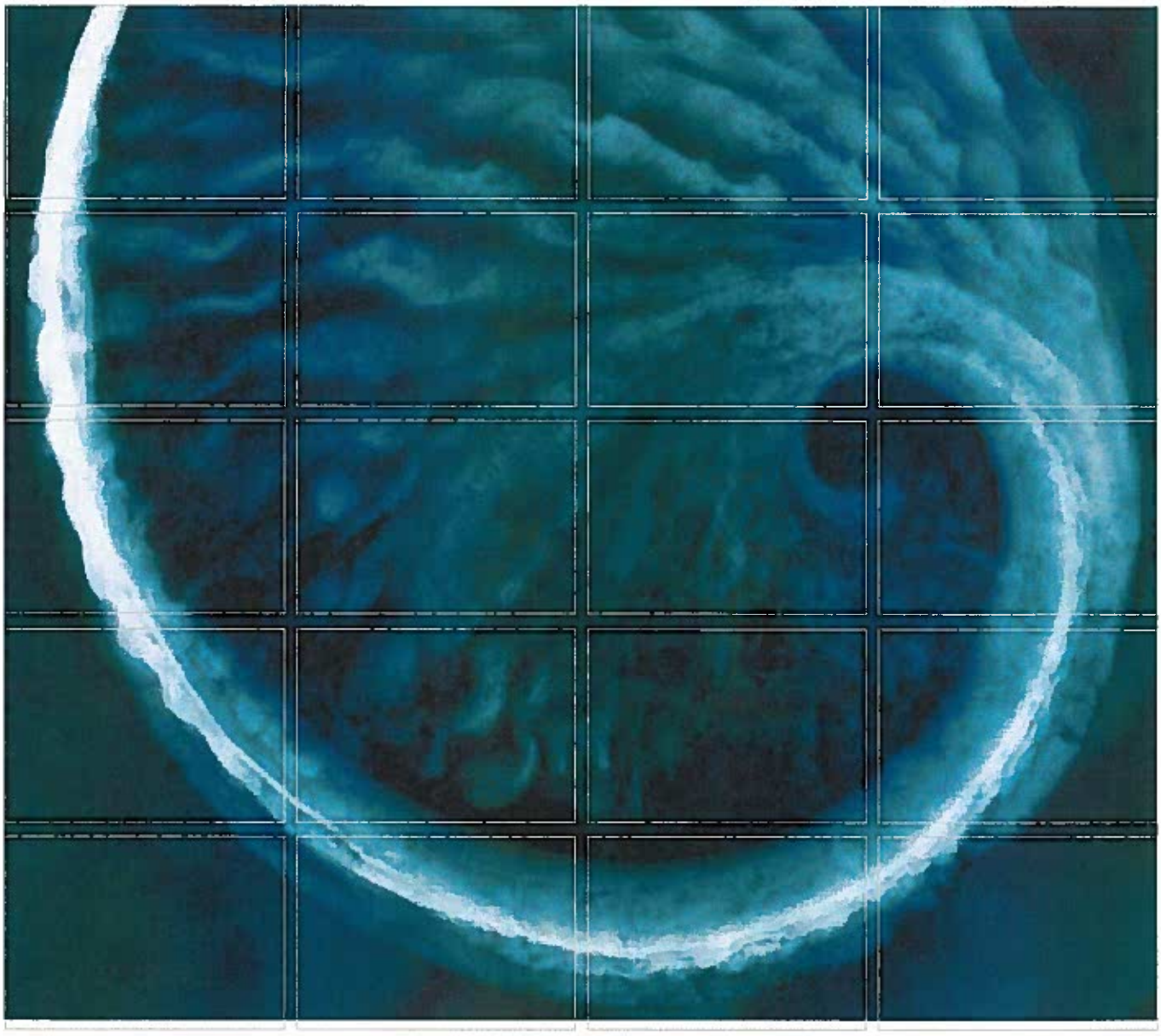

Construction Permit Application: Existing Non-Ferrous Separation and Sorting Hubs

Gerdau AmeriSteel U.S. Inc.
Jackson, TN Facility

March 2017

Environmental Resources Management
5000 Meridian Blvd. Suite 300
Franklin, TN 37067
www.erm.com

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Prepared for:

Gerday AmeriSteel U.S. Inc.

Jackson, TN Facility

Reference Number: 57-0189

Construction Permit Application U.S. Inc.
Existing Non-Ferrous Separation and Sorting Hubs

March 2017

Project No. 0394753

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1.0 *INTRODUCTION*

Gerdau AmeriSteel U.S. Inc. (Gerdau) owns and operates a steel mill facility including a steel scrap shredder and electric arc steel melting furnace (EAF) located at 801 Gerdau Drive in Jackson, Madison County, Tennessee. The facility currently operates under the authority granted by Title V Permit No. 565713 issued on December 18, 2013 by the Tennessee Department of Environment and Conservation (TDEC).

Gerdau was issued Construction Permit 969936P on June 15, 2015 (amended April 18, 2016) for the Non-Ferrous Separation System (NFSS) Project, which consisted of modification of the existing non-ferrous stream material handling equipment following the shredding operation, as well as construction of four (4) new sorting hubs. Note that the existing non-ferrous handling equipment was previously included in the permit as a portion of Emission Source Reference Number 57-0189-01. Prior to the project the existing non-ferrous stream from the shredding operation handling equipment included three (3) magnetic separators. The additions to the existing non-ferrous material handling equipment included four (4) conveyors. The project did not involve modification of the actual steel shredder or the shredded ferrous material handling equipment and separation processes.

Gerdau is submitting this application in order to clarify the allowed run time of the previously existing non-ferrous separation equipment, and to update/increase the throughput of the sorting hubs contained in Construction Permit 969936P.

1.1 *OVERVIEW OF APPLICATION*

The Non-Ferrous Separation System sorting hubs and major equipment are largely unchanged from what is currently contained in Construction Permit 969936P. However, Gerdau proposes to make additional changes including:

- Clarification regarding the distinction between the existing steel scrap shredder and existing non-ferrous separation equipment with potential hours of operation for the existing non-ferrous separation equipment of 8,760 hours per year;
- Updates to the design capacity of three of the four new sorting hubs; and
- Miscellaneous updates to process/emission source nomenclature.

An outline of the contents of this updated construction permit application is as follows:

- Section 1.0 includes an introduction and application overview;
- Section 2.0 includes a process overview of the sources included in this application and the associated methods used to calculate air emissions from emission sources;
- Section 3.0 discusses the applicability of State and Federal rules;
- Appendix A includes an updated process flow diagram and plot plan of the NFSS equipment;
- Appendix B includes a copy of the detailed emission calculation spreadsheets for the NFSS equipment;
- Appendix C includes completed TDEC permit application forms;
- Appendix D includes draft amended construction permit conditions.

2.0 *PROCESS DESCRIPTION, CALCULATION METHODS, AND EMISSIONS*

2.1 *SOURCE-SPECIFIC PROCESS DESCRIPTION AND CALCULATION METHODOLOGIES*

Descriptions of the modifications to the existing non-ferrous material handling equipment, the four (4) new sorting hubs, and the emission calculation methods are included in the sections below.

2.1.1 *Process Overview*

The purpose of the Non-Ferrous Separation System is to separate miscellaneous metals such as copper, aluminum, and any remaining iron and steel from automotive shredder residue (ASR) that is either generated by the existing steel scrap shredder, or that has been stored in the on-site landfill, or received from off-site sources. ASR consists of a mixture of glass, plastic, rubber, cloth, foam, paper, copper, aluminum, zinc, and some amount of ferrous material. The project permitted by Construction Permit No. 969936P included modifications to the existing non-ferrous separation material handling equipment (formerly imprecisely referred to as existing steel scrap shredder's material handling equipment in the construction permit application submitted in February of 2015) and the installation of four (4) new sorting hubs, referred to as Steps 10, 11, 12 (formerly referred to as 12/13), and 15 (formerly referred to as 15/16). Miscellaneous metal products include ferrous materials, ICW (insulated copper wire), copper, zurik (primarily stainless steel), zorba (primarily aluminum), and nonferrous microfines. The products of uniform sizes and materials (i.e.,

miscellaneous metal products) are staged in storage piles as they are generated from various stages of the modified process. In general, the non-ferrous miscellaneous metals (ICW, copper, zurik, and zorba) produced by the project are shipped offsite, while the ferrous metal of sufficient quality is used in the existing facility steel melting process.

2.1.2 *Existing Steel Scrap Shredder and Associated Material Handling Equipment (Source 57-0189-01)*

Source 57-0189-01 in the facility Title V permit consists of a scrap steel shredding operation with a maximum input capacity of 400 tons/hour. The existing operation includes a 124 SXS 104" steel scrap shredder rated at 8,000 HP. Raw material in the form of scrap metal comprised mostly of automobiles and parts is placed on a conveyor that feeds into the existing shredder. After the raw material is shredded, it exits onto a conveyor line where it is passed through magnetic separators, producing a ferrous material stream and ASR composed of largely non-ferrous materials. Once cleaned of debris, the ferrous material travels along another conveyor to be stockpiled. The finished ferrous scrap product is ultimately transferred to the steel melting process.

The non-ferrous ASR is separated from the ferrous scrap and is conveyed away to a diverter which either sends the material to a "pants-leg" conveyor where the material is stockpiled for further processing, or sends the material to the feed hopper to the newly modified, but formerly existing non-ferrous metal separation equipment. While the auto shredder is limited to 2,080 hours per year, the existing non-ferrous separation potion of the source has historically been understood to operate without limit.

2.1.3 *Modification to Formerly Existing Non-Ferrous Separation Equipment Included in Source 57-0189-01*

This project, as well as a portion of the project completed earlier under Construction Permit No. 969936P, does not involve modifications to the actual steel scrap shredder, only the formerly existing material handling equipment associated with the non-ferrous shredded metal stream and the updates to the throughputs of the newly installed sorting hubs.

The Shredder is capable of processing of up to 400 tons of scrap hour, and produces up to 300 tons per hour of ferrous material and 100 tons per hour of ASR. Prior to the modification of the eddy current separators (ECS) in the older existing non-ferrous separation equipment this operation was limited to a maximum of 50 tons per hour, with any excess diverted by the pants-leg conveyor to the stockpile. Following operation of the Shredder for one eight-hour shift per day, the non-ferrous separation equipment would typically be operated a second eight-hour shift to process the stockpile. It is important to understand that there is an existing receiving hopper which accepts the ASR

from the shredder prior to being conveyed to the existing non-ferrous separation equipment. This same receiving hopper is also the loading point for material retrieved from the landfill and delivered to the facility from off-site sources. As a result of these supplemental feedstocks, this operation could also run a third shift if needed. The emissions from the existing non-ferrous separation equipment are from transfer points of material dropping onto conveyor belts from size classification and transfer of material from one conveyor to another or into accumulation stockpiles.

With the relocation of two of the eddy current separators, the modified portion of the previously existing non-ferrous separation equipment is now capable of processing up to 80 tons per hour. Again any excess diverted by the pants-leg conveyor is processed later in the day. The equipment additions to the existing non-ferrous handling equipment include four (4) conveyors. Note that while referred to as the non-ferrous stream, this stream does in fact include some amount of ferrous content and other components which are further separated and sorted. The existing/modified non-ferrous operation will continue to produce large zorba (nonferrous) and finished scrap (ferrous) as final products.

One purpose of this application is to clearly spell out in the permit, that the annual potential hours of operation for the existing non-ferrous separation equipment and modifications is 8,760 hr/yr. The existing shredding operation, which is separate from existing non-ferrous separation equipment, will retain the annual hour's limitation of 2,080 hours per year that is currently in the facility Title V permit for ESRN 57-0189-01. Gerdau is however submitting drop point emission calculations for both the pre and post modified older non-ferrous separation equipment under continuous operation.

2.1.4 *New Sorting Hubs (part of Source 57-0189-01)*

As stated earlier, the previous construction project added four (4) new sorting hubs referred to as Steps 10, 11, 12, 15, which consist of equipment and processes that will further sort previously shredded materials by size and composition. The four steps will consist of stand-alone stations that will not be physically connected to the existing steel scrap shredding operation and the modified non-ferrous separation equipment. Shredded ASR is transported from the existing/modified non-ferrous separating equipment to the sorting hubs via front-end loaders and dump trucks. About 50% of the shredded ASR infeed to these steps will come from the existing steel scrap shredder; the other half will come from the on-site landfill and/or from off-site suppliers.

The Step 10 sorting hub accepts ASR from the existing/modified non-ferrous separation equipment. In addition to material handling equipment (e.g., conveyors), this step consists of one (1) ECS with a dual magnetic separator. The ECS is enclosed and no fugitive emissions will be generated from this piece of equipment. Medium zorba product is the only end product for the Step 10

sorting hub, though several interim product storage piles will be generated that will be sent to other steps for further sorting (i.e., material less than 5/8 of an inch, clean/dirty ferrous, and reject). There are no stack points of emissions associated with the Step 10 sorting hub. The design capacity for the Step 10 sorting hub is updated in this application from 30 to 40 tons per hour.

The Step 11 sorting hub equipment is comprised of one (1) ECS with a dual magnetic separator, four (4) destoners, a ferrous removal magnet system, and material-handling equipment (e.g., conveyors). The ECS and the four (4) destoners are enclosed and no fugitive emissions will be generated from this equipment. This step sorts out the material less than 5/8 of an inch from the Step 10 sorting hub into the following end products: small zorba, small dirty ferrous, and microfines (nonferrous). Reject will also be created at this step. An interim product storage pile consisting of clean ferrous is also generated, which will be sent to the EAF for consumption. Emissions from the destoners will consist of filterable particulate matter (PM), PM_{10}[i], and $PM_{2.5}$[ii] and be controlled by an air evacuation system. The air evacuation system will be comprised of one cyclone and one baghouse in series with a single exhaust stack (BH1). Please note that this control equipment is also used for the destoners at the Step 15 sorting hub. There are no additional stack points of emissions associated with the Step 11 sorting hub. The design capacity for the Step 11 sorting hub is being updated in this application from 18 to 25 tons per hour.

The Step 12 sorting hub is comprised of three (3) separate lines, each with an upgraded design capacity from 10 to 15 tons per hour, or 45 tons per hour total (updated in this application). This step receives shredded ASR from the existing non-ferrous, as well as dirty ferrous and reject from the Step 10 and 11 sorting hubs. The Step 12 sorting hub equipment is comprised of three (3) air aspiration systems, eight (8) finders, one (1) picking station, and material-handling equipment (e.g., conveyors). The three (3) air aspiration systems and the eight (8) finders are enclosed and no fugitive emissions will be generated from this equipment. The end products for this step include zurik and ICW. Reject material is also generated. Interim material flow consists of re-run (i.e., materials fed through the Step 12 sorting hub again). There are no stack points of emissions associated with the Step 12 sorting hub.

The Step 15 sorting hub consists of two (2) separate lines, each with a design capacity of 5 tons per hour, 10 tons per hour total. Material-handling equipment and four (4) destoners separate small dirty ferrous and microfines (nonferrous) from Step 11 into four microfines end products of varying sizes. As with the destoners in Step 11, the four (4) destoners planned for Step 15 are enclosed and no fugitive emissions will be generated from this equipment. Reject material is

---

[i] Particulate matter with aerodynamic diameter of 10 microns or less.
[ii] Particulate matter with aerodynamic diameter of 2.5 microns or less.

also generated in the process. As previously mentioned, an air evacuation system comprised of one cyclone and one baghouse in series with a single exhaust stack (BH1) is planned for the destoners for Step 15. This control equipment will also serve the destoners in Step 11. There are no additional stack points of emissions associated with the Step 15 sorting hub.

2.1.5 *Emission Calculation Methods*

Note there are no changes to the calculation methods used in the original NFSS application submitted in February of 2015. However, the emissions from the previously existing non-ferrous separation equipment prior to the sorting stations is now also included. Input parameters that have been updated in this application are incorporated into the calculations in Appendix B (e.g., updates to design capacity of Steps 10, 11, 12; update to existing non-ferrous separation equipment operating hours to 8,760 hr/yr).

Emissions from the proposed project include fugitive PM/PM_{10}/$PM_{2.5}$ emissions from material handling (e.g., drop points onto conveyors, into and out of sorting hub equipment, and into material storage piles). Emissions were calculated using the aggregate material handling calculations from US EPA's AP-42, Chapter 13, Section 13.2.4 and the design throughput capacity of the new equipment proposed for the existing/modified non-ferrous separation process and new sorting hubs.

This application updates the annual potential hours of operation (and the resulting emissions of PM/PM_{10}/$PM_{2.5}$) for the existing non-ferrous separation equipment modifications to 8,760 hr/yr. (The existing steel scrap shredder, which is limited to 2,080 hours per year of operation, remains unchanged.) Further, this application includes a more detailed breakdown of the material and the related drop points as compared to the February 2015 application which overstated the number of the drop points and very conservatively assumed that the entire weight of the material entering the existing non-ferrous handling equipment was processed through each drop point throughout the process.

Emissions from the cyclone/baghouse system that serves the destoners at the Step 11 and Step 15 sorting hubs consists of filterable PM/PM_{10}/$PM_{2.5}$. Please note that the destoners vent to a common cyclone separator and baghouse before exhausting to the atmosphere. A manufacturer grain loading factor (0.005 grains per dry standard cubic foot or gr/dscf) is used along with the maximum fan flow rate to determine the cyclone/baghouse stack PM emissions. PM_{10} and $PM_{2.5}$ emissions are conservatively assumed to be equal PM emissions.

Annual potential emissions of PM/PM_{10}/$PM_{2.5}$ were calculated based on operation for 8,760 hours per year for the new sorting hub equipment (Steps 10, 11, 12, 15).

2.2 *SUMMARY OF PROJECT POTENTIAL EMISSIONS*

Potential emissions are shown in Table 2-1. This includes emissions from the new equipment additions to the existing non-ferrous separation operation and the four (4) new sorting hubs.

TABLE 2-1 SUMMARY OF NON-FERROUS SEPARATION POTENTIAL EMISSIONS (TONS PER YEAR)

Source	Potential Emissions (Tons Per Year)		
	PM	PM_{10}	$PM_{2.5}$
Modification to Existing Non-ferrous Separation Equipment: Material Handling	1.02	0.23	0.07
Step 10 Material Handling	1.66	0.78	0.12
Step 11 Material Handling	2.92	1.38	0.21
Step 12 Material Handling	2.82	1.34	0.20
Step 15 Material Handling	0.34	0.16	0.02
Baghouse (Step 11, 15)	5.52	5.52	5.52
Non-Ferrous Separation Total	**14.28**	**9.42**	**6.15**

3.0 *REGULATORY REQUIREMENTS*

A summary of the federal regulations and Tennessee Air Pollution Control Regulations (TAPCR) and applicability to the upgraded NFSS is presented below. This included a review of federal rules such as Prevention of Significant Deterioration (PSD), Title V, New Source Performance Standards (NSPS), National Emission Standards for Hazardous Air Pollutants (NESHAPs), and State of Tennessee Air Quality Control Regulations.

3.1 *CONSTRUCTION AND OPERATING PERMITS*

TAPCR 1200-3-9 outlines the requirements for submitting construction and operating permit applications for air contaminant sources. PSD requirements are defined in this chapter and apply to new major stationary sources or major modifications that are located in an area formally designated as attainment or unclassifiable for any pollutant for which a NAAQS exists (criteria pollutants). Madison County is designated as attainment or unclassifiable for all criteria pollutants.

The Gerdau facility is considered a major stationary source since it is a secondary metal production plant with the potential to emit greater than 100 tons per year of a regulated NSR pollutant. Table 2-2 shows that the NFSS project is not a major modification per PSD regulations since PM/PM_{10}/$PM_{2.5}$ emissions are less than the respective 25, 15, and 10 tpy thresholds.

TABLE 3-1 SUMMARY OF PROJECT POTENTIAL EMISSIONS AND PSD EMISSION THRESHOLDS (TONS PER YEAR)

Source	Potential Emissions (Tons Per Year)		
	PM	PM_{10}	$PM_{2.5}$
Project Total[1]	14.28	9.42	6.15
PSD Thresholds	25	15	10

Note 1: Note the Project Total emissions conservatively include potential emissions from the existing Non-Ferrous Separation equipment prior to the modification allowed by Construction Permit No. 969936P.

The Title V operating permit program is also part of TAPCR 1200-3-9 which outlines the procedures for applying, submitting and obtaining a Title V operating permit.

Following completion of the requested updates the total allowable emissions from ESRN 01 are shown in Table 3-2

TABLE 3-2 SUMMARY OF ESRN 01 EMISSIONS (TONS PER YEAR)

Source	Allowable Emissions (lbs/hr)	Allowable Annual Operating Time (hrs/yr)	Potential Emissions (Tons Per Year)
			PM
Shredder and Ferrous Separation	25	2,080	26
Non-Ferrous Separation	3.26	8760	14.28
Source Total	28.26	-	40.28

Gerdau is requesting a new construction permit to reconcile the differences between the equipment actually installed as compared to the original project design and to increase the allowed operating time of the non-ferrous activities. Suggested draft construction permit conditions are included in Appendix D.

3.2 *TITLE V OPERATING PERMIT MODIFICATION PROCEDURES*

Following issue of the new construction permit, Gerdau anticipates a condition requiring the submittal of a Significant Modification to the Title V Operating Permit similar to that required by Construction Permit No. 969936P.

3.3 *NEW SOURCE PERFORMANCE STANDARDS (NSPS)*

This narrative is provided for completeness; there are no changes to the applicability of federal NSPS regulations as discussed in the original NFSS application.

Federal New Source Performance Standards (NSPS) are established for specific industrial categories in 40 CFR Part 60. A review of the NSPS categories has been performed for potential applicability, and it has been determined that none of the NSPS subparts are applicable to the proposed project.

3.4 *NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAP)*

This narrative is provided for completeness; there are no changes to the applicability of federal NESHAP regulations as discussed in the original NFSS application.

NESHAP standards are established for specific pollutants and source categories in 40 CFR Part 61 and Part 63 in accordance with the Clean Air Act (CAA) Amendments of 1990, which required development standards for sources of HAP. The potential HAP emissions from the Gerdau facility are below the major source thresholds of 10 tpy of an individual HAP or 25 tpy of total HAP emissions. Thus, Gerdau is an area (minor) source of HAP and only potentially subject to any applicable Generally Available Control Technology (GACT) standards.

Federal emission standards are established for asbestos, beryllium, mercury, vinyl chloride, benzene, radionuclides and inorganic arsenic in 40 CFR Part 61.

Trace quantities of mercury may be emitted from shredding operations due to mercury switches from motor vehicle scrap. As discussed below, Gerdau is subject to and complies with the requirements of 40 CFR Part 63 Subpart YYYYY and participates in the End of Life Vehicle Solutions (ELVS) Mercury Switch Program to ensure that automotive mercury switches are removed prior to a vehicle being scrapped.

The provisions of 40 CFR Part 61 Subpart E are applicable to sources which process mercury ore to recover mercury, use mercury chlor-alkali cells to produce chlorine gas and alkali metal hydroxide, and incinerate or dry wastewater treatment plant sludge [40 CFR §61.50]. Gerdau does not perform any of these operations; therefore the mercury emission standards, monitoring, and recordkeeping requirements contained in this subpart do not apply. Furthermore, Gerdau's shredding operation and the proposed project does not emit any of the remaining pollutants listed above.

The following regulations in 40 CFR Part 63 have been reviewed for applicability to the project.

3.4.1 *NESHAP Subpart YYYYY - Electric Arc Furnace Steelmaking Facilities*

This narrative is provided for completeness; there are no changes to the applicability of NESHAP Subpart YYYYY as discussed in the original NFSS application.

Federal NESHAP regulations for Electric Arc Furnace (EAF) Steelmaking Facilities at area sources are found at 40 CFR Subpart YYYYY. This subpart applies to all new and existing area source EAF steelmaking facilities. As such, the existing steel scrap shredder and electric arc furnace (ESRNs 57-0189-01, 02) are subject to the requirements of this subpart. Gerdau's existing shredder

complies with Subpart YYYYY by submitting and adhering to the Scrap Pollution Prevention Plan found as Attachment 7 in Title V Permit No. 565713. Furthermore, Gerdau and all of its scrap metal suppliers take part in the ELVS Mercury Switch Program to ensure that automotive mercury switches are removed prior to a vehicle being scrapped.

As with the existing shredder, the only requirement of this subpart that indirectly applies to the proposed project is the requirement to follow a scrap pollution prevention plan. The plan only pertains to the actual shredder and not the material handling equipment itself, and so this plan does not need to be revised due to the proposed project. Gerdau will continue to follow its Scrap Pollution Prevention Plan and take part in the ELVS Mercury Switch Program once the project is constructed and operated.

3.5 *ADDITIONAL STATE OF TENNESSEE REGULATIONS*

3.5.1 *Overview of TAPCR Chapters*

This narrative is provided for completeness; there are no changes to the applicability of state regulations as discussed in the original NFSS application.

Tennessee's Air Pollution Control Regulations, which were intended to implement provisions of the Tennessee Air Quality Act, are codified in 1200-03 of the Rules of the Tennessee Department of Environment and Conservation. Table 3-2 below includes a list of all chapters within 1200-03. Chapters that are generally applicable to all facilities with sources of air pollutants or are clearly not applicable to the sources contained in this application are noted as such in Table 3-2 and no further explanation is provided. The sections following provide additional explanation where warranted for a given Chapter.

TABLE 3-3 SUMMARY OF TAPCR APPLICABILITY

Chapter	Description	Applicability
1200-03-1	General Provisions	Generally Applicable
1200-03-2	Definitions	Generally Applicable
1200-03-3	Ambient Air Quality Standards	Generally Applicable
1200-03-4	Open Burning	Generally Applicable
1200-03-5	Visible Emissions	Generally Applicable
1200-03-6	Non-Process Emission Standards	Not Applicable
1200-03-7	Process Emission Standards	Yes, See Section 3.4.2
1200-03-8	Fugitive Dust	Generally Applicable
1200-03-9	Construction and Operating Permits	Yes, See Section 3.1
1200-03-10	Required Sampling, Recording, and Reporting	Generally Applicable

Chapter	Description	Applicability
1200-03-11	Hazardous Air Contaminants	No, See Section 3.4.3
1200-03-12	Methods of Sampling and Analysis	Generally Applicable
1200-03-13	Violations	Generally Applicable
1200-03-14	Control Sulfur Dioxide Emissions	Not Applicable
1200-03-15	Emergency Episode Plan	Not Applicable
1200-03-16	New Source Performance Standards	No, See Section 3.4.4
1200-03-17 (repealed; renumbered 0400-30-17)	Conflict of Interest	Not Applicable
1200-03-18	Volatile Organic Compounds	Not Applicable
1200-03-19	Emission Standards and Monitoring Requirements for Additional Control Areas	Not Applicable
1200-03-20	Limits of Emissions Due to Malfunctions, Startups, and Shutdowns	Generally Applicable
1200-03-21	General Alternate Emission Standards	Not Applicable
1200-03-22	Lead Emission Standards	Not Applicable
1200-03-23	Visibility Protection	Not Applicable
1200-03-24	Good Engineering Practice Stack Height Regulations	Generally Applicable
1200-03-25	Standards for Infectious Waste Incinerators	Not Applicable
1200-03-26	Administrative Fees Schedule	Generally Applicable
1200-03-27	Nitrogen Oxides	Not Applicable
1200-03-28	Reserved	--
1200-03-29	Light-Duty Motor Vehicle Inspection and Maintenance	Not Applicable
1200-03-30	Acidic Precipitation Control	Not Applicable
1200-03-31	Case By Case Determination of Hazardous Air Pollutant Control Requirements	Not Applicable
1200-03-32	Prevention of Accidental Releases	Not Applicable
1200-03-33	Repealed	--
1200-03-34	Conformity	Not Applicable
1200-03-35	Reserved	--
1200-03-36	Motor Vehicle Tampering	Not Applicable
1200-03-37	Repealed	--

3.5.2 *Process Emission Standards (1200-03-07)*

Pursuant to TAPCR 1200-03-07-.03(1), allowable particulate matter emissions for a source beginning operation on or after April 3, 1972 shall not exceed a process weight rate specified by the following equation:

$$E = 17.31 * P^{0.16},$$

For process throughputs of greater than 30 tons per hour, where E is the emissions rate in pounds per hour, and P is the process weight rate in tons per hour.

As an alternative, a more stringent emission rate can be set based upon mutual agreement in accordance with TAPCR 1200-03-07-.01(5), which states upon mutual agreement of the owner or operator of any air contaminant source and the Technical Secretary, an emission limit more restrictive than that otherwise specified in this Chapter may be established.

Gerdau will formally accept the following hourly emission limitations:

- ESRN 01 – Non-Ferrous Separation Activities– 3.26 lbs/hr (including sorting hubs)
- ESRN 01 – Shredder and Ferrous Separation Activities – 25 lbs/hr

Gerdau will continue to comply with the present operating limit of 2,080 hours per year on the Shredder and Ferrous Separation Activities. Note that this agreement does not apply to the non-ferrous separation activities.

3.5.3 *Hazardous Air Contaminants (1200-03-11)*

The emission standards, monitoring and recordkeeping requirements for the hazardous air contaminants asbestos, beryllium, mercury, vinyl chloride, benzene, radionuclides and inorganic arsenic are covered in this chapter.

As discussed in Section 3.3, trace quantities of mercury may be emitted from the existing shredding operation due to mercury switches from motor vehicle scrap. Gerdau is subject to and complies with the requirements of 40 CFR Part 63 Subpart YYYYY and participates in the ELVS Mercury Switch Program to ensure that automotive mercury switches are removed prior to a vehicle being scrapped. The provisions of TAPCR 1200-03-11 are applicable to sources which process mercury ore to recover mercury, use mercury chlor-alkali cells to produce chlorine gas and alkali metal hydroxide, and incinerate or dry wastewater treatment plant sludge [TAPCR 1200-03-11-.04(1)]. Gerdau does not perform any of these operations; therefore the mercury emission standards, monitoring, and recordkeeping requirements contained in this chapter do not

apply. Furthermore, Gerdau's existing shredding operation and the proposed project does not emit any of the remaining pollutants listed above.

3.5.4 *New Source Performance Standards (1200-03-16)*

New Source Performance Standards (NSPS) are established for specific industrial categories[iii]. A review of the NSPS categories has been performed for potential applicability, and it has been determined that none of the NSPS subparts are applicable to the proposed project.

[iii] Please note that Chapter 16 is not in the State Implementation Plan and as such is not considered a federally enforceable requirement.

APPENDIX A

FIGURES

Older non-Ferrous Configuration

Figure 1

Current Site Overview

Figure 2

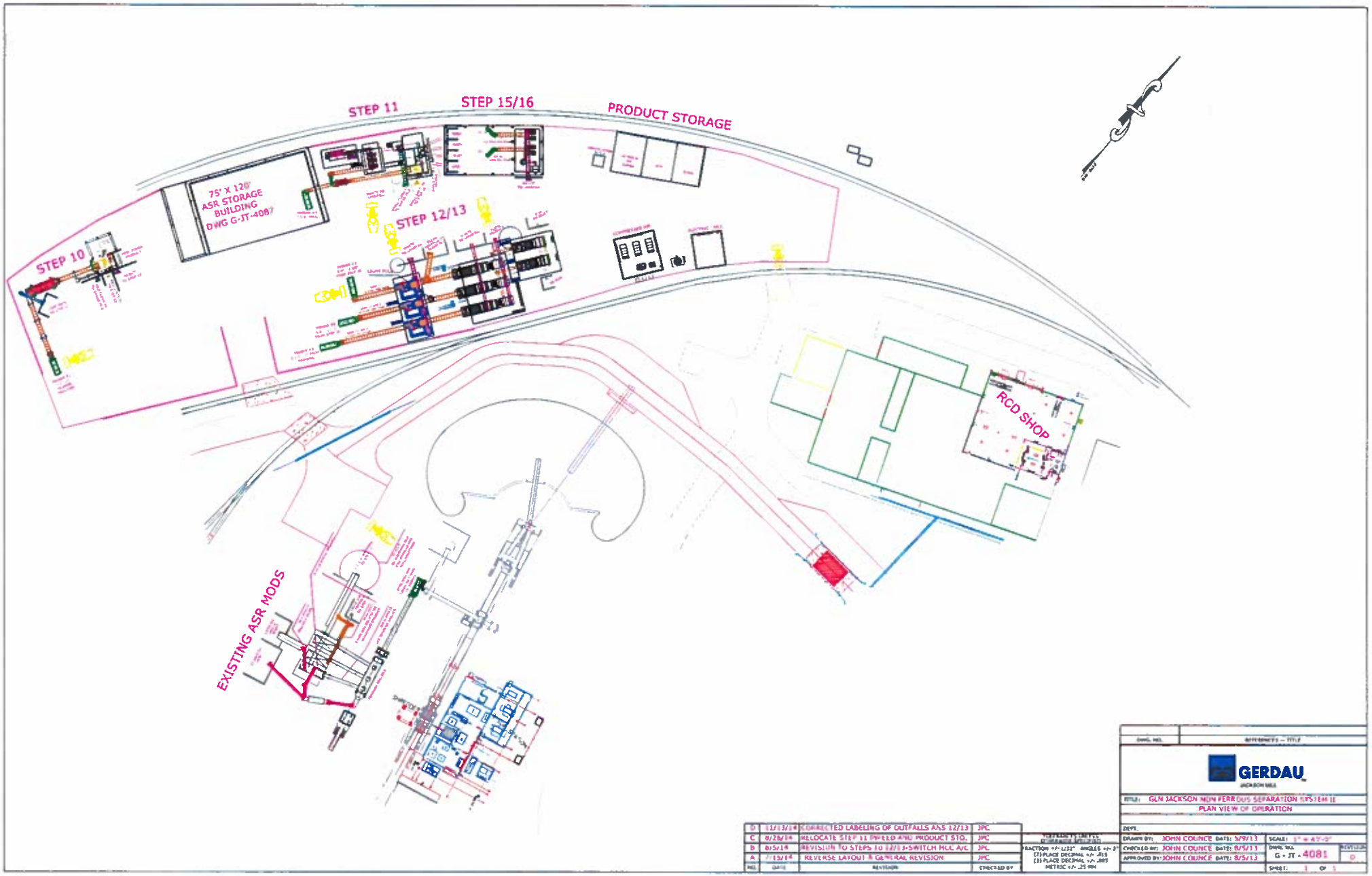
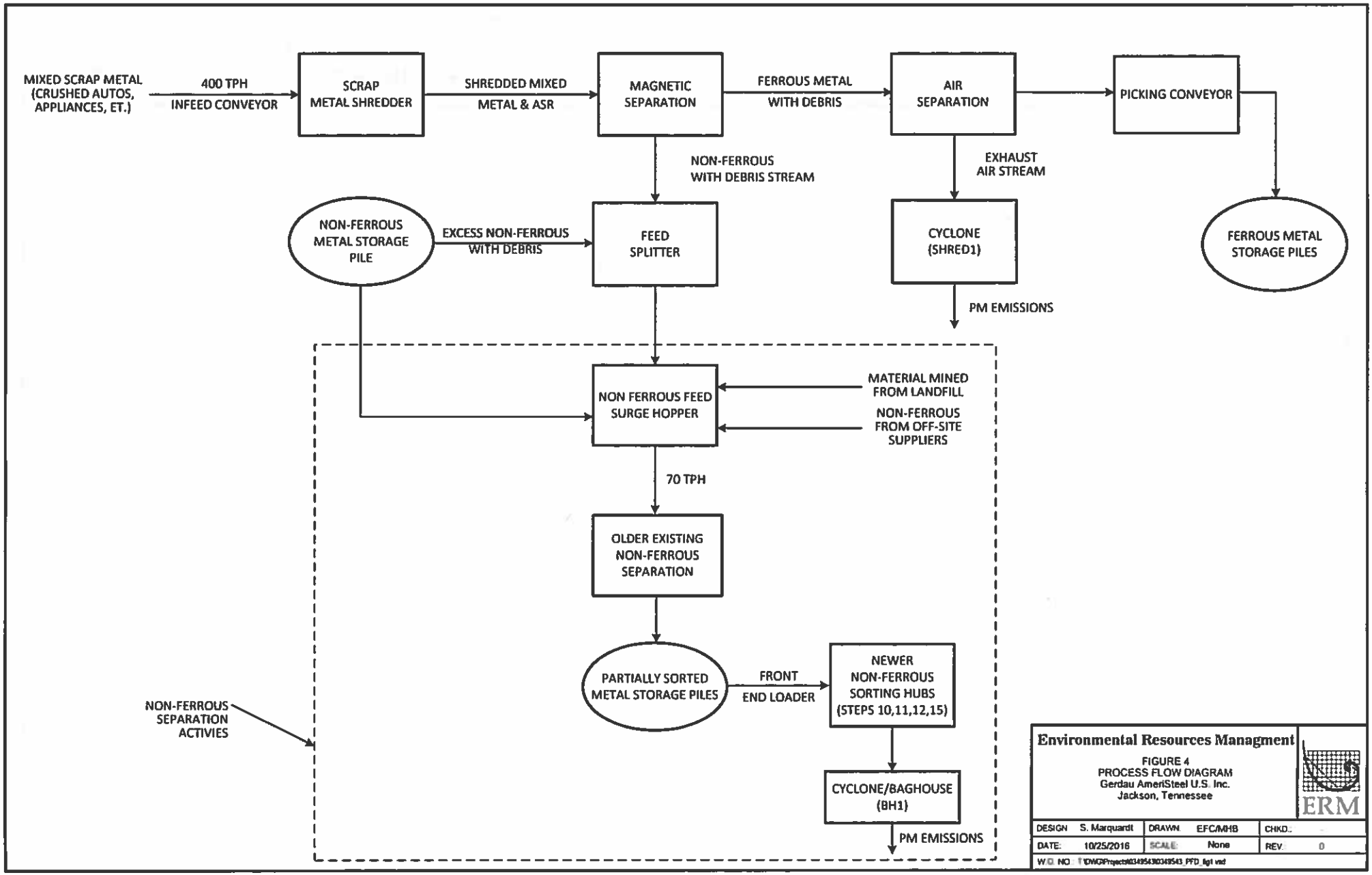
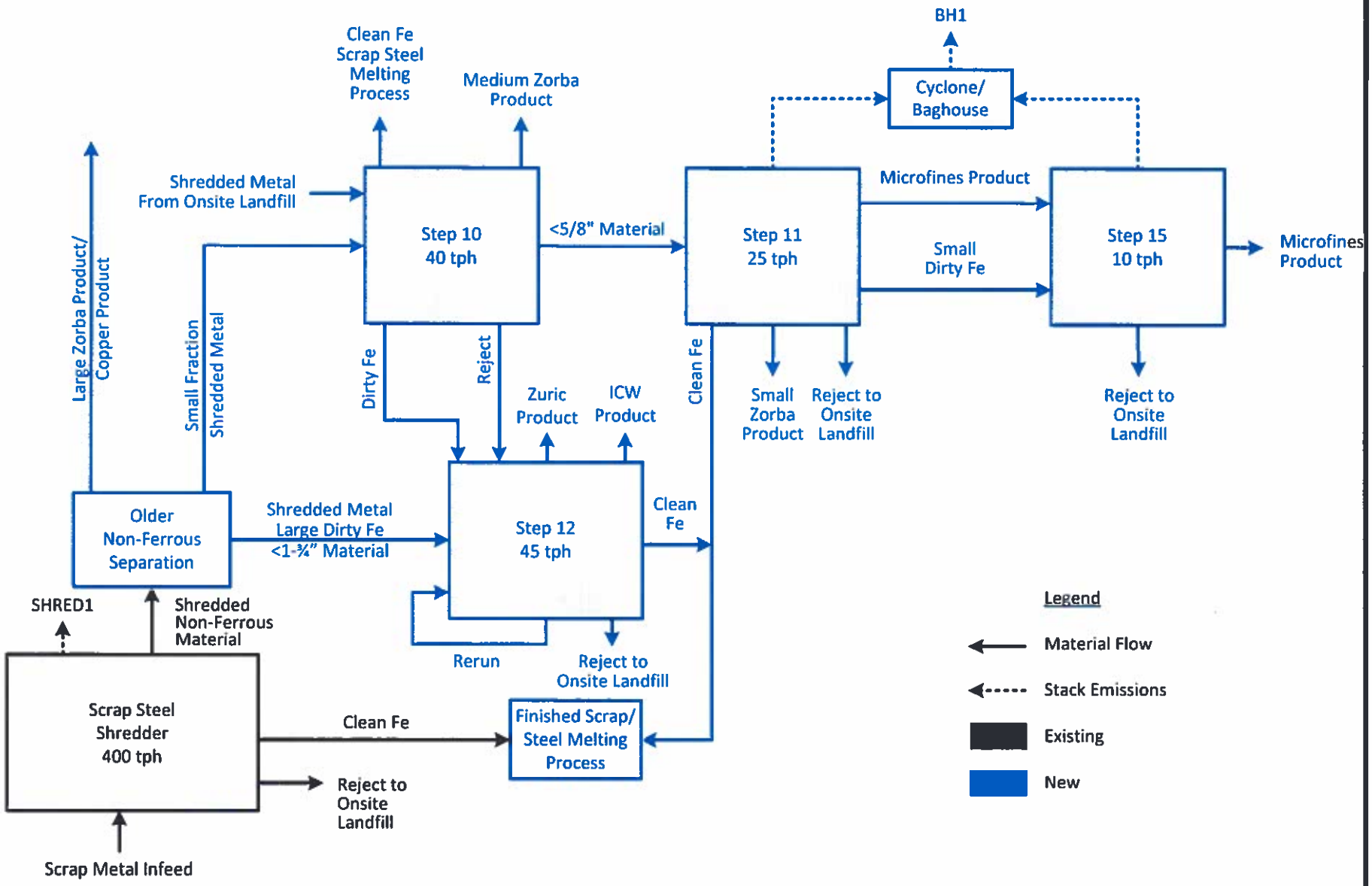

STEP 11
STEP 15/16
PRODUCT STORAGE
75' X 120'
ASR STORAGE
BUILDING
DWG G-JT-4087
STEP 12/13
STEP 10
RCD SHOP
EXISTING ASR MODS
GERDAU
GLN JACKSON NON FERROUS SEPARATION SYSTEM II
PLAN VIEW OF OPERATION
DRAWN BY: JOHN COUNCE DATE: 5/9/13
CHECKED BY: JOHN COUNCE DATE: 8/5/13
APPROVED BY: JOHN COUNCE DATE: 8/5/13
SCALE: 1" = 47'-0"
DWG. NO. G - JT - 4081
D 12/13/14 CORRECTED LABELING OF OUTFALLS ANS 12/13 JPC
C 8/28/14 RELOCATE STEP 11 INFEED AND PRODUCT STO. JPC
B 8/5/14 REVISION TO STEPS 10 12/13 & SWITCH MCC A/C JPC
A 7/15/14 REVERSE LAYOUT & GENERAL REVISION JPC

Figure 3


MIXED SCRAP METAL (CRUSHED AUTOS, APPLIANCES, ET.)
400 TPH
INFEED CONVEYOR
SCRAP METAL SHREDDER
SHREDDED MIXED METAL & ASR
MAGNETIC SEPARATION
FERROUS METAL WITH DEBRIS
AIR SEPARATION
PICKING CONVEYOR
NON-FERROUS WITH DEBRIS STREAM
EXHAUST AIR STREAM
NON-FERROUS METAL STORAGE PILE
EXCESS NON-FERROUS WITH DEBRIS
FEED SPLITTER
CYCLONE (SHRED1)
FERROUS METAL STORAGE PILES
PM EMISSIONS
NON FERROUS FEED SURGE HOPPER
MATERIAL MINED FROM LANDFILL
NON-FERROUS FROM OFF-SITE SUPPLIERS
70 TPH
OLDER EXISTING NON-FERROUS SEPARATION
PARTIALLY SORTED METAL STORAGE PILES
FRONT END LOADER
NEWER NON-FERROUS SORTING HUBS (STEPS 10,11,12,15)
NON-FERROUS SEPARATION ACTIVIES
CYCLONE/BAGHOUSE (BH1)
PM EMISSIONS
Environmental Resources Managment
FIGURE 4
PROCESS FLOW DIAGRAM
Gerdau AmeriSteel U.S. Inc.
Jackson, Tennessee
ERM
DESIGN S. Marquardt
DRAWN EFC/MHB
CHKD.:
DATE: 10/25/2016
SCALE: None
REV. 0
W.O. NO.: T:\DWG\Projects\0349543\0349543_PFD_fig1.vsd



Environmental Resources Management

DESIGN:	P. Vestal	DRAWN:	EFC/MHB	CHKD.:	-
DATE:	10/20/2016	SCALE:	None	REV.:	0
W.O. NO.: T:\DWG\Projects\0349543\0349543_PFD_fig2.vsd					

FIGURE 5
PROCESS FLOW DIAGRAM OF SHREDDER MODIFICATION
Gerdau AmeriSteel U.S. Inc.
Jackson, Tennessee

ERM

APPENDIX B

EMISSION CALCULATIONS

Appendix B
Emission Calculations
Gerdau AmeriSteel U.S. Inc.
Jackson, Tennessee

Potential Emissions Summary

Source	Potential Emissions (Tons Per Year)			Potential Emissions (Pounds Per Hour)		
	PM	PM10	PM2.5	PM	PM10	PM2.5
Shredder and Ferrous Separation Operations	26.0			25		

Source	Potential Emissions (Tons Per Year)			Potential Emissions (Pounds Per Hour)		
	PM	PM10	PM2.5	PM	PM10	PM2.5
Existing/Modified Non-Ferrous Separation Material Handling Equipment as Contained in February 2015 Construction Permit Application	~~8.96~~	~~4.24~~	~~0.64~~	~~2.05~~	~~0.97~~	~~0.15~~
Modified Existing Non Ferrous Separation	1.02	0.23	0.07	0.23	0.05	0.02
New Step 10	1.66	0.78	0.12	0.38	0.18	0.03
New Step 11	2.92	1.38	0.21	0.67	0.32	0.05
New Step 12	2.82	1.34	0.20	0.64	0.31	0.05
New Step 15	0.34	0.16	0.02	0.08	0.04	0.01
Baghouse (Step 11, 15)	5.52	5.52	5.52	1.26	1.26	1.26
Non-Ferrous Operations Total	~~**22.23**~~	~~**13.42**~~	~~**6.72**~~	~~**5.07**~~	~~**3.06**~~	~~**1.53**~~
	14.28	**9.42**	**6.15**	**3.26**	**2.15**	**1.40**
PSD Threshold	25	15	10			

Source	Potential Emissions (Tons Per Year)			Potential Emissions (Pounds Per Hour)		
	PM	PM10	PM2.5	PM	PM10	PM2.5
Total For ESRN 01	~~48.23~~			~~30.07~~		
Revised Total for ESRN 01	40.28			28.26		

Appendix B
Emission Calculations
Gerdau AmeriSteel U.S. Inc.
Jackson, Tennessee

Potential Emissions from Scrap Shredder and Ferrous Separation Operations

An electrically powered scrap steel shredder for recycling. Ferrous and non-ferrous metals as well as auto shredder residue (ASR) are separated by various methods including magnetic separation. Emissions from the separation of ferrous materials from the ASR are controlled with a cyclone (SHRED1).

The current allowable emission rate from the Shredder and the ferrous separation cyclone (SHRED1) is 25.0 pounds per hour and 26.0 tons per year. (See Condition E4-2 of Title V Operating Permit No. 565713 (Minor Mod #2) issued February 24, 2015.)

Previous to construction permit no. 969936P, in the abense of another applicable emission limitation or standard, the allowable emission level of particulate matter from this process would be established according to the Process Weight Rate (PWR) equation contained in 1200-03-07-.03.

For sources with a throughput of greater than 30 tons/hr, the empircal PWR equation is as follows:

$E = 17.31\ P^{0.16}$

where,

E = Allowable emissions in pounds per hour

P = Process weight rate in tons/hour

Given a shredder thoughput of 400 tons/hr,

E (lbs/hr) = 45.15

TAPR 1200-03-07-.04, states that regardless of the PWR, the concentration required must not be less then 0.02 gr/dscf or more more than 0.25 gr/dscf.

Cyclone (SHRED1) Exhaust Flowrate (dscfm)	23,225
Cyclone exhaust particulate matter concentration per PWR(gr/dscf)	0.23

However, TAPCR 1200-03-07-.01(5) allows for a lower exhaust concentration by mutual agreement. **Gerdau has agreed to a PM emission limit of 25 lbs/hr.**

The resulting exhaust concentration based on the agreed hourly mass rate is:

Cyclone exhaust particulate matter concentration per agreed mass rate (gr/dscf)	0.13

Gerdau has also agreed to limit the hours of operatio of the shredder and ferrous separation operations to 2080 hours per year. Therefore the resulting annual PM emission rate is 26.0 tons/year

Agreed hourly emission rate (lbs/hr)	25
Agreed annual operating time (hrs/yr)	2080
Annual PM Emission Rate (tons/yr)	26

Appendix B
Emission Calculations
Gerdau AmeriSteel U.S. Inc.
Jackson, Tennessee

Potential Emissions from Existing/~~Modified~~ Non-Ferrous Separation Equipment

Total emissions based on material handling for older existing-non-ferrous separation equipment prior to the addition of the sorting hubs.

Emissions from the existing non-ferrous separation equipment is due to drop points along the sorting process.

Equation from AP-42 13.2.4

$$E = k(0.0032)\frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}} lb/ton$$

where:

E = emission factor

k = particle size multiplier

U = mean wind speed, mph

M = material moisture content (%)

PM Emission Factor = 0.74 * 0.0032 * $(6.87/5)^{1.3}/(7/2)^{1.4}$ = 6.20E-04

PM_{10} Emission Factor = 0.35 * 0.0032 * $(6.87/5)^{1.3}/(7/2)^{1.4}$ = 2.93E-04

$PM_{2.5}$ Emission Factor = 0.053 * 0.0032 * $(6.87/5)^{1.3}/(7/2)^{1.4}$ = 4.44E-05

Material Handling Drop Calculations

AP-42 Particle Size Multiplier (<30 µm)	0.74	dimensionless	
AP-42 Particle Size Multiplier (<10 µm)	0.35	dimensionless	
AP-42 Particle Size Multiplier (<2.5 µm)	0.053	dimensionless	
Mean Wind Speed (outdoor)	6.87	mph	McKellar Sipes Regional Airport, Jackson - Compiled using AERMOD
Enclosure (Building) Control	0	%	
Moisture Content	7	% See Note 2	
Shredder Operating Time	2080	hrs/yr	
ASR Operating Time	8760	hrs/yr	

Maximum Input of ASR from Shredder 100 tph

Conveyors from Main Shredder line to ASR Separation (only 2080 hrs/yr = 1 shift (8 hrs) x 5 days/wk x 52 wks/yr

4 pts/2 lines, either or 100 tph

feed from main shredder line

return from ASR to main shredder line if needed

effective number of points 2

Annual Operating time (hrs/yr) 2080

Old Configuration ASR Throughput Capacity = 50 tons per hour, excess goes to pants leg conveyor

Excess material pants leg 50 (only 2080 hrs/yr) (limited by eddy currents, overwhelmed if greater than 50)

Appendix B
Emission Calculations
Gerdau AmeriSteel U.S. Inc.
Jackson, Tennessee

Potential Emissions from Existing/~~Modified~~ Non-Ferrous Separation Equipment

Total emissions based on material handling for older existing-non-ferrous separation equipment prior to the addition of the sorting hubs.

Emissions from the existing non-ferrous separation equipment is due to drop points along the sorting process.

Existing ASR

			PM Emissions Per Drop		PM_{10} Emissions Per Drop		$PM_{2.5}$ Emissions Per	
			lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Conveyor from feed hopper to Trommel conveyor	**50**	(unlimited operation)	0.03	0.14	0.01	0.06	0.002	0.01
Number of drop points	1							

			PM Emissions Per Drop		PM_{10} Emissions Per Drop		$PM_{2.5}$ Emissions Per	
A portion of the material from the shredder is ferrous (Overband)			lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Percent material overband	2.0%							
Overband from Head of Trommel	1.0	tph	0.0006	0.003	0.0003	0.0013	0.00004	0.00019
Number of drop points	1							

			PM Emissions Per Drop		PM_{10} Emissions Per Drop		$PM_{2.5}$ Emissions Per	
A portion of the material from the Trommel is oversized and eventually returned to shredder			lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Percent oversized material from Trommel	7.5%							
Oversize from far end of Trommel	3.75	tph	0.005	0.02	0.002	0.01	0.0003	0.001
Number of drop points	2							

			PM Emissions Per Drop		PM_{10} Emissions Per Drop		$PM_{2.5}$ Emissions Per	
The remainder exists the Trommel on one of three conveyors			lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Material Sized from Trommel	45.3							
6 pts/3 lines,								
Trommel Conveyor 1								
Trommel Conveyor 2			0.08	0.37	0.04	0.17	0.006	0.03
Trommel Conveyor 3								
effective number of points	3							

			PM Emissions Per Drop		PM_{10} Emissions Per Drop		$PM_{2.5}$ Emissions Per	
Zorba (Al) represents approx. 5% of the total material input to ASR separation			lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Zorba as percentage of total input	8%							
Large Zorba Pile Conveyor	4.0	tph	0.007	0.03	0.004	0.02	0.0005	0.002
Number of drop points	3							

			PM Emissions Per Drop		PM_{10} Emissions Per Drop		$PM_{2.5}$ Emissions Per	
dirty ferrous			lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Dirty Ferrous as percentage of total input	5%							
Dirty Ferrous Pile Conveyor	2.5	tph	0.005	0.02	0.002	0.01	0.0003	0.001
Number of drop points	3							

			PM Emissions Per Drop		PM_{10} Emissions Per Drop		$PM_{2.5}$ Emissions Per	
Waste (ASR)			lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Waste ASR as percentage of total input	77.5%							
Waste ASR Pile Conveyor	38.75	tph	0.072	0.32	0.034	0.15	0.0052	0.023
Number of drop points	3							

50.0 (check of total hourly throughput)

			Total PM Emissions		Total PM_{10} Emissions		Total $PM_{2.5}$ Emissions	
			lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
TOTAL drop point emissions	16		0.20	0.90	0.10	0.42	0.01	0.06

Appendix B
Emission Calculations
Gerdau AmeriSteel U.S. Inc.
Jackson, Tennessee

Potential Emissions from Existing/Modified Non-Ferrous Separation Equipment
Total emissions based on material handling for older existing non-ferrous separation equipment modified at the time of the installation of the sorting hubs
Emissions from the existing non-ferrous separation equipment is due to drop points along the sorting process.

Equation from AP-42 13.2.4

$$E = k(0.0032)\frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}} lb/ton$$

where:
E = emission factor
k = particle size multiplier
U = mean wind speed, mph
M = material moisture content (%)

PM Emission Factor = 0.74 * 0.0032 * $(6.87/5)^{1.3}/(7/2)^{1.4}$ = 6.20E-04 lb/ton
PM_{10} Emission Factor = 0.35 * 0.0032 * $(6.87/5)^{1.3}/(7/2)^{1.4}$ = 2.93E-04 lb/ton
$PM_{2.5}$ Emission Factor = 0.053 * 0.0032 * $(6.87/5)^{1.3}/(7/2)^{1.4}$ = 4.44E-05 lb/ton

Material Handling Drop Calculations

AP-42 Particle Size Multiplier (<30 µm)	0.74	dimensionless	
AP-42 Particle Size Multiplier (<10 µm)	0.35	dimensionless	
AP-42 Particle Size Multiplier (<2.5 µm)	0.053	dimensionless	
Mean Wind Speed (outdoor)	6.87	mph	McKellar Sipes Regional Airport, Jackson - Compiled using AERMOD
Enclosure (Building) Control	0	%	
Moisture Content	7	% See Note 2	
Shredder Operating Time	2080	hrs/yr	
ASR Operating Time	8760	hrs/yr	

Maximum Input of ASR from Shredder	100	tph
Conveyors from Main Shredder line to ASR Separation		(only 2080 hrs/yr)
feed from main shredder line	100	tph
(No return from ASR to main shredder line)		
effective number of points	1	
Annual Operating time (hrs/yr)	2080	

Old Configuration ASR Throughput Capacity = 50 tons per hour, excess goes to pants leg conveyor

Excess material pants leg	20	(only 2080 hrs/yr)

Appendix B
Emission Calculations
Gerdau AmeriSteel U.S. Inc.
Jackson, Tennessee

Potential Emissions from Existing/Modified Non-Ferrous Separation Equipment
Total emissions based on material handling for older existing non-ferrous separation equipment modified at the time of the installation of the sorting hubs
Emissions from the existing non-ferrous separation equipment is due to drop points along the sorting process.

Modified "Existing" ASR

			PM Emissions Per Drop		PM_{10} Emissions Per Drop		$PM_{2.5}$ Emissions Per	
			lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
		only one eddy current						
Conveyor from feed hopper to Trommel conveyor	80	(unlimited operation)	0.05	0.22	0.02	0.10	0.004	0.02
Number of drop points	1							

A portion of the material from the shredder is ferrous (Overband)			PM Emissions Per Drop		PM_{10} Emissions Per Drop		$PM_{2.5}$ Emissions Per	
			lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Percent material overband	2.0%							
Overband from Head of Trommel	1.6	tph	0.0010	0.004	0.0005	0.0021	0.00007	0.00031
Number of drop points	1							

A portion of the material from the Trommel is oversized and returned to shredder

Total Percent oversized material from Trommel	8.5%	
Oversize	6.8	tph
% split from large trommel	50%	

			PM Emissions Per Drop		PM_{10} Emissions Per Drop		$PM_{2.5}$ Emissions Per	
			lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Large Trommel Oversize Contribution	3.4	tph						
Large Trommel Drops	1		0.002	0.01	0.001	0.00	0.0002	0.001

			PM Emissions Per Drop		PM_{10} Emissions Per Drop		$PM_{2.5}$ Emissions Per	
			lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Small Trommel Oversize Contribution	3.4	tph						
Small Trommel Drops	3		0.006	0.03	0.003	0.01	0.0005	0.002

Material from the Trommel
3 conveyors

Conveyors #1 and #2 are indentical (0-2 inch)	72%	
Conveyor #3 (5 and 8 inch)	17.5%	

			PM Emissions Per Drop		PM_{10} Emissions Per Drop		$PM_{2.5}$ Emissions Per	
			lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Conveyors #1 and #2	57.6	tph						
Number of drop points	4		0.1427	0.625	0.0102	0.0448	0.01022	0.045

Conveyor #3	14	tph
3 material splits		

			PM Emissions Per Drop		PM_{10} Emissions Per Drop		$PM_{2.5}$ Emissions Per	
			lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Dirty Ferrous	1.5%							
	1.2	tph						
Number of drop points	3		0.0022	0.010	0.0011	0.0046	0.00016	0.001

			PM Emissions Per Drop		PM_{10} Emissions Per Drop		$PM_{2.5}$ Emissions Per	
			lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Zorba	5.5%							
	4.4	tph						
Number of drop points	3		0.0082	0.036	0.0039	0.0169	0.00059	0.003

			PM Emissions Per Drop		PM_{10} Emissions Per Drop		$PM_{2.5}$ Emissions Per	
			lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Large Eddy Reject	10.50%							
	8.40	tph						
Number of drop points	4		0.0208	0.091	0.0098	0.0431	0.00149	0.007

			Total PM Emissions		Total PM_{10} Emissions		Total $PM_{2.5}$ Emissions	
			lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
TOTAL drop point emissions	20		0.23	1.02	0.05	0.23	0.02	0.07

80.00 (check of total hourly throughput

Appendix B
Emission Calculations
Gerdau AmeriSteel U.S. Inc.
Jackson, Tennessee

Potential Emissions from Step 10

Total emissions based on material handling for all new feeding and conveying equipment and storage piles. Step 10 includes an eddy current separator with a dual magnetic separator that is an enclosed process with no emissions.

Material Handling Drop Calculations

AP-42 Particle Size Multiplier (<30 µm)	0.74	dimensionless
AP-42 Particle Size Multiplier (<10 µm)	0.35	dimensionless
AP-42 Particle Size Multiplier (<2.5 µm)	0.053	dimensionless
Mean Wind Speed (outdoor)[1]	8.84	mph
Enclosure (Building) Control	0	%
Moisture Content	7	% See Note 2

Source	Throughput Capacity (tons/hr)	No. of Drop Points[3]
Step 10	40	10
Misc. Product, Reject[4]	40	1
Hours of Operation	**8,760**	**hr/yr**

Equation from AP-42 13.2.4

$$E = k(0.0032)\frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}} lb/ton$$

where:

E = emission factor
k = particle size multiplier
U = mean wind speed, mph
M = material moisture content (%)

PM Emission Factor = 0.74 * 0.0032 * $(8.84/5)^{1.3}/(7/2)^{1.4}$ = 8.60E-04 lb/ton

PM_{10} Emission Factor = 0.35 * 0.0032 * $(8.84/5)^{1.3}/(7/2)^{1.4}$ = 4.07E-04 lb/ton

$PM_{2.5}$ Emission Factor = 0.053 * 0.0032 * $(8.84/5)^{1.3}/(7/2)^{1.4}$ = 6.16E-05 lb/ton

Appendix B
Emission Calculations
Gerdau AmeriSteel U.S. Inc.
Jackson, Tennessee

Potential Emissions from Step 10

Total emissions based on material handling for all new feeding and conveying equipment and storage piles. Step 10 includes an eddy current separator with a dual magnetic separator that is an enclosed process with no emissions.

Emission Calculations

Source	PM Emissions Per Drop		PM_{10} Emissions Per Drop		$PM_{2.5}$ Emissions Per Drop	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Step 10	0.03	0.15	0.02	0.07	2.46E-03	0.01
Misc. Product, Reject	0.03	0.15	0.02	0.07	2.46E-03	0.01

Source	Total PM Emissions		Total PM_{10} Emissions		Total $PM_{2.5}$ Emissions	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Step 10	0.34	1.51	0.16	0.71	0.02	0.11
Misc. Product, Reject	0.03	0.15	0.02	0.07	2.46E-03	0.01

Notes/Example Calculations:
(1) Wind speed for Memphis, TN per Tanks 4.09d.
(2) Moisture content based on process knowledge of material stored outside and per municipal solid waste AP-42 13.2.4 moisture values.
(3) Drop points determined from plan & elevation diagrams for each process step.
(4) Considering all storage piles of product and/or reject as one material drop at max capacity.
(5) Per Drop Hourly PM Emission Rate (lb/hr) = Capacity (tons/hr) * Emission Factor (lb/ton) * (1 - Enclosure Control)
(6) Per Drop Annual Emission Rate (tpy) = Per Drop Hourly PM Emission (lb/hr) * (8,760 hr/yr) * (1 ton/2,000 lb)

Total Emissions

Source	PM Emission Rate (tons/yr)	PM_{10} Emission Rate (tons/yr)	$PM_{2.5}$ Emission Rate (tons/yr)
Step 10	1.66	0.78	0.12

Appendix B
Emission Calculations
Gerdau AmeriSteel U.S. Inc.
Jackson, Tennessee

Potential Emissions from Step 11

Total emissions based on material handling for all new feeding and conveying equipment and storage piles. Step 11 includes four (4) destoners and an eddy current separator with a dual magnetic separator, all of which are enclosed processes with no emissions. A ferrous removal magnet system also comprises Step 11.

Material Handling Drop Calculations

AP-42 Particle Size Multiplier (<30 µm)	0.74	dimensionless
AP-42 Particle Size Multiplier (<10 µm)	0.35	dimensionless
AP-42 Particle Size Multiplier (<2.5 µm)	0.053	dimensionless
Mean Wind Speed (outdoor)[1]	8.84	mph
Enclosure (Building) Control	0	%
Moisture Content	7	% See Note 2

Source	Throughput Capacity (tons/hr)	No. of Drop Points[3]
Step 11	25	30
Misc. Product, Reject[4]	25	1

Hours of Operation **8,760** **hr/yr**

Equation from AP-42 13.2.4

$$E = k(0.0032)\frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}} lb/ton$$

where:

E = emission factor

k = particle size multiplier

U = mean wind speed, mph

M = material moisture content (%)

PM Emission Factor = 0.74 * 0.0032 * $(8.84/5)^{1.3}/(7/2)^{1.4}$ = 8.60E-04 lb/ton

PM_{10} Emission Factor = 0.35 * 0.0032 * $(8.84/5)^{1.3}/(7/2)^{1.4}$ = 4.07E-04 lb/ton

$PM_{2.5}$ Emission Factor = 0.053 * 0.0032 * $(8.84/5)^{1.3}/(7/2)^{1.4}$ = 6.16E-05 lb/ton

Appendix B
Emission Calculations
Gerdau AmeriSteel U.S. Inc.
Jackson, Tennessee

Potential Emissions from Step 11

Total emissions based on material handling for all new feeding and conveying equipment and storage piles. Step 11 includes four (4) destoners and an eddy current separator with a dual magnetic separator, all of which are enclosed processes with no emissions. A ferrous removal magnet system also comprises Step 11.

Emission Calculations

Source	PM Emissions Per Drop		PM_{10} Emissions Per Drop		$PM_{2.5}$ Emissions Per Drop	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Step 11	0.02	0.09	0.01	0.04	1.54E-03	6.74E-03
Misc. Product, Reject	0.02	0.09	0.01	0.04	1.54E-03	6.74E-03

Source	Total PM Emissions		Total PM_{10} Emissions		Total $PM_{2.5}$ Emissions	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Step 11	0.64	2.82	0.31	1.34	0.05	0.20
Misc. Product, Reject	0.02	0.09	0.01	0.04	1.54E-03	6.74E-03

Notes/Example Calculations:
(1) Wind speed for Memphis, TN per Tanks 4.09d.
(2) Moisture content based on process knowledge of material stored outside and per municipal solid waste AP-42 13.2.4 moisture values.
(3) Drop points determined from plan & elevation diagrams for each process step.
(4) Considering all storage piles of product and/or reject as one material drop at max capacity.
(5) Per Drop Hourly PM Emission Rate (lb/hr) = Capacity (tons/hr) * Emission Factor (lb/ton) * (1 - Enclosure Control)
(6) Per Drop Annual Emission Rate (tpy) = Per Drop Hourly PM Emission (lb/hr) * (8,760 hr/yr) * (1 ton/2,000 lb)

Total Emissions

Source	PM Emission Rate (tons/yr)	PM_{10} Emission Rate (tons/yr)	$PM_{2.5}$ Emission Rate (tons/yr)
Step 11	2.92	1.38	0.21

Appendix B
Emission Calculations
Gerdau AmeriSteel U.S. Inc.
Jackson, Tennessee

Potential Emissions from Step 12

Total emissions based on material handling for all new feeding and conveying equipment and storage piles. Step 12 includes three (3) air aspiration systems and eight (8) finders, all of which are enclosed processes with no emissions. A picking station also comprises Step 12.

Material Handling Drop Calculations

AP-42 Particle Size Multiplier (<30 µm)	0.74	dimensionless
AP-42 Particle Size Multiplier (<10 µm)	0.35	dimensionless
AP-42 Particle Size Multiplier (<2.5 µm)	0.053	dimensionless
Mean Wind Speed (outdoor)[1]	8.84	mph
Enclosure (Building) Control	0	%
Moisture Content	7	% See Note 2

Source	Throughput Capacity (tons/hr)	No. of Drop Points[3]
Step 12, Line 1	15	17
Step 12, Line 2	15	9
Step 12, Line 3	15	9
Step 12, Line 1-3 Commingled Drops	45	4
Misc. Product, Reject[4]	45	1

Hours of Operation **8,760** **hr/yr**

Equation from AP-42 13.2.4

$$E = k(0.0032)\frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}} lb/ton$$

where:

E = emission factor

k = particle size multiplier

U = mean wind speed, mph

M = material moisture content (%)

PM Emission Factor = 0.74 * 0.0032 * $(8.84/5)^{1.3}/(7/2)^{1.4}$ = 8.60E-04 lb/ton

PM_{10} Emission Factor = 0.35 * 0.0032 * $(8.84/5)^{1.3}/(7/2)^{1.4}$ = 4.07E-04 lb/ton

$PM_{2.5}$ Emission Factor = 0.053 * 0.0032 * $(8.84/5)^{1.3}/(7/2)^{1.4}$ = 6.16E-05 lb/ton

Appendix B
Emission Calculations
Gerdau AmeriSteel U.S. Inc.
Jackson, Tennessee

Potential Emissions from Step 12

Total emissions based on material handling for all new feeding and conveying equipment and storage piles. Step 12 includes three (3) air aspiration systems and eight (8) finders, all of which are enclosed processes with no emissions. A picking station also comprises Step 12.

Emission Calculations

Source	PM Emissions Per Drop		PM_{10} Emissions Per Drop		$PM_{2.5}$ Emissions Per Drop	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Step 12, Line 1	0.01	0.06	6.10E-03	0.03	9.24E-04	4.05E-03
Step 12, Line 2	0.01	0.06	6.10E-03	0.03	9.24E-04	4.05E-03
Step 12, Line 3	0.01	0.06	6.10E-03	0.03	9.24E-04	4.05E-03
Step 12, Line 1-3 Commingled Drops	0.04	0.17	0.02	0.08	2.77E-03	0.01
Misc. Product, Reject	0.04	0.17	0.02	0.08	2.77E-03	0.01

Source	Total PM Emissions		Total PM_{10} Emissions		Total $PM_{2.5}$ Emissions	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Step 12, Line 1	0.22	0.96	0.10	0.45	0.02	0.07
Step 12, Line 2	0.12	0.51	0.05	0.24	0.01	0.04
Step 12, Line 3	0.12	0.51	0.05	0.24	0.01	0.04
Step 12, Line 1-3 Commingled Drops	0.15	0.68	0.07	0.32	0.01	0.05
Misc. Product, Reject	0.04	0.17	0.02	0.08	2.77E-03	0.01

Notes/Example Calculations:
(1) Wind speed for Memphis, TN per Tanks 4.09d.
(2) Moisture content based on process knowledge of material stored outside and per municipal solid waste AP-42 13.2.4 moisture values.
(3) Drop points determined from plan & elevation diagrams for each process step.
(4) Considering all storage piles of product and/or reject as one material drop at max capacity.
(5) Per Drop Hourly PM Emission Rate (lb/hr) = Capacity (tons/hr) * Emission Factor (lb/ton) * (1 - Enclosure Control)
(6) Per Drop Annual Emission Rate (tpy) = Per Drop Hourly PM Emission (lb/hr) * (8,760 hr/yr) * (1 ton/2,000 lb)

Total Emissions

Source	PM Emission Rate (tons/yr)	PM_{10} Emission Rate (tons/yr)	$PM_{2.5}$ Emission Rate (tons/yr)
Step 12	2.82	1.34	0.20

Appendix B
Emission Calculations
Gerdau AmeriSteel U.S. Inc.
Jackson, Tennessee

Potential Emissions from Step 15

Total emissions based on material handling for all new feeding and conveying equipment and storage piles. Step 15 includes four (4) destoners (two per step) which are enclosed processes with no emissions.

Material Handling Drop Calculations

AP-42 Particle Size Multiplier (<30 µm)	0.74	dimensionless
AP-42 Particle Size Multiplier (<10 µm)	0.35	dimensionless
AP-42 Particle Size Multiplier (<2.5 µm)	0.053	dimensionless
Mean Wind Speed (outdoor)[1]	8.84	mph
Enclosure (Building) Control	0	%
Moisture Content	7	% See Note 2

Source	Throughput Capacity (tons/hr)	No. of Drop Points[3]
Line 15, Line 1	5	8
Line 15, Line 2	5	8
Reject[4]	10	1

Hours of Operation 8,760 hr/yr

Equation from AP-42 13.2.4

$$E = k(0.0032)\frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}} lb/ton$$

where:

E = emission factor

k = particle size multiplier

U = mean wind speed, mph

M = material moisture content (%)

PM Emission Factor = 0.74 * 0.0032 * $(8.84/5)^{1.3}/(7/2)^{1.4}$ = 8.60E-04 lb/ton

PM_{10} Emission Factor = 0.35 * 0.0032 * $(8.84/5)^{1.3}/(7/2)^{1.4}$ = 4.07E-04 lb/ton

$PM_{2.5}$ Emission Factor = 0.053 * 0.0032 * $(8.84/5)^{1.3}/(7/2)^{1.4}$ = 6.16E-05 lb/ton

Potential Emissions from Step 15

Total emissions based on material handling for all new feeding and conveying equipment and storage piles. Step 15 includes four (4) destoners (two per step) which are enclosed processes with no emissions.

Emission Calculations

Source	PM Emissions Per Drop		PM_{10} Emissions Per Drop		$PM_{2.5}$ Emissions Per Drop	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Line 15, Line 1	4.30E-03	0.02	2.03E-03	8.91E-03	3.08E-04	1.35E-03
Line 15, Line 2	4.30E-03	0.02	2.03E-03	8.91E-03	3.08E-04	1.35E-03
Reject	8.60E-03	0.04	4.07E-03	0.02	6.16E-04	2.70E-03

Source	Total PM Emissions		Total PM_{10} Emissions		Total $PM_{2.5}$ Emissions	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Line 15, Line 1	0.03	0.15	0.02	0.07	2.46E-03	0.01
Line 15, Line 2	0.03	0.15	0.02	0.07	2.46E-03	0.01
Reject	0.01	0.04	4.07E-03	0.02	6.16E-04	2.70E-03

Notes/Example Calculations:
(1) Wind speed for Memphis, TN per Tanks 4.09d.
(2) Moisture content based on process knowledge of material stored outside and per municipal solid waste AP-42 13.2.4 moisture values.
(3) Drop points determined from plan & elevation diagrams for each process step.
(4) Conservatively using max capacity when calculating emissions from reject drop.
(5) Per Drop Hourly PM Emission Rate (lb/hr) = Capacity (tons/hr) * Emission Factor (lb/ton) * (1 - Enclosure Control)
(6) Per Drop Annual Emission Rate (tpy) = Per Drop Hourly PM Emission (lb/hr) * (8,760 hr/yr) * (1 ton/2,000 lb)

Total Emissions

Source	PM Emission Rate (tons/yr)	PM_{10} Emission Rate (tons/yr)	$PM_{2.5}$ Emission Rate (tons/yr)
Step 15	0.34	0.16	0.02

Appendix B
Emission Calculations
Gerdau AmeriSteel U.S. Inc.
Jackson, Tennessee

Potential Emissions from Step 11, 15 Baghouse

This source consists of one exhaust point from destoner air evacuation systems on Steps 11 and 15. The destoners vent to a common cyclone separator and baghouse in series before exhausting to the atmosphere.

Hours of Operation **8,760** **hr/yr**

Destoner Air Evacuation System Emission Calculations

Emission Point Description	Emission Point	Discharge	Exhaust Flow Rate (acfm)	Emission Rate (gr/dscf)	$PM/PM_{10}/PM_{2.5}$ Emission Rate (lb/hr)	$PM/PM_{10}/PM_{2.5}$ Emission Rate (tons/yr)
Step 11, 15 Cyclone/Baghouse	BH1	Stack	29,429	0.005	1.26	5.52

Notes/Example Calculations

(1) Process at ambient temperature, conservatively assuming acfm = dscfm.

(2) Hourly $PM/PM_{10}/PM_{2.5}$ Emission Rate (lb/hr) =

Exhaust Flow Rate (cfm) * Grain Loading (gr/cf) * (60 min/hr) * (1 lb/7,000 gr)

(3) Annual $PM/PM_{10}/PM_{2.5}$ Emission Rate (tpy) = Hourly Emission Rate (lb/hr) * (1 ton/2,000 lb) * (8,760 hr/yr)

(4) Baghouse grain loading based on manufacturer guarantee.

(5) Baghouse fan max air flow rate is 50,000 m^3/hr.

APPENDIX C

TDEC PERMIT APPLICATION FORMS

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
INDEX OF AIR POLLUTION PERMIT APPLICATION FORMS

Section 1: Identification and Diagrams	
This application contains the following forms:	APC Form 1, Facility Identification
	APC Form 2, Operations and Flow Diagrams

Section 2: Emission Source Description Forms		
		Total number of this form
This application contains the following forms (one form for each incinerator, printing operation, fuel burning installation, etc.):	APC Form 3, Stack Identification	2
	APC Form 4, Fuel Burning Non-Process Equipment	
	APC Form 5, Stationary Gas Turbines or Internal Combustion Engines	
	APC Form 6, Storage Tanks	
	APC Form 7, Incinerators	
	APC Form 8, Printing Operations	
	APC Form 9, Painting and Coating Operations	
	APC Form 10, Miscellaneous Processes	1
	APC Form 33, Stage I and Stage II Vapor Recovery Equipment	
	APC Form 34, Open Burning	

Section 3: Air Pollution Control System Forms		
		Total number of this form
This application contains the following forms (one form for each control system in use at the facility):	APC Form 11, Control Equipment - Miscellaneous	
	APC Form 13, Adsorbers	
	APC Form 14, Catalytic or Thermal Oxidation Equipment	
	APC Form 15, Cyclones/Settling Chambers	1
	APC Form 17, Wet Collection Systems	
	APC Form 18, Baghouse/Fabric Filters	1

(OVER)

Section 4: Compliance Demonstration Forms		
		Total number of this form
This application contains the following forms (one form for each incinerator, printing operation, fuel burning installation, etc.):	APC Form 19, Compliance Certification - Monitoring and Reporting - Description of Methods for Determining Compliance	1
	APC Form 20, Continuous Emissions Monitoring	
	APC Form 21, Portable Monitors	
	APC Form 22, Control System Parameters or Operating Parameters of a Process	1
	APC Form 23, Monitoring Maintenance Procedures	1
	APC Form 24, Stack Testing	
	APC Form 25, Fuel Sampling and Analysis	
	APC Form 26, Record Keeping	1
	APC Form 27, Other Methods	
	APC Form 28, Emissions from Process Emissions Sources / Fuel Burning Installations / Incinerators	1
	APC Form 29, Emissions Summary for the Facility or for the Source Contained in This Application	
	APC Form 30, Current Emissions Requirements and Status	1
	APC Form 31, Compliance Plan and Compliance Certification	1
	APC Form 32, Air Monitoring Network	

Section 5: Statement of Completeness and Certification of Compliance

I have reviewed this application in its entirety and to the best of my knowledge, and based on information and belief formed after reasonable inquiry, the statements and information contained in this application are true, accurate, and complete. I have provided all the information that is necessary for compliance purposes and this application consists of 17 pages and they are numbered from page 1 to 17. The status of this facility's compliance with all applicable air pollution control requirements, including the enhanced monitoring and compliance certification requirements of the Federal Clean Air Act, is reported in this application along with the methods to be used for compliance demonstration.

Name and Title of Responsible Official	Telephone Number with Area Code
Ricardo Anawate, VP and General Manager	731-424-5600
Signature of Responsible Official (For definition of responsible official, see instructions for APC Form 1)	**Date of Application** 03/30/2017

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
FACILITY IDENTIFICATION

SITE INFORMATION				
1. Organization's legal name Gerdau AmeriSteel U.S. Inc.			For APC Use Only	AP C company point no.
2. Site name (if different from legal name) N/A				AP C Log/Permit no.
3. Site address (St./Rd./Hwy.) 801 Gerdau Drive			NAICS or SIC Code 33	
City or distance to nearest town Jackson		Zip code 38305	County name Madison	
4. Site location (in Lat./Long)	Latitude 35.727493		Longitude -88.810269	
CONTACT INFORMATION (RESPONSIBLE OFFICIAL)				
5. Responsible official contact Ricardo Anawate			Phone number with area code 731-424-5600	
6. Mailing address (St./Rd./Hwy.) PO Box 10848			Fax number with area code 731-422-4247	
City Jackson	State TN	Zip code 38308	Email address ricardo.anawate@gerdau.com	
CONTACT INFORMATION (TECHNICAL)				
7. Principal technical contact Will Ownby			Phone number with area code 731-423-5274	
8. Mailing address (St./Rd./Hwy.) PO Box 10848			Fax number with area code 731-422-4247	
City Jackson	State TN	Zip code 38308	Email address william.ownby@gerdau.com	
CONTACT INFORMATION (BILLING)				
11. Billing contact Will Ownby			Phone number with area code 731-423-5274	
12. Mailing address (St./Rd./Hwy.) PO Box 10848			Fax number with area code 731-422-4247	
City Jackson	State TN	Zip code 38308	Email address william.ownby@gerdau.com	

TYPE OF PERMIT REQUESTED

13. Permit requested for:

Initial application to operate:		Minor permit modification :	
Permit renewal to operate :		Significant modification :	
Administrative permit amendment :		Construction permit :	X

(OVER)

14. Is this facility subject to the provisions governing prevention of accidental releases of hazardous air contaminants contained in Chapter 1200-03-32 of the Tennessee Air Pollution Control regulations?

_____Yes ___X___No

If the answer is Yes, are you in compliance with the provisions of Chapter 1200-03-32 of the Tennessee Air Pollution Control regulations?

_____Yes _____No

15. If facility is located in an area designated as "Non-Attainment" or "Additional Control", indicate the pollutant(s) for the designation.

N/A

16. List all valid Air Pollution permits issued to the sources contained in this application [identify all permits with most recent permit numbers and emission source reference numbers listed on the permit(s)].

Construction Permit No. 969936P (Issued Jun 18, 2015; Amended April 18, 2016)

ESRN 01 of Title V Operating Permit No. 565713

17. Page number: Revision number: 0 Date of revision: NFSS MM March 2017

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION COMPLIANCE PLAN AND COMPLIANCE CERTIFICATION

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Gerdau AmeriSteel U.S., Inc.

2. List all the process emission source(s) or fuel burning installation(s) or incinerator(s) that are part of this application.

ESRN 01: One Steel Scrap Shredder with Ferrous and Non-Ferrous Separation (including four non-ferrous separation hubs).

COMPLIANCE PLAN AND CERTIFICATION

3. Indicate that source(s) which are contained in this application are presently in compliance with all applicable requirements, by checking the following:

__X__ A. Attached is a statement of identification of the source(s) currently in compliance. We will continue to operate and maintain the source(s) to assure compliance with all the applicable requirements for the duration of the permit.

_____ B. APC 30 form(s) includes new requirements that apply or will apply t o t he source(s) during the term of the permit. We will meet such requirement s on a timely basis.

4. Indicate that there are source(s) that are contained in this application which are not presently in full compliance, by checking both of the following: N/A

_____ A. Attached is a statement of identification of the source(s) not in compliance, non-complying requirement(s), brief description of the problem, and the proposed solution.

_____ B. We will achieve compliance according to the following schedule:

Action	Deadline

Progress reports will be submitted:

Start date: _____ and every 180 days thereafter until compliance is achieved.

5. State the compliance status with any applicable compliance assurance monitoring and compliance certification requirements that have been promulgated under section 114(a)(3) of the Clean Air Act as of the date of submittal of this APC 31.

CAM plan requires updating to incorporate the control devices from ESRN 01.

6. Page number: | Revision number: | Date of revision:
NFSS MM November 2016

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
OPERATIONS AND FLOW DIAGRAMS

1. Please list, identify, and describe briefly process emission sources, fuel burning installations, and incinerators that are contained in this application. Please attach a flow diagram for this application.

See attached narrative which includes a process description for the sources contained in this application. A flow diagram is included as Figure 1 in Appendix A.

2. List all insignificant activities which are exempted because of size or production rate and cite the applicable regulations.

N/A

3. Are there any storage piles?

YES X NO

4. List the states that are within 50 miles of your facility.

Alabama, Missouri, Arkansas, Mississippi, Kentucky

5. Page number: | Revision Number: 0 | Date of Revision: NFSS MM March 2017

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TITLE V PERMIT APPLICATION COMPLIANCE PLAN AND COMPLIANCE CERTIFICATION

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Gerdau AmeriSteel U.S. Inc.

2. List all the process emission source(s) or fuel burning installation(s) or incinerator(s) that are part of this application.

ESRN 01: One Steel Scrap Shredder with Ferrous and Non-Ferrous Separation (including four non-ferrous separation hubs).

2. Statement of identification of the sources currently in compliance.

ESRN 01 is in compliance with the requirements outlined in this minor modification request.

Name and Title of Responsible Official	Telephone Number with Area Code
Ricardo Anawate	731-424-5600

Signature of Responsible Official	Date of Application
R Anawate	03/30/2017

4. Page number:	Revision number:	Date of revision: NFSS MM November 2016

State of Tennessee
Department of Environment and Conservation
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William R. Snodgrass Tennessee Tower
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Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
MISCELLANEOUS PROCESSES

GENERAL IDENTIFICATION AND DES CRIPTION

1. Facility name:
Gerdau AmeriSteel U.S. Inc.

2. Process emission source (identify):
ESRN 01: One Steel Scrap Shredder with Ferrous and Non-Ferrous Separation (including four non-ferrous separation hubs).

3. Stack ID or flow diagram point identification (s) :
SHRED1(ferrous separation cyclone) and BH1 (non-ferrous separation cyclone/baghouse system)

4. Year of construction or last modification: Modified portion of non-ferrous operations started operation in June 2016.

If the emissions are controlled for compliance, attach an appropriate Air Pollution Control system form.

5. Normal operating schedule: 8 Hrs./Day 7 Days/Wk. 365* Days/Yr.
* Shredder and ferrous separation – 2,080 hrs/yr. Non-ferrous portion of operation – 8,760 hrs/yr.

6. Location of this process emission source in UTM coordinates: UT M Vertical : 3955.36 UTM Horizontal: 336.02

7. Describe this process (Please attach a flow diagram of this process) and check one of the following:

_____ Batch ____X___Continuous

PROCES S MATERIAL INPUT AND OUTPUT

8. List the types and amounts of raw materials input to this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
Scrap Metal to Shredder	Shredder/Separation/Conveyor/storage piles	300 tons/hour	400 tons/hour
Non-Ferrous Material	Non-Ferrous/Separation/Conveyor/storage piles	70 tons/hour	80 tons/hour

9. List the types and amounts of primary products produced by this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
Shredded Ferrous Metal	Conveyor/product storage piles/railcar	225 tons/hour	300 tons/hour
Shredded non-Ferrous	Conveyor/landfill	75 tons/hour	100 tons/hour
Non-Ferrous Metals	Conveyor/product storage pile	70 tons/hour	80 tons/hour
Ferrous Metals	Conveyor/product storage pile		
Debris/Fluff	Conveyor/landfill		

10. Process fuel usage:

Type of fuel	Max heat input (10^6 BTU/Hr.)	Average usage (units)	Maximum usage (units)
N/A	N/A	N/A	N/A

11. List any solvents, cleaners, et c., associated with this process:

N/A

If the emissions and/or operations of this process are monitored for compliance, please attach the appropriate Compliance Demonstration form.

12. Describe any fugitive emissions associated with this process, such as outdoor storage piles, open conveyors, open air sand blasting, material handling operations, etc. (please attach a separate sheet if necessary).

Fugitive emissions generated from transport of materials (i.e., product drops during material handling and drops to product storage piles).

13. Page number: Revision Number: 0 Date of Revision:

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Nashville, TN 37243
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TITLE V PERMIT APPLICATION
STACK IDENTIFICATION

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:

   Gerdau AmeriSteel U.S. Inc.

2. Emission source (identify):

   ESRN 01: One Steel Scrap Shredder with Ferrous and Non-Ferrous Separation (including four non-ferrous separation hubs).

STACK DESCRIPTION

3. Stack ID (or flow diagram point identification):

   SHRED1(ferrous separation/shredder fluff cyclone)

4. Stack height above grade in feet:

   32

5. Velocity (data at exit conditions):

   123 (Actual feet per second)

6. Inside dimensions at outlet in feet:

   2 ft.

7. Exhaust flow rate at exit conditions (ACFM):

   23,225

8. Flow rate at standard conditions (DSCFM) :

   23,225

9. Exhaust temperature:

   Ambient Degrees Fahrenheit (F)

10. Moisture content (data at exit conditions):

    Ambient Percent Ambient Grains per dry standard cubic foot (gr./dscf.)

11. Exhaust temperature that is equaled or exceeded during ninety (90) percent or more of the operating time (for stacks subject to diffusion equation only):

    N/A (F)

12. If this stack is equipped with continuous pollutant monitoring equipment required for compliance, what pollutant(s) does this equipment monitor (e.g., Opacity, SO_2, NO_x, etc.)?

    N/A

Complete the appropriate AP C form(s) 4, 5, 7, 8, 9, or 10 for each source exhausting through this stack.

BYPASS STACK DESCRIPTION

13. Do you have a bypass stack?

    ____ Yes X No

    If yes, describe the conditions which require its use & complete APC form 4 for the bypass stack. Please identify the stack n umber(s) of flow diagram point number(s) exhausting through this bypass stack.

14. Page number: Revision Number: 0 Date of Revision:

    NFSS MM March 2017

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
CONTROL EQUIPMENT - CYCLONES/SETTLING CHAMBERS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
   Gerdau Ameristeel U.S., Inc.

2. Emission source (identify):
   ESRN 01: One Steel Scrap Shredder with Ferrous and Non-Ferrous Separation (including four non-ferrous separation hubs).

3. Stack ID or flow diagram point identification (s):
   SHRED1(ferrous separation/shredder fluff cyclone)

CYCLONE/SETTLING CHAMBER DESCRIPTION

4. Describe the device in use. List the key operating parameters of this device and their normal operating range.

5. List of pollutants (s) to be controlled and the expected control efficiency for each pollutant.

Pollutant	Efficiency (%)	Source of data
Particulate Matter	100% > 2 microns, estimated efficiency 82%	Shredder Manufacturer

6. Discuss how collected material is handled for reuse or disposal.
   Collected shredder fluff is landfilled.

7. Gas flow rate (ACFM):
   23,225

8. If this control equipment is in series with some other control equipment, state and specify the overall efficiency.
   N/A

9. Page number: Revision Number: Date of Revision:
   NFSS MM March 2017

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William R. Snodgrass Tennessee Tower
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Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
STACK IDENTIFICATION

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:

Gerdau AmeriSteel U.S. Inc.

2. Emission source (identify):

ESRN 01: One Steel Scrap Shredder with Ferrous and Non-Ferrous Separation (including four non-ferrous separation hubs).

STACK DESCRIPTION

3. Stack ID (or flow diagram point identification):

BH1 (non-ferrous separation cyclone/baghouse control system) serves Separation Hubs Step 11 and Step 15

4. Stack height above grade in feet:

36.1

5. Velocity (data at exit conditions):

46.4 (Actual feet per second)

6. Inside dimensions at outlet in feet:

3.67 ft.

7. Exhaust flow rate at exit conditions (ACFM):

29,429

8. Flow rate at standard conditions (DSCFM) :

29,429

9. Exhaust temperature:

Ambient Degrees Fahrenheit (F)

10. Moisture content (data at exit conditions):

Ambient Percent Ambient Grains per dry standard cubic foot (gr./dscf.)

11. Exhaust temperature that is equaled or exceeded during ninety (90) percent or more of the operating time (for stacks subject to diffusion equation only):

N/A (F)

12. If this stack is equipped with continuous pollutant monitoring equipment required for compliance, what pollutant(s) does this equipment monitor (e.g., Opacity, SO_2, NO_x, etc.)?

N/A

Complete the appropriate AP C form(s) 4, 5, 7, 8, 9, or 10 for each source exhausting through this stack.

BYPASS STACK DESCRIPTION

13. Do you have a bypass stack?

Yes X No

If yes, describe the conditions which require its use & complete APC form 4 for the bypass stack. Please identify the stack n umber(s) of flow diagram point number(s) exhausting through this bypass stack.

14. Page number: Revision Number: 0 Date of Revision:

NFSS MM March 2017

State of Tennessee
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Division of Air Pollution Control
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312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
CONTROL EQUIPMENT - BAGHOUSES/FABRIC FILTERS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Emission source (identify):
Gerdau AmeriSteel U.S. Inc.	ESRN 01: One Steel Scrap Shredder with Ferrous and Non-Ferrous Separation (including four non-ferrous separation hubs).

3. Stack ID or flow diagram point identification(s):

BH1 (non-ferrous separation cyclone/baghouse system on Separation Steps 11 and 15)

BAGHOUSE/FABRIC FILTER DESCRIPTION

4. Describe the device in use. List the key operating parameters of this device and t their normal operating range.

This source consists of one exhaust point from destoner air evacuation systems on Steps 11 and 15. The destoners will vent to a common cyclone separator and baghouse before exhausting to the atmosphere.

5. Manufacturer and model number (if available):	6. Year of installation:
R&R Model RTF-IFW-490-JET	2016

7. List of pollutant(s) to be controlled and the expected control efficiency for each pollutant (see instructions).

Pollutant	Efficiency (%)	Source of data
Particulate Matter	99%	Manufacturer Guarantee

8. Discuss how collected material is handled for reuse or disposal.

Collected material will be disposed in permitted on-site landfill.

9. If the bags are coated, specify the material used for coating and frequency of coating.

No

10. Does the baghouse collect asbestos containing material?

Yes _____ No ___X___

If "Yes", provide data as out lined in Item 10, Instructions for this form.

11. If this control equipment is in series with some other control equipment, state and specify the overall efficiency.

Baghouse will be located in series with one cyclone; the baghouse will be situated after the cyclone.

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State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
COMPLIANCE CERTIFICATION - MONITORING AND REPORTING
DESCRIPTION OF METHODS USED FOR DETERMINING COMPLIANCE

All sources that are subject to 1200 -03-09-.02(11) of the Tennessee Air Pollution Control Regulations are required to certify compliance with all applicable requirements by including a statement within the permit application of the methods used for determining compliance. This statement must include a description of the monitoring, recordkeeping, and reporting requirements and test methods. In addition, the application must include a schedule for compliance certification submittals during the permit term. These submittals must be no less frequent than annually and may need to be more frequent if specified by the underlying applicable requirement or the Technical Secretary.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
   Gerdau AmeriSteel U.S. Inc.
2. Process emission source, fuel burning installation, or incinerator (identify):
   ESRN 01: One Steel Scrap Shredder with Ferrous and Non-Ferrous Separation (including four non-ferrous separation hubs).
3. Stack ID or flow diagram point identification(s): SHRED1 (ferrous cyclone), BH1 (Step 11/15 cyclone baghouse system) and Material Handling Fugitives (drop points)

METHODS OF DETERMINING COMPLIANCE

4. This source as described under Item #2 of this application will use the following method(s) for determining compliance with applicable requirements (and special operating conditions from an existing permit). Check all that apply and attach the appropriate form(s)

   ____ Continuous Emission Monitoring (CEM) - APC 20
   Pollutant(s): _____

   ____ Emission Monitoring Using Portable Monitors - APC 21
   Pollutant(s): _____

   __X__ Monitoring Control System Parameters or Operating Parameters of a Process - APC 22
   Pollutant(s): PM

   __X__ Monitoring Maintenance Procedures - APC 23
   Pollutant(s): PM

   ____ Stack Testing - APC 24
   Pollutant(s): _____

   ____ Fuel Sampling & Analysis (FSA) - APC 25
   Pollutant(s): _____

   __X__ Recordkeeping - APC 26
   Pollutant(s): PM

   ____ Other (please describe) - APC 27
   Pollutant(s): _____

5. Compliance certification reports will be submitted to the Division according to the following schedule:

   Start date: According to the schedule after incorporation in the Title V Operating Permit

   And every 365 days thereafter.

6. Compliance monitoring reports will be submitted to the Division according to the following schedule:

   Start date: According to the schedule after incorporation in the Title V Operating Permit

   And every 180 days thereafter.

7. Page number: Revision number: 0 Date of revision:

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Department of Environment and Conservation
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TITLE V PERMIT APPLICATION - COMPLIANCE DEMONSTRATION BY MONITORING CONTROL SYSTEM PARAMETERS OR OPERATING PARAMETERS OF A PROCESS

The monitoring of a control system parameter or a process parameter shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value and the emission rate of a particular pollutant is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:

Gerdau AmeriSteel U.S. Inc.

2. Stack ID or flow diagram point identification(s)

BH1(non-ferrous separation cyclone/baghouse system)

3. Emission source:

ESRN 01: One Steel Scrap Shredder with Ferrous and Non-Ferrous Separation (including four non-ferrous separation hubs).

MONITORING DESCRIPTION

4. Pollutant(s) being monitored:

PM

5. Description of the method of monitoring and establishment of correlation between the parameter value and the emission rate of a particular pollutant:

Monitor and record the (when operating) BH1 baghouse pressure drop once per day. Compare against minimum pressure drop established at 70 pascals.

Notation of relevant control system conditions/problems/concerns when recording pressure drop values. Record days when source is not in operation. Note deviations where a pressure drop reading lower than the established minimum resulted from replacement of the baghouse filter.

6. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):

Daily

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TITLE V PERMIT APPLICATION
COMPLIANCE DEMONSTRATION BY MONITORING MAINTENANCE PROCEDURES

The monitoring of a maintenance procedure shall be acceptable as a compliance demonstration method provided that a correlation between the procedure and the emission rate of a particular pollutant is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:

   Gerdau AmeriSteel U.S. Inc.

2. Stack ID or flow diagram point identification(s):
   SHRED1(ferrous separation cyclone), BH1 (non-ferrous separation cyclone/baghouse system), and various drop points

3. Emission source (identify):

   ESRN 01: One Steel Scrap Shredder with Ferrous and Non-Ferrous Separation (including four non-ferrous separation hubs).

MONITORING DESCRIPTION

4. Pollutant(s) being monitored:

   PM, Opacity, HAP

5. Procedure being monitored:
   Visible Emission Evaluations for opacity limitation compliance and Scrap Pollution Prevention Plan (40 CFR Part 63, Subpart YYYYY)

6. Description of the method of monitoring and establishment of correlation between the procedure and the emission rate of a particular pollutant:

   This facility will assure compliance with the opacity limitation by utilizing the Division's opacity matrix dated June 18, 1996 and amended September 12, 2005.

   This facility has developed a Pollution Prevention Plan as required by 40 CFR Part 63, Subpart YYYY.

7. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):
   VEE's will be performed in accordance to the schedule contained in the Opacity Matrix. Comply with frequency requirements contained in the NVMSRP (semiannual review of ELVS supplier database)

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TITLE V PERMIT APPLICATION
COMPLIANCE DEMONSTRATION BY RECORDKEEPING

Recordkeeping shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value recorded and the applicable requirement is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:

   Gerdau AmeriSteel U.S. Inc.

2. Stack ID or flow diagram point identification(s):

   SHRED1 (ferrous cyclone), BH1 (Step 11/15 cyclone/baghouse system, Material Handling Fugitives (drop points)

3. Emission source (identify):

   ESRN 01: One Steel Scrap Shredder with Ferrous and Non-Ferrous Separation (including four non-ferrous separation hubs).

MONITORING AND RECORDKEEPING DESCRIPTION

4. Pollutant(s) or parameter being monitored:

   PM

5. Material or parameter being monitored and recorded:

   Equipment inspections, maintenance and repair, baghouse pressure drop, hours of operation, actual emissions

6. Method of monitoring and recording:

   Weekly record of shredder cyclone (SHRED1) inspections. Log of preventative maintenance and repairs.

   Daily record of destoner cyclone/baghouse (Step 11/15 sorting hub) pressure drop readings. Log of preventative maintenance and repairs.

   Log of annual operating hours of shredder and ferrous separation operations. Log of annual operating hours of non-ferrous separation operations.

   Log of actual emissions for fee purposes:
   To calculate particulate emission multiply the number of hours operated by 25.0 lbs/hour. To calculate the hours of operation of the non-ferrous portion of the operation multiply the number of hours worked by 3.26 lbs/hour.

7. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):

   Monthly

8. Page number: | Revision number: | Date of revision:

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TITLE V PERMIT APPLICATION
EMISSIONS FROM PROCESS EMISSION SOURCE / FUEL B URNING INSTALLATION / INCINERATOR

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Gerdau AmeriSteel U.S. Inc.

2. Stack ID or flow diagram point identification(s):
SHRED1(ferrous separation cyclone) and BH1 (non-ferrous separation cyclone/baghouse system) and Material Handling Fugitives (drop points)

3. Process emission source / Fuel burning installation / Incinerator (identify):
ESRN 01: One Steel Scrap Shredder with Ferrous and Non-Ferrous Separation (including four non-ferrous separation hubs).

EMISSIONS S UMMARY TABLE – CRITERIA AND FUGITIVE EMISSIONS

4. Complete the following emissions summary for regulated air pollutants. Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for St at e use (Pounds per Hour - Item 7, AP C 30)	Tons per Year	Reserved for St at e use (Pounds per Hour- Item 8, AP C 30)
Particulate Matter (TSP)	48.23		< 48.23	
(Fugitive Emissions)	Included in TSP above		Included in TSP above	
Sulfur Dioxide	N/A		N/A	
(Fugitive Emissions)	N/A		N/A	
Volatile Organic Compounds	N/A		N/A	
(Fugitive Emissions)	N/A		N/A	
Carbon Monoxide	N/A		N/A	
(Fugitive Emissions)	N/A		N/A	
Lead	N/A		N/A	
(Fugitive Emissions)	N/A		N/A	
Nitrogen Oxides	N/A		N/A	
(Fugitive Emissions)	N/A		N/A	
Total Reduced Sulfur	N/A		N/A	
(Fugitive Emissions)	N/A		N/A	
Mercury	N/A		N/A	
(Fugitive Emissions)	N/A		N/A	
(Continued on next page)				

(Continued from last page)

AIR P OLLUT ANT	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for St at e use (Pounds per Hour - Item 7, AP C 30)	Tons per Year	Reserved for St at e use (Pounds per Hour- Item 8, AP C 30)
Asbestos	N/A		N/A	
(Fugitive Emissions)	N/A		N/A	
Beryllium	N/A		N/A	
(Fugitive Emissions)	N/A		N/A	
Vinyl Chloride	N/A		N/A	
(Fugitive Emissions)	N/A		N/A	
Fluorides	N/A		N/A	
(Fugitive Emissions)	N/A		N/A	
Gaseous Fluorides	N/A		N/A	
(Fugitive Emissions)	N/A		N/A	
Greenhouse Gases in CO_2 Equivalent s	N/A		N/A	

EMISSIONS SUMMARY TABLE – FUGITIVE HAZARDOUS AIR POLLUTANTS

5. Complete the following emissions summary for regulated air pollutants that are hazardous air pollutant(s). Fugitive emissions shall be included. At t ach calculations and emission factor references.

Air Pollutant & CAS	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for St at e use (Pounds per Hour - Item 7, AP C 30)	Tons per Year	Reserved for St at e use (Pounds per Hour- Item 8, AP C 30)
N/A				

6. Page number: Revision number: Date of revision

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State of Tennessee
Department of Environment and Conservation
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William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
CURRENT EMISSIONS REQUIREMENTS AND STATUS

GENERAL IDENTIFICATION AND DESCRIPTION

1 Facility name	2 Emission source number
Gerdau AmeriSteel U.S. Inc.	ESRN 01: One Steel Scrap Shredder with Ferrous and Non-Ferrous Separation (including four non-ferrous separation hubs).

3 Describe the process emission source / fuel burning installation / incinerator

Electrically powered scrap metal shredder. Ferrous and non-ferrous metals, as well as auto shredder residue (ASR) are separated by various methods. PM emissions from separation and sorting operations are controlled with a cyclone (SHRED1) and a cyclone/baghouse in series (BH1).

EMISSIONS AND REQUIREMENTS

4 Identify if only a part of the source is subject to this requirement	5 Pollutant	6 Applicable requirement(s): TN Air Pollution Control Regulations, 40 CFR, permit restrictions, air quality based standards	7 Limitation	8 Maximum actual emissions	9 Compliance status (In/Out)
Shredder and ferrous separation operations	PM	TAPCR 1200-03-07-.01(5)	25.0 lbs/hr and 26 tpy	<25.0 lbs/hr and 26 tpy	IN
Shredder and ferrous separation operations	PM	Permit No. 050995 P	2,080 hrs of operations per years	<2,080 hrs of operation per years	IN
Non-ferrous separation operations	PM	TAPCR 1200-03-05-.03(6) and -05-.01(1)	20% by EPA M9	<20% Opacity	IN
(Entire Source)	Opacity	TNAPCR 1200-03-05-.03(6) and -05-.01(1)	20% by EPA M9	<20% Opacity	IN
(Entire Source)	HAP (Lead, Mercury)	40 CFR Part 63, Subpart YYYY	Pollution Prevention Plan and Scrap Inspection		IN

10 Other applicable requirements (new requirements that apply to this source during the term of this permit)

N/A					

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APPENDIX D

DRAFT SUGGESSTED CONSTRUCTION PERMIT CONDITIONS

Suggested Construction Permit Language (similar format to 969936P)

57-0189-01	**Scrap Steel Shredder:**	An electrically powered scrap steel shredder for recycling steel. Ferrous and non-ferrous metals as well as Auto Shredder Residue (ASR) are separated by various methods including magnetic separation. Emissions from the separation of ASR are controlled with a cyclone (ASR cyclone).
	Modification:	Non-Ferrous Separation System: Non-ferrous material handling and separation operations that receive shredded material from the outlet of the existing scrap shredder will be directed to the new sorting hubs. The shredded metal infeed to the hubs will come from the existing steel scrap shredder or other steel scrap providers and on-site landfill. The sorted product will initially be stored in piles of uniform sizes materials and then will either be used in the existing steel melting process or be shipped offsite to customers. Source includes four (4) stand-alone sorting hubs (Steps 10, 11, 12, 15) with conveyor belts, separators, and destoners to separate miscellaneous metals including ferrous materials, ICW (insulated copper wire), copper, Zurik (primarily stainless steel), Zorba (primarily Al) and non-ferrous microfines. A shared cyclone and baghouse system will control particulate matter emissions from the destoners on Steps 11 and 15.

E4.	Conditions specific to source 57-0189-01

E4-1. Input capacity restriction

a) Input capacity of the existing scrap steel shredder shall not exceed 400 tons per hour on a daily basis. The Technical Secretary may require the permittee to demonstrate compliance with this rate. Permit Number 050995P

b) Input capacity of the non-ferrous material handling equipment following the shredder, but prior to the sorting hubs, shall not exceed 80 tons per hour on a monthly average basis. The Technical Secretary may require the permittee to demonstrate compliance with this rate.

c) Input capacity for the sorting hubs shall not exceed the following rates:

Sorting Hub Number 10: 40 tons per hour on a monthly average basis
Sorting Hub Number 11: 25 tons per hour on a monthly average basis
Sorting Hub Number 12: 45 tons per hour on a monthly average basis
Sorting Hub Number 15: 10 tons per hour on a monthly average basis

The Technical Secretary may require the permittee to demonstrate compliance with these rates.

E4-2. Particulate Matter (PM) limitation

a) PM emitted from the existing scrap steel shredder shall not exceed 25.0 pounds per hour and 26 tons/year.

TAPCR 1200-03-07-.01(5) and the information contained in the agreement letter dated January 22, 1999, from the permittee.

Compliance Method: This process shall not be operated without the use of the ASR cyclone control. The cyclone shall be inspected weekly to see if there are any abrasion holes. Any abrasion

holes shall be promptly repaired. All plugging problems shall be remedied promptly. Compliance with the annual limit shall be assured by compliance with Condition E4-3 and by completing Log 1 of condition E4-4. A maintenance log shall be retained and be available for inspection to the Technical Secretary or his representative.

Compliance with the annual limit contained in E4-2(a) shall be assured by compliance with condition E4-3 and by completing Log 1 of condition E4-4.

b) PM emitted from the non-ferrous material handling/separation and sorting hubs shall not exceed 3.26 pounds per hour and 14.28 tons/year.

Compliance Method: The destoners from Hubs 11 and 15 shall not be operated without the use of the cyclone with baghouse control device. The control device shall be inspected weekly to see if there are any abrasion holes. Any abrasion holes shall be promptly repaired. All plugging problems shall be remedied promptly. A maintenance log shall be retained and be available for inspection to the Technical Secretary or his representative.

Compliance with this requirement shall be assured by maintaining a pressure drop across the destoner baghouse greater than or equal to 70 Pascals (as requested by the permittee in the letter submitted October 18, 2016. The pressure drop for the cyclone/baghouse system shall be recorded once daily when the source is in operation. Days when the source is not operating shall be noted. For lower pressure drop readings resulting from replacement of the baghouse filter, the permittee shall record the deviation as such in their daily records. Due allowance will be made for lower pressure drop readings which follow replacement of the baghouse filter provided the permittee establishes to the satisfaction of the Technical Secretary that these lower readings resulted from the replacement of the cartridge collector filter.

Compliance with the annual limit contained in E4-2(b) shall be assured by compliance with condition E4-3 and by completing Log 1 of condition E4-4.

E4-3. Operating hour restriction

a) Total yearly operating hours for the shredder shall not exceed 2,080 hours per year.

Permit Number 050995P

Compliance Method: The permittee shall complete Log 1 of condition E4-4.

b) There are no restrictions on hours of operation for the non-ferrous material handling/separation equipment and sorting hubs.

Compliance Method: The permittee shall complete Log 1 of condition E4-4.

E4-4. Actual emissions for fee purposes

Per TAPCR 1200-03-26-.02(9), actual emissions shall be determined for fee purposes for each fee accounting period for the billable pollutants by completing Log 1. Total operating hours shall be recorded for compliance purposes.

LOG 1

LOG OF POLLUTANT EMISSION TONNAGE FOR SOURCE 05 FOR FEE AND COMPLIANCE PURPOSES

Month/Year	Hours of Operation of Shredder	Hours of Operation of Non-Ferrous Material Handling and Separation and Sorting Hubs	PM (lbs) (Shredder)	PM (lbs) (Non-Ferrous)	PM (lbs) (Total)
July/Year					
June/Year					
12 Month Total (lbs)					
12 Month Total (tons)					

Notes: To calculate particulate emissions from the Shredder multiply the number of hours operated by 25.0 lbs/hour. To calculate the hours of operation of the non-ferrous portion of the operation multiply the number of hours worked by 3.26 lbs/hour.

E4-5. a) The source (scrap steel shredder) and facility shall comply with the MACT requirements of 40 CFR Part 63 Subpart YYYYY, §63.10685, ((a), (b) and (c) for metallic scrap utilized, Mercury requirements and record keeping & reporting requirements, respectively). The details of the standard and rules are included as Attachment #6 of Title V permit # 565713. As part of the compliance with this Rule, the company has submitted their Pollution Prevention Plan to this Division dated September 18, 2013 and is attached as Attachment #7 of Title V permit #565713.

b) The newly added four sorting hubs for material recycling and reprocessing will receive feed scrap material as follows: approximately 50% from the scrap steel shredder or other 40 CFR Part 63 Subpart YYYYY-compliant steel scrap providers, and other 50% from onsite landfill materials. The process will re-sort the old landfill material for recovery of mostly non-ferrous products which in turn will be shipped to customers. Any small amount of ferrous material recovered can be re-directed to the electric arc furnace (EAF) and for this EAF metal scrap charging, the permittee shall adhere to the following guidelines as stipulated in their May 18, 2015 and June 11, 2015 letters of agreement (attachment 1 of this permit):

i) to minimize the amount(s) chlorinated plastics, lead, free organic liquids and mercury in metallic scrap charge;
ii) to ensure that sorting process of ferrous and non-ferrous metals are properly accomplished through usages of magnetic separators which excludes non-ferrous metals.

E4-6. In addition to the conditions of this permit, the source shall also comply with the applicable requirements and conditions for this source in their Title V permit #565713.

E4-7. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for one (1) six-minute period in any one (1) hour period and for no more than four (4) six- minute periods in any twenty-four (24) hour period. Visible emissions from this source shall be determined by EPA Method 9, as published in the current 40 CFR 60, Appendix A (six-minute average). TAPCR 1200-03-05-.03(6) and TAPCR 1200-03-05-.01(1).

E4-8. The issuance of this permit does not exempt the permittee from any requirements of the Environmental Protection Agency pertaining to emissions from this source.

E4-9. This permit shall serve as a temporary operating permit from initial start-up of the modified source to the receipt of a modified Title V permit (regardless of the expiration date), provided an application for Significant Modification to the Title V permit is applied for within 180 days of the start-up

of the modified source and as specified in condition E4-10 and the conditions of this permit and any applicable emission standards are met.

E4-10. The permittee shall certify the start-up date of the modified air contaminant source regulated by this permit by submitting

A COPY OF ALL PAGES OF THIS PERMIT

With the information required in A) and B) of this condition completed, to the Technical Secretary's representatives listed below:

A) DATE OF START-UP: _____/_____/_____
month day year

B) Anticipated operating rate: _____ percent of maximum rated capacity

For the purpose of complying with this condition, "start-up" of the modified air contaminant source shall be the date of the setting in operation of the modified source for the production of product for sale or use as raw materials or steam or heat production.

The undersigned represents that he/she has the full authority to represent and bind the permittee in environmental permitting affairs. The undersigned further represents that the above provided information is true to the best of his/her knowledge and belief.

Signature		Date
Signer's Name (type or print)	Title	

Note: This certification is not an application for an operating permit. At a minimum, the appropriate application fom(s) must be submitted requesting an operating permit. The application must be submitted in accordance with the requirements of this permit.

The completed certification shall be delivered to the West Tennessee Permit Program at the address listed below or at the e-mail address given, no later than sixty (60) days after the air containment source is started-up.

West Tennessee Permit Program
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243

or Air.pollution.Control@Tn.gov