

**DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection**

B430644591

FACILITY: Gerdau Special Steel North America - Jackson Mill		SRN / ID: B4306
LOCATION: 3100 BROOKLYN RD, JACKSON		DISTRICT: Jackson
CITY: JACKSON		COUNTY: JACKSON
CONTACT: Craig Metzger , Regional Environmental Manager		ACTIVITY DATE: 05/31/2018
STAFF: Mike Kovalchick	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: MAJOR
SUBJECT: Inspection of Gerdau and adjacent TMS International Corporation slag handling facility.		
RESOLVED COMPLAINTS:		

Major / ROP Source. Full Compliance Evaluation (FCE) and Inspection (PCE)

Facility Contacts

Craig Metzger (CM), Regional Environmental Manager, 734-818-7113. Craig.metzger@gerdau.com

Alicia Stone, Site Supervisor TMS International

Purpose

On May 31, 2018, I conducted a scheduled, announced inspection of the Gerdau Special Steel North America - Jackson Mill (Company or GJ) facility located in Jackson, Michigan (Jackson County) at 3100 Brooklyn Road. (Note: TMS International's slag handling facility located on GJ's property was also inspected.) The purpose of the inspection was to determine the facility's compliance status with applicable federal and state air pollution regulations, particularly Michigan Act 451, Part 55, Air Pollution Control Act and administrative rules, and the conditions of GJ's Renewable Operating Permit (ROP) number MI-ROP-B4306-2015, issued February 12, 2015. Note that this inspection was a follow-up to a previous inspection conducted on January 24, 2018 to focus on suspected problem areas at the facility.

Facility Location

Several residential and commercial properties, including a preschool, are located about 1,000 feet south and southeast of the facility, while US-127 and open / agricultural fields are located west and north, respectively, of the facility. See attached aerial photo.

Arrival & Facility Contacts

Visible emissions were observed upon my arrival and parking at the facility, at approximately 8:45 am. I observed white smoke/dust for about 15 minutes coming from the vicinity of the Castor roof monitor style vent that is on the roof of the Melt Shop. I estimated opacity at 15% although the sun angle was not correct to take an accurate reading. I proceeded to the facility security office to request access for an inspection of the facility. I then met with Craig Metzger (CM) at a little after 9:00 am who I had contacted the previous day to accompany me on the inspection.

Regulatory Applicability

The facility is a Major / ROP source for CO and had also accepted PM, NOx, SO2, CO, and VOC emission limits in order to remain below major source emission thresholds for these pollutants. The facility is regulated by ROP number MI-ROP-B4306-2015. It is also subject to:

Title 40 of the Code of Federal Regulations (CFR), Part 63, Subpart YYYYY (5Y), National Emission Standards for Hazardous Air Pollutants (NESHAP) for Electric Arc Furnace (EAF) Steelmaking Facilities. This MACT includes requirements to limit mercury and other contaminants in the steel scrap, and a PM and PM10 emission limit of 0.0052 gr/dscf of exhaust gases and 6 % opacity limit for the facility's electric arc furnaces (EAFs).

Title 40 of the CFR, Part 63, Subpart ZZZZ, NESHAP for Reciprocating Internal Combustion Engines (RICE) (AKA RICE MACT).

Title 40 of the CFR, Part 64, Compliance Assurance Monitoring (CAM), with the following CAM monitoring

parameters for FG-EAF/LMF/VAD: VE readings, bag house pressure drop monitoring, and bag house inspection and maintenance activities.

Title 40 of the CFR, Part 60, Subpart AAa, Standards of Performance for Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels Constructed After August 17, 1983. This standard does **NOT** apply. See Scheduled Inspection Activity Report dated 6/26/2013 for a discussion on applicability.

The new baghouse being installed to control particulate emissions from the Caster roof monitor style vent is exempt from PTI requirements per Rule 285 (2) (e).

The facility reports its emissions to MAERS and is designated as a Fee Category I source.

Emission Unit (EU) / Flexible Group (FG) Details

EMISSION UNIT SUMMARY TABLE

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation	Flexible Group ID
		Date/ Modification Date	
EU-HTOV001	30 MMBTU/hr natural gas fired heat treat furnace PTI 24-06	7/1/1981	FG-FACILITY
EU-ROOFMONITOR	This emission unit is comprised of the melt shop roof monitor. The roof monitor is a covered vent at the apex of the roof line of the melt shop. The emissions emitted from the roof monitor are fugitive emissions that escape the roof canopies. PTI 535-961	1/1/1973	FG-SHOP
EU-AF01	60.2 MMBTU/hr annealing furnace #1 PTI 183-01	9/8/2001	FG-FACILITY
EU-AF02	38.4 MMBTU/hr annealing furnace #2 PTI 183-01	9/25/2001	FG-FACILITY
EU-EAF-01	Electric arc furnace (EAF #1) melts scrap iron in a batch process. It is a refractory-lined cylindrical vessel with bowl shaped hearth and dome-shaped movable roof. The EAF emissions are ducted to a common baghouse (Baghouse No. 3)	1/1/1973	FG-EAF FG-EAF/LMF/VAD FG-SHOP FG-FACILITY
EU-EAF-02	Electric arc furnace (EAF #2) melts scrap iron in a batch process. It is a refractory-lined cylindrical vessel with bowl shaped hearth and dome-shaped movable roof. The EAF emissions are ducted to a common baghouse (Baghouse No. 3).	1/1/1973	FG-EAF FG-EAF/LMF/VAD FG-SHOP FG-FACILITY
EU-LMF	A ladle metallurgy furnace (LMF). Exhaust gases from the LMF are captured by the removable hood and associated canopy hoods and then routed to the melt shop baghouse. (DV-BH03) for PM emission control.	7/7/1989	FG-EAF/LMF/VAD FG-SHOP FG-FACILITY
EU-VAD	A vacuum arc degasser (VAD). Exhaust gases from the VAD are captured by the close fitting hood at the vacuum chamber door and associated canopy hoods and then routed to the melt shop baghouse (DV-BH03) for PM emission control.	7/7/1989	FG-EAF/LMF/VAD FG-SHOP FG-FACILITY
EU-binfilter	This device is a small baghouse atop a silo. Its use is to prevent fugitive emissions from escaping the silo, which stores EAF dust.	3/1/1998	FG-FACILITY
EU-limeBH	This is a small baghouse attached to the lime system. Its purpose is to collect fugitive emissions during lime system operation. It operates about 2 hours per day.	6/1/1999	FG-FACILITY
EU-COLDCLEANERS	Seventeen (17) cold cleaners	11/26/13	FG-FACILITY
EU-ENGINE1	Existing Emergency Compression Ignition	June 1984	FG-RICE

	Generator < 500 HP (Clean 1 West)		
EU-ENGINE2	Existing Emergency Compression Ignition Generator <500 HP (Clean 1 East)	5/23/1997	FG-RICE
EU-ENGINE3	Existing Emergency Compression Ignition Generator < 500 HP (Turn Office)	Before 7/11/2005	FG-RICE
EU-ENGINE4	Existing Emergency Compression Ignition Generator >500 HP. (New Heat Treat)	2001	FG-RICE
EU-ENGINE5	Existing Emergency Spark Ignition Engine < 500 HP (Outside #1 STR)	7/14/1998	FG-RICE
EU-ENGINE6	Existing Emergency Spark Ignition Engine <500 HP (Admin Bldg.)	6/8/2006	FG-RICE

FLEXIBLE GROUP SUMMARY TABLE

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FG-EAF	Two (2) Electric Arc Furnaces	EU-EAF-01 and EU-EAF-02
FG-EAF/LMF/VAD	Two (2) Electric Arc Furnaces, a ladle metallurgy furnace (LMF), and a vacuum arc degasser (VAD).	EU-EAF-01, EU-EAF-02, EU-LMF and EU-VAD
FG-SHOP (Roof Monitor)	The shop roof monitor is above the EU-EAF-01, EU-EAF-02, EU-LMF, and EU-VAD. Fugitive emissions from all of these processes are emitted through the shop roof monitor.	EU-ROOFMONITOR, EU-EAF-01, EU-EAF-02, EU-LMF and EU-VAD
FG-FACILITY	All equipment at the facility including the FG-EAF, FG-EAF/LMF/VAD and the equipment covered by other permits, grand-fathered equipment and exempt equipment.	EU-EAF-01, EU-EAF-02, EU-LMF, EU-VAD, EU-HTOV001,EU-ROOFMONITOR, EU-AF01, EU-AF02, EU-binfilter, EU-limeBH, and EU-COLDCLEANERS
FG-RICE	Four (4) Compression Ignition Emergency Generators and Two (2) Spark Ignition Emergency Generators subject to the RICE MACT Requirements	EU-ENGINE1, EU-ENGINE2, EU-ENGINE3, EU-ENGINE4, EU-ENGINE5, EU-ENGINE6

Facility Background

GJ is a Secondary Steel Producer (Mini-Mill) that employees about 400 persons. The melt shop operates 5 to 6 days a week except Sundays, while the finishing shop operates 7 days a week. Typically, production occurs over three, 8-hour shifts. A heat typically lasts about an hour, and under normal operations, GJ can achieve 24-26 heats per day. Typical production as measured through the caster is 50 to 55 tons per hour. A "heat" refers to a batch of molten steel. In addition, "tap-to-tap" is used to define the start and end of a heat, which includes furnace charging, melting, refining, de-slagging, tapping (pouring of the molten steel to a ladle, etc.), and furnace turn-around. The facility primarily produces small bar steel having a diameter between 0.9 to 4.25 inches.

Scrap is selected from the various piles found in the facility's scrap yard and is loaded in a charge bucket. The charge bucket's bottom opens to load 1 of the 2 EAFs with cold steel and the melting phase begins once the operator strikes an arc on the scrap as the EAF electrodes are lowered into the furnace. The furnace is charged again with additional cold steel. The EAFs alternate operations, as only 1 EAF is charged at one time.

Once the molten steel is to spec, tapping occurs when the EAF is tilted and the steel pours into a ladle to transfer the molten steel to the ladle metallurgy furnace (LMF) for additional fine refining / secondary addition of alloys, and then to the vacuum arc degasser (VAD) for the injection of argon to stir the molten steel for additional refinement and removal of entrained gases using a steam vacuum system. After melting in the EAF's, approximately one percent by weight of carbon, manganese, silicon and a fraction of a percent of aluminum are added as alloys. Emissions from the EAFs, the LMF, and VAD are controlled by a positive pressure baghouse (DV-BH03).

(Note: The EAF's were installed in 1973 and were first permitted under PTI 239-75. PTI 535-96 replaced 239-75 and allowed a production rate increase although the capacity of the EAFs were not increased.)

(Note: Side draft hoods and canopy hoods associated with the EAFs are connected by ducts to a spark-arrestor that subsequently connects to three separate fans, which are connected to the #3 bag house. The LMF is equipped with a hood that is fitted over a hot metal ladle. It is connected through ductwork to the #3 bag house. The VAD has a hood outside the vacuum chamber that collects fugitive emission released when the vacuum chamber is opened after a ladle is degassed. This hood connected is by ductwork to the #3 bag house.)

Next, the 50-ton ladle is transported to the caster area. (Note: Ladles do not have covers at this facility.) A 2 strand tundish feeds molten steel to a continuous caster. A conveyer transports the molten steel strands to a walking beam furnace for reheat. Then the strands go through 6 roughing mills, which slowly round out the strands. The finishing mills conduct additional rolling and fine adjusting, prior to being cut. The finishing department then polishes, inspects, and conducts heat treatment in the facility's annealing furnaces. The final product is banded and shipped offsite.

FG-EAF/LMF/VAD has a less than 6% opacity limit, except for one 6-minute average of not more than 10%, per SC III.1 and a 6% opacity limit at the FG-Shop (Roof Monitor), per SC III.1. The North roof monitor was sealed in 2011. The casting roof monitor is limited to a 20% opacity limit, per GC 11 but because opacity is entering from EAF area, it also subject to the more stringent requirement of 6%.

The Company reported the following, facility-wide total emissions for 2017: 517 tons CO, 71.76 tons NOx, 15.19 tons PM10, 28 tons SO2, and 18 tons VOC. The facility reported emissions using CEMS, stack testing, and MAERS EFs. The Company's ROP does not specify facility-wide emission limits, but for comparisons, FG-EAF/LMF/VAD have the following limits, 280 tons per year (tpy) for SO2, 148.4 tpy for NOx, 1,400 tpy for CO, and 84 tpy for VOC.

Note: Main EAF bag house (referred to as the #3 bag house) ventilation system was upgraded December 2011. It was originally installed in July 2004. Capacity increased from 600,000 to 800,000 scfm. New fiberglass bags were installed in July 2010. (Replacement of bags will start by bag house compartment this Summer.) The bag house consists of ten compartments for a total of 264 bags per compartment. Three (3) ID fans capable of moving a total of 828,000 acfm provide suction for capturing and moving the dust laden gases through the fume control system. Note: As part of this project, the North roof monitor was closed.

Summary of the reporting / submittal requirements and include the follow items listed below.

- Annual MAERS report.
- Annual and Semi-Annual ROP Certifications, per ROP requirements. Recent deviations, with additional comments available on the FCE report, include: Records for daily non-Method 9 reading were not taken for 1 day, per FG-SHOP SC VI.2 and no records were produced for daily preventative maintenance work on the baghouse for one day, per FG-Facility SC III.1.
- Quarterly EAF baghouse dust analysis, per FG-EAF/LMF/VAD SC VI.2.
- Quarterly Continuous Emission Monitoring System (CEMS) Excessive Emissions Reports (EER), per ROP Appendix 3. The facility measures SO2 and CO emissions using CERMS, per ROP requirements.
- Semiannual mercury compliance reporting, per subpart YYYYY requirements.
- Stack testing test plan: every 5 years.

Stack Testing Summary:

May 6-9, 2014 Stack Test:

PM Limit 0.0052 gr/dscf Actual 0.0005 gr/dscf

PM-10 Limit 0.0052 gr/dscf Actual 0.0004 gr/dscf. Limit 24.7 pounds/hour Actual 1.78 pounds/hour.

Mercury Limit 0.026 pounds/hour Actual 0.004 pounds/hour

Manganese Limit 0.39 mg/m³ Actual 0.018 mg/m³. Limit 0.817 lbs./hour Actual 0.044 lbs./hour.

Lead Limit 0.28 pounds/hour Actual 0.006 pounds/hour.

NOx limit 0.53 pounds/ton Actual 0.27 pounds/ton of scrap charged.

VOC Limit 0.30 pounds/ton Actual 0.11 pounds/ton of scrap charged.

Visible Emissions Limit 15% Melt Shop Roof Monitors/ 6% Bag house Actual 0%.

Mercury dust measured entering baghouse 3.1 mg/Kg

Manganese dust measured entering baghouse 34,117 mg/Kg

Lead dust measured entering baghouse 4852 mg/Kg

Average flowrate through bag house 640,185 dscfm.

Note: ROP Condition FG-EAF/LMF/VAD V.1.C requires that the stack test report shall include, at a minimum the mercury concentration of the raw material feed (carbon, coal, coke, lime, etc.) as provided by the supplier. A review of the test report showed that it did not contain this information. **Non-Compliance.**

June 8-9, 2011 Stack Re-Test for 40 CFR 63 Subpart YYYYY Compliance

PM Limit 24.7 pounds/hour Actual 0.4 pounds/hour Limit 0.0052 gr/dscf Actual 0.00008 gr/dscf.

Average flowrate through bag house 580, 894 dscfm

January 19-20, 2011 Stack Test for 40 CFR 63 Subpart YYYYY Compliance after bag house upgrades. Results not valid.

Pre-Inspection Meeting

We first discussed the opacity I noted upon my arrival at the facility. CM noted that he was aware of it. He said that he heard that there was a damper problem with one of the canopy hoods that is located above one of the EAF's so that emissions there are worse than normal. He noted that the Caster roof monitor style vent is the one that EPA is requiring be sealed with the emissions ducted to a new bag house. Particulate emissions inside the building are drifting from the EAF area southward and escaping through the Caster roof monitor. Construction on the new bag house should be completed with the bag house fully operational by September 1, 2018. It will be a 150,000 cfm negative pressure pulse jet style with 2 compartments using polyester bags.

We discussed the Meltshop Air Pollution Control System Evaluation report dated January 29, 2016 and how it relates to the new bag house. I noted that it wasn't clear from an aerial photo of the Melt Shop roof that the North roof monitor that is immediately North of the EAF area had been fully sealed. CM wasn't sure either and promised to show me the area during the inspection. He noted the normal southward drift of smoke in the building and mentioned that even if it wasn't sealed, little if any emissions would be released through it. (Note: CM later confirmed the remaining portion of the North roof monitor was sealed in 2011. Only the Caster roof monitor vent remains open on the Melt Shop roof.)

We continued our discussion from the January inspection about US EPA's recent issuance of a Finding of Violation (FOV). The FOV was issued due to US EPA's observance of the EAF's (located in the middle of the building) emission migration to the Caster area (located on the South side of the building). These EAF emissions are regulated with an opacity limit of less than 6%, taken at the baghouse (DV-BH03), while the Caster roof monitor is regulated at a 20% opacity limit. The FG-SHOP (Roof Monitor) was sealed up and now opacity readings are taken at the baghouse. The Company's focus was on maximizing EAF emission capture and minimizing drift to the Caster area, but it becomes difficult under certain wind patterns. CM indicated that the Company has reached a tentative agreement with EPA and they expect to sign a settlement agreement by July 2018. It will involve the installation of a new \$5 million dollar baghouse to provide complete control of the roof monitor in addition to the existing bag house #3. (See attached photos of the new construction.) I recommended to CM that the Company would need to submit a PTI application to make the relevant conditions in EPA's Consent Order permanently enforceable.

We further discussed the Company's torch cutting operation. CM indicated that the Company is considering

using an enclosure on rails system at both the Jackson and Monroe facilities to come into compliance. The enclosure will be controlled by a dust collector. He believes the new system would be able to be exempt per Rule 290.

We discussed TMS International's slag handling facility. I noted that the Rule 201 non-compliance noted in the January 2018 inspection for an unpermitted slag handling facility had yet to be resolved.

I listed to CM the areas of the facility that I wanted to inspect. These included the torch cutting, the slag handling area that is operated by TMS, the site of the new baghouse, the EAF area and control room, the LMF area and control room, the main baghouse control room and adjoining CEM control room, the North roof monitor vent to verify that it is closed and the roof if possible near the Caster area.

Onsite Inspection

Below is an evaluation of the compliance requirements for each regulated emission unit evaluated.

Note: Required personal protection equipment to fulfill the safety requirements of the Company includes long pants, steel toed boots or closed toe hard sole shoes, no jewelry, safety glasses with side shields, green fire protection jacket, hearing protection, hard hat with chin strap and high visibility vest.

EU-HTOV001 Status: Compliant

Emission unit includes one 30mmBtu/hr. heat treat furnace known as the "old Salem" furnace. This furnace is located in the main building down line from the rolling mill.

Emission Limits - Monitoring/Recordkeeping

Restricts NOx emissions to 18.4 tons per 12-month rolling time period. Compliance is based upon the requirement to maintain records of natural gas usage on a monthly and 12-month rolling time period basis and calculate NOx emissions based upon an emission factor of 140 pounds per million cubic feet of natural gas burned.

Review of requested records for the past 12-months showed compliance with the NOx emission limit. 6.2 tons was the highest 12-month rolling NOx emissions reported in December 2017.

164.27 MMCF was the highest 12-month rolling natural gas usage reported in Jan 2017.

Other Requirements

Prohibits direct venting of the furnace to the outside atmosphere.

EU-AF01 Status: Compliant

Emission unit includes one 60.2mmBtu/hr. annealing furnace (Furnace #1) located in the detached finishing building, which is south of the main building.

Emission Limits - Monitoring/Recordkeeping

Restricts NOx emissions to 4.92 pounds per 24-hour period and 22 tons per 12-month rolling time period. Also restricts CO to 20 tons per 12-month rolling time period. Compliance is based upon an annual and 24-hour time period natural gas usage restriction. The facility is required to determine hourly gas usage based on a 24-hour average and use established emission factors to calculate and maintain records of NOx and CO emissions, along with natural gas uses on a monthly basis.

Review of requested records for the past 12-months showed compliance with the NOx and CO emission limits, as well as the natural gas usage limit. Daily NOx emissions are below the 4.92 pounds per hour. 6.74 tons, highest 12-month rolling NOx emissions reported for January 2017. 0.57 tons, highest 12-month rolling CO emissions reported for April 2017.

EU-AF02 Status: Compliant

Emission unit includes one 38.4mmBtu/hr. annealing furnace (Furnace #2) located in the detached finishing building, which is south of the main building.

Emission Limits - Monitoring/Recordkeeping

Restricts NOx emissions to 3.12 pounds per 24-hour period and 13.9 tons per 12-month rolling time period. Also restricts CO to 15 tons per 12-month rolling time period. Compliance is based upon an annual and 24-hour time period natural gas usage restriction. The facility is required to determine hourly gas usage based on a 24-hour average and use established emission factors to calculate and maintain records of NOx and CO emissions, along with natural gas uses on a monthly basis.

Review of requested records for the past 12-months showed compliance with the NOx and CO emission limits, as well as the natural gas usage limit. Daily NOx emissions are below the 3.12 pounds per hour. 2.70 tons, highest 12-month rolling NOx emissions reported for June 2017. 2.5 tons, highest 12-month rolling CO emissions reported for June 2017.

Other Requirements

Prohibits direct venting of the furnace to the outside atmosphere.

FG-EAF Status: Compliant.

Flex group includes two 50-ton capacity electric arc furnaces that are controlled by positive pressure bag house (DV-BH03). The facility operates the furnaces simultaneously although charging is restricted to one at a time.

The lid of each EAF is equipped with a side-draft hood ducted to the bag house and a canopy hood system above each EAF is ducted to the bag house to control any fugitive emissions emitted from the EAFs. Attachment (1) is a diagram of this system.

Material Limits/Recordkeeping

Restricts the metal charge rate to the furnaces to 1,920 tons per day and 560,000 tons per 12-month rolling time period. Compliance is based upon the requirement to maintain charge records based upon a daily average and 12-month rolling time period.

Review of requested records for the past 12-months showed compliance. Daily scrap steel charged to FG-EAF was below 1,920 tons, with a 1352 tons / day reported highest for March 23, 2017. 281,447 tons was the yearly total.

FG-EAF/LMF/VAD Status: Non-Compliant.

Flex group includes the two EAFs (EU-EAF-01, EU-EAF-02) the ladle metallurgy furnace (LMF) (EU-LMF), and the vacuum arc degasser (VAD) (EU-VAD). All emission units within the flex group are controlled by the No. 3 positive pressure baghouse.

The LMF and VAD are located west of the EAFs with emissions routed to the baghouse via a duct that travels from the processes along the east side of the outside of the building.

Overall inspection impression of the EAF's were that they appeared to be in poor shape with excessive amounts of smoke/flames being generated even when the EAF lid was closed. Side draft hoods appear to poorly control the emissions generated with most emissions instead appearing to be captured by the canopy hoods.

Emission Limits

Restricts emissions of PM, PM-10, SO₂, NO_x, CO, VOC, Pb, Mn and Hg.

Compliance is based upon the requirement to conduct performance emission testing every five years for all regulated pollutants, except for CO and SO₂, for which the facility monitors via CEMRS.

The ROP requires stack testing once every 5 years, for which the facility conducted in the first quarter of 2014. Stack testing was also conducted in 2008, with additional PM testing associated with Subpart YYYYYY conducted in 2011.

Note: The permit requires the monitoring of the CO and SO₂ emission rate with a CERMS. The Time Period/Operating Scenario contained in the emission limits table has a "daily average" for SO₂ and "Test Method" for CO. The permit requires the facility to calculate and maintain records for SO₂ in pounds per ton on a

daily average and CO in pounds per ton on a monthly basis.

NOx, VOC, Mn and Hg emission rates in tons per 12-month rolling time period are required to be calculated at the end of each calendar month, utilizing emission factors based on testing.

Facility records for the past 12 months demonstrate compliance with the 12-month rolling average.

Restricts opacity from Baghouse No. 3 to a 6-minute average of 6% opacity, except for one 6-minute average per hour of not more than 10% opacity.

The facility conducts and records daily non-certified VE readings. If opacity issues are noted, Method 9 readings are conducted. Facility records do not show any recent opacity issues. Condition VI.4 requires the permittee to conduct non-certified visible emission reading(s) for FG-EAF/LMF/VAD from DV-BH-3 especially during charging at least once per operating day. The intent of this condition is to look for opacity when the most smoke is being generated from the EAF's. I discussed this issue with the EAF operators. They indicated that for each melt there are 2 charges. The first charge goes into an empty EAF chamber (no initial steel "heat" is used). Significant smoke isn't generated until the second charge with new scrap metal being added to the partially melted metal already in the EAF. It is during the second charge when the most smoke is generated. Baghouse inspection records from January 24, 2018 inspection suggest that smoke is not read for at least ten minutes after charging takes place based on using a charging light located near the EAF main bag house as a cue to take readings.

This suggests that opacity readings are not taken during EAF charging and not taken when the maximum amount of smoke is being generated. (Note: CM suggested that using a radio would be a better way for the visible emission observer to communicate with the EAF control room operators.) **Non-Compliance.**

Requires the facility to implement and maintain screening and material management plan to control mercury or other toxics and VOC emissions resulting from contaminated scrap.

The facility has a scrap management program as required by Subpart YYYYY. Compliance with the NESHAP requirements also demonstrates compliance with the ROP scrap management condition.

Design/Equipment Parameter(s)

Requires that the FG-EAF/LMF/VAD not operate unless their associated exhaust capture systems and ventilation hoods and the DV-BH03 are installed and operating properly.

Meltshop Air Pollution Control System Evaluation Preliminary Report dated January 29, 2016 stated the following:

Several of the dampers that are part of the EAF canopy hood system were in incorrect positions during charging and tapping. Ensuring that all (3) dampers at the charging/tapping AF are fully open during the entire duration of the operation should increase the ventilation rate towards the design exhaust rate of 481,00 acfm. Revisions to damper control logic and new hood exhaust rates were to be completed by March 2016. Attachment (2) is a ventilation survey diagram that summarizes Melt Shop field measurements. Attachment (3) is a ventilation survey for the EAF side draft and canopy hoods.

The EAF control room pulpit was visited. The operators indicated that EAF #2 was operating. EAF #1 was down as they had started a trial to see if adequate production could be accomplished using only one of the EAF's instead of two due to a downstream bottleneck in the process. Attachment (4) is print out of one of the control screens. It showed the "Tap Damper" was closed, the "Center Damper" was 1% open, the "Charge Damper" was 100 % open and the "Side Draft Damper" was 99% open. The first 3 dampers are associated with the canopy hood for EAF #2. Proper operation of the dampers is for all the dampers to be open during the entire melt cycle. This explains why I noted excessive smoke escaping the canopy area of the EAF. This also appeared to be why I observed excessive opacity coming from the Caster roof vent with fugitive particulate emissions from the EAF not captured in the canopy hood and drifting South in the Caster roof monitor vent. **Non-Compliance.** (Note: All the dampers associated with EAF #1 were open despite that process not operating during the inspection.)

The EAF control room operators noted that if one of the three bag house fans go down that the EAF(s) are automatically shut down and remain that way until repairs are made.

No problems were noted in the LMF control room and little smoke could be seen despite a melt taking place. See attached photo for control room screen printout for this process.

Monitoring/Recordkeeping

Requires the recording of the amount of manganese alloy added to the flex group.

The facility tracks the monthly manganese alloy usage and calculates usage for each process based upon a fixed percentage of the total used.

Requires the analysis of baghouse hopper dust at least once per month to determine the percentage of Pb, Mn and Hg and to submit a record of the concentrations to the District Office within 60 days.

Facility records show compliance with dust analysis requirement.

Requires the operation of a SO₂ and CO CERMS, from which the pounds per ton on a daily average basis and tons per 12-month rolling time period at the end of each calendar month is determined.

The facility had been calculating compliance with the SO₂ pound per ton limit based on a monthly average as opposed to the daily average requirement. However, as part of the CERMS data the facility has records of SO₂ pounds per ton on a daily average. The daily average demonstrates compliance with the limit. The facility is now basing compliance on a daily average.

CO records demonstrate compliance. 51.05 tons was the highest 12-month rolling SO₂ emissions reported for March 2017. 539.08 tons was highest 12-month rolling CO emissions reported for December 2017. During the inspection, instantaneous CO values of 37.9 ppm, 78.87 pounds/ hour and 3.64 pounds/ton of melt were noted. Instantaneous SO₂ values of 3.58 ppm, 18.42 pounds/hour and 0.35 pounds/ton of melt were also noted.

39 tons was the highest 12-month rolling NO_x emissions reported in September 2017. 15.48 tons was the highest 12-month rolling VOC emissions reported in September 2017. 0.1267 tons was the highest 12-month rolling Mn emissions reported in September 2017. 0.0115 tons was the highest 12-month rolling Hg emissions reported in September 2017.

Requires the facility to conduct daily non-certified VE observations as well as continuous pressure drop monitoring across the baghouse.

Staff observed records documenting compliance with the VE and pressure drop requirements. Baghouse pressure data were within the CAM limits of 2.5 through 15 inches of water. During the inspection, an averaged pressure drop across the ten compartments of 5.8" W.C. was noted.

CAM Status: Compliant

Within the flex group, EU-EAF-01 and EU-EAF-02 are subject to CAM for PM, which is also a requirement under Subpart YYYYYY.

CAM requires monitoring of both the control and capture system. CAM monitoring for the control device is accomplished through daily VE observations, pressure drop across the baghouse and baghouse operational inspections.

In regard to capture, the permit does not currently specifically address CAM; however, the facility monitors the flow rate as part of the CERMS. Upon renewal of the ROP, flow rate monitoring should be specified as CAM for furnace capture.

Under CAM the facility is required to submit a semiannual Excursion/Exceedance Report and a Monitor Downtime Report.

FG-SHOP (Roof Monitor) Status: Compliant

Flex group includes the shop roof monitor above EU-EAF-01, EU-EAF-02, EU-LMF, EU-VAD, and other shop processes.

The requirements of FG-SHOP are different than those of Subpart YYYYYY for emissions from the melts shop since the opacity limit in Subpart YYYYYY does not include emissions from the LMF or VAD.

The facility evaluates compliance with the opacity limit under FG-SHOP via observation of the Melt Shop roof. When the new bag house is completed by September 1, 2018, all roof monitors in the Melt Shop will be

sealed and it appears that this flexible group will become obsolete.

Process/Operational Restrictions

Restricts opacity from the Roof Monitor to a 6-minute average of 15% opacity, except for on 6-minute average per hour of not more than 20% opacity.

Compliance is based upon the requirement to make daily non-certified observations and record those observations if VE is observed and Method 9 readings are taken.

The facility conducts daily non-certified VE observations and records the observations. The last time that Method 9 readings were made was August 2011, which was associated with Subpart YYYYY testing.

FG-FACILITY Status: Compliant

EU-EAF-01, EU-EAF-02, EU-LMF, EU-VAD, EU-HTOV001, EU-AF01, EU-AF02, EU-binfilter, EU-limeBH and EU-COLDCLEANERS, EU-ROOFMONITOR. (Note: EU-COLDCLEANERS should be a separate emission unit with its own requirements in the next ROP. EU-binfilter is associated with the silo that stores the dust collected by the EAF/LFM/VAD bag house. The silo is briefly mentioned in the MAP required by FG-FACILITY. The silo bin vent is not listed as an exempt device in the ROP Staff Report and is subject Rule 331(1)(a) Table 31 (J). EU-binfilter requirements should be addressed at the time of ROP renewal.)

Process/Operational Restrictions

Requires the facility to have a malfunction abatement plan (MAP) for the FG-EAF/LMF/VAD.

I requested that the facility submit the most recent MAP for FG-EAF/LMF/VAD to the district. The facility supplied the MAP for FG-EAF/LMF/VAD dated March 24, 2013 and revised on May 5, 2017.

Requires the facility to have a fugitive dust program for plant roadways, plant yard and material storage piles.

I requested that the facility submit the most recent fugitive dust program to the district. The facility supplied the fugitive dust program dated February 1, 2013 and last revised July 22, 2013. Little or no dust was noted during the inspection probably due to the heavy rain that had fallen the night before.

FG-RICE Status: Compliant

Four (4) compression ignition emergency generators and two spark ignition emergency generators subject to the requirements applicable to area source RICE MACT.

Process/Operational Restrictions

Requires non-resettable hour meters on each engine and maintenance records. Review of records should compliance.

Subpart YYYYY – Area Source Electric Arc Furnace Steelmaking NESHAP: Status: Non-Compliant

Currently the ROP only contains high level citations of applicability. Upon renewal of the permit, specific Subpart YYYYY emission unit should be added.

The facility is subject to Subpart YYYYY, which regulates scrap charged to the EAF, emissions from the EAF and opacity from the melt shop.

The facility is considered an existing source under Subpart YYYYY.

Subpart YYYYY contains provisions for a time extension to comply with the melt shop opacity limits. Under an extension, the compliance deadline can be delayed from June 30, 2008 to as late as December 28, 2010. The compliance testing deadline would then shift from December 27, 2008 until June 28, 2011. The facility requested and was granted a compliance extension. Due to the facility temporarily ceasing operations (January 18, 2009-September 14, 2009), the facility was granted an additional one-year extension to delay complying with the opacity limit until December 28, 2011.

The facility tested and demonstrated compliance with the MACT opacity limit in August 2011.

The facility conducted compliance testing for PM on March 26-27, 2008, at which time compliance was demonstrated (0.0003 gr/dscf). Retesting was conducted subsequent to the capture system modifications in January 2011. Testing showed a violation of the MACT limit and a VN was issued. Retesting was conducted in June 2011, at which time compliance was demonstrated. The January 2011 exceedance was attributed to testing issues in which the baghouse doors were open. Test ports were subsequently installed for the June 2011 testing.

Emission Limits

The EAF is subject to a PM emission limit of 0.0052 gr/dscf and the melt shop is subject to a fugitive opacity limit of 6%.

The facility has tested and demonstrated compliance with the PM and opacity limits.

Note: During the inspection, significant opacity was observed from the Caster roof monitor located in the South part of the Melt Shop. This violation has already been noted the U.S. EPA and resolution will be incorporated into a Consent Order. **Non-Compliance.**

Material Limits/Process

Contaminants in scrap, other than mercury:

Requires metallic scrap charged to the EAF to comply with either the Pollution Prevention Plan option regarding selection and inspection to minimize contaminants or Restricted Metallic Scrap option described in Subpart YYYYYY.

Contaminants other than mercury

The facility is operating under an approved plan in accordance with Subpart YYYYYY. The plan addresses the use of scrap under the selection and inspection option as well as Restricted Metallic Scrap. The facility inspects and maintains records of each load of incoming scrap. The facility's scrap plan addresses actions to be taken if a non-conforming scrap is brought onsite.

Mercury

The facility's plan addresses participation in the approved program option (NVMSRP). The facility maintains records of all scrap providers participation in NVMSRP and verifies compliance through onsite inspections of providers as well as verifying participation in the ELVS program semi-annually. The facility also purchases scrap from Canadian scrap suppliers that not part of the NVMSRP. The two Canadian suppliers are Whitby Recycling and Triple M Recycling. Both providers have a site-specific plan in plan. However, the facility did not purchase shredded car scrap from the Canadian facilities in 2017.

Reporting

Subpart YYYYYY requires the submittal of semi-annual compliance certifications.

Review of the facility's file shows that they have been submitted semi-annual certification in accordance with Subpart YYYYYY.

TMS International-Slag handling facility (Operated by TMS but on Gerdau's property.) Status: Non-Compliant.

See Attachment (5) for the VN for Rule 201 violation for this process. To date, this VN has not been resolved.

No dust was noted during this inspection despite the slag handling processing facility being in full operation. (Note: Slag handling process was installed in 1989.) This was likely due to heavy rain that had fallen overnight. See attached photos and brief description of the process.

Some white smoke was seen coming from a pile of slag. Alicia Stone, site supervisor for TMS was questioned about this. She and another operator indicated that Gerdau employee's have been adding wood pallets, plastics and other trash from the Melt Shop floor into the slag just prior to being removed from the facility and delivered to TMS. Due to the intense heat of slag, the trash catches fire or smolders while in a pile waiting to be processed. She indicated that they have no control over what Gerdau puts into the slag. This dispose method is

considered open burning. **Non-Compliance.**

Torch Cutting Area: Status: Not Operating/Non-Compliant

The Company has 4 permanent torch cutting stations each station equipped with multiple torches. There was both a large pile of off-spec steel rods that were waiting to be torched and metal that had already been torched. There was also what appeared to be large ladle that was in process of being broken down. In general, scrap steel needs to be cut into 4-foot sections so that it can be placed back in the ladle to be re-heated. They were not torching during the inspection, but torching is generally done daily. There is no longer any applicable PTI exemptions for torch cutting. **Non-Compliance.**

Roof/Melt Shop Perimeter Inspection Status: Compliant.

A check along the outside of the West wall of the Melt Shop showed inflow of air at the various openings as expected. Inflow was also noted inside the building at the one-story level. As has been previously observed, there is a general North to South drift of smoke inside the melt shop. (There was a light South wind outside during the time of the inspection.) The only location that smoke appeared to be escaping the building was via the Caster roof monitor style vent located in the southern part of the Melt Shop.

The roof to the building that is attached/just East of the Melt Shop building was accessed. This roof is considerable lower than Melt Shop roof. A caged ladder access to the Melt Shop roof from the adjacent building is located just to the East of the continuous caster machine area. CM indicated that a safety harness would be required to ascent up this ladder. Since the exit to the ladder was located near an area being impacted by emissions from Caster roof monitor, I decided not to go up it.

Little or no smoke was observed from the Caster roof monitor despite being seen earlier from the parking lot from the West side of the building. No dust or fallout was noted although the Melt Shop roof could not be clearly observed. See attached photos.

Post-Inspection Meeting

We returned to a conference room and held a brief post-inspection meeting.

I indicated that I had concerns about the torch cutting and open burning that was observed and the fact that it appears that the bag house opacity was not being measured when the most smoke was being generated by the EAF's. I thanked CM for his cooperation and assistance and departed the facility at approximately 1:15 pm. Note: Little or no smoke was seen coming from the Caster roof monitor at that time.

Compliance Summary

Based upon the visual observations and the review of the records, the Company appears to be in substantial compliance with the requirements of their ROP. However, there are five outstanding compliance issues.

Torch Cutting operation is in violation of Rule 201. No Permit to Install.

Open burning associated with the slag handling operation is in violation of Rule 310.

ROP Condition FG-EAF/LMF/VAD IV.1. The Company is operating the EAF's despite the associated exhaust capture system and ventilation hoods not working properly. This resulted in opacity/particulate emissions exiting the Melt Shop from the Castor roof monitor style vent.

ROP Condition FG-EAF/LMF/VAD V.1.C requires that the stack test report shall include, at a minimum the mercury concentration of the raw material feed (carbon, coal, coke, lime, etc.) as provided by the supplier. A review of the June 2014 test report showed that it did not contain this information.

ROP Condition FG-EAF/LMF/VAD VI.4 requires daily visible emission reading for main bag house especially during charging of the EAF. Records indicate that opacity readings are not taken during this time.

A Violation Notice (VN) will be sent to the company and they will be given 21 days to respond.

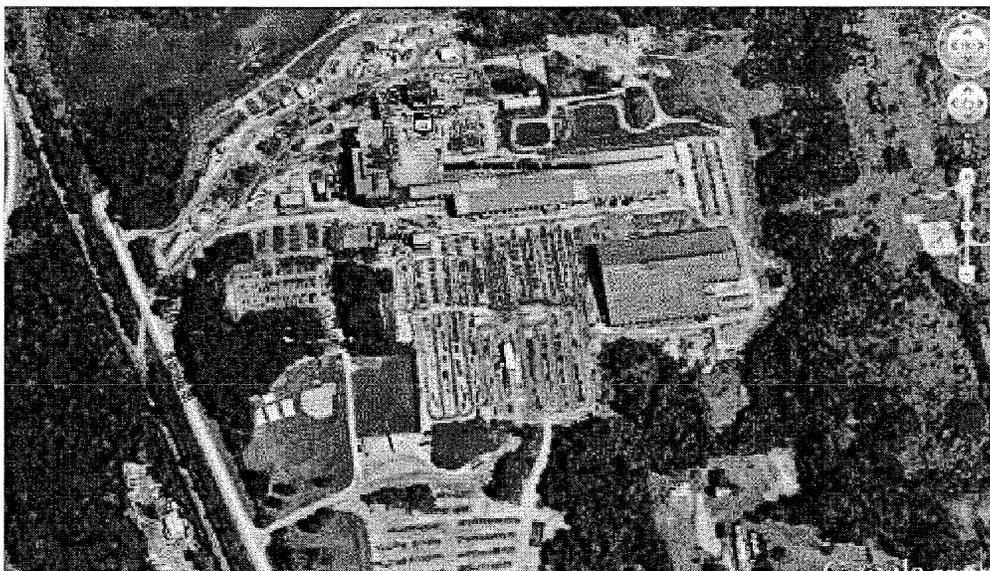


Image 1(Aerial photo) : Aerial photo



Image 2(Melt Shop Roof) : Opacity coming from Caster roof monitor when first arrived at facility. Cast roof monitor is just to the right of the ventilation ducts.



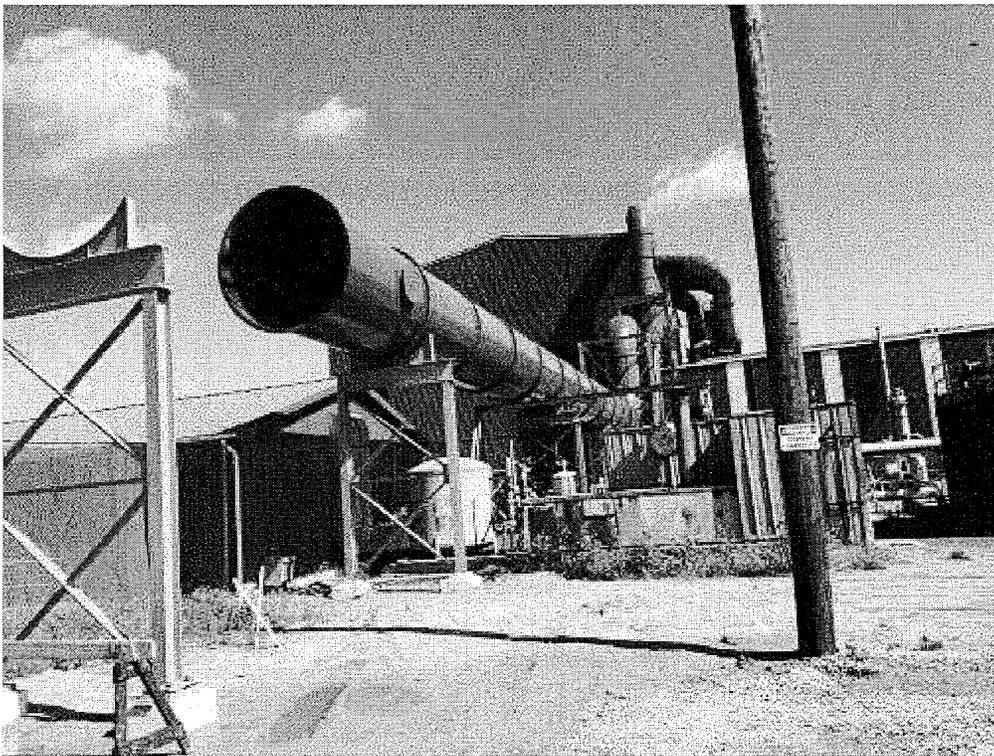
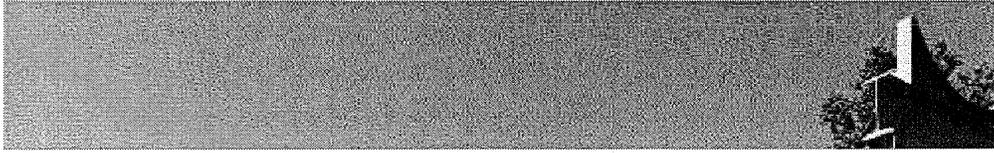


Image 4(New bag house) : New bag house construction site.



Image 5(Torch cutting) : Torch cutting station



Image 6(Torch cutting area) : Torch cutting area.



Image 7(Torch cutting area) : Torch cutting area and where scrap is being loaded into ladle.



Image 8(Burning slag pile) : Burning slag pile located adjacent to the TMS slag handling facility.



Image 9(Slag handling) : Slag handling facility.



Image 10(Slag handling) : Grizzly bar process-slag handling.



Image 11(Slag handling) : Slag handling.



Image 12(North side-Melt Shop) : North side of Melt shop looking South towards EAF smoke.

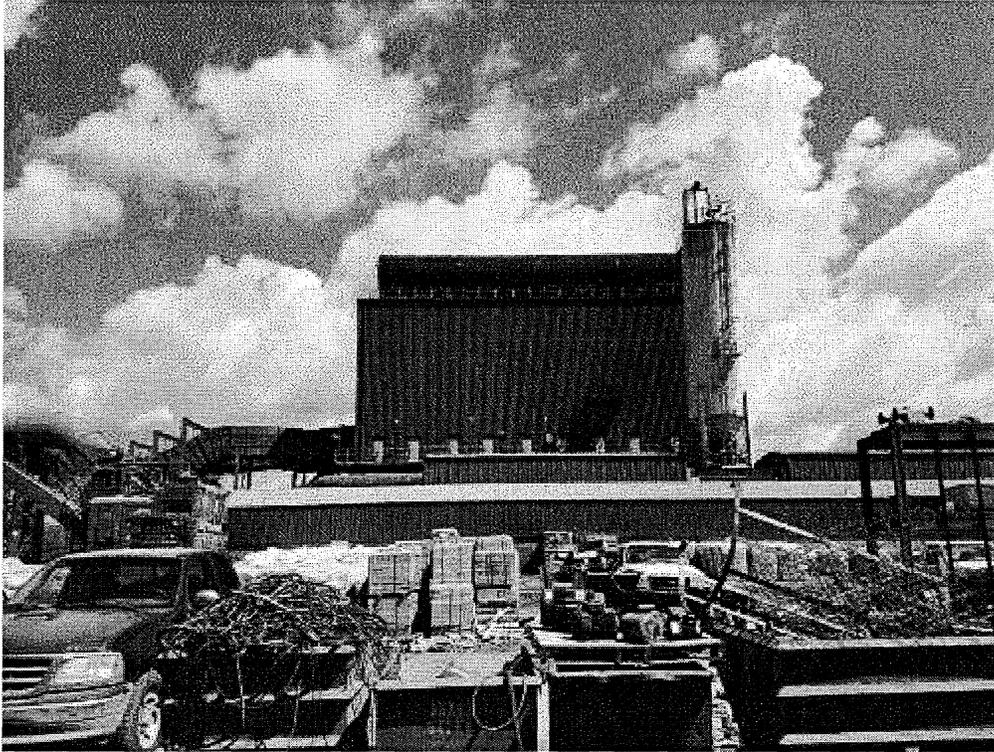
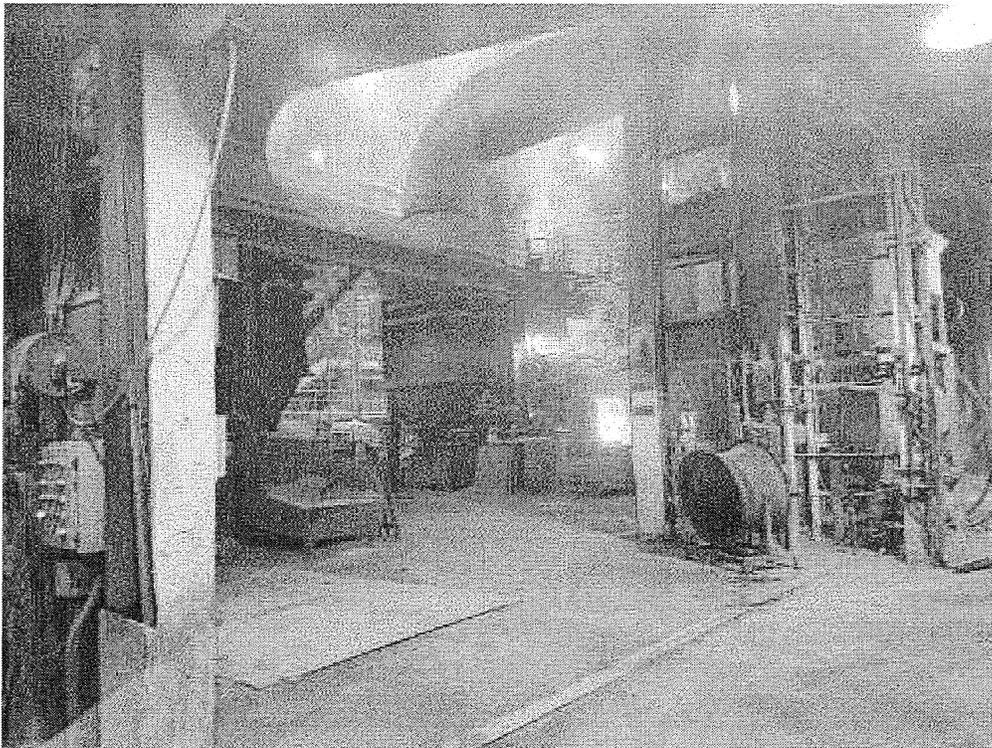


Image 13(Bag house) : Main EAF bag house.



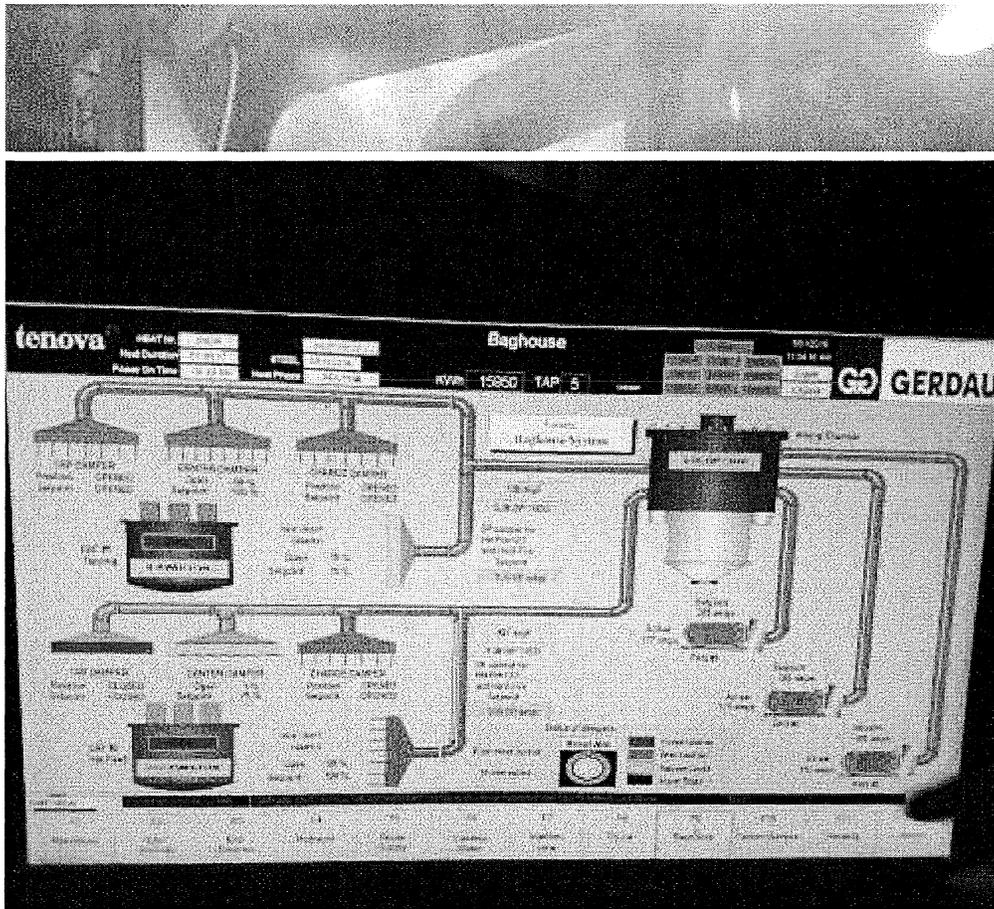


Image 15(EAF Vent) : EAF Control room vent schematic.

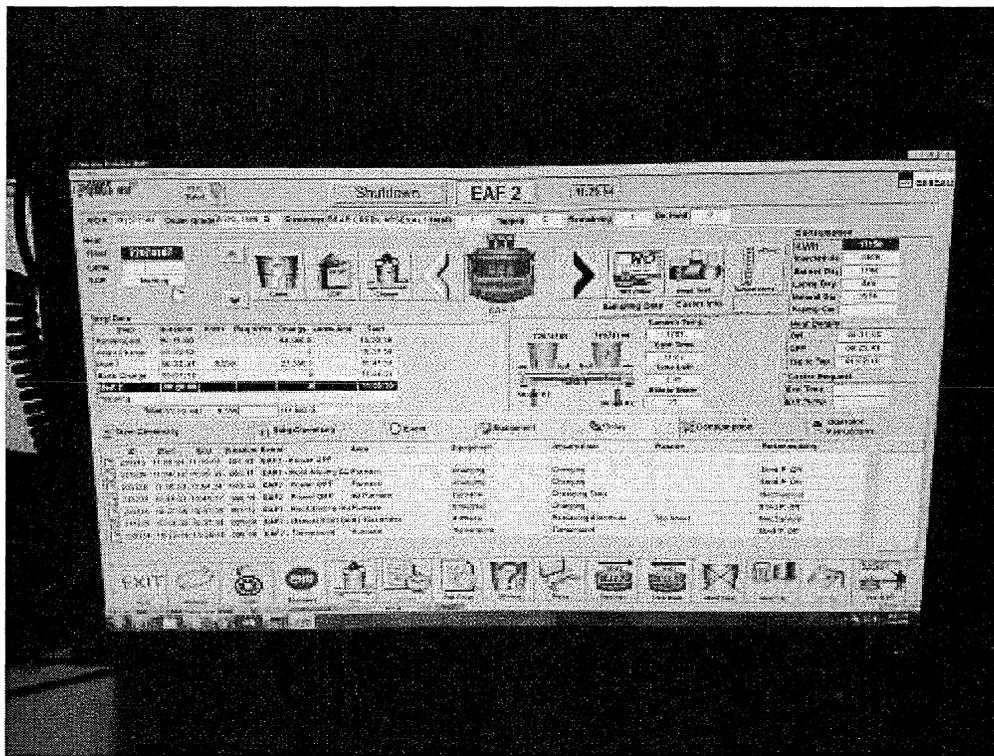


Image 16(EAF Control Screen) : EAF Control panel screen.



Image 17(Caster Roof Monitor) : Caster roof monitor vent visible in ceiling.



Image 18(Bag house vent) : Main bag house ventilation ducts

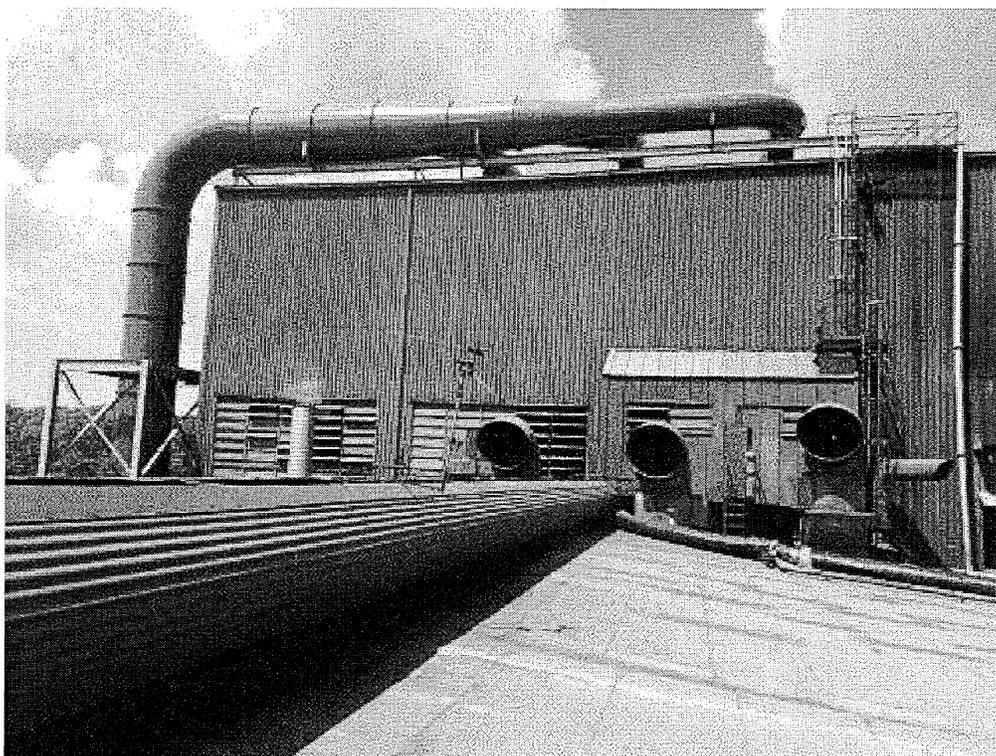


Image 19(Melt Shop Roof) : Melt Shop roof with new ventilation ducts for new bag house visible.

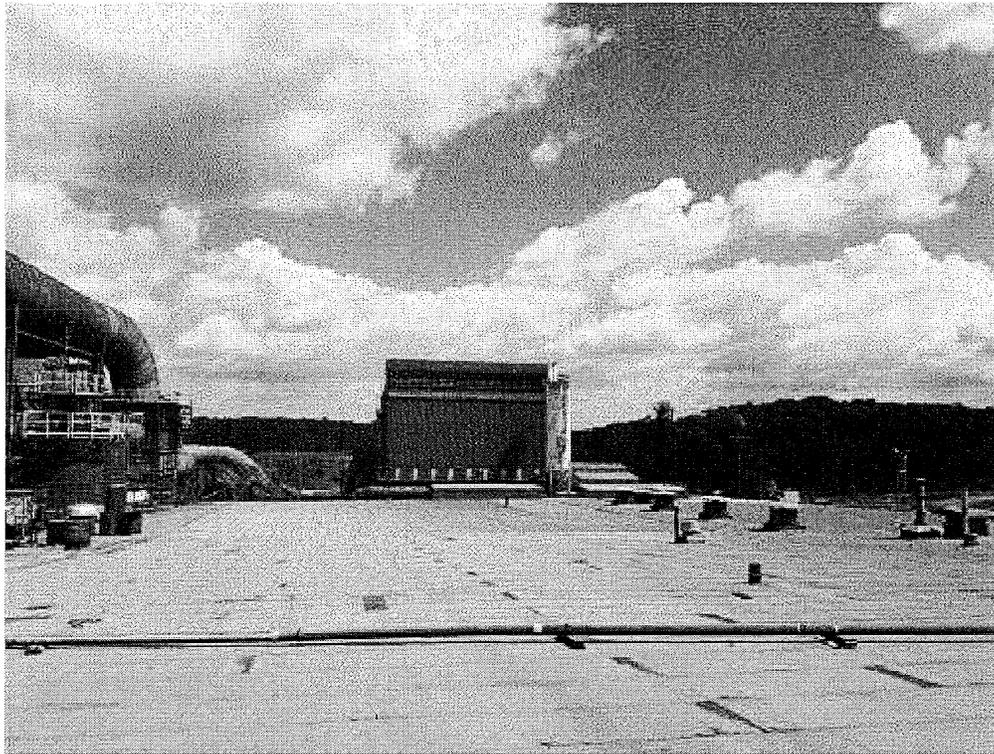


Image 20(Roof) : Roof looking towards main bag house.

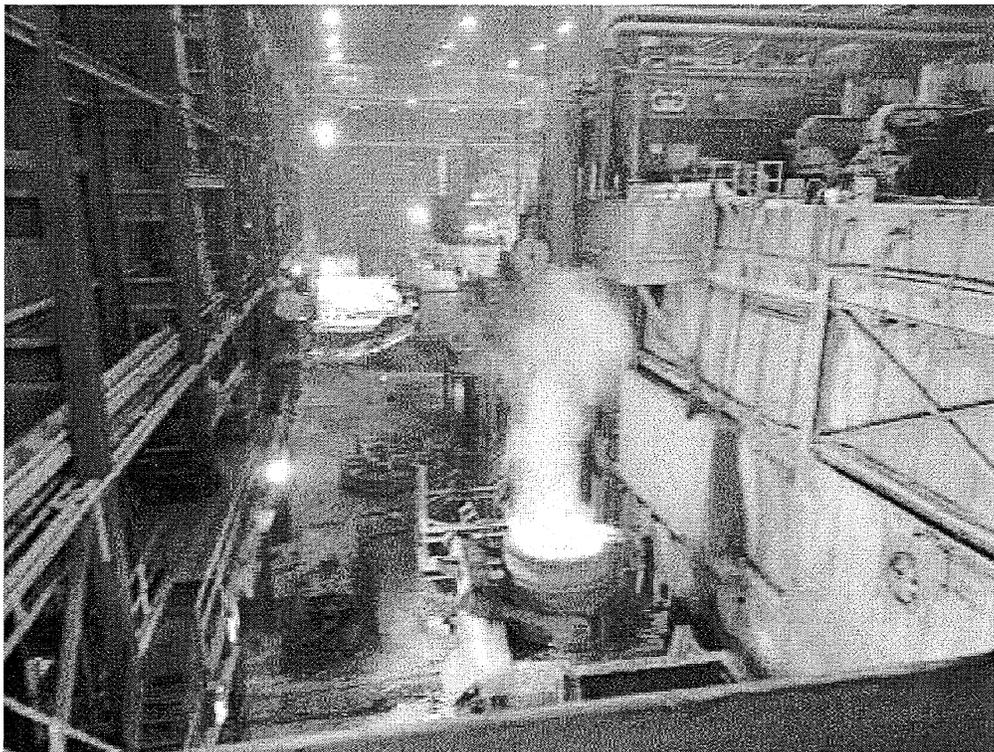


Image 21(Ladle) : Main gallery with ladle getting ready to be moved to the LMF directly to the left. EAF can be

seen towards the North and to the right.

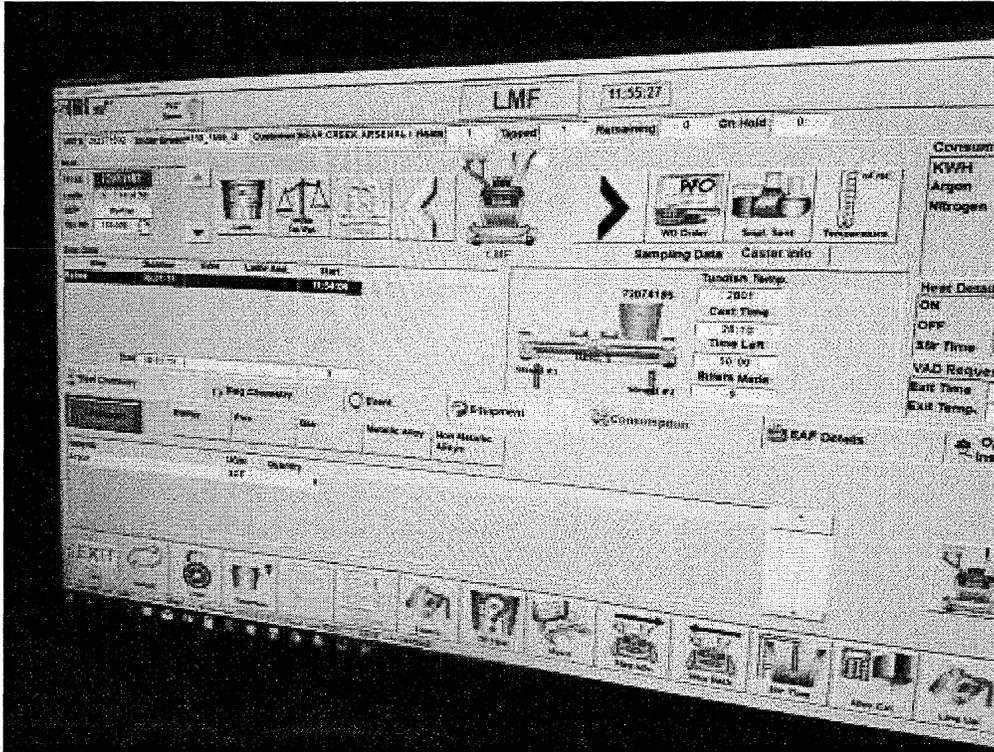


Image 22(LMF Control) : LMF Control screen.



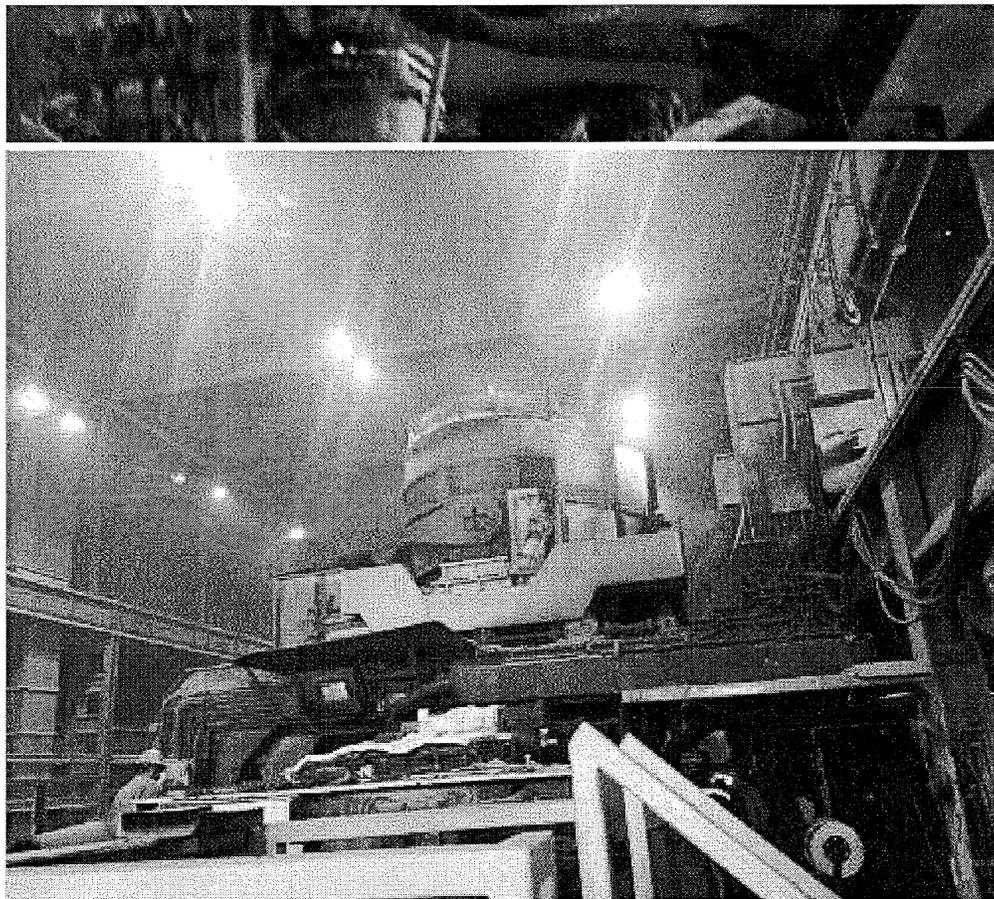


Image 24(Caster Area) : Caster Area.

NAME M. Korachuk

DATE 6/5/2018

SUPERVISOR [Signature]