John R. Kasich, Governor
Mary Taylor, Lt. Governor
Craig W. Butler, Director

10/28/2014

Certified Mail

No	TOXIC REVIEW
No	PSD
No	SYNTHETIC MINOR TO AVOID MAJOR NSR
No	CEMS
No	MACT/GACT
No	NSPS
No	NESHAPS
No	NETTING
No	MAJOR NON-ATTAINMENT
No	MODELING SUBMITTED
No	MAJOR GHG
No	SYNTHETIC MINOR TO AVOID MAJOR GHG

Mr. Matt Montag
AK Steel Corp - Mansfield Operations
913 Bowman Street
Mansfield, OH 44901

RE: DRAFT AIR POLLUTION PERMIT-TO-INSTALL
Facility ID: 0370010023
Permit Number: P0117635
Permit Type: OAC Chapter 3745-31 Modification
County: Richland

Dear Permit Holder:

A draft of the Ohio Administrative Code (OAC) Chapter 3745-31 Air Pollution Permit-to-Install for the referenced facility has been issued for the emissions unit(s) listed in the Authorization section of the enclosed draft permit. This draft action is not an authorization to begin construction or modification of your emissions unit(s). The purpose of this draft is to solicit public comments on the permit. A public notice will appear in the Ohio Environmental Protection Agency (EPA) Weekly Review and the local newspaper, Mansfield News-Journal. A copy of the public notice and the draft permit are enclosed. This permit can be accessed electronically on the Division of Air Pollution Control (DAPC) Web page, www.epa.ohio.gov/dapc by clicking the "Search for Permits" link under the Permitting topic on the Programs tab. Comments will be accepted as a marked-up copy of the draft permit or in narrative format. Any comments must be sent to the following:

Andrew Hall
Permit Review/Development Section
Ohio EPA, DAPC
50 West Town Street, Suite 700
P.O. Box 1049
Columbus, Ohio 43216-1049

and

Ohio EPA DAPC, Northwest District Office
347 North Dunbridge Road
Bowling Green, OH 43402

Comments and/or a request for a public hearing will be accepted within 30 days of the date the notice is published in the newspaper. You will be notified in writing if a public hearing is scheduled. A decision on issuing a final permit-to-install will be made after consideration of comments received and oral testimony if a public hearing is conducted. Any permit fee that will be due upon issuance of a final Permit-to-Install is indicated in the Authorization section. Please do not submit any payment now. If you have any questions, please contact Ohio EPA DAPC, Northwest District Office at (419)352-8461.

Sincerely,

Erica R. Engel-Ishida, Manager
Permit Issuance and Data Management Section, DAPC

Cc: U.S. EPA Region 5 -*Via E-Mail Notification*
Ohio EPA-NWDO; Canada

Richland County

PUBLIC NOTICE
Issuance of Draft Air Pollution Permit-To-Install
AK Steel Corp - Mansfield Operations

Issue Date:	10/28/2014
Permit Number:	P0117635
Permit Type:	OAC Chapter 3745-31 Modification
Permit Description:	Chapter 31 modification to increase the burner capacity for three ladle preheaters (P069-P071) from 10 mmBtu/hr to 16.4 mmBtu/hr including installation of low-NOx burners.
Facility ID:	0370010023
Facility Location:	AK Steel Corp - Mansfield Operations 913 Bowman Street, Mansfield, OH 44901-0247
Facility Description:	Iron and Steel Mills

The Director of the Ohio Environmental Protection Agency issued the draft permit above. The permit and complete instructions for requesting information or submitting comments may be obtained at: http://epa.ohio.gov/dapc/permitsonline.aspx by entering the permit # or: Andrea Moore, Ohio EPA DAPC, Northwest District Office, 347 North Dunbridge Road, Bowling Green, OH 43402. Ph: (419)352-8461

STAFF DETERMIATION FOR A MINOR REVISION TO PREVENTION OF SIGNIFICANT DETERIORATION PERMIT TO INSTALL ISSUED TO AK STEEL CORP – MANSFIELD OPERATIONS MANSFIELD, OHIO (RICHLAND COUNTY) PERMIT NUBMER P0117635

Ohio Environmental Protection Agency
Division of Air Pollution Control
Lazarus Government Center
50 West Town St., Suite 700
Columbus, Ohio 43215

The Clean Air Act and regulations promulgated thereunder require that major air pollution sources undergoing construction or modification comply with all applicable Prevention of Significant Deterioration (PSD) provisions and nonattainment area New Source Review (NSR) requirements. The federal PSD rules govern emission increases in attainment areas for major stationary sources, which are facilities with the potential to emit 250 tons per year or more of any pollutant regulated under the Clean Air Act, or 100 tons per year or more if the source is included in one of 28 source categories. In nonattainment areas, the definition of major stationarysource is one having at least 100 tons per year potential emissions. A major modification is one resulting in a contemporaneous netincrease in emissions which exceeds the significance level of one or more pollutants. Any changes in actual emissions within this five- or ten-year period are considered to be contemporaneous. In addition, Ohio has incorporated the PSD and NSR requirements by rule under OAC 3745-31, and currently has a program that is fully approved by USEPA. For PM2.5, Ohio will have to use the requirements established in 40 CFR Part 51, Appendix S until the Ohio Administrative Code regulations are modified to include PM2.5 emissions.

Both PSD and nonattainment NSR rules require that certain analyses be performed before a facility can obtain a permit authorizing construction of a new source or major modification to a major stationary source. The principal requirements of the PSD regulations are:

1) Best Available Control Technology (BACT) review - A detailed engineering review must be performed to ensure that BACT is being installed for the pollutants for which the new source is a major stationary source.

2) Ambient Air Quality Review - An analysis must be completed to ensure the continued maintenance of the National Ambient Air Quality Standards (NAAQS) and that any increases in ambient air pollutant concentrations do not exceed the incremental values set pursuant to the Clean Air Act.

For nonattainment areas, the requirements are:

1) Lowest Achievable Emission Rate (LAER)

   a) The most stringent emission limitation that is contained in the implementation plan of any state for such class or category of emissions unit, unless the owner or operator of the proposed emissions unit demonstrates that such limitations are not achievable; or,

b) The most stringent emission limitation that is achieved in practice by such class or category of emissions unit.

This limitation, when applied to a major modification, means lowest achievable emissions rate for the new or modified emissions units within the stationary source. In no event shall the application of this term permit a proposed new or modified emissions unit to emit any air pollutant in excess of the allowable amount under applicable new source standards of performance.

2) Compliance certification

The applicant must certify that all existing major stationary sources owned or operated by the applicant (or any entity controlling, controlled by, or under common control with the applicant) in Ohio as the proposed major stationary source or major modification are in compliance with all applicable emission limitations and standards under the Clean Air Act (or are in compliance with an expeditious schedule which is federally enforceable or contained in a court decree).

Site/Facility Description

AK Steel Corp – Mansfield Operations is located in Mansfield, Ohio, Richland County.

This area is classified as attainment or unclassifiable for all criteria pollutants, particulate matter 10 microns and less in diameter (PM_{10}), particulate matter 2.5 microns and less in diameter ($PM_{2.5}$), sulfur dioxide (SO_2), nitrogen oxides (NO_x), carbon monoxide (CO), volatile organic compounds (VOC), and lead (Pb).

AK Steel Corp – Mansfield Operations is a steelmaking facility (steel mini mill) that recycles scrap metal to produce specialty and stainless steel. The facility is a major stationary source for both Prevention of Significant Deterioration (PSD) and Title V permitting.

Project Description

In 2010, AK Steel Corp – Mansfield Operations was issued a PSD permit which addressed a modernization project at the facility. The modernization project triggered PSD/BACT requirements for CO, and VOC. Details regarding the modernization PSD permit can be found in attached Appendix A. Appendix A contains the PSD Staff Determination associated with PTI 03-17463 issued final on January 11, 2010.

This permit action addresses a minor change resulting in a revision of the PSD requirements for melt shop operations at the facility. Melt shop activities involve the operation of two electric arc furnaces (EAF), five ladle preheaters, an argon-oxygen decarburization vessel, and a ladle metallurgical furnace. Emissions from melt shop operations are captured and collected by either of two EAF baghouse control systems.

The minor change addressed by this permit involves upgrades to the burners for three ladle preheaters (Emission Units P069, P070, and P071). The upgrades involve the replacement of

current oxy-fuel burners with new larger capacity, low-NO_xburners. Potential emissions from the ladle preheaters resulting from the burner upgrades are presented in the following table:

Emissions Unit	Pollutant (tons per year)				
	NO_x	CO	VOC	PM_{10}	Pb
P069	3.73	4.55	0.39	0.05	3.52 E-05
P070	3.73	4.55	0.39	0.05	3.52 E-05
P071	3.73	4.55	0.39	0.05	3.52 E-05
Total	11.19	13.65	1.17	0.15	1.06 E-04

The potential emissions from the modified ladle preheaters do not exceed any of the PSD significant thresholds. Additionally, the burner upgrade modification is a separate project and is not related to the previous PSD modernization project. As a result the burner upgrade project is a minor change which will result in a revision of PSD requirements for melt shop operations.

The revision of PSD requirements involves the following:

- increase in limitation for pounds CO per ton of steel produced from 4.36 to 4.38;
- increase in stack limitation for tons CO per rolling, 12-month period from 2076.78 to 2084.30;
- increase in fugitive limitation for tons CO per rolling, 12-month period from 49.06 to 50.19;
- increase in fugitive limitation for tons VOC per rolling, 12-month period from 3.76 to 4.01;

The burner upgrade project did not require a change to the existing limitation for tons VOC per ton of steel produced.

Conclusions

In 2010, a modernization project for AK Steel Corp – Mansfield Operations was determined to be in compliance with all applicable State and Federal environmental regulations and that the requirements for PSD review were satisfied and resulted in the issuance of a PTI with BACT requirements for CO and VOC. This permit addresses a separate and unrelated modification to melt shop operations at the facility. The potential emissions from the modification do not exceed PSD significant thresholds and therefore is considered a minor change resulting in revisions to the original PSD requirements.

Appendix A

STAFF DETERMINATION FOR THE APPLICATION TO CONSTRUCT UNDER THE PREVENTION OF SIGNIFICANT DETERIORATION REGULATIONS FOR AK STEEL – MANSFIELD WORKS RICHLAND COUNTY, OHIO

from

PTI NUMBER 03-17463

Draft Issuance – December 2, 2009

Final Issuance – January 11, 2010

Permit to Install: **03-17463**

STAFF DETERMINATION FOR THE APPLICATION TO CONSTRUCT UNDER THE PREVENTION OF SIGNIFICANT DETERIORATION REGULATIONS FOR AK STEEL – MANSFIELD WORKS RICHLAND COUNTY, OHIO PTI NUMBER 03-17463

The Clean Air Act and regulations promulgated thereunder require that major air pollution sources undergoing construction or modification comply with all applicable Prevention of Significant Deterioration (PSD) provisions and nonattainment area New Source Review requirements. The federal PSD rules govern emission increases in attainment areas for major sources, which are sources with the potential to emit 250 tons per year or more of any pollutant regulated under the Clean Air Act, or 100 tons per year or more if the source is included in one of 28 source categories. In nonattainment areas, the definition of a major source is one having at least 100 tons per year potential emissions. A major modification is one resulting in a contemporaneous increase in emissions which exceeds the significance level of one or more pollutants. Any changes in actual emissions within a five-year period are considered to be contemporaneous. In addition, Ohio now has incorporated the PSD and NSR requirements by rule under OAC 3745-31.

Both PSD and nonattainment rules require that certain analyses be performed before a facility can obtain a permit authorizing construction of a new source or major modification to a major source. The principal requirements of the PSD regulations are as follows:

1) Best Available Control Technology (BACT) review - A detailed engineering review must be performed to ensure that BACT is being installed for the pollutants for which the new source is a major source.

2) Ambient Air Quality Review - An analysis must be completed to ensure the continued maintenance of the National Ambient Air Quality Standards (NAAQS) and that any increases in ambient air pollutant concentrations do not exceed the incremental values set pursuant to the

Clean Air Act.

For nonattainment areas, the requirements are:

1) Lowest Achievable Emissions Rate (LAER) - New major sources must install controls that represent the lowest emission levels (highest control efficiency) that have been achieved in practice.

2) The emissions from the new major source must be offset by a reduction of existing emissions of the same pollutant by at least the same amount, and a demonstration must be made that the resulting air quality shows a net air quality benefit. This is more completely described in the Emission Offset Interpretative Ruling as found in Appendix S of 40 CFR Part 51.

3) The facility must certify that all major sources owned or operated in the state by the same entity are either in compliance with the existing State Implementation Plan (SIP) or are on an approved schedule resulting in full compliance with the SIP.

For rural ozone nonattainment areas, the requirements are:

1) LAER - New major sources must install controls that represent the lowest emissions levels (highest control efficiency) that have been achieved in practice.

2) The facility must certify that all major sources owned or operated in the state by the same entity are either in compliance with the existing SIP or are on an approved schedule resulting in full compliance with the SIP.

Finally, New Source Performance Standards (NSPS), SIP emission standards and public participation requirements must be followed in all cases.

Site/Facility Description

AK Steel – Mansfield Works (AK Steel) is a steel manufacturing facility located in Richland County. AK Steel is a Major PSD facility for NOx, PM, PM10, VOC, and CO. Richland County is classified as attainment for all pollutants.

Project Description

AK Steel is proposing an administrative modification of a PSD installation permit issued in 1993. The administrative modification will address the following:

1) Correct the original netting demonstration to reflect:
   a. the shutdown and removal of 20 soaking pits, carbon and stainless steel slab grinders, and slab reheat furnace;
   b. the modification of the #8 and #9 electric arc furnaces; and
   c. the installation of a ladle metallurgical facility, slag skimming stations, slab reheat furnace, thin slab continuous caster.

2) Repermit the facility to establish combined "melt shop" emission limits;

3) Incorporate MACT, Subpart YYYYY into the permit;

4) This permit action will supersede: PTI #03-7567, issued 12/15/93; PTI #03-7726, issued 4/5/01; PTI #03-7503, issued 12/1/93; and PTI #03-7606, issued 2/16/94.

5) This permit action includes the following emissions units:

Emissions Units Incorporated into PTI #03-17463	
– Electric Arc Furnace (EAF) Slag Skimming and Handling	– 10 mmBtu/hr Ladle Preheater #4
– Argon-Oxygen Decarburization (AOD) and Ladle Metallurgical Facility (LMF) Slag Skimming and Handling	– 10 mmBtu/hr Ladle Preheater #5
– #8 EAF Baghouse Dust Handling	– 8 mmBtu/hr Ladle Preheater #6
– #9 EAF Baghouse Dust Handling	– 15 mmBtu/hr AOD Ladle Preheater
– Thin Slab Continuous Caster	– #8 EAF
– Slab Reheat Furnace	– #9 EAF
– 16.4 mmBtu/hr Ladle Preheater #1	– LMF
– 16.4 mmBtu/hr Ladle Preheater #2	– AOD Vessel
– 10 mmBtu/hr Ladle Preheater #3	

Process Description

Each EAF is used to melt scrap steel to molten steel. During the melting and refining process, carbon, oxygen, lime and other alloying and refining materials are added to the furnace. These various additions to the furnace help to remove impurities in the steel, generate foamy slag necessary to ensure electric arc stability, and alter the metallurgy of the final product to meet individual customer specifications. Typical heat cycles are approximately 2 hours for #9 EAF and 3 hours for #8 EAF. Both #8 and #9 EAFs now produce similar size heats, about 135 tons.

After slag removal, the molten steel is tapped into ladles and transported to an argon oxygen decarbonization (AOD) process and then to a ladle metallurgical facility (LMF) prior to being transported to a thin slab continuous caster. It is essential that the molten steel remain at a very high temperature (~2100 F) throughout this period. To ensure that the ladles are sufficiently heated, the empty ladles are stationed at the ladle preheaters until needed for tapping an EAF.

The purpose of the AOD is to reduce the concentration of carbon in the steel to meet customer specifications. A typical heat cycle is 1.25 to 2 hours. The LMF is utilized to "fine tune" the chemical composition of the steel to ensure conformance to customer specifications. A typical heat cycle is 40 to 70 minutes. Alloying agents and lime are added at the AOD and/or LMF, and oxygen, nitrogen, and argon are blown into the heat to aid in the refining process and to produce the appropriate hot metal product.

Once the molten steel has achieved its final chemistry, AK Steel casts the steel through the thin slab continuous caster. The caster forms the steel into slabs which are then cut to appropriate length by caster cut-off torches. These semi-finished slabs are then either transported to the hot strip mill building to be eventually rolled into coils, or transported to other AK Steel facilities for further processing or direct shipment to customers.

Melt shop emissions are captured and collected by either of two air pollution control systems: the #8 EAF baghouse control system or the #9 EAF baghouse control system.

The following sources are controlled by the #8 EAF baghouse control system:
1) #8 EAF melting or primary emissions;
2) AOD vessel primary emissions;
3) LMF primary emissions; and
4) AOD ladle preheater.

Per AK Steel's Title V application, the #8 EAF baghouse is rated at 375,000 acfm at 275F. The results of 2006 performance testing indicated a flow rate of 311,086 scfm, which was used in this project to estimate emissions.

The following sources are controlled by the #9 EAF baghouse control system:
1) #9 EAF melting or primary emissions; and
2) melt shop roof canopy hoods, which capture fugitive emissions from the following:
    a. #8 and #9 EAF charging, tapping, and slagging operations; and
    b. ladle preheaters (6 units).

Per AK Steel's Title V application, the #9 EAF baghouse is rated at 502,000 acfm at 275F. The results of 2006 performance testing indicated a flow rate of 436,809 scfm, which was used in this project to estimate emissions.

Applicable Regulations

Federal Rules

40 CFR Part 60, Subpart AAa: Emissions units F006, F007, P902, P903, and P924 are subject to the requirements of this rule.

40 CFR Part 63, Subpart YYYYY Emissions units P902, P903, and P924 are subject to the requirements of this rule.

PSD Applicability

AK Steel is currently classified as a PSD "major" stationary source for NOx, PM, PM10, VOC, and CO. The modernization of the melt shop in 1993/1994 generated potential emissions prior to netting that exceeded the PSD significance levels for NOx, CO, VOC, PM, PM10, and Pb. Any "major" stationary source which is proposing emissions of a regulated pollutant in excess of PSD significance levels will be required to undergo a PSD analysis for that pollutant. The netting analysis demonstrated that AK Steel had sufficient creditable net emissions to offset increases of NOx, PM, PM10, and lead. However, the net emission increases for VOC and CO exceeded their respective annual significance levels of 40 tons and 100 tons. Therefore, the modernization project is considered a major modification for VOC and CO, and a PSD review is required for those pollutants.

Netting Analysis Summary				
Pollutant	**Contemporaneous Increase**	**Creditable Net Emissions**	**Net Emissions Change**	**PSD Significance Level**
NOx	796.37	-756.88	39.49	40
CO	2180.28	-542.60	**1637.68***	100
VOC	169.28	-81.49	**87.79***	40
PM	186.44	-190.09	-3.65	25
PM10	178.17	-173.46	4.71	15
SO2	35.91	-5.43	30.48	40
Lead	0.71	-0.12	0.59	0.6
Fluorides	0.63	-0.27	0.36	3.0

*Net Emissions Change Exceeds PSD Significance Level.

Best Available Control Technology (BACT) analysis

BACT Review

The AK Steel – Mansfield Works facility is subject to PSD regulations which mandate a case-by-case BACT analysis be performed for each proposed new or modified emissions unit at which a net increase of VOC and CO will occur. The following emissions units require VOC and CO BACT analyses:

The application used a "top-down" approach to determine an appropriate level of control.

Emissions Units Requiring CO and VOC BACT	
Thin Slab Continuous Caster	8 mmBtu/hr Ladle Preheater #6
Slab Reheat Furnace	15 mmBtu/hr AOD Ladle Preheater
16.4 mmBtu/hr Ladle Preheater #1	#8 EAF
16.4 mmBtu/hr Ladle Preheater #2	#9 EAF
10 mmBtu/hr Ladle Preheater #3	Ladle Metallurgical Furnace
10 mmBtu/hr Ladle Preheater #4	AOD vessel
10 mmBtu/hr Ladle Preheater #5	

As part of the application for any emissions unit regulated under the PSD requirements, an analysis must be conducted that demonstrates that Best Available Control Technology (BACT) will be employed for every affected pollutant.

Summary of BACT Requirements

BACT is defined as an emission limitation for new or modified sources to be achievable on a case-by-case basis while considering the following three factors:

1) Environmental Impact;
2) Energy Impact; and
3) Economic Impact.

BACT analysis includes air pollution control technologies with the potential to be applied to the emission source for the pollutant under consideration. It is pertinent to point out that BACT must be no less stringent than limitations defined by the standard of a State Implementation Plan, a National Emission Standard for Hazardous Air Pollutants, or a New Source Performance Standard.

The BACT analysis requires a "Top-Down" approach (*NSR Workshop Manual)*, which evaluates the control technology with highest efficiency first, and arrives at the final controls in a 5-step process:

1) Identifying All Applicable Control Technologies;
2) Eliminating Technically Infeasible Control Technologies;
3) Ranking Remaining Control Technologies by Control Effectiveness;
4) Evaluating Cost Effectiveness of Controls and Document Results; and
5) Selecting BACT.

As can be seen from the list above, the final stage of the analysis is the actual selection of the most cost effective air pollution control device. The permitting authority generally sets levels for cost effectiveness. Once a cost-effective control device has been identified for a particular source, that device will be selected as BACT and will be implemented as part of the overall project for that source. If no control systems are deemed to be cost effective, BACT will be no abatement.

PROJECT BACT ANALYSIS/ The 5-step BACT process

Step #1 -- Identify All Applicable Control Technologies

The controls Identified for the emissions units that comprise this project are listed below:

Applicable Control Technologies	
CO Controls	**VOC Controls**
Direct Evacuation Control (DEC) System	Direct Evacuation Control (DEC) System
Process Modification	Scrap Management
Flares	Post Combustion Reaction Chambers/Thermal Oxidation
Post Combustion Reaction Chambers/Thermal Oxidation	Catalytic Oxidation/Incineration
Catalytic Oxidation/Incineration	Oxygen Injection
Oxygen Injection	

These control devices have been identified as potentially applicable BACT technologies by researching RACT/BACT/LAER Clearinghouse and EPA's NEET Clean Air Technologies Databases, and in-house engineering experience. Each option was evaluated taking into account the source's physical and chemical characteristics of the gas stream to be controlled.

Step #2 – Eliminate Technically Infeasible Options

CO Controls

#8 and #9 EAFs:

1. DEC emission capture systems (direct shell evacuation) are standard in the industry and will capture most CO that is not combusted within the EAF and will combust (oxidize) the CO to CO2. This system effectively reduces CO levels by 90% and is technically feasible.

#8 and #9 EAFs, AOD, LMF, Slab Reheat Furnace, Thin Slab Continuous Caster, Ladle Preheaters #1 – #6, AOD Ladle Preheater:

2. Process modifications are technically infeasible because they will jeopardize the quality of steel produced and impact production.

3. The use of flares and post combustion reaction chambers are technically infeasible considering the additional NOx generated from burning the fuel necessary to increase the exhaust gas temperature from 181 F to between 1200-1400 F, the ancillary equipment and ductwork required to install and operate these devices, their excessive operating costs, and due to the likelihood that high particulate loading would render the equipment ineffective.

4. The use of a catalytic oxidation/incinerator is technically infeasible considering the additional NOx generated from burning the fuel necessary to increase the exhaust gas temperature from 181 F to a minimum of 600-800 F, the ancillary equipment and ductwork required to install and operate these devices, their excessive operating costs, and due to the likelihood that high particulate loading would render the equipment ineffective.

5. Oxygen injection is an emerging technology, but has not been demonstrated to be a reliable or proven method of CO destruction.

VOC Controls

#8 and #9 EAFs:

1. DEC emission capture systems (direct shell evacuation) are standard in the industry. During scrap melting, some VOC is combusted in the furnace. Additional combustion of VOC occurs when emissions are oxidized by the high temperature and oxygen present at the DEC gap. This system is technically feasible.

2. Scrap management practices to restrict the purchase of excessively oily scrap and scrap that is coated with other combustible material results in decreased volatilization in the EAFs and subsequently lowers VOC emissions. These practices are technically feasible.

#8 and #9 EAFs, AOD, LMF, Slab Reheat Furnace, Thin Slab Continuous Caster, Ladle Preheaters #1 – #6, AOD Ladle Preheater:

3. The use of post combustion reaction chambers are technically infeasible considering the additional NOx generated from burning the fuel necessary to increase the exhaust gas temperature from 181 F to between 1200-1400 F, the ancillary equipment and ductwork required to install and operate these devices, their excessive operating costs, and due to the likelihood that high particulate loading would render the equipment ineffective.

4. The use of a catalytic oxidation/incinerator is technically infeasible considering the additional NOx generated from burning the fuel necessary to increase the exhaust gas temperature from 181 F to a minimum of 600-800 F, the ancillary equipment and ductwork required to install and operate these devices, their excessive operating costs, and due to the likelihood that high particulate loading would render the equipment ineffective.

4. Oxygen injection is an emerging technology, but has not been demonstrated to be a reliable or proven method of VOC destruction.

Step #3 -- Rank Remaining Control Technologies by Control Effectiveness

DEC emission capture systems on the #8 and #9 EAFs are the only feasible control technologies for CO reduction. DEC emission capture systems on the #8 and #9 EAFs and proper scrap management are feasible control technologies for the reduction of VOC emissions. AK Steel already employs these methods of emission reduction.

Additional controls for CO and VOC are technically infeasible.

Step #4 -- Evaluate Most Effective Controls and Document Results

As stated above, DEC emission capture systems on the #8 and #9 EAFs and good scrap management practices are the only feasible methods to reduce emissions of CO and VOC.

Step #5 -- Select BACT

The tables below summarize BACT for each of the sources considered:

Summary of CO BACT	
Thin Slab Continuous Caster	NO Controls
Slab Reheat Furnace	NO Controls
16.4 mmBtu/hr Ladle Preheater #1	NO Controls
16.4 mmBtu/hr Ladle Preheater #2	NO Controls
10 mmBtu/hr Ladle Preheater #3	NO Controls
10 mmBtu/hr Ladle Preheater #4	NO Controls
10 mmBtu/hr Ladle Preheater #5	NO Controls
8 mmBtu/hr Ladle Preheater #6	NO Controls
15 mmBtu/hr AOD Ladle Preheater	NO Controls
#8 EAF	DEC Emission Capture System
#9 EAF	DEC Emission Capture System
Ladle Metallurgical Furnace	NO Controls
AOD vessel	NO Controls

Summary of VOC BACT	
Thin Slab Continuous Caster	NO Controls
Slab Reheat Furnace	NO Controls
16.4 mmBtu/hr Ladle Preheater #1	NO Controls
16.4 mmBtu/hr Ladle Preheater #2	NO Controls
10 mmBtu/hr Ladle Preheater #3	NO Controls
10 mmBtu/hr Ladle Preheater #4	NO Controls
10 mmBtu/hr Ladle Preheater #5	NO Controls
8 mmBtu/hr Ladle Preheater #6	NO Controls
15 mmBtu/hr AOD Ladle Preheater	NO Controls
#8 EAF	DEC Emission Capture System Scrap Management
#9 EAF	DEC Emission Capture System Scrap Management
Ladle Metallurgical Furnace	NO Controls
AOD vessel	NO Controls

Modeling

Air dispersion modeling was performed for the CO emissions from the #8 and #9 EAFs. In addition, air toxic pollutants exceeding one ton per year were also evaluated (chromium, manganese, zinc, calcium, iron, and magnesium). AERMOD and Building Profile Input Program (BPIP) Prime models were used by AK Steel for their dispersion modeling analysis. Modeling demonstrated that the CO concentrations were below the full NAAQS for CO allowed by the U.S. EPA. The predicted ambient concentrations of air toxics results also showed concentrations below the applicable pollutant specific MAGLC.

Conclusions

Based upon the analysis of the permit to install application and it's supporting documentation provided by AK Steel – Mansfield, the Ohio EPA staff has determined that the proposed increase will comply with all applicable State and federal environmental regulations and that the requirements for BACT are satisfied. Therefore, the Ohio EPA staff recommends that a permit to install be issued to the AK Steel – Mansfield Works Facility.

DRAFT

Division of Air Pollution Control
Permit-to-Install
for
AK Steel Corp - Mansfield Operations

Facility ID:	0370010023
Permit Number:	P0117635
Permit Type:	OAC Chapter 3745-31 Modification
Issued:	10/28/2014
Effective:	To be entered upon final issuance

Division of Air Pollution Control
Permit-to-Install
for
AK Steel Corp - Mansfield Operations

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Authorization

Facility ID:	0370010023
Facility Description:	Steel manufacturing plant.
Application Number(s):	A0051730, A0051798, A0051973
Permit Number:	P0117635
Permit Description:	Chapter 31 modification to increase the burner capacity for three ladle preheaters (P069-P071) from 10 mmBtu/hr to 16.4 mmBtu/hr including installation of low-NOx burners.
Permit Type:	OAC Chapter 3745-31 Modification
Permit Fee:	$2,075.00 *DO NOT send payment at this time, subject to change before final issuance*
Issue Date:	10/28/2014
Effective Date:	To be entered upon final issuance

This document constitutes issuance to:

AK Steel Corp - Mansfield Operations
913 Bowman Street
Mansfield, OH 44901-0247

of a Permit-to-Install for the emissions unit(s) identified on the following page.

Ohio Environmental Protection Agency (EPA) District Office or local air agency responsible for processing and administering your permit:

Ohio EPA DAPC, Northwest District Office
347 North Dunbridge Road
Bowling Green, OH 43402
(419)352-8461

The above named entity is hereby granted a Permit-to-Install for the emissions unit(s) listed in this section pursuant to Chapter 3745-31 of the Ohio Administrative Code. Issuance of this permit does not constitute expressed or implied approval or agreement that, if constructed or modified in accordance with the plans included in the application, the emissions unit(s) of environmental pollutants will operate in compliance with applicable State and Federal laws and regulations, and does not constitute expressed or implied assurance that if constructed or modified in accordance with those plans and specifications, the above described emissions unit(s) of pollutants will be granted the necessary permits to operate (air) or NPDES permits as applicable.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency

Craig W. Butler
Director

Authorization (continued)

Permit Number: P0117635
Permit Description: Chapter 31 modification to increase the burner capacity for three ladle preheaters (P069-P071) from 10 mmBtu/hr to 16.4 mmBtu/hr including installation of low-NOx burners.

Permits for the following Emissions Unit(s) or groups of Emissions Units are in this document as indicated below:

Emissions Unit ID: **P067**
Company Equipment ID: Vertical Ladle Preheater #1
Superseded Permit Number: P0115781
General Permit Category and Type: Not Applicable

Emissions Unit ID: **P068**
Company Equipment ID: Vertical Ladle Preheater #2
Superseded Permit Number: P0115781
General Permit Category and Type: Not Applicable

Emissions Unit ID: **P069**
Company Equipment ID: Horizontal Ladle Preheater #4
Superseded Permit Number: P0115781
General Permit Category and Type: Not Applicable

Emissions Unit ID: **P070**
Company Equipment ID: Horizontal Ladle Preheater #5
Superseded Permit Number: P0115781
General Permit Category and Type: Not Applicable

Emissions Unit ID: **P071**
Company Equipment ID: Horizontal Ladle Preheater #6
Superseded Permit Number: P0115781
General Permit Category and Type: Not Applicable

Emissions Unit ID: **P072**
Company Equipment ID: Vertical Preheater #3
Superseded Permit Number: P0115781
General Permit Category and Type: Not Applicable

Emissions Unit ID: **P073**
Company Equipment ID: AOD ladle preheater
Superseded Permit Number: P0115781
General Permit Category and Type: Not Applicable

Emissions Unit ID: **P902**
Company Equipment ID: #8 Electric Arc Furnace
Superseded Permit Number: P0115781
General Permit Category and Type: Not Applicable

Emissions Unit ID: **P903**
Company Equipment ID: #9 Electric Arc Furnace
Superseded Permit Number: P0115781
General Permit Category and Type: Not Applicable

Emissions Unit ID: **P904**
Company Equipment ID: Ladle Metallurgical Furnace
Superseded Permit Number: P0115781
General Permit Category and Type: Not Applicable

Emissions Unit ID:	**P924**
Company Equipment ID:	AOD Vessel
Superseded Permit Number:	P0115781
General Permit Category and Type:	Not Applicable

A. Standard Terms and Conditions

1. Federally Enforceable Standard Terms and Conditions

a) All Standard Terms and Conditions are federally enforceable, with the exception of those listed below which are enforceable under State law only:

(1) Standard Term and Condition A.2.a), Severability Clause

(2) Standard Term and Condition A.3.c) through A. 3.e)General Requirements

(3) Standard Term and Condition A.6.c) and A. 6.d), Compliance Requirements

(4) Standard Term and Condition A.9., Reporting Requirements

(5) Standard Term and Condition A.10., Applicability

(6) Standard Term and Condition A.11.b) through A.11.e), Construction of New Source(s) and Authorization to Install

(7) Standard Term and Condition A.14., Public Disclosure

(8) Standard Term and Condition A.15., Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations

(9) Standard Term and Condition A.16., Fees

(10) Standard Term and Condition A.17., Permit Transfers

2. Severability Clause

a) A determination that any term or condition of this permit is invalid shall not invalidate the force or effect of any other term or condition thereof, except to the extent that any other term or condition depends in whole or in part for its operation or implementation upon the term or condition declared invalid.

b) All terms and conditions designated in parts B and C of this permit are federally enforceable as a practical matter, if they are required under the Act, or any of its applicable requirements, including relevant provisions designed to limit the potential to emit of a source, are enforceable by the Administrator of the U.S. EPA and the State and by citizens (to the extent allowed by section 304 of the Act) under the Act. Terms and conditions in parts B and C of this permit shall not be federally enforceable and shall be enforceable under State law only, only if specifically identified in this permit as such.

3. General Requirements

a) Any noncompliance with the federally enforceable terms and conditions of this permit constitutes a violation of the Act, and is grounds for enforcement action or for permit revocation, revocation and re-issuance, or modification.

b) It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the federally enforceable terms and conditions of this permit.

c) This permit may be modified, revoked, or revoked and reissued, for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or revocation, or of a notification of planned changes or anticipated noncompliance does not stay any term and condition of this permit.

d) This permit does not convey any property rights of any sort, or any exclusive privilege.

e) The permittee shall furnish to the Director of the Ohio EPA, or an authorized representative of the Director, upon receipt of a written request and within a reasonable time, any information that may be requested to determine whether cause exists for modifying or revoking this permit or to determine compliance with this permit. Upon request, the permittee shall also furnish to the Director or an authorized representative of the Director, copies of records required to be kept by this permit. For information claimed to be confidential in the submittal to the Director, if the Administrator of the U.S. EPA requests such information, the permittee may furnish such records directly to the Administrator along with a claim of confidentiality.

4. Monitoring and Related Record Keeping and Reporting Requirements

a) Except as may otherwise be provided in the terms and conditions for a specific emissions unit, the permittee shall maintain records that include the following, where applicable, for any required monitoring under this permit:

(1) The date, place (as defined in the permit), and time of sampling or measurements.

(2) The date(s) analyses were performed.

(3) The company or entity that performed the analyses.

(4) The analytical techniques or methods used.

(5) The results of such analyses.

(6) The operating conditions existing at the time of sampling or measurement.

b) Each record of any monitoring data, testing data, and support information required pursuant to this permit shall be retained for a period of five years from the date the record was created. Support information shall include, but not be limited to all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. Such records may be maintained in computerized form.

c) Except as may otherwise be provided in the terms and conditions for a specific emissions unit, the permittee shall submit required reports in the following manner:

(1) Reports of any required monitoring and/or recordkeeping of federally enforceable information shall be submitted to the Ohio EPA DAPC, Northwest District Office.

(2) Quarterly written reports of (i) any deviations from federally enforceable emissionlimitations, operationalrestrictions, andcontroldeviceoperatingparameterlimitations, excluding deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06, that have been detected by the testing, monitoring and recordkeeping requirements specified in this permit, (ii) the probable cause of such deviations, and (iii) any corrective actions or preventive measures taken, shall be made to the Ohio EPA DAPC, Northwest District Office. The written reports shall be submitted quarterly, by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. See A.15. below if no deviations occurred during the quarter.

(3) Written reports, which identify any deviations from the federally enforceable monitoring, recordkeeping, andreportingrequirements contained in this permit shall be submitted to the Ohio EPA DAPC, Northwest District Office every six months, by January 31 and July 31 of each year for the previous six calendar months. If no deviations occurred during a six-month period, the permittee shall submit a semi-annual report, which states that no deviations occurred during that period.

(4) This permit is for an emissions unit located at a Title V facility. Each written report shall be signed by a responsible official certifying that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete.

d) The permittee shall report actual emissions pursuant to OAC Chapter 3745-78 for the purpose of collecting Air Pollution Control Fees.

5. Scheduled Maintenance/Malfunction Reporting

Any scheduled maintenance of air pollution control equipment shall be performed in accordance with paragraph (A) of OAC rule 3745-15-06. The malfunction, i.e., upset, of any emissions units or any associated air pollution control system(s) shall be reported to theOhio EPA DAPC, Northwest District Officein accordance with paragraph (B) of OAC rule 3745-15-06. (The definition of an upset condition shall be the same as that used in OAC rule 3745-15-06(B)(1) for a malfunction.) The verbal and written reports shall be submitted pursuant to OAC rule 3745-15-06.

Except as provided in that rule, any scheduled maintenance or malfunction necessitating the shutdown or bypassing of any air pollution control system(s) shall be accompanied by the shutdown of the emission unit(s) that is (are) served by such control system(s).

6. Compliance Requirements

a) All applications, notifications or reports required by terms and conditions in this permit to be submitted or "reported in writing" are to be submitted to Ohio EPA through the Ohio EPA's eBusiness Center: Air Services web service ("Air Services"). Ohio EPA will accept hard copy submittals on an as-needed basis if the permittee cannot submit the required documents through the Ohio EPA eBusiness Center. In the event of an alternative hard copy submission in lieu of the eBusiness Center, the post-marked date or the date the document is delivered in person will be recognized as the date submitted. Electronic submission of applications, notifications or reports required to be submitted to Ohio EPA fulfills the requirement to submit the required information to the Director, the appropriate Ohio EPA District Office or contracted

local air agency, and/or any other individual or organization specifically identified as an additional recipient identified in this permit unless otherwise specified. Consistent with OAC rule 3745-15-03, the electronic signature date shall constitute the date that the required application, notification or report is considered to be "submitted". Any document requiring signature may be represented by entry of the personal identification number (PIN) by responsible official as part of the electronic submission process or by the scanned attestation document signed by the Authorized Representative that is attached to the electronically submitted written report.

Any document (including reports) required to be submitted and required by a federally applicable requirement in this permit shall include a certification by a Responsible Official that, based on information and belief formed after reasonable inquiry, the statements in the document are true, accurate, and complete

b) Upon presentation of credentials and other documents as may be required by law, the permittee shall allow the Director of the Ohio EPA or an authorized representative of the Director to:

(1) At reasonable times, enter upon the permittee's premises where a source is located or the emissions-related activity is conducted, or where records must be kept under the conditions of this permit.

(2) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit, subject to the protection from disclosure to the public of confidential information consistent with ORC section 3704.08.

(3) Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit.

(4) As authorized by the Act, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit and applicable requirements.

c) The permittee shall submit progress reports to the Ohio EPA DAPC, Northwest District Office concerning any schedule of compliance for meeting an applicable requirement. Progress reports shall be submitted semiannually or more frequently if specified in the applicable requirement or by the Director of the Ohio EPA. Progress reports shall contain the following:

(1) Dates for achieving the activities, milestones, or compliance required in any schedule of compliance, and dates when such activities, milestones, or compliance were achieved.

(2) An explanation of why any dates in any schedule of compliance were not or will not be met, and any preventive or corrective measures adopted.

7. Best Available Technology

As specified in OAC Rule 3745-31-05, new sources that must employ Best Available Technology (BAT) shall comply with the Applicable Emission Limitations/Control Measures identified as BAT for each subject emissions unit.

8. Air Pollution Nuisance

The air contaminants emitted by the emissions units covered by this permit shall not cause a public nuisance, in violation of OAC rule 3745-15-07.

9. Reporting Requirements

The permittee shall submit required reports in the following manner:

a) Reports of any required monitoring and/or recordkeeping of state-only enforceable information shall be submitted to the Ohio EPA DAPC, Northwest District Office.

b) Except as otherwise may be provided in the terms and conditions for a specific emissions unit, quarterly written reports of (a) any deviations (excursions) from state-only required emission limitations, operational restrictions, and control device operating parameter limitations that have been detected by the testing, monitoring, and recordkeeping requirements specified in this permit, (b) the probable cause of such deviations, and (c) any corrective actions or preventive measures which have been or will be taken, shall be submitted to theOhio EPA DAPC, Northwest District Office. If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted quarterly, by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. (These quarterly reports shall exclude deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06.)

10. Applicability

This Permit-to-Install is applicable only to the emissions unit(s) identified in the Permit-to-Install. Separate application must be made to the Director for the installation or modification of any other emissions unit(s)not exempt from the requirement to obtain a Permit-to-Install.

11. Construction of New Sources(s) and Authorization to Install

a) This permit does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. This permit does not constitute expressed or implied assurance that the proposed facility has been constructed in accordance with the application and terms and conditions of this permit. The action of beginning and/or completing construction prior to obtaining the Director's approval constitutes a violation of OAC rule 3745-31-02. Furthermore, issuance of this permit does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. Issuance of this permit is not to be construed as a waiver of any rights that the Ohio Environmental Protection Agency (or other persons) may have against the applicant for starting construction prior to the effective date of the permit. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed facilities cannot meet the requirements of this permit or cannot meet applicable standards.

b) If applicable, authorization to install any new emissions unit included in this permit shall terminate within eighteen months of the effective date of the permit if the owner or operator has not undertaken a continuing program of installation or has not entered into a binding contractual

obligation to undertake and complete within a reasonable time a continuing program of installation. This deadline may be extended by up to 12 months if application is made to the Director within a reasonable time before the termination date and the permittee shows good cause for any such extension.

c) The permittee may notify Ohio EPA of any emissions unit that is permanently shut down (i.e., the emissions unit has been physically removed from service or has been altered in such a way that it can no longer operate without a subsequent "modification" or "installation" as defined in OAC Chapter 3745-31) by submitting a certification from the authorized official that identifies the date on which the emissions unit was permanently shut down. Authorization to operate the affected emissions unit shall cease upon the date certified by the authorized official that the emissions unit was permanently shut down. At a minimum, notification of permanent shut down shall be made or confirmed by marking the affected emissions unit(s) as "permanently shut down" in "Air Services" along with the date the emissions unit(s) was permanently removed and/or disabled. Submitting the facility profile update electronically will constitute notifying the Director of the permanent shutdown of the affected emissions unit(s).

d) The provisions of this permit shall cease to be enforceable for each affected emissions unit after the date on which an emissions unit is permanently shut down (i.e., emissions unit has been physically removed from service or has been altered in such a way that it can no longer operate without a subsequent "modification" or "installation" as defined in OAC Chapter 3745-31). All records relating to any permanently shutdown emissions unit, generated while the emissions unit was in operation, must be maintained in accordance with law. All reports required by this permit must be submitted for any period an affected emissions unit operated prior to permanent shut down. At a minimum, the permit requirements must be evaluated as part of the reporting requirements identified in this permit covering the last period the emissions unit operated.

Unless otherwise exempted,no emissions unit certified by the responsible official as being permanently shut down may resume operation without first applying for and obtaining a permit pursuant to OAC Chapter 3745-31 and OAC Chapter 3745-77 if the restarted operation is subject to one or more applicable requirements.

e) The permittee shall comply with any residual requirements related to this permit, such as the requirement to submit a deviation report, air fee emission report, or other any reporting required by this permit for the period the operating provisions of this permit were enforceable, or as required by regulation or law. All reports shall be submitted in a form and manner prescribed by the Director. All records relating to this permit must be maintained in accordance with law.

12. Permit-To-Operate Application

The permittee is required to apply for a Title V permit pursuant to OAC Chapter 3745-77. The permittee shall submit a complete Title V permit application or a complete Title V permit modification application within twelve (12) months after commencing operation of the emissions units covered by this permit. However, if operation of the proposed new or modified source(s) as authorized by this permit would be prohibited by the terms and conditions of an existing Title V permit, a Title V permit modification of such new or modified source(s) pursuant to OAC rule 3745-77-04(D) and OAC rule 3745-77-08(C)(3)(d)must be <u>obtained before</u>operating the source in a manner that would violate the existing Title V permit requirements.

13. Construction Compliance Certification

The applicant shall identify the following dates in the "Air Services"facility profile for each new emissions unit identified in this permit.

a) Completion of initial installation date shall be enteredupon completion of construction and prior to start-up.

b) Commence operation after installation or latest modification date shall be entered within 90 days after commencing operation of the applicable emissions unit.

14. Public Disclosure

The facility is hereby notified that this permit, and all agency records concerning the operation of this permitted source, are subject to public disclosure in accordance with OAC rule 3745-49-03.

15. Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations

If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted quarterly by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters.

16. Fees

The permittee shall pay fees to the Director of the Ohio EPA in accordance with ORC section 3745.11 and OAC Chapter 3745-78. The permittee shall pay all applicable permit-to-install fees within 30 days after the issuance of any permit-to-install. The permittee shall pay all applicable permit-to-operate fees within thirty days of the issuance of the invoice.

17. Permit Transfers

Any transferee of this permit shall assume the responsibilities of the prior permit holder. The new owner must update and submit the ownership information via the "Owner/Contact Change" functionality in "Air Services" once the transfer is legally completed.The change must be submitted through "Air Services" within thirty days of the ownership transfer date.

18. Risk Management Plans

If the permittee is required to develop and register a risk management plan pursuant to section 112(r) of the Clean Air Act, as amended, 42 U.S.C. 7401 et seq. ("Act"), the permittee shall comply with the requirement to register such a plan.

19. Title IV Provisions

If the permittee is subject to the requirements of 40 CFR Part 72 concerning acid rain, the permittee shall ensure that any affected emissions unit complies with those requirements. Emissions exceeding

any allowances that are lawfully held under Title IV of the Act, or any regulations adopted thereunder, are prohibited.

B. Facility-Wide Terms and Conditions

1. All the following facility-wide terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only:

   a) None.

2. The following emissions units contained in this permit are subject to 40 CFR Part 63, Subpart YYYYY, National Emission Standards for Hazardous Air Pollutants for Area Sources, Electric Arc Furnace Steelmaking Facilities: P902, P903, and P924. The complete MACT requirements, including the MACT General Provisions may be accessed via the internet from the Electronic Code of Federal Regulations (e-CFR) website http://ecfr.gpoaccess.gov or by contacting the appropriate Ohio EPA District office or local air agency.

   The permittee shall comply with all applicable requirements of 40 CFR Part 63, Subpart YYYYY. The permittee shall also comply with all applicable requirements of 40 CFR Part 63, Subpart A (General Provisions) as identified in Table 1 of 40 CFR Part 63, Subpart YYYYY. Compliance with all applicable requirements shall be achieved by the dates set forth in 40 CFR Part 63, Subpart YYYYY, and Subpart A.

   40 CFR Part 63, Subpart YYYYY contains MACT Standards for the control of Mercury and generally achievable control technology (GACT) standards for hazardous air pollutants other than Mercury. Ohio EPA was delegated authority of MACT standards by the U.S. EPA but it should be noted that the authority to implement the GACT standards currently resides with the U.S. EPA.

   [Authority for term: 40 CFR Part 63, Subpart YYYYY]

C. Emissions Unit Terms and Conditions

1. Emissions Unit Group -Melt Shop:
P067,P068,P069,P070,P071,P072,P073,P902,P903,P904,P924,

EU ID	Operations, Property and/or Equipment Description
P067	16.4 mmBtu/hr natural gas fired ladle preheater with baghouse (#9 baghouse)
P068	16.4 mmBtu/hr natural gas fired ladle preheater with baghouse (#9 baghouse)
P069	16.4mmBtu/hr natural gas fired ladle preheater with baghouse (#9 baghouse)
P070	16.4mmBtu/hr natural gas fired ladle preheater with baghouse (#9 baghouse)
P071	16.4mmBtu/hr natural gas fired ladle preheater with baghouse (#9 baghouse)
P072	8 mmBtu/hr natural gas fired ladle preheater with baghouse (#9 baghouse)
P073	argon-oxygen decarburization (AOD) 15 mmBtu/hour ladle preheater with baghouse (#8 baghouse)
P902	#8 electric arc furnace with baghouse (#8 baghouse) and canopy hood (#9 baghouse)
P903	#9 electric arc furnace with baghouse and canopy hood (#9 baghouse)
P904	ladle metallurgical furnace (LMF) with baghouse (#8 baghouse).
P924	argon-oxygendecarbonization (AOD) vessel with canopy hood (#8 baghouse).

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only:

(1) None.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operation(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures are identified below. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3)(a)	See b)(2)a. Combined melt shop emission limitations for emissions units P067, P068, P069, P070, P071, P072, P073, P902, P903, P904, and P924: <u>Stack Emission Limitations</u> 1.42 pounds nitrogen oxides (NOx)/ton steel produced &675.81 tons NOx/year 0.0052 grain filterable particulate matter of 10 microns or less in size (PM10)/dscf& 145.95 tons filterable PM10/year [See b)(2)b.]

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		0.20 pound sulfur dioxide (SO2)/ton steel produced & 95.27 tons SO2/year 0.00137 pound lead (Pb)/ton steel produced & 0.65 ton Pb/year 0.00037 pound mercury (Hg)/ton steel produced & 0.18 ton Hg/year 0.0013 pound fluorides (F)/ton steel produced & 0.62 ton F/year See b)(2)c. <u>Fugitive Emission Limitations</u> 21.24 tons NOx/year 14.32 tons PM10/year 1.94 tons SO2/year 0.06 ton Pb/year 0.004 ton Hg/year 0.012 ton F/year <u>Visible Particulate Emission Limitations</u> Visible particulate emissions (PE) from the baghouses serving the melt shop shall not exhibit 3 percent opacity or greater, as a six-minute average. Visible fugitive PE from the building enclosure, due solely to the operations of P902, P903 and P924, shall not exhibit 6 percent opacity or greater, as a six-minute average. <u>BAT Control Requirements</u> See b)(2)d.
b.	OAC rules 3745-31-10 through 3745-31-20	Combined melt shop emission limitations for emissions units P067, P068, P069, P070, P071, P072, P073, P902, P903, P904, and P924:

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		<u>Stack Emission Limitations</u> 4.38 pounds carbon monoxide (CO)/ton steel produced &2084.30 tons CO per rolling, 12-month period 0.35 pound volatile organic compounds (VOC)/ton steel produced & 166.71 tons VOC per rolling, 12-month period <u>Fugitive Emission Limitations</u> 50.19 tons CO per rolling, 12-month period 4.01 tons VOC per rolling, 12-month period See b)(2)e.
c.	OAC rule 3745-17-11(B)	See b)(2)f.
d.	OAC rule 3745-17-07(A)	See b)(2)g.
e.	OAC rule 3745-17-07(B)	Visible fugitive PE from the building enclosure due to P904 shall not exceed 20% opacity as a 3-minute average, except as provided by the rule. See b)(2)h.
f.	OAC rule 3745-17-08(B)	See b)(2)l.
g.	OAC rule 3745-18-06(E)	See b)(2)i.
h.	40 CFR Part 60, Subpart AAa 40 CFR 60.270a – 60.276a	See b)(2)j., b)(2)m., d)(2), d)(3), d)(5), d)(9), e)(2) and e)(7).
i.	40 CFR Part 63, Subpart YYYYY 40 CFR 63.10680 – 63.10690	See b)(2)k., d)(6) and e)(9).
j.	40 CFR 63.1 – 63.15	Table 1 to 40 CFR, Part 63, Subpart YYYYY – Applicability of General Provisions to Subpart YYYYY specifies the applicable General Provisions from 40 CFR 63.1 – 63.15.

(2) Additional Terms and Conditions

a. The requirements of this rule also includes compliance with the requirements of 40 CFR Part 60, Subpart AAa, 40 CFR Part 63, Subparts A and YYYYY, OAC rule 3745-21-08(B), and OAC rules 3745-31-10 through 3745-31-20.

b. All emissions of particulate matter are PM10.

c. The combined pound/ton emissions limitations are based on the tons of steel produced from the ladle metallurgical furnace (LMF), emissions unit P904.

d. The Best Available Technology (BAT) control requirements for the emissions units that comprise the melt shop have been determined to be the following:

Emissions Unit(s)	Control Requirement(s)
P067, P068, P069, P070, P071, P072	Building enclosure equipped with a canopy hood/baghouse system (#9 baghouse) capable of achieving 0.0052 gr PM10/dscf.
P073	Building enclosure equipped with a canopy hood/baghouse system (#8 baghouse) capable of achieving 0.0052 gr PM10/dscf.
P902	Direct-shell evacuation control (DEC) baghouse (#8 baghouse) and building enclosure equipped with canopy hood/baghouse system (#9 baghouse). The #8 and #9 baghouses are capable of achieving 0.0052 gr PM10/dscf.
P903	Direct-shell evacuation control (DEC) baghouse (#9 baghouse) and building enclosure equipped with canopy hood/baghouse system (#9 baghouse). The #9 baghouse is capable of achieving 0.0052 gr PM10/dscf.
P904	Building enclosure and a baghouse (#8 baghouse) capable of achieving 0.0052 gr PM10/dscf.
P924	Building enclosure and a baghouse (#8 baghouse) capable of achieving 0.0052 gr PM10/dscf.

The building enclosure, canopy hood/baghouse, and DEC control systems identified in the table above shall meet the additional visible emission requirements:

i. Visible PE from the baghouses serving the melt shop shall not exhibit 3 percent (3%) opacity or greater, as a six-minute average.

ii. Visible fugitive PE from the building enclosure, due solely to the operations of P902, P903 and P924, shall not exhibit 6 percent (6%) opacity or greater, as a six-minute average.

BAT requirements also include compliance with the terms and conditions of this permit.

e. The permittee shall employ best available control technology (BACT) for the melt shop (emissions units P067, P068, P069, P070, P071, P072, P073, P902, P903, P904, and P924). BACT has been determined to be the following combined melt shop emission limitations:

i. For CO:

(a) 4.38 pounds CO/ton steel produced & 2084.30 tons CO/year; and

(b) 0.11 pound fugitive CO/ton steel produced &50.19 tons CO/year

ii. For VOC:

(a) 0.35 pound VOC/ton steel produced & 166.71 tons VOC/year; and

(b) 0.0084 pound fugitive VOC/ton steel produced &4.01 tons VOC/year

The BACT analysis determined that no controls were cost-effective for the reduction of CO or VOC.

f. For emissions units P902, P903, P904, and P924, the PE limitations specified by this rule are less stringent than the combined PM10 [see b)(2)b.] emission limitation established for the melt shop pursuant to OAC rule 3745-31-05(A)(3)(a).

For emissions units P067, P068, P069, P070, P071, P072, and P073, the uncontrolled mass rate of emissions (UMRE) of PE from each emissions unit is less than 10 pounds/hour. Therefore, pursuant to OAC rule 3745-17-11(A)(2)(a)(ii), Figure II of OAC rule 3745-17-11 does not apply. In addition, pursuant to OAC rule 3745-17-11(A)(4), Table 1 of OAC rule 3745-17-11 does not apply because the PWR is equal to zero. The burning of natural gas is the only source of PE from these emissions units.

g. For emissions units P902, P903, P904, and P924, the visible emission limitation specified by this rule is less stringent than the visible emission limitation established pursuant to OAC rule 3745-31-05(A)(3)(a).

Emissions units P067, P068, P069, P070, P071, P072, and P073 are exempt from the visible emission limitation specified in OAC rule 3745-17-07(A), pursuant to OAC rule 3745-17-07(A)(3)(h), because the emissions units are not subject to the requirements of OAC rule 3745-17-11.

h. For emissions units P902, P903 and P924, the visible emission limitation specified by this rule is less stringent than the visible emission limitations established pursuant to OAC rule 3745-31-05(A)(3)(a).

i. For emissions units P067, P068, P069, P070, P071, P072, P073, P902, P903, P904, and P924, the SO2 emission limitations specified by this rule for each emissions unit is less stringent than the SO2 emissions that these emissions

units contribute to the combined, melt shop limitation established pursuant to OAC rule 3745-31-05(A)(3)(a).

j. With the exception of the requirements for operational status inspections specified in d)(4) and e)(6), the control measures and requirements specified by this rule are equivalent to or less stringent than the control measures and requirements established pursuant to OAC rule 3745-31-05(A)(3)(a).

k. With the exception of the requirements for scrap management plans specified in d)(5) and e)(8), the control measures and requirements specified by this rule are equivalent to or less stringent than the control measures and requirements established pursuant to OAC rule 3745-31-05(A)(3)(a).

l. For emissions units P902, P903, P904, and P924, the control measures required by this rule are less stringent than the control measures established pursuant to OAC rule 3745-31-05(A)(3)(a) [See b)(2)d.].

m. It should be noted that pursuant to NSPS Subpart AAa, furnace static pressure monitoring is not required on any EAF equipped with a DEC system if observations of shop opacity are performed by a certified visible emission observer [See d)(3)].

c) Operational Restrictions

(1) The permittee shall burn only natural gas in emissions units P067, P068, P069, P070, P071, P072, and P073.

(2) The permittee shall not exceed 18 combined daily heats from the electric arc furnaces, emissions units P902 and P903, based on a monthly average.

(3) The permittee shall maintain, at the appropriate levels established during the most recent emission test that demonstrated that the emissions unit was in compliance [See f)(3)], either:

a. the control system fan motor amperes and all damper positions: or

b. the volumetric flow rate through each separately ducted hood: or

c. the volumetric flow rate at the control device inlet and all damper positions.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall collect and record the following information for the electric arc furnaces (EAFs), emissions units P902 and P903:

a. the number of heats per day from each EAF;

b. the monthly total number of heats from both EAFs, in combined heats/month [sum of d)(1)a. for each calendar month;

c. the number of days per calendar month that one or both EAFs were operating, in days/month for each calendar month; and

d. the combined number of heats per day from both EAFs, based on a monthly average [d)(1)b. divided by d)(1)c. for each calendar month.

(2) The permittee shall perform daily observations of the opacity of the visible PE from the #8 and #9 EAF baghouses, as follows:

a. The observations shall be conducted at least once per day for at least three 6-minute periods when the furnace is operating in the melting and refining period.

b. All visible emissions observations shall be conducted in accordance with Method 9, as set forth in "Appendix on Test Methods" in 40 CFR, Part 60.

c. If visible emissions occur from more than one point, the opacity shall be recorded for any points where visible emissions are observed. Where it is possible to determine that a number of visible emission sites relate to only one incident of the visible emission, only one set of three 6-minute observations will be required. In that case, the Method 9 observations must be made for the site of highest opacity that directly relates to the cause (or location) of the visible emissions observed during a single incident.

d. The permittee shall maintain copies of all daily opacity observations. The records shall identify the persons responsible for conducting the readings and verify the observer's Method 9 certification.

(3) The permittee shall perform daily observations of the opacity of the visible fugitive PE from P902, P903 and P924, as follows:

a. Shop opacity observations shall be conducted at least once per day for at least three six-minute periods when the furnace is operating in the meltdown and refining period.

b. Opacity shall be determined as the arithmetic average of 24 or more consecutive 15-second opacity observations of emissions from P902, P903 and P924 taken in accordance with Method 9, as set forth in "Appendix on Test Methods" in 40 CFR, Part 60.

c. Opacity shall be recorded for any point(s) where visible emissions associated with P902, P903 and P924 are observed. Where it is possible to determine that a number of visible emission sites relate to only one incident of visible emissions, only one observation of opacity will be required. In this case, the opacity observations must be made for the site of highest opacity that directly relates to the cause (or location) of visible emissions observed during a single incident.

d. The permittee shall maintain copies of all daily opacity observations. The records shall identify the persons responsible for conducting the readings and verify the observer's Method 9 certification.

(4) The permittee shall perform daily checks, when P904 is in operation and when the weather conditions allow, for any visible fugitive particulate emissions associated with P904 egress points (i.e., building windows, doors, roof monitors, etc.). The presence or absence of any visible fugitive emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall perform a Method 9 observation as set forth in "Appendix on Test Methods", in 40 CFR, Part 60, and note the following in the operations log:

a. the location and color of the emissions;

b. a copy of the Method 9 observation record including verification of the observer's Method 9 certification; and

c. any corrective actions taken to minimize or eliminate the visible emissions.

(5) The permittee shall perform monthly operational status inspections of the equipment that is important to the performance of the total capture system (i.e., pressure sensors, dampers, and damper switches). This inspection shall include observations of the physical appearance of the equipment (e.g., presence of holes in ductwork or hoods, flow constrictions caused by dents or accumulated dust in ductwork, and fan erosion). Any deficiencies shall be noted and proper maintenance performed. The permittee may petition the Director (the appropriate District Office or local air agency) to approve any alternative to monthly operational status inspections that will provide a continuous record of the operation of each emission capture system.

The records must be retained for at least 2 years following the date of the inspection.

(6) The permittee shall comply with the monitoring and recordkeeping requirements for the control of contaminants from scrap pursuant to 40 CFR 63 Subpart YYYYY, Section 63.10685.

(7) For each day during which the permittee burns a fuel other than natural gas in emissions unit P067, P068, P069, P070, P071, P071, and/or P073, the permittee shall maintain a record of the type and quantity of fuel burned in the emissions unit(s).

(8) The permittee shall properly install, operate and maintain equipment to continuously monitor the pressure drop, in inches of water, across the #8 and #9 EAF baghouses during operation of the melt shop, including periods of startup and shutdown. The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manual(s). The permittee shall record the pressure drops, in inches of water, across the #8 and #9 EAF baghouses on a daily basis.

Whenever the monitored values for the pressure drops deviate from the ranges specified below, the permittee shall promptly investigate the cause of the deviation(s). The permittee shall maintain records of the following information for each investigation: the date and time the deviation began and the magnitude of the deviation at that time, the date(s) the investigation was conducted, the names of the personnel who conducted the investigation, and the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the operation of the control equipment within the acceptable range specified below, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken: a description of the corrective action, the date it was completed, the date and time the deviation ended, the total period of time (in minutes) during which there was a deviation, the pressure drop reading immediately after the corrective action, and the names of the personnel who performed the work. Investigation and records required by this paragraph does not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

The permittee has specified the acceptable range for the pressure drops across the #8 and #9 EAF baghouses to be 1 – 10 inches of water.

The above ranges are effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the appropriate Ohio EPA District Office or local air agency. The permittee may request revisions to the ranges based upon information obtained during future particulate emission tests that demonstrate compliance with the allowable particulate emission rates for this emissions unit. In addition, approved revisions to the ranges will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of a minor permit modification.

(9) The permittee shall either:

a. check and record the control system fan motor amperes and damper position on a once-per-shift basis; or

b. install, calibrate, operate, and maintain a monitoring device that continuously records the volumetric flow rate through each separately ducted hood; or

c. install, calibrate, operate, and maintain a monitoring device that continuously records the volumetric flow rate at the control device inlet and check and record damper positions on a once-per-shift basis.

The monitoring device(s) may be installed in any appropriate location in the exhaust duct such that reproducible flow rate monitoring will result. The flow rate monitoring devices shall have an accuracy of +/- 10 percent (10%) over their normal operating range and shall be calibrated according to the manufacturer's instructions. The permittee may be required to demonstrate the accuracy of the monitoring devices relative to Methods 1 and 2 of Appendix A or 40 CFR, Part 60.

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that identify any exceedance of the 18 combined daily heats from the electric arc furnaces, emissions units P902 and P903, based on a monthly average.

(2) In accordance with the monitoring and recordkeeping requirements specified in d)(2), the permittee shall identify the following information in the quarterly deviation report:

a. all days during which the Method 9 observation from the #8 and #9 EAF baghouses resulted in an exceedance of the opacity restriction associated with the baghouses specified in term b)(1)a.; and

b. any corrective actions taken to minimize or eliminate the visible particulate emissions.

(3) In accordance with the monitoring and recordkeeping requirements specified in d)(3) and d)(4), the permittee shall identify the following information in the quarterly deviation report:

a. all days during which any Method 9 observation from the melt shop resulted in an exceedance of the fugitive melt shop opacity restriction specified in term b)(1)a. or b)(1)e.; and

b. any corrective actions taken to minimize or eliminate the visible particulate emissions.

(4) In accordance with the monitoring and recordkeeping requirements specified in d)(8), the permittee shall identify the following information concerning the operation of the #8 and #9 EAF baghouses in the quarterly deviation report:

a. each period of time when the pressure drop across the #8 or #9 EAF baghouse field was outside of the acceptable range;

b. an identification of each incident of deviation described in d)(4)a. where a prompt investigation was not conducted;

c. an identification of each incident of deviation described in d)(4)a. where prompt corrective action, that would bring the pressure drop into compliance with the acceptable range, was determined to be necessary and was not taken; and

d. an identification of each incident of deviation described in d)(4)a. where proper records were not maintained for the investigation and/or the corrective action.

(5) The quarterly reports shall be submitted, electronically through Ohio EPA Air Services, each year by January 31 (covering October to December), April 30 (covering January to March), July 31 (covering April to June), and October 31 (covering July to September), unless an alternative schedule has been established and approved by the Director (the appropriate District Office or local air agency).

(6) In accordance with The Standard Terms and Conditions of this permit, the permittee shall submit semiannual written reports that identifies each instance during which an operational status inspection of the equipment that is important to the performance of the total capture system was not performed by the required frequency in monitoring and recordkeeping term d)(5).

(7) In accordance with the monitoring and recordkeeping requirements specified in d)(9), the permittee shall submit semiannual reports that either:

a. identify operation of control system fan motor amperes at values exceeding +/- 15 percent (15%) of the value established during the most recent compliance test; or

b. identify operation at volumetric flow rates through each separately ducted hood exceeding values +/- 10 percent (10%) of the value established during the most recent compliance test: or

c. identify operation at volumetric flow rates at the control device inlet exceeding values +/- 10 percent (10%) of the value established during the most recent compliance test.

(8) The semiannual reports shall be submitted, electronically through Ohio EPA Air Services, to the Northwest District Office every six months, by January 31 and July 31 of each year for the previous six calendar months. If no deviations occurred during a six-month period, the permittee shall submit a semi-annual report, which states that no deviations occurred during that period.

(9) The permittee shall comply with the reporting requirements for the control of contaminants from scrap pursuant to 40 CFR Part 63 Subpart YYYYY, Section 63.10685.

(10) The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas was burned in emissions unit P067, P068, P069, P070, P071, P071, and/or P073. Each report shall be submitted within 30 days after the deviation occurs.

f) Testing Requirements

(1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:

a. <u>Emission Limitations</u>

Combined emission limitations from emissions units P067, P068, P069, P070, P071, P072, P073, P902, P903, P904, and P924:

i. 1.42 pounds NOx/ton steel produced;

ii. 4.38 pounds CO/ton steel produced;

iii. 0.35 pound VOC/ton steel produced;

iv. 0.20 pound SO2/ton steel produced;

v. 0.00137 pound lead/ton steel produced;

vi. 0.00037 pound mercury/ton steel produced; and

vii. 0.0013 pound fluorides/ton steel produced

Applicable Compliance Method

The pound/ton emission limitations were supplied by the company and represent weighted averages of the emissions from all of the melt shop emissions units. The limits were established based on maximum hourly operating conditions and a combination of best engineering judgment, past stack tests results from the facility, stack test results from similar operations at other facilities, and AP-42 emission factors. An estimated 98% of the total emissions from the melt shop are captured and vented to the #8 and #9 melt shop baghouses. The permittee shall demonstrate compliance with the NOx, CO, VOC, lead, and mercury emission limitations in accordance with the testing requirements specified in f)(2).

If required, the permittee shall demonstrate compliance with the SO2 and fluorides emission limitations by testing in accordance with Methods 1-4 and Method 6 for SO2 and/or Method 13 for fluorides from 40 CFR, Part 60, Appendix A. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA Northwest District Office.

At the time of issuance of this permit, the permittee is unable to perform emission testing for SO2 and fluorides in accordance with U.S. EPA methodology. Attempts to conduct emission testing for SO2 and fluorides have only yielded data indicating actual emission levels that fall below detectable limits. Until such time that alternative methods become available which are capable of detecting such low levels of emissions, further SO2 and fluorides emission testing is unwarranted.

b. Emission Limitations

Combined emission limitations from emissions units P067, P068, P069, P070, P071, P072, P073, P902, P903, P904, and P924:

i. 675.81 tons NOx/year;

ii. 95.27 tons SO2/year;

iii. 0.65 ton lead/year;

iv. 0.18 ton mercury/year; and

v. 0.62 ton fluorides/year

Applicable Compliance Method

Compliance with the annual emission limitations may be demonstrated by multiplying the pound/ton values by the following maximum operating conditions from the LMF and AOD: 18 heats/day, 145 tons/heat, 365 days/year, and then dividing by 2,000 pounds/ton. Therefore, provided compliance is demonstrated

with the pound/ton limitations and the maximum daily number of heats, compliance with the annual emission limitations will be demonstrated.

c. Emission Limitation

0.0052 grain PM10/dscf

Applicable Compliance Method

This emission limitation was established in accordance with 40 CFR Part 60, Subpart AAa. The permittee shall demonstrate compliance with the emission limitation in accordance with the testing requirements specified in f)(2).

d. Emission Limitation

145.95 tons PM10/year

Applicable Compliance Method

The annual emission limitation was established by summing the annual emission rates from the #8 and #9 melt shop baghouses. The annual emission rates were calculated by multiplying the 0.0052 grain PM10/dscf limitation by the maximum volumetric air flow rates from the #8 and #9 melt shop baghouses (311,086 dscfm and 436,809 dscfm, respectively), and using the following conversion factors in order to convert to tons per year: 1 pound/7,000 grains, 60 minutes/hour, 8,760 hours/year, and 1 ton/2,000 pounds. Therefore, provided compliance is demonstrated with the 0.0052 gr PM10/dscf limitation, compliance with the annual emission limitation will be demonstrated.

e. Emission Limitations

Combined emission limitations from emissions units P067, P068, P069, P070, P071, P072, P073, P902, P903, P904, and P924

i. 21.24 tons fugitive NOx/year;

ii. 1.94 tons fugitive SO2/year;

iii. 14.32 tons fugitive PM10/year;

iv. 0.06 ton fugitive lead/year;

v. 0.004 ton fugitive mercury/year; and

vi. 0.012 ton fugitive fluorides/year

Applicable Compliance Method

Compliance with the annual emission limitations may be demonstrated by multiplying the fugitive emission factors of: 0.04 pound NOx/ton, 0.00407 pound SO2/ton, 0.030 pound PM10/ton, 0.00013 pound lead/ton, 0.0000075 pound

mercury/ton, and 0.000026 pound fluorides/ton by the following maximum operating conditions from the LMF and AOD: 18 heats/day, 145 tons/heat, 365 days/year, and then dividing by 2,000 pounds/ton.

The fugitive emission factors were developed by applying a baghouse capture efficiency of 98% for emissions units P073, P902, P903, P904, and P924, and a baghouse capture efficiency of 65% for emissions units P067, P068, P069, P070, P071and P072, to the emission limit calculations for the melt shop. The fugitive emission limits represent the portion of the melt shop emissions that are not captured by the control devices (2% loss of emissions). Therefore, provided compliance is demonstrated with the stack emission limitations, compliance with the fugitive emissions limitations will be demonstrated.

f. Emission Limitations

Combined emission limitations from emissions units P067, P068, P069, P070, P071, P072, P073, P902, P903, P904, and P924:

i. 2084.30 tons CO per rolling 12-month period (stack emissions);

ii. 50.19 tons fugitive CO per rolling 12-month period;

iii. 166.71 tons VOC per rolling 12-month period (stack emissions); and

iv. 4.01 tons fugitive VOC per rolling 12-month period

Applicable Compliance Method

Compliance with the annual stack emission limitations may be demonstrated by multiplying the pound/ton limitations by the following maximum operating conditions from the LMF and AOD: 18 heats/day, 145 tons/heat, 365 days/year, and then dividing by 2,000 pounds/ton. Therefore, provided compliance is demonstrated with the pound/ton limitations and the maximum daily number of heats, compliance with the annual emission limitations will be demonstrated.

Compliance with the annual fugitive emission limitations may be demonstrated by multiplying the fugitive emission factors of: 0.11 pound CO/ton and 0.0084 pound VOC/ton by the following maximum operating conditions from the LMF and AOD: 18 heats/day, 145 tons/heat, 365 days/year, and then dividing by 2,000 pounds/ton.

The fugitive emission factors were developed by applying a baghouse capture efficiency of 98% for emissions units P073, P902, P903, P904, and P924, and a baghouse capture efficiency of 65% for emissions units P067, P068, P069, P070, P071 and P072, to the emission limit calculations for the melt shop. The fugitive emission limits represent the portion of the melt shop emissions that are not captured by the control devices (2% loss of emissions). Therefore, provided compliance is demonstrated with the stack emission limitations, compliance with the fugitive emissions limitations will be demonstrated.

g. Emission Limitation

Visible PE from the baghouses serving the melt shop shall not exhibit 3 percent (3%) opacity or greater, as a six-minute average.

Applicable Compliance Method

Compliance with the visible emission limitation shall be determined in accordance with Test Method 9, as set forth in "Appendix on Test Methods" in 40 CFR, Part 60 ("Standards of Performance for New Stationary Sources") and the monitoring and recordkeeping requirements in d)(2).

h. Emission Limitation

Visible fugitive PE from the building enclosure, due solely to the operations of P902, P903 and P924, shall not exhibit 6 percent (6%) opacity or greater, as a six-minute average.

Applicable Compliance Method

Compliance with the visible emission limitation shall be determined in accordance with Test Method 9, as set forth in "Appendix on Test Methods" in 40 CFR, Part 60 ("Standards of Performance for New Stationary Sources") and the monitoring and recordkeeping requirements in d)(3).

i. Emission Limitation

Visible fugitive PE from the building enclosure due to P904 shall not exceed 20% opacity as a 3-minute average, except as provided by the rule.

Applicable Compliance Method

If required, compliance shall be determined in accordance with OAC rule 3745-17-03(B)(3).

(2) The permittee shall conduct, or have conducted, emission testing for the melt shop (emissions units P067, P068, P069, P070, P071, P072, P073, P902, P903, P904, and P924) in accordance with the following requirements:

a. The emission testing shall be conducted within 180 days following the issuance of this permit. The testing time frame specified may be amended or waived for cause upon prior request of, and written approval of, the Ohio EPA Northwest District Office. Future testing requirements shall be conducted in accordance with applicable rules, policies, etc. (i.e.: Engineering Guide #16, OAC rule 3745-15-04, etc.).

b. The emission testing shall be conducted to demonstrate compliance with the allowable mass emission rates for: NOx, CO, VOC, PM10, lead, and mercury.

c. Methods 1-4 and the following additional test methods from 40 CFR, Part 60, Appendix A shall be employed to demonstrate compliance with the allowable mass emission rates:

Pollutant	Test Method
NOx	Method 7
CO	Method 10
VOC	Methods 18, 25, or 25A, as appropriate
PM10	Method 5D*
Lead	Method 29
Mercury	Method 29

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA Northwest District Office.

*It should be noted that compliance with the PM10 mass emission rate will be demonstrated by the use of Method 5D due to the air flow velocities from the positive pressure baghouses employed in this situation being inadequate for meeting the requirements of Methods 201/201A. With regards to future compliance testing for PM10, the specific situation at the facility should be reevaluated and a new determination should be made regarding the proper testing methodology to be employed.

d. The test(s) shall be conducted while the emissions unit(s) is operating at or near maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency. Acceptable test conditions pertaining to maximum capacity are outlined in a testing guidance document titled “Explanation of Ohio EPA's "test at max" policy for requiring performance testing to be conducted while emission units operate at maximum capacity”. Testing guidance documents are available on Ohio EPA’s website.

For test(s) not conducted at maximum capacity as specified above, the permittee may demonstrate through recordkeeping of post-test operating rates that the operating level(s) obtained during the test(s) are representative of a maximum operating rate that the emissions unit(s) is expected not to exceed. The maximum operating rate will be considered acceptable towards demonstrating that the emissions unit(s) is able to continuously comply with applicable emission limitations.

A retest of the emissions unit(s) will be necessary if records of post-test operating rates indicate that the maximum operating rate established during the test(s) is no longer representative of the expected maximum operating capacity. Evaluations of post-test operating rates to determine if they are representative of a maximum operating rate shall be performed in accordance with the same procedures for evaluating maximum capacity as outlined above.

e. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the appropriate Ohio EPA District Office or local air agency. The "Intent to Test" notification shall describe in detail the

proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA District Office's or local air agency's refusal to accept the results of the emission test(s).

f. Personnel from the appropriate Ohio EPA District Office or local air agency shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

g. A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the appropriate Ohio EPA District Office or local air agency within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the appropriate Ohio EPA District Office or local air agency.

The written report shall also include any additional information required in accordance with 40 CFR Part 60, Subpart AAa [§60.276a(f)].

h. For the purpose of determining the process weight rate during stack testing, the following procedures shall be followed:

i. The maximum process weight rate for stack testing purposes is 18 heats per day from the #8 and #9 EAFs, combined. Each heat shall be maximized for weight.

ii. The process weight rate shall be determined by calculating the number of heats processed per EAF per hour for each test run, prorated over a 24-hour period.

(#8 EAF heats/hour + #9 EAF heats/hour) (24 hours/day)

iii. The total time duration and production output for any partial EAF heats included within each baghouse test run will be incorporated into the process weight rate calculation.

iv. The prorated daily heat production rate for each EAF will be added together for a melt shop total for each test run.

v. The average of the melt shop totals from the three test runs will be calculated to determine the process weight rate from the stack test.

i. For the purpose of determining compliance with the pound/ton emission limits during stack testing, the following procedures shall be followed:

i. The melt shop production output during the stack test will be determined by calculating the tons of steel produced in the heats processed at the #8 and #9 EAFs during each test run period.

ii. The total time duration and production output for any partial heats included within the test run will be incorporated into the production calculation.

iii. The tons of steel produced will be based on the tons of steel produced at the LMF for the heats processed at each EAF during the test run.

iv. Any time periods when testing was halted for abnormal delays will be subtracted from the appropriate EAF source for the production calculation.

v. The tons/hour production rate for each EAF (using the LMF tons for the heat processed) will be added together to determine the melt shop production rate for each test run.

(3) During any required performance test to demonstrate compliance with the 6% opacity restriction from the melt shop, the values for the following parameters shall be determined:

a. the control system fan motor amperes and all damper positions; or

b. the volumetric flow rate through each separately ducted hood: or

c. the volumetric flow rate at the control device inlet and all damper positions.

Required compliance demonstrations with the melt shop opacity limitation shall be performed in accordance with Test Method 9, as set forth in “Appendix on Test Methods” in 40 CFR, Part 60 (“Standards of Performance for New Stationary Sources”) and the provisions specified in f)(2)d. through f)(2)i.

g) Miscellaneous Requirements

(1) None.