so is not expected to affect compliance with the ozone air quality standard.

Under the PSD regulations, the Department must consider impacts on visibility. This project is subject to PSD approval for TSP/PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub>, CO and VOC. These emissions may influence visibility due to atmospheric discoloration or reduction of visual range due to increased haze. However, Plant 1 is more than 100 km from the nearest Class I area, Rainbow Lake National Wilderness Area in northwestern Wisconsin, so visibility impacts on Class I areas are expected to be negligible.

Visible impacts near the facility are expected to also be small. The air pollution control systems used on the process equipment (i.e. fabric filter baghouse systems) will collect TSP/PM<sub>10</sub> significantly reducing these pollutants. Based on similar air pollution control equipment at the facility, the visibility of the plume leaving the project stacks is expected to be negligible.

Under certain meteorological conditions, the facility stacks may emit a visible steam plume. Factors influencing the formation of a steam plume include ambient temperatures and humidity. Any steam plume will eventually dissipate by dispersion and evaporation.

Project impacts on fish and wildlife were also considered. The Department maintains an inventory of endangered resources throughout Wisconsin. The Natural Heritage Inventory County maps were developed by the Endangered Resources Program, to provide information about endangered resources including rare, threatened, or endangered species and high-quality natural communities. The maps are a general reference to identify areas with known occurrences of endangered resources and are appropriate for general planning and assessment purposes. The inventory for Waupaca County indicates there are no endangered resources in on the property occupied by Plant 1. This project will occur on the existing Plant 1 property which has been actively developed for over 30 years. It is unlikely that any sensitive or endangered species remain on this land.

## **2. 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.**

This project is subject to the Prevention of Significant Deterioration (PSD) air quality regulations under Chapter NR 405, Wis. Adm. Code. These regulations are designed to prevent significant deterioration of air quality. The PSD regulations establish air quality increments for new projects to limit the amount of air quality degradation that may occur. For PM<sub>10</sub>, the National Ambient Air Quality Standards or NAAQS allow air quality degradation to a concentration of 150 ug/m<sup>3</sup> based on a 24-hour average concentration, while the PSD increments limit air quality degradation from new projects to 30 ug/m<sup>3</sup>.

The air quality impact analysis for this project has demonstrated compliance with both the NAAQS and the PSD increments. The NAAQS analysis incorporated emissions from the entire Plant 1 foundry. The PSD increment analysis incorporated all new emissions in Waupaca County since the first PSD project in 1992.

The foundry project will not lead to significant secondary effects, such as substantially greater number of employees at the plant, which would in turn generate greater mobile source pollutant emissions. As previously noted, some of Waupaca County's criteria pollutant emissions are released by the foundry, and there is a substantial gap between modeled plant emissions and the NAAQS for all criteria pollutants.

Repeated projects of the same type could increase emissions levels closer to the NAAQS, as well as raising the human exposure risk by a slight but nonzero amount. There are no known or planned future activities which would compound the effects on the environment. At such time as future modifications are planned for the foundry, they will require a separate air permit and separate Environmental Assessment.

## **3. Significance of Risk**

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

Use of Dispersion Modeling Analyses - Approval of this project must rely on the use of computer dispersion modeling programs to predict downwind concentrations and verify protection of air quality standards. Computer models may not accurately represent the complex dispersion of air pollutants from the project but provide reasonable estimates of downwind concentrations. Compared to actual measurements, models do allow predictions to be made at any location, under worst-case operating and weather conditions. As improved computer models are released by the USEPA, they are adopted by the Department into the evaluation of air permit applications to assure more accurate estimates of air quality impacts.

Emission Estimation Procedures - Project compliance with emission limitations and air quality standards are based on emission estimates. For air pollutants with significant emissions, limitations will be established in the air quality permit. When appropriate, the Department includes compliance testing requirements to verify the emission estimates and compliance with limitations.

Possible Effects on Sensitive Subpopulations - Certain subpopulations, such as infants, small children, and the elderly, may be more sensitive to the effects of exposure to air pollution than the general population. USEPA continues to review the effects of air pollutants and revise the NAAQS for criteria air pollutants and change unit risk values for carcinogen air pollutants. As further research is conducted, this may result in a better understanding of the impacts on sensitive populations. This environmental assessment includes identification of sensitive subpopulations near the project. Estimated pollutant concentrations near these receptors are expected to be less than the maximum concentrations resulting from foundry operations and well within existing NAAQS.

- 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.**

This project will increase production capacity on existing manufacturing operations. This project will not result in the creation of new opportunities for malfunctions, spills, fires or other hazards which do not already exist. Existing detection and emergency response programs will continue to be implemented as needed to assure the protection of the health and safety of workers and nearby residents.

#### 4. **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.**

With this project, there will be additional consumption of the available PSD air quality increments. This may limit future industrial growth of new air pollution sources in the Waupaca County which impact the same area as Plant 1. At this time, Plant 1 consumes PSD increment only near its boundaries and does not influence other air pollution source sources in the Waupaca area.

There are no other known local, state, or federal policies (other than the PSD program) that will be affected by the proposed modifications at the foundry.

#### 5. **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.**

This project is occurring at the existing ThyssenKrupp Waupaca, Inc. Plant 1 in Waupaca. It will increase production capacity on existing manufacturing operations. At this time, no significant change actual annual production or employment at the foundry is anticipated. The proposed changes will assure the foundry is allowed to grow while complying with applicable environmental protection regulations. No controversial effects on the quality of the environment or socio-economic conditions are anticipated. At this time no public debate has been raised regarding the proposed project, nor is any expected.

### **ALTERNATIVES**

**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.)**

No Action - This project will allow growth in the production capacity of existing manufacturing operations. Without this project, no increase in production will be allowed at the foundry. Once the full capacity of the foundry has been achieved, additional iron casting production would need to be transferred to other foundries.

Emission Control Alternatives - This project is subject to the PSD air quality regulations. These required an evaluation of emission control alternatives to assure the use of Best Available Control Technology or BACT for the foundry industry. With this project, the foundry will continue its pollution prevention program designed to reduce benzene and other organic compound emissions. This program will be similar that implemented at company foundry operations at Plants 2, 3 and 4 and will investigate alternative production methods which generate lower emissions.

Manufacturing Alternatives - No change in traditional casting production methods are proposed. To remain competitive the foundry continues to investigate and implement the most efficient manufacturing methods.

**SUMMARY OF ISSUE IDENTIFICATION ACTIVITIES**

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

G On-site inspection or past experience with site by evaluator.

Project Name: ThyssenKrupp Waupaca, Inc. Plant 1                      County: ThyssenKrupp Waupaca, Inc. Plant 1

**DECISION (This decision is not final until certified by the appropriate authority)**

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

Complete either A or B below:

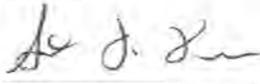
A.                      **EIS Process Not Required**

**X**

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 which would significantly affect the quality of the human environment. In my opinion, therefore, an environmental impact statement is not required prior to final action by the Department on this project.

B.                      **Major Action Requiring the Full EIS Process**

The proposal is of such magnitude and complexity with such considerable and important impacts on the quality of the human environment that it constitutes a major action significantly affecting the quality of the human environment.

Signature of Evaluator 	Date Signed 1/12/2006
Noted: Regional Waste Supervisor	Date Signed

Number of responses to news release or other notice: 0

Add Discussion of Any Comments Received.

<b>Certified to be in compliance with WEPA</b>	
REGIONAL Director or Director of Bureau of Integrated Science Services (or designee) 	Date Signed 01/12/2006

**NOTICE OF APPEAL RIGHTS**

If you believe that you have a right to challenge this decision, you should know that 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, 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 shall name the Department of Natural Resources as the respondent.**

**To request a contested case hearing pursuant to section 227.42, 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. The filing of a request for a contested case hearing is not a prerequisite for judicial review and does not extend the 30-day period for filing a petition for judicial review.**

**Note: Not all Department decisions respecting environmental impact, such as those involving solid waste or hazardous waste facilities under sections 144.43 to 144.47 and 144.60 to 144.74, Stats., are subject to the contested case hearing provisions of section 227.42, Stats.**

**This notice is provided pursuant to section 227.48(2), Stats.**

Wisconsin Department of Natural Resources, Air Management Program, Preliminary Determination on an Air Pollution Control Permit to Construct and Permit to Operate an Air Contaminant Source at Tower Rd, Waupaca, Wisconsin and a separate Air Pollution Control Permit to Construct and Permit to Operate an Air Contaminant Source at 406 North Division Street, Waupaca (Town of), Wisconsin

Air Pollution Construction and Operation Permit Nos. 05-SDD-296; 05-SDD-296-OP/469033840-P02 and Air Pollution Construction and Operation Permit Nos. 04-RV-184 and 04-RV-184-OP/469033730-P02, respectively.

In addition the DNR has prepared an Environmental Assessment (EA) and has made a preliminary determination that an Environmental Impact statement (EIS) will not be required before a final decision is made on the proposed modification project for the 406 North Division Street facility. This preliminary determination does not constitute approval from the Air Management Program or any other DNR sections which may also require a review of the project.

NOTICE IS HEREBY GIVEN that, pursuant to secs. 285.13(a), 285.61(7) and 285.62(5), Stats. DNR will hold a public hearing to receive public comments on the air pollution construction and operation permit applications and the EA.

NOTICE IS FURTHER GIVEN that the public hearing will be held on December 22, 2005 at 1:30 PM at the:

Waupaca County Courthouse  
Room LL43  
811 Harding St  
Waupaca, WI

Interested persons wishing to comment on the proposal and preliminary determinations may attend the hearing and/or submit written comments no later than December 30, 2005, to: Wisconsin Department of Natural Resources, Bureau of Air Management, P.O. Box 7921, Madison, Wisconsin 53707, (608)266-7718 Attn: Steve Dunn.

Reasonable accommodation, including the provision of informational material in an alternative format, will be provided for qualified individuals with disabilities upon request.

Dated at Madison, Wisconsin, December 9, 2005.

STATE OF WISCONSIN  
DEPARTMENT OF NATURAL RESOURCES

For the Secretary

By ss/SDD

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Jeffrey Hanson  
Chief, Permits and Stationary Source  
Modeling Section