Ohio Environmental Protection Agency

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

10/7/2016

Certified Mail

No	TOXIC REVIEW
No	PSD
Yes	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

David Judkins
Republic Steel
2633 Eighth Street, NE
Canton, OH 44704

RE: DRAFT AIR POLLUTION PERMIT-TO-INSTALL
Facility ID: 1576050694
Permit Number: P0120406
Permit Type: OAC Chapter 3745-31 Modification
County: Stark

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, The Canton Repository. 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

Canton City Health Department
420 Market Avenue
Canton, OH 44702-1544

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 Canton City Health Department at (330)489-3385.

Sincerely,

Michael E. Hopkins, P.E.
Assistant Chief, Permitting Section, DAPC

Cc: U.S. EPA Region 5 -*Via E-Mail Notification*
Canton; Pennsylvania; West Virginia

Permit Strategy Write-Up

1. Check all that apply:

_X_ Synthetic Minor Determination

Netting Determination

2. Source Description:

Republic Steel is an existing steelmaking facility that produces steel bars used in axles, drive shafts, suspension rods, and other critical components of automobiles, off-highway vehicles and industrial equipment. For this permit, Republic is requesting a project to add the production of leaded steels to its existing Canton bloom cast facility (CBCF) operation at the facility. This project would include modifying existing emission units P124 CBCF Vacuum Tank Degasser (VTD), P125 CBCF Continuous Caster, F010 CBCF Ladle Transfer, Z231 CBCF Tundish Cooling and Dumping, and P127 CBCF Chem Lab Sample Grinder in order to add the ability to produce leaded steels. This modification increases emissions so it meets the definition of modify from OAC rule 3745-31-01, making this permit a Ch31 modification. This project is also considered a major NSR project.

It should be noted that Republic Steel already has the ability to produce leaded steels through its existing Flexcast operation, so this request is to expand that leaded steel production ability to other products only able to be produced at CBCF.

3. Facility Emissions and Attainment Status:

Republic Steel is an existing Title V facility. Republic is also defined as a major stationary source for the purposes of major new source review (NSR) programs and is a major stationary source under Prevention of Significant Deterioration (PSD) regulations. Republic's current facility-wide potential to emit is greater than 100 tpy for direct $PM_{2.5}$, SO_2, and NO_x (which SO_2 and NO_x are $PM_{2.5}$ precursors). Republic Steel belongs to the source category of "iron and steel mill plants" listed in OAC 3745-31-01(NNN)(4) so fugitive emissions are required to be included in any determination of net emission increases for any major NSR project.

Republic Steel Canton is located in Stark Countywhich is in NAAQS attainment for all criteria pollutants, including lead. The facility is located in Canton, Ohio, which is listed in Appendix A of OAC rule 3745-17-08, so this facility is subject to those fugitive dust requirements.

4. Source Emissions:

The unrestricted modified emissions from the proposed modifications to the existing emission units exceeds the major New Source Review (NSR) significant emission increase thresholds for PM_{10}, $PM_{2.5}$ and Pb. Therefore, Republic requested within the permit application to take synthetic minor restrictions on the Pb emissions and the amount of lead added to the steel during leaded steel production in order to bring the project total emissions below the thresholds for PM_{10}, $PM_{2.5}$ and Pb, thus successfully avoiding major NSR. These synthetic minor restrictions have been added to this permit, P0120406, pursuant to OAC rule 3745-31-05(D) to reflect the avoidance to major NSR and PSD regulations. The below table summarizes the project emissions for this permit.

	Baseline Actuals (100% non-leaded	Unrestricted Modification	Restricted Modification (restricted leaded steel

		steel production)		(100% leaded steel production)		production plus balance of non-leaded production)	
EU ID	**Activity**	**$PM_{2.5}$ tpy**	**Pb tpy**	**$PM_{2.5}$ tpy**	**Pb tpy**	**$PM_{2.5}$ tpy**	**Pb tpy**
P124	Hot Top addition	0.27	0	0.31	0	5.85	0
	VTD degassing & hatch opens	2.60	0	33.65	10.890		0.59324
P125	Caster tundish & ladle during casting	5.81	0	50.04	*	13.42	*
	E-ladle episodes	0.18	0	2.39	*		*
	Tundish nozzle preheater	0.0068	5.1E-7	0.0074	4.9E-7		4.89E-7
	Torch cutoff	1.77	5.4E-6	11.44	0.0931		0.00504
F010	Ladle transfer	0.94	0	12.20	*	2.01	*
Z231	Tundish cooling	1.03	0	1.15	0.0094	1.18	0.000506
	Tundish dumping	0.36	0	0.41	0.0014	0.41	0.000078
P127	Chem Lab sample grinder	0.66	0	0.71	0.0025	0.71	0.000135
	Total:	**13.63**	**5.9E-6**	**112.31**	**11.00**	**23.58**	**0.5990**
Net Emissions change (modification minus baseline):				**98.68**	**11.00**	**9.95**	**0.5990**
			NSR Threshold:	*10*	*0.6*	*10*	*0.6*

The process change requested involves the addition of Pb containing materials into the molten steel so that final leaded steel will have no greater than 0.35% Pb content. This process change will only increase emissions of Pb and particulate. Therefore, the emissions of all other criteria pollutants (SO_2, NOx, CO, and VOC) from the above process activities remain the same.

The emissions of Pb are calculated using a mass balance method from measured Pb concentration of the leaded steel produced and control measure efficiency estimations. This method is incorporated into this permit as an ongoing monitoring and recordkeeping term for compliance with the Pb emission limitation. The emissions of PM2.5 are calculated based on AP-42 emission factors, Republic operational data, and control measure efficiency estimations. Details of how all the emission limitations were calculated are specified in the terms and conditions of the permit.

Since P124 and P125 have existing PTI requirements, the existing emission limitations for NOx, CO and SO2 are necessary to retain since no changes to those pollutant emissions are occurring. However, there were some errors in those limitations that were administratively modified as part of this permit action. The SO2 emission limit for P124 remained the same, but the annual tons sulfur additions per year restriction value was slighted decreased due to a typographical error so it properly correlated to the annual SO2 limitation. The CO lb/hr limitation for P124 was decreased since it contained a typographical error. The CO annual limitation for P124 remains unchanged. The NOx limit for P125 was modified to remove the NOx contributions from the separated EUs (see 6.d below for more details). Details of how all the emission limitations were calculated are specified in the terms and conditions of the permit.

5. Conclusion:

This PTI is written to incorporate federally enforceable limits for Pb emission including related operational restrictions of amount of lead added and work practices to avoid major NSR and PSD. This PTI also is written to include voluntary restricts requested to be federally enforceable. Therefore, this PTI should be issued as draft with a 30 day public comment period since there are new federally enforceable restrictions.

6. Please provide additional notes or comments as necessary:

a) Of the above process activities, EU IDs P124 and P125 have previously issued PTIs and the other EU IDs are considered permit exempt. This permit action will change F010 from permit exempt to requiring a permit, so terms and conditions for F010 are included in this PTI. EU IDs Z231 and P127 remain permit exempt with these modifications.

b) Even though the net emissions change is below the air dispersion modeling threshold of 0.6 Pb TPY with the federally enforceable limit, Ohio EPA requested Republic to provide air dispersion modeling data to ensure that the public would not be negatively impacted since Pb is a public-concern pollutant. Additionally, Republic triggered the requirements for lead ambient air monitoring since the net emissions change was above 0.5 TPY. Republic accepted the lead ambient air monitoring requirements, so ambient air monitoring data will be used to prove no negative impact on the Pb NAAQS in lieu of air dispersion modeling. Therefore, this permit includes lead ambient air monitoring requirements.

c) EU IDs P124 and P125 were initially installed and permitted with PTI 15-1093 issued on 12/22/1993. It was desired to produce leaded steel at the CBCF with a new caster, so modification PTI 15-1340 was issued on 1/27/1999 for P124 to add leaded steel production. However, the modification never occurred, so that PTI was terminated for P124 and the active PTI reverted back to 15-1093 for P124. Therefore, this permit action is modifying PTI 15-1093 for P124 and P125.

d) P125 description and emission limits in PTI 15-1093 included tundish preheaters and dryers. These have since been separated as individual EUs (P150, P151, P171, P172 and P173) since they can operate independently. This PTI updates the EU description for P125 without these separate EUs.

7. Total Permit Allowable Emissions Summary (for informational purposes only):

Pollutant	Tons Per Year
Pb	0.599
$PM_{2.5}$	21.28
SO_2	4.69
NOx	1.18
CO	0.87

PUBLIC NOTICE

The following matters are the subject of this public notice by the Ohio Environmental Protection Agency. The complete public notice, including any additional instructions for submitting comments, requesting information, a public hearing, or filing an appeal may be obtained at:http://epa.ohio.gov/actions.aspx or Hearing Clerk, Ohio EPA, 50 W. Town St., Columbus, Ohio 43215. Ph: 614-644-2129 email:HClerk@epa.ohio.gov

Draft Air Pollution Permit-to-Install OAC Chapter 3745-31 Modification
Republic Steel
2633 Eighth Street NE,, Canton, OH 44704-2311
ID#:P0120406
Date of Action: 10/7/2016
Permit Desc:Chapter 31 modification permit for the existing Canton Bloom Cast Facility (CBCF) to allow the production of leaded steel. The permit includes: federally enforceable restrictions and work practices as control measures to limit lead emissions below the major NSR thresholds; the requirement to install and operate a source-oriented lead ambient air monitoring site..
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 ID # or: Ron Jones, Canton City Health Department, 420 Market Avenue, Canton, OH 44702-1544. Ph: (330)489-3385

DRAFT

Division of Air Pollution Control
Permit-to-Install
for
Republic Steel

Facility ID:	1576050694
Permit Number:	P0120406
Permit Type:	OAC Chapter 3745-31 Modification
Issued:	10/7/2016
Effective:	To be entered upon final issuance

Ohio Environmental Protection Agency

Division of Air Pollution Control
Permit-to-Install
for
Republic Steel

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Authorization

Facility ID:	1576050694
Facility Description:	Steel mill
Application Number(s):	A0054045
Permit Number:	P0120406
Permit Description:	Chapter 31 modification permit for the existing Canton Bloom Cast Facility (CBCF) to allow the production of leaded steel. The permit includes: federally enforceable restrictions and work practices as control measures to limit lead emissions below the major NSR thresholds; the requirement to install and operate a source-oriented lead ambient air monitoring site.
Permit Type:	OAC Chapter 3745-31 Modification
Permit Fee:	$3,750.00*DO NOT send payment at this time, subject to change before final issuance*
Issue Date:	10/7/2016
Effective Date:	To be entered upon final issuance

This document constitutes issuance to:

Republic Steel
2633 Eighth Street NE
Canton, OH 44704-2311

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:

Canton City Health Department
420 Market Avenue
Canton, OH 44702-1544
(330)489-3385

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: P0120406
Permit Description: Chapter 31 modification permit for the existing Canton Bloom Cast Facility (CBCF) to allow the production of leaded steel. The permit includes: federally enforceable restrictions and work practices as control measures to limit lead emissions below the major NSR thresholds; the requirement to install and operate a source-oriented lead ambient air monitoring site.

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

Emissions Unit ID:	**F010**
Company Equipment ID:	CBCF Ladle Transfer
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P124**
Company Equipment ID:	CBCF - Vacuum Tank Degasser (VTD)
Superseded Permit Number:	15-1093
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P125**
Company Equipment ID:	CBCF - Continuous Caster
Superseded Permit Number:	15-1093
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 Canton City Health Department.

(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 Canton City Health Department. 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 Canton City Health Department 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 theCanton City Health Departmentin 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 Canton City Health Department 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 Canton City Health Department.

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 theCanton City Health Department. 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. This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).

   a) For the purpose of a permit-to-install document, the facility-wide terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.

      (1) None.

2. New Source Review Recordkeeping and Reporting

   a) [OAC rule 3745-31-10(A)(1)]

      Before beginning actual construction of the new source review (NSR) project, the permittee shall document and maintain a record of the following information:

      (1) A description of the NSR project;

      (2) Identification of the emissions unit(s) whose emissions of a regulated NSR pollutant could be affected by the NSR project; and

      (3) A description of the applicability test used to determine that the NSR project is not a major modification for any regulated NSR pollutant, including the baseline actual emissions, the projected actual emissions, the amount of "could have accommodated" emissions excluded under paragraph (AAAAA)(1)(c) of rule 3745-31-01 of the Administrative Code and an explanation for why such amount was excluded, and any netting calculations, if applicable.

   b) [OAC rule 3745-31-10(A)(2)]

      The information required in OAC rule 3745-31-10(A)(2) was documented and submitted to the Ohio EPA by the permittee within the Permit to Install application for this permit P0120406. All sources included in that application (i.e., emissions units: F010, P124, P125, P127, and Z231) are considered one project for purposes of determining applicability of Major Source NSR.

   c) [OAC rule 3745-31-10(A)(3)]

      The permittee shall calculate the PM, PM_{10}/$PM_{2.5}$ and Pb emissions from the emissions units affected by the Project (i.e., emissions units: F010, P124, P125, P127, and Z231) as identified in the permit to install application and maintain a record of the annual emissions, in tons per year on a calendar year basis, for a period of 5 years following resumption of regular operations after the change.

   d) [OAC rule 3745-31-10(A)(5)]

      The permittee shall submit a report to the director if the annual emissions, in tons per year as calculated pursuant to OAC rule 3745-31-10(A)(3), from the Project, exceed 25 tons per year of PM, 15 tons per year of PM_{10}, 10 tons per year of $PM_{2.5}$, or 0.6 ton per year of lead (Pb) per year, (i.e., the baseline actual emissions increase by a significant amount) and if such emissions differ from the preconstruction projection as documented and maintained pursuant to OAC rule

3745-31-10(A)(1). Such reports shall be submitted to the director within 60 days after the end of such year. The report shall contain the following:

(1) The name, address, and telephone number of the major stationary source; and

(2) The annual emissions as calculated pursuant to OAC rule 3745-31-10(A)(3)

3. AmbientAir Monitoring for Lead

a) As part of the application submitted by the permittee for this permit, the emission units F010, P124 and P125 in this permit will be modified to include increased lead emissions with a new emission limit above 0.5 tons/year. As such, pursuant to 40 CFR Part 58, Subpart B, §58.10(a)(4), the permittee has triggered the requirement to establish a source-oriented lead ambient air monitoring site in accordance with Appendix D of 40 CFR Part 58. Per the authority in OAC rule 3745-15-04(C), the Director of Ohio EPA Is requiring the permittee to comply with the requirements of this rule.

b) Per 40 CFR Part 58, Appendix D §4.5(a) and the directors authority in OAC rule 3745-15-04(C), the permittee triggered the requirement to have, at a minimum, one source-oriented SLAMS site located to measure the maximum Pb concentration in ambient air resulting from each non-airport Pb source which emits 0.5 tpy or more taking into account logistics and the potential for population exposure. SLAMS is the acronym for State or local air monitoring station. Since this rule specifically requires a SLAMS, the Canton City Health Department, Air Pollution Control Division (CCHD-APCD) shall operate this required monitor.

c) The permittee shall purchase, in coordination with the Canton City Health Department, Air Pollution Control Division (CCHD-APCD) at least one ambient air lead monitor. These monitors will be sited and operated by the Canton City Health Department, Air Pollution Control Division (CCHD-APCD). All siting costs shall be paid for by the permittee. All ambient air monitor(s) installed as required by this permit will be sited and operated in accordance with all Ohio EPA and USEPA regulations. All monitor(s) required by this permit shall be operational no later than the within 6 months after the start-up date of the modified emissions unit. The ambient air lead monitor shall be operated to collect one sample in every six days schedule per 40 CFR §58.12(b). The permittee shall reimburse the Canton City Health Department, Air Pollution Control Division (CCHD-APCD) for ongoing operational and analysis time and material costs for the monitor(s).

d) The lead ambient monitor(s) listed above shall be operated for at least five years after start-up of the monitor(s). After this time period, the permittee can request the Director to examine the ambient air quality data collected to determine if further ambient monitoring is necessary in accordance with 40 CFR §58.14(c) and per the directors authority in OAC rule 3745-15-04(C). The Director shall have at least one year to make a decision on the need for the continued operation of the monitoring network. In determining the further need for the continued operation of the monitoring network, the Director shall consider the concentrations measured by the monitors, the trends in air quality concentrations, and the value of the air quality data in fulfilling the goals and requirements of the federal Clean Air Act and Chapter 3704 of the Ohio Revised Code.

C. Emissions Unit Terms and Conditions

1. P124, CBCF Vacuum Tank Degasser (VTD)

Operations, Property and/or Equipment Description:

Continuous Bloom Casting Facility (CBCF) Vacuum Tank Degasser (VTD) with integral steam condenser system used for the vacuum degassing of molten steel and for the addition of lead, sulfur and/or other alloying elements. Equipment placed under vacuum so no fugitive emissions occur while under vacuum; only stack emissions from the condenser system occur while under vacuum. Fugitive emissions occur from the addition of hot top/insulator material into ladle at end of VTD cycle and from molten steel fumes escaping opened hatches during material addition into VTD or temperature/sample collection of VTD while under partial vacuum are included in this EU. Fugitive emissions from the loading and unloading of the uncovered ladle are associated with separate EU F010 CBCF Ladle Transfer. EU modified per P0120406 to include production of leaded steel in addition to the already allowed non-leaded steels.

a) For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) b)(2)k.

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(D) [Federally enforceable limitations to avoid PSD and State Modeling requirements established in this permit]	The following limitations apply to F010, P124 and P125, as combined total emissions: Lead (Pb) emissions from these emissions units combined shall not exceed 0.599 tons per year (tpy) (stack and fugitive combined), based upon a rolling, 365-day summation of daily emissions. See b)(2)a, b)(2)b, and b)(2)c.
b.	OAC rule 3745-31-05(D) [Federally enforceable limitations to avoid PSD for P124 originally established in PTI 15-1093 issued 12/23/1993 and being retained in this permit since pollutants are unmodified; administratively modified	Sulfur dioxide (SO_2) emissions from this emissions unit shall not exceed 3.3 pounds per hour (lb/hr) and 4.69 tons per year (tpy) as a rolling 365-day daily average. See b)(2)d.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
	the operational restriction to fix typographical errors.]	
c.	OAC rule 3745-18-06(E)(1)	524.3 lbs SO_2/hr This emission limitation is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(D).
d.	OAC rule 3745-17-11(B)	54.0 lbs PE/hr This emission limitation is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(F).
e.	OAC rule 3745-17-08(B)	The permittee shall minimize or eliminate visible fugitive particulate through the employment of reasonably available control measures (RACM). See b)(2)i and b)(2)j.
f.	OAC rule 3745-17-07(A) OAC rule 3745-17-07(A)(2)	Visible particulate emissions from the stacks serving this emissions unit shall not exceed 20 percent opacity as a six-minute average, except as provided by rule. It shall be deemed not to be a violation of this rule where the presence of uncombined water is the only reason for failure of a stack emission to meet the requirements of this rule
g.	OAC rule 3745-17-07(B)	Visible particulate emissions from any fugitive dust source shall not exceed 20% opacity as a 3-minute average.
h.	OAC rule 3745-31-05(F) June 30, 2008 [Voluntary restrictions as proposed by the permittee to be federally enforceable]	$PM_{2.5}$ emissions from this emissions unit shall not exceed 5.85 tons per year (tpy) (stack and fugitive combined). See b)(2)a., b)(2)e., and b)(2)f.
i.	OAC rule 3745-31-05(A)(3) June 30, 2008 [Chapter 31 modification to Best Available Technology (BAT) originally established in PTI 15-1093 issued on 12/22/1993 to add leaded steel production; BAT for pollutants less than 10 TPY]	Best Available Technology (BAT) requirements for Pbemissions under this rule have been determined to be compliance with the annual emission limitations for Pb as established pursuant to OAC rule 3745-31-05(D). Best Available Technology (BAT) requirements for $PM_{2.5}$ emissions under

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		this rule have been determined to be: The condenser system of this emission unit shall be designed to have a $PM_{2.5}$ emissions removal efficiency of 99.0%. See b)(2)e., b)(2)f., and b)(2)g.
j.	OAC rule 3745-31-05(A)(3) June 30, 2008 [Best Available Technology (BAT) originally established in PTI 15-1093 issued on 12/22/1993 for pollutants that are unmodified; administratively modified to fix typographical errors.]	CO 0.38 lb/hr & 0.87 tons per year (tpy) from the condenser stack. Best Available Technology (BAT) requirements for SO_2 emissions under this rule have been determined to be compliance with the hourly and annual emission limitations for SO_2 as established pursuant to OAC rule 3745-31-05(D). See b)(2)e. and b)(2)f.
k.	OAC rule 3745-31-05(A)(3)(a)(ii) June 30, 2008 [Less than 10 TPY BAT exemption]	See b)(2)h.

(2) Additional Terms and Conditions

a. This permit allows for the following operational scenarios:

i. Production of leaded steel with lead inoculation occurring at the CBCF VTD (P124) via wire feed alloy and casting/cutting occurring at the CBCF Continuous Caster (P125).

ii. Production of leaded steel and/or non-leaded steel with sulfur inoculation occurring at the CBCF VTD (P124) via wire feed alloy and casting/cutting occurring at the CBCF Continuous Caster (P125).

iii. Production of non-leaded steel with non-lead and non-sulfur alloy addition and processing occurring at the CBCF VTD (P124) and casting/cutting occurring at the CBCF Continuous Caster (P125).

b. This permit establishes the following federally enforceable emission limitations for the purpose of limiting potential to emit (PTE) for Lead (Pb). The PTE is being restricted such that the emission increase for Pb allowed for in this Chapter 31 modification (PTI P0120406) will be below the Prevention of Significant Deterioration (PSD) “significant threshold” applicability level of 0.6 tpy for Lead. The federally enforceable emission limitations for Lead are the following:

i. Production of leaded steel processed in F010, P124 and P125 combined shall be restricted such that no 365-day rolling total for Lead exceeds the emission limit listed in b)(1)a. above.

ii. Implementation of the work practices listed in b)(2)j. during leaded steel production.

iii. The quantity of lead added to P124 to process leaded steel shall be restricted to 1,293 lbs/heat, calculated as a rolling 12-month average.

c. To ensure enforceability during the first 12 calendar months following the issuance of this permit of term b)(2)b.i,, the permittee shall not exceed the following emission levels specified in the following table:

Months	Maximum Allowable Cumulative Lead (Pb) Emissions (tons)
1	0.05
1-2	0.10
1-3	0.15
1-4	0.20
1-5	0.25
1-6	0.30
1-7	0.35
1-8	0.40
1-9	0.45
1-10	0.50
1-11	0.55
1-12	0.599

d. This permit retains the following federally enforceable emission limitations for the purpose of limiting potential to emit (PTE) for sulfur dioxide (SO_2). The PTE is being restricted such that the emission increase for SO_2 allowed for in the previous initial installation permit (PTI 15-1093) will be below the Prevention of Significant Deterioration (PSD) "significant threshold" applicability level of 40.0 tpy for SO_2 for the entire project. The federally enforceable emission limitations for SO_2 are the following:

i. Sulfur shall not be added in excess of 283.2 tons per year, based on a rolling, 365-day daily average.

ii. The condenser system shall have a SO_2 emissions removal efficiency of 98%. See description of condenser system in b)(2)e.

e. The vacuum tank degasser (VTD) is designed to use a two (2) staged steam ejector system in order to generate the vacuum pressure used by the VTD during steel degassing. All emissions generated during steel degassing are captured to the two (2) staged steam ejector system which acts as a gas condenser. This condenser system is integral to the design of this emission unit and, therefore, not considered add-on air pollution control equipment. The uncontrolled potential emissions of nitrogen oxides (NOx) and volatile organic compounds (VOC) from this emissions unit are negligible (less than 0.1 ton/year), and therefore emissions limits for these pollutants have not been established.

f. The emissions limitations for $PM_{2.5}$, CO, and SO_2 are based on the emission unit's potential to emit. Therefore, no monitoring, record keeping, and reporting requirements are necessary to ensure ongoing compliance with these emissions limitations.

g. The Best Available Technology (BAT) requirements for $PM_{2.5}$ and Pb in b)(1)i. above apply until U.S. EPA approves Ohio Administrative Code (OAC) paragraph 3745-31-05(A)(3)(a)(ii) (the less than 10 tons per year BAT exemption) into the Ohio State Implementation Plan (SIP).

h. The exemption described below and referenced in b)(1)k. above applies once U.S. EPA approves OAC paragraph 3745-31-05(A)(3)(a)(ii) (the less than 10 tons per year BAT exemption) as part of the Ohio SIP).

   i. The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the emissions of Pb from the emissions unit since the potential to emit is less than ten tons per year, taking into account the federally enforceable restriction on emissions pursuant to OAC rule 3745-31-05(D).

   ii. The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the emissions of $PM_{2.5}$ from the emissions unit since the uncontrolled potential to emit is less than ten tons per year and taking into account the voluntary restriction on emissions pursuant to OAC rule 3745-31-05(F).

i. The fugitive dust operations that are covered by this permit and subject to the requirements of OAC rules 3745-17-07 and 3745-17-08 include, but not limited to:

   i. The emissions from molten steel when VTD lid hatch is open during addition of any alloy/wire/material (conveyed or not) to VTD (when VTD lid is on and under partial vacuum).

   ii. The emissions from molten steel when VTD lid hatch is open during temperature or sample collection from the VTD (when VTD lid is on and under partial vacuum).

   iii. The emissions from bagged (non-conveyed) hot top/insulator material addition to ladle (when VTD lid is removed).

j. The permittee shall employ reasonably available control measures for the fugitive dust operations identified in b)(2)i. above for the purpose of ensuring compliance with the above-mentioned applicable requirements. In accordance with the permittee's application, the permittee has committed to perform the following control measures to ensure compliance during any time this emission unit is in operation:

i. Minimize length of time the VTD lid is off when uncovered ladle is within the VTD.

ii. Minimize length of time the VTD lid hatch is open for any reason when uncovered ladle is within the VTD.

iii. Perform all operations within a building

Nothing in this paragraph shall prohibit the permittee from employing other control measures to ensure compliance.

c) Operational Restrictions

(1) Leaded steel processed in P124 shall be restricted per b)(2)a. and b)(2)b.

(2) The permittee shall conduct all lead inoculation of steel at the P124 VTD process only for the CBCF production area by wire type alloy only. The permittee shall not conduct lead inoculation of steel at the P125 Caster tundish.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall collect and record the following lead mass balance information each day that leaded steel is processed in F010, P124 and/or P125:

a. the date(s) that leaded steel is processed from heat record tap date field;

b. the heat number(s) associated with the leaded steel processed from heat record (Furnace Data heat field);

c. the grade(s) of leaded steel processed from heat record (Furnace Data heat field);

d. the heat weight of leaded steel processed, in pounds, at tundish from heat record (Production Total Wgt field);

e. the weight of actual lead coil added in pounds from LMF/ Degas heat log production sheet (wire after degas pounds field (alloy field = Pb));

f. the calculated amount of lead added in pounds for the heat (i.e. the pounds of lead coil added from 'e' multiplied by the weight percent (expressed as a decimal fraction) of lead in the coil, which is currently 93%*);

*See term d)(8)

g. the calculated lead concentration in the heat in weight percent (i.e. the pounds of lead added from 'f' divided by the pounds of heat weight from 'd', then multiplied by 100);

h. the lab measured lead concentration in molten metal at the VTD in weight percent, from heat record (last EARLY row, Pb column field);

i. the lab measured lead concentration in molten metal at the tundish in weight percent, from heat record (TUND-2 row, Pb column field), which is same as value used for final steel product analysis;

j. the quantity of lead in the steel final bloom or billet product using the VTD concentration, in pounds (i.e. the pounds of heat weight from 'd' multiplied by the VTD weight percent (expressed as a decimal fraction) of lead from 'h');

k. the quantity of lead in the steel final bloom or billet product using the tundish concentration, in pounds (i.e. the pounds of heat weight from 'd' multiplied by the tundish weight percent (expressed as a decimal fraction) of lead from 'i');

l. the quantity of lead lost using the VTD concentration, in pounds (i.e. the pounds of lead added to steel from 'f' minus the pounds of lead in steal using the VTD concentration from 'j');

m. the quantity of lead emitted during the process from lead inoculation through tundish, based on VTD concentration and applying 98.522%** overall control efficiency (i.e. the pounds of lead lost using VTD from 'l' multiplied by [1 - 0.98522]);

**This is the overall control efficiency attributed to F010, P124 and P125 combined with their combined control measures.

n. the quantity of lead lost using the tundish concentration, in pounds (i.e. the pounds of lead added to steel from 'f' minus the pounds of lead in steal using the VTD concentration from 'k');

o. the quantity of lead emitted during the process from lead inoculation through tundish, based on tundish concentration and applying 98.522% overall control efficiency, in pounds (i.e. the pounds of lead lost using tundish from 'n' multiplied by [1 - 0.98522]);

p. the worst case lead emitted, in pounds, during the process from lead inoculation through tundish, for each heat (i.e. the higher of m. or o.);

q. the total daily lead emitted, in tons, based on lead mass balance calculation (i.e. the summation of the all values from 'p' of the heats for the day, in pounds, converted to tons by dividing by 2000 lbs/ton);

r. the rolling, 365-day summation of the lead emitted from F010, P124 and P125 combined, in tons (i.e. the summation of the tons from 'q' and the previous 364

daily emissions, and added to 0.00576*** tons/year from other process activities from these EUs); and

***Basis for this value is detailed in term f)(1)a.

s. the rolling, 12 month average of the lead amount added per heat to P124, in pounds, to process leaded steel (i.e. the summation of the pounds/heat from 'f' for 12 months divided by the number of leaded steel heats for those 12 months).

(2) The permittee shall develop a written Parametric Monitoring and Recordkeeping Plan in order to confirm that the condenser serving this emissions unit is operating properly and to demonstrate continued operation at or above the overall removal efficiency of the condenser during any steel production. The plan shall include, at a minimum, the following elements:

a. Sections for introduction, applicable regulation requirements, monitoring approach criteria, monitoring approach justification, indicator identification, indicator ranges, and performance criteria.

b. Any monitoring equipment required by the plan shall be installed, calibrated, operated, and maintained in accordance with manufacturer's recommendations, instructions and/or operating manual(s).

The permittee shall submit the plan to Canton City Health Department, Air Pollution Control Division (Canton APC) for approval within 30 days of the effective date of this permit. The permittee shall begin using the plan within 30 days from the date Canton APC approved the initial plan. As needs warrant, the permittee can modify the plan without additional approval by Canton APC.

(3) The permittee shall implement and perform all the parametric monitoring and recordkeeping as identified in the approved plan established in term d)(2).

(4) The permittee shall perform checks per the frequency specified in term d)(5) below, when the emissions unit is in operation (for any steel production) and when the weather conditions allow, for any visible particulate emissions from the stack and for any visible fugitive particulate emissions from any non-stack egress point (e.g. windows, wall vent, doors, roof monitors, etc.) serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:

a. the color of the emissions;

b. whether the emissions are representative of normal operations;

c. if the emissions are not representative of normal operations, the cause of the abnormal emissions;

d. the total duration of any visible emissions incident; and

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

If visible emissions are present, a visible emissions incident has occurred. The observer does not have to document the exact start and end times for the visible emissions incident under item (d) above or continue the check until the incident has ended. The observer may indicate that the visible emissions incident was continuous during the observation period (or, if known, continuous during the operation of the emissions unit).

With respect to the documentation of corrective actions, the observer may indicate that no corrective actions were taken if the visible emissions were representative of normal operations, or specify the minor corrective actions that were taken to ensure that the emissions unit continued to operate under normal conditions, or specify the corrective actions that were taken to eliminate abnormal visible emissions.

(5) The checks required by term d)(4) above shall be performed in accordance with the following frequency schedule:

a. Daily: Perform once per day, on each day the emissions unit is in operation, during the time the emissions unit is operating;

b. Weekly: If no visible emissions are detected from the stack and fugitive egress points in 10 consecutive daily checks performed per “a”, the permittee may decrease the frequency to conduct the checks once every 5 days of operation of the emission unit (one calendar week). If visible stack or fugitive emissions are detected during these checks, the permittee must resume the checks per the frequency in “a”;

c. Monthly: If no visible emissions are detected from the stack and fugitive egress points in 4 consecutive weekly checks performed per “b”, the permittee may decrease the frequency to conduct the checks once every 21 days of operation of the emission unit (one calendar month). If visible stack or fugitive emissions are detected during these checks, the permittee must resume the checks per the frequency in “b”.

(6) The permittee shall maintain daily records of the following information for P124:

a. the sulfur usage rate for each day; and,

b. the rolling, 365-day summation of the sulfur usage rates.

(7) The permittee shall maintain records that specify any time that the work practices listed in term b)(2)j. were not implemented.

(8) The permittee shall receive and maintain the chemical analyses from the supplier/marketer for each shipment of material (i.e. wire coil) used for lead inoculation per c)(2), which shall contain the following information:

a. the date the material was received at the facility and the amount received;

b. the name and address of the supplier, and/or marketer;

c. material batch number (if applicable); and

d. the chemical analyses result of the lead content in the material, in weight %.

e) Reporting Requirements

(1) Within 30 days of the final issuance date of this permit, the permittee shall submit the proposed initial plan term per d)(2) to the Canton City Health Department, Air Pollution Control Division.

(2) The permittee shall submit quarterly deviation (excursion) reports, which identify all exceedances of the following, at a minimum:

a. the rolling, 365-day restriction on total lead emissions for F010, P124, and P125 combined;

b. the rolling, 12-month average pounds lead added per heat for P124; and

c. the rolling, 365-day restriction on total sulfur dioxide (SO_2) emissions for P124.

These quarterly deviation reports shall be submitted in accordance with the Part A Standard Terms and Conditions of this permit along with any deviations that are not specified above. If no deviations/excursions occurred during the period, the report shall so state that no deviations occurred during the reporting period.

(3) The permittee shall submit semi-annual written reports that identify the following information concerning the operation of the emissions unit, at a minimum,:

a. each day during which the parametric monitoring requirements were not performed by the required frequency in accordance with the plan requirements in term d)(2);

b. each instance when corrective measures that was to be implemented as a result of parametric monitoring, was not implemented in accordance with the plan requirements in term d)(2);

c. each day during which the work practices listed in term b)(2)j. were not implemented;

d. each day during which any visible particulate emissions, excluding water vapor, were observed from the stack and/or fugitive egress points; and

e. the corrective actions, if any, taken to eliminate the visible particulate emissions.

The semi-annual deviation reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit. If no deviations/excursions occurred during the 6-month period, the report shall so state that no deviations occurred during the reporting period.

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. Emission Limitation:

Lead (Pb) from F010, P124 and P125 combined shall not exceed 0.599 tons per year (tpy) (stack and fugitive combined), based upon a rolling, 365-day summation of daily emissions.

Applicable Compliance Method:

The lead emission limitation for F010, P124 and P125 combined was established based on the following calculation methods as provided in the permit application and adjusted by the permit writer during permit development:

0.59324 tons/year (tpy) for the sum of the contributions of lead emissions from the VTD degassing (P124), Ladle transfer (F010), e-ladle (P125), casting tundish (P125), and casting ladle (P125) activities calculated as a lead mass balance of emissions. The details of how the lead mass balance shall be calculated on an ongoing basis is specified in term d)(1) above. The details of how the lead mass balance emissions were estimated for the setting of the lead emission limit are included in the permit application and are based on actual production and concentration measurement values during previous trial operations.

0.00576 tons/year for the sum of the contributions of lead emissions from other process activities from these EUs F010, P124, and P125, as detailed below:

0.000000489 tpy for the contribution of tundish nozzle heater (P125) natural gas combustion emissions using AP-42 emission factors for natural gas combustion (7.6 lb/mmcf) and a maximum heat input of 235,000 BTU/hr.

0.00504 tpy for the contribution of torch cutoff (P125) emissions using the PM filterable AP-42 12.5-1-1 emission factor (adjusted for control efficiency of 90% for water sprays, increased PM for leaded steel processing and to include condensable particulate to get 0.055 lb/ton), a max % Pb in leaded steel of 0.35%, and an estimated restricted throughput of 52,671 tons per year of leaded steel production.

0.000506 tpy for the contribution of tundish cooling (Z231) emissions using the PM emission factor from USS/Kobe Study total dust from tundish cooling (adjusted to include condensable particulate to get 0.0055 lb/ton), a max % Pb in leaded steel of 0.35%, and an estimated restricted throughput of 52,671 tons per year of leaded steel production.

0.000078 tpy for the contribution of tundish dump (Z231) emissions using a similar operation PM AP-42 11.24 emission factor for metallic mineral processing of 0.51 lb/ton, and a max % Pb in leaded steel of 0.35%, and an estimated restricted throughput of 88 tons/yr material dumped based on 52,671 tons per year of leaded steel production.

0.000135 tpy for the contribution of Chem Lab Sample Grinder (P127) emissions when processing leaded steel samples using control device emission flow rate (0.01 grains PM/dscf) multiplied by outlet grain loading (2000 scfm), a max % Pb in leaded steel of 0.35%, and an estimated restricted 449 operating hours/year based on 52,671 tons per year of leaded steel production.

Total other process activities equals: 0.000000543 + 0.00412 + 0.000413 + 0.000064 + 0.00263 = 0.0072275 ≈ 0.00723

Pb Limitation becomes: 0.59324 + 0.00576 = 0.59897 ≈ 0.599 tpy

Actual emissions can be calculated by substituting the above process variables with actual process conditions.

Ongoing compliance with the lead emission limitation is assumed provided compliance is demonstrated with the operational restrictions listed in terms c)(1)-(2) through the monitoring and recordkeeping listed in term d)(1).

b. Emission Limitation:

Sulfur dioxide (SO_2) emissions from this emissions unit shall not exceed 3.3 pounds per hour (lb/hr) and 4.69 tons per year (tpy) as a rolling 365-day daily average.

Applicable Compliance Method:

The emission limitation was established in the previous PTI 15-1093 and is based on the following calculation.

SO_2 emission factor = 0.01656 ton of SO_2 emissions / ton of sulfur

This factor is based on data from a site specific material balance equation utilizing the 98% condenser removal efficiency. The number of significant digits has been increased to match the information in the permit application.

SO_2 lb/hr = SO_2 emission factor x max S tons/hr x 2000lb/ton

= (0.01656 ton SO_2 emissions / ton of S) x 0.0995 ton S/hr X (2000 lb/ton = 3.295 lb/hr ≈ 3.3 lb/hr

SO_2 TPY = (SO_2 emission factor) x (restricted max S added per year from term b)(2)d)

= (0.01656 T SO_2 / T of S) x (283.2 T of S per year)

= 4.689 TPY ≈ 4.69 TPY

Actual emissions can be calculated by substituting the above process variables with actual process conditions.

Ongoing compliance with the SO_2 emission limitation is assumed provided compliance is demonstrated with the operational restrictions listed in terms b)(2)d. through the monitoring and recordkeeping listed in terms d)(6).

c. Emission Limitation:

$PM_{2.5}$ emissions from P124 shall not exceed 5.85 tons per year (tpy) (stack and fugitive combined).

Applicable Compliance Method

The emission limitation was established by using the following calculation methods as provided in the permit application and adjusted by the permit writer during permit development.

The $PM_{2.5}$ emissions were calculated for each process activity for the emission unit P124 during the production of both leaded and non-leaded steel for the three different operational scenarios allowed by term b)(2)a. The scenario that produced the highest $PM_{2.5}$ emissions is when the leaded steel production was the highest possible. To calculate the emissions from that scenario, the average amount of lead emissions per heat (provided in application) was adjusted by about one standard deviation to determine maximum amount of leaded steel production projected while remaining under emission PSD thresholds for both Pb and $PM_{2.5}$, which was estimated to be 81,171 tons per year.

Using that annual leaded steel production rate and the balance of non-leaded steel production, emissions were calculated from the process activities for P124 based on the following information:

i. Hot top addition:

Maximum amount of hot top added to ladle at VTD per heat is 500 lb/heat.

Highest number of leaded steel heats per year estimated: 81,171 tons per year ÷ 215 tons leaded steel/heat = 378 heats/year

Balance number of non-leaded steel heats per year estimated: (996,700 tons/year maximum potential production - 81,171 leaded steel tons per year = 915,529 tons non-leaded steel per year) ÷ 220 tons non-leaded steel/heat = 4161 heats/year

Estimated maximum hot top added per year: 500 lb/heat x (378 + 4161 = 4539 heats/yr) = 2269500 lbs/yr ÷ 2000 lbs/ton = 1134.75 tons/yr

Emission Factor: 0.732 lb PM/ton uncontrolled based on controlled AP-42 12.5.1-1 for LMS at Steel mini mill estimated to represent emissions divided by 81% control efficiency to get uncontrolled. $PM_{2.5}$ estimated at 74% of PM based on AP-42 12.5-2 EAF controlled particle sizing distribution.

$PM_{2.5}$ emissions: 0.732 lb PM/ton x 1134.75 tons/yr x 0.74 ÷ 2000 lbs/ton = 0.307 tons $PM_{2.5}$/yr

ii. VTD Degassing with VTD lid on

Total VTD cycle time while under full vacuum: 101 mins/heat total VTD cycle time - 5 mins/heat time VTD lid hatch is open = 96 min/heat

Emission factor non-leaded steel: 0.0037 lb PM/ton adjusted manufacturer's specification (including removal efficiency) to include condensable particulate. $PM_{2.5}$ estimated at 74% of PM based on AP-42 12.5-2 EAF controlled particle sizing distribution.

Emission factor leaded steel: 0.0427 lb PM/ton adjusted manufacturer's specification (including removal efficiency) to include processing leaded steel and condensable particulate. $PM_{2.5}$ estimated at 74% of PM based on AP-42 12.5-2 EAF controlled particle sizing distribution.

PM emissions: [(0.0037 lb PM/ton x 915,529 tons/yr x 96 min/101 min) + (0.0427 lb PM/ton x 81,171 tons/yr x 96 min/101 min)] ÷ 2000 lbs/ton = 3.257 tons PM/yr

$PM_{2.5}$ emissions: 0.74 x 3.257 = 2.41 tons $PM_{2.5}$/yr

iii. Molten metal emissions during VTD lid hatch opens and under partial vacuum:

Time per heat VTD lid hatch is open: 5 mins/heat

Total VTD cycle time per heat: 101 mins/heat

Emission Factor non-leaded steel: 0.0922 lb PM/ton based on the VTD degassing non-leaded steel emission factor, adjusted to remove efficiency, then adjusted using only 75% removal efficiency for partial vacuum. $PM_{2.5}$ estimated at 74% of PM based on AP-42 12.5-2 EAF controlled particle sizing distribution.

Emission Factor leaded steel: 1.0667 lb PM/ton based on the VTD degassing leaded steel emission factor, adjusted to remove efficiency, then adjusted using only 75% removal efficiency for partial vacuum. $PM_{2.5}$ estimated at 74% of PM based on AP-42 12.5-2 EAF controlled particle sizing distribution.

PM emissions: [(0.0922 lb PM/ton x 915,529 tons/yr x 5 min/101 min) + (1.0667 lb PM/ton x 81,171 tons/yr x 5 min/101 min)] ÷ 2000 lbs/ton = 4.233 tons PM/yr

$PM_{2.5}$ emissions: 0.74 x 4.233 = 3.13 tons $PM_{2.5}$/yr

iv. Emission limitation becomes: 0.307 + 2.41 + 3.13 = 5.847 ≈ 5.85 ton/yr

Actual emissions can be calculated by substituting the above process variables with actual process conditions.

Since the above emission limit is based on potential to emit emission factors, the condenser system operating properly and the restricted leaded steel production, compliance is assumed provided compliance is demonstrated with the Pb emission limitation listed in term b)(1)a and the condenser system is operating properly as demonstrated by the monitoring and recordkeeping in terms d)(2)-(3).

This emission limitation is more stringent than the limitation pursuant to OAC rule 3745-17-11 of 54.0 lbs PE/hr, as shown below:

5.85 ton/yr $PM_{2.5}$ ÷ 0.74 = 7.91 ton/yr PM x 2000 lbs/ton = 15820 lb/yr

15820 lb/yr PM ÷ 4161 heats/year ÷ (101 min/heat ÷ 60 min/hr) =

= 2.26 lb PM/hr < 54.0 lb PE/hr

d. <u>Emission Limitation:</u>

524.3 lbs SO_2/hr

<u>Applicable Compliance Method</u>

i. Process weight rate (P): Per OAC rule 3745-18-01, process weight includes all materials introduced into source operation, excluded gaseous fuels. This definition is not limited to the materials contributing to the generation of SO_2 emissions. Therefore, P for P124 was calculated from the application information as follows:

SO_2 from non-leaded steel heats.

220 tons/heat and 101 min/heat; 101 min * 60 min/hr = 1.683 hrs/heat.

220 tons/heat ÷ 1.683 hrs/heat = 131 tons/hr

ii. The limit from OAC rule 3745-18-06(E)(1) was calculated as follows:

AER = $20(P)^{0.67}$ = $20(131)^{0.67}$ = 524.3 lbs SO_2/hr

iii. The limit from OAC rule 3745-18-82(A)(3) was calculated as follows:

Limit = 80.0 pounds SO_2 per ton process weight input

80 lb/ton * 131 tons/hr = 10,480 lbs SO_2/hr

iv. The limit from OAC rule 3745-18-06 is more stringent than from OAC rule 3745-18-82, so it is the applicable limit for P124. It is less stringent than the limit of 3.3 lbs/hr pursuant to OAC rule 3745-31-05(D). Therefore, compliance is assumed as long as compliance is demonstrated with the 3.3 lbs/hr limitation.

e. Emission Limitation:

Particulate emissions (PE) shall not exceed 54.0 pounds per hour

Applicable Compliance Method

From OAC rule 3745-17-11 Table 1:

Process Weight Rate (PWR) = (220 T /heat) (heat / 101 mins) (60 mins/hr)/ heat)

= 131 tons per hour

$PE = 55.0\ (P)^{0.11} - 40.0$

$= 55.0\ (131)^{0.11} - 40.0 = 54.0$ pounds per hour

This limitation is less stringent than the limit of 5.85 tons/yr pursuant to OAC rule 3745-31-05(F) as shown in f)(1)c. above. Therefore, compliance is assumed as long as compliance is demonstrated with the 5.85 tons/yr limitation.

f. Emission Limitation:

The condenser system shall be designed to have a $PM_{2.5}$ emissions removal efficiency of 99.0%.

The condenser system shall have a SO_2 emissions removal efficiency of 98%.

Applicable Compliance Method

The condenser removal efficiency was provided as the manufacturer's specification for the design of the system as supplied by facility in permit application for PTI 15-1093 and has not been changed.

Ongoing compliance with the efficiency limitation is assumed provided compliance of condenser system functioning in accordance with manufacturer specification is demonstrated according to the monitoring and recordkeeping listed in terms d)(2)-(3).

g. Emission Limitation:

CO 0.38 lb/hr & 0.87 tpy from the condenser stack.

Applicable Compliance Method

The emission limitation was established in the previous PTI 15-1093 and is based on the following calculation. A typographical error was found in the lb/hr limitation so this limitation was administratively modified to fix this error as part of this permit action.

CO emission rate = 0.25 lb/heat (Manufacturer's specification)

CO emission factor = CO Emission rate (lb/heat) / heat size (ton/heat)

= 0.25 lb/heat / 160 ton/heat

= 0.0016 lb/ton

CO lb/hr = CO emission rate lb/heat x heat/hr

= 0.25 lb/heat x [1 heat / (40 mins / 60 (min/hr)] = 0.25 x 1.5

= 0.375 lb/hr ≈ 0.38 lb/hr

CO TPY = (CO emission factor x max steel tons/hr x 8760 hrs/yr) / 2000lb/ton

= (0.0016 x 124.5 tph x 8760 hr/yr) / (2000 lb/T)

= 0.873 TPY ≈ 0.87 TPY

Actual emissions can be calculated by substituting the above process variables with actual process conditions.

Ongoing compliance with the CO limitation is assumed provided compliance of condenser system functioning in accordance with manufacturer specification is demonstrated according to the monitoring and recordkeeping listed in terms d)(2)-(3).

h. Emission Limitation:

Visible particulate emissions from the stacks serving this emissions unit shall not exceed 20 percent opacity as a six-minute average, except as provided by rule.

Applicable Compliance Method

If required, compliance with the visible PE limitation shall be demonstrated with the results of visible emission observations performed in accordance with 40 CFR Part 60, Appendix A, Method 9.

i. Emission Limitation:

Visible particulate emissions from any fugitive dust source shall not exceed 20% opacity as a 3-minute average.

Applicable Compliance Method

If required, compliance with the limitation for visible emissions of fugitive dust shall be determined through visible emissions observations performed in accordance U.S. EPA Method 9 and the procedures specified in OAC rule 3745-17-03(B)(3).

j. Operational Restriction:

The quantity of lead added to P124 to process leaded steel shall be restricted to 1,293 lbs/heat, as a rolling 12-month average.

Applicable Compliance Method

The operational restriction was established based on the average pounds lead added calculated from the data provided in the permit application for the lead mass balance emissions, which are based on actual production and lead addition values during previous trial operations.

Ongoing compliance with the lead addition limitation above is demonstrated through the monitoring and recordkeeping listed in term d)(1)s.

k. Operational Restriction:

Sulfur shall not be added in excess of 283.2 tons per year, based on a rolling, 365-day daily average.

Applicable Compliance Method

The operational restriction was established in the previous PTI 15-1093 to limit the total SO_2 emissions from the project to less than the PSD thresholds. A typographical error was found in the operational restriction value so this value was administratively modified to fix this error as part of this permit action.

Ongoing compliance with the sulfur addition limitation above is demonstrated through the monitoring and recordkeeping listed in terms d)(6).

g) Miscellaneous Requirements

(1) Modeling to demonstrate compliance with, the “Toxic Air Contaminant Statute”, ORC 3704.03(F)(4)(b), was not necessary because the emissions unit’s maximum annual emissions for each toxic air contaminant, as defined in OAC rule 3745-114-01, will be less than 1.0 ton per year, taking into account the federally enforceable restrictions pursuant to OAC rule 3745-31-05(D). OAC Chapter 3745-31 requires a permittee to apply for and obtain a new or modified permit-to-install (PTI) prior to making a "modification" as defined by OAC rule 3745-31-01. The permittee is hereby advised that changes in the composition of the materials, or use of new materials that would cause the emissions of any toxic air contaminant to increase to above 1.0 ton per year may require the permittee to apply for and obtain a new PTI.

(2) Due to the federally enforceable restrictions pursuant to OAC rule 3745-31-05(D) above, the permittee has successfully avoided the requirements to perform state modeling for lead. However, the permittee has triggered the requirement to conduct lead ambient air monitoring and is subject to the requirements listed in term B.3. of this permit.

2. P125, CBCF Continuous Caster

Operations, Property and/or Equipment Description:

Continuous Bloom Casting Facility (CBCF) Continuous Caster and associated equipment, includes tundish nozzle heater (0.235 mmBtu/hr natural gas fired), ladle emissions during casting, e-ladle episodes, casting emissions from tundish, and casting torch cutoff (2,460 cf/hr natural gas used). Emissions escape as fugitive within the CBCF building. Fugitive emissions from the movement/transfer of the covered ladle from one location to another are associated with separate EU, F010 CBCF Ladle Transfer. CBCF Tundish preheaters and dryers are separate EUs (P150, P151, P171, P172 and P173) issued under PTI 15-1340. This EU is modified per P0120406 to include production of leaded and non-leaded steels.

a) For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) b)(2)k.

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(D) [Federally enforceable limitations to avoid PSD and State Modeling requirements established in this permit]	The following limitations apply to F010, P124 and P125, as combined total emissions: Lead (Pb) emissions from these emissions units combined shall not exceed 0.599 tons per year (tpy) (stack and fugitive combined), based upon a rolling, 365-day summation of daily emissions. See b)(2)a., b)(2)e., and b)(2)f.
b.	OAC rule 3745-18-06(E)(1) OAC rule 3745-18-82	Exempt. See b)(2)c.
c.	OAC rule 3745-17-11(B)	Exempt. See b)(2)b.
d.	OAC rule 3745-17-08(B)	The permittee shall minimize or eliminate visible fugitive particulate through the employment of reasonably available

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		control measures (RACM). See b)(2)k and b)(2)l.
e.	OAC rule 3745-17-07(A)	Exempt. See b)(2)d.
f.	OAC rule 3745-17-07(B)	Visible particulate emissions from any fugitive dust source shall not exceed 20% opacity as a 3-minute average.
g.	OAC rule 3745-31-05(F) June 30, 2008 [Voluntary restrictions as proposed by the permittee to be federally enforceable]	$PM_{2.5}$ emissions from this emissions unit shall not exceed 13.42 tons per year (tpy) (fugitive only). See b)(2)a., b)(2)h., b)(2)l., and c)(3).
h.	OAC rule 3745-31-05(A)(3) June 30, 2008 [Chapter 31 modification to Best Available Technology (BAT) originally established in PTI 15-1093 issued on 12/22/1993; BAT for pollutants less than 10 TPY]	Best Available Technology (BAT) requirements for Pbemissions under this rule for P125 have been determined to be compliance with the annual emission limitations for Pb as established pursuant to OAC rule 3745-31-05(D). See b)(2)i.
i.	OAC rule 3745-31-05(A)(3) June 30, 2008 [Chapter 31 modification to Best Available Technology (BAT) originally established in PTI 15-1093 issued on 12/22/1993; BAT for pollutants greater than 10 TPY]	Best Available Technology (BAT) requirements for the control of $PM_{2.5}$ emissions under this rule for P125 have been determined to be compliance with the work practices listed in term b)(2)l and c)(3).
j.	OAC rule 3745-31-05(A)(3) October 8, 1993 [Administrative modification to Best Available Technology (BAT) originally established in PTI 15-1093 issued on 12/22/1993; using BAT policies that existed in 1993]	Nitrogen oxides (NOx) emissions shall not exceed 0.10 lb/mmbtu and 1.18 tons per year (tpy) For the control of NOx, the emissions unit shall only use natural gas as fuel. See b)(2)g. and b)(2)h.
k.	OAC rule 3745-31-05(A)(3)(a)(ii) June 30, 2008 [Less than 10 TPY BAT exemption]	See b)(2)j.

(2) Additional Terms and Conditions

a. This permit allows for the following operational scenarios:

i. Production of leaded steel with lead inoculation occurring at the CBCF VTD (P124) via wire feed alloy and casting/cutting occurring at the CBCF Continuous Caster (P125).

ii. Production of leaded steel and/or non-leaded steel with sulfur inoculation occurring at the CBCF VTD (P124) via wire feed alloy and casting/cutting occurring at the CBCF Continuous Caster (P125).

iii. Production of non-leaded steel with non-lead and non-sulfur alloy addition and processing occurring at the CBCF VTD (P124) and casting/cutting occurring at the CBCF Continuous Caster (P125).

b. This emission unit is exempt from the emission limitations in OAC rule 3745-17-11(B) pursuant to OAC rule 3745-17-11(A)(1)f. since it is a fugitive dust source subject to the rules in OAC rule 3745-17-08.

c. The burning of natural gas is the only source of sulfur dioxide from this emissions unit. Pursuant to OAC rule 3745-18-06(C), this emissions unit is exempt from OAC rules 3745-18-06(E) and 3745-18-82 because the process weight input (excludes gaseous fuels) that causes any emissions of sulfur dioxide is equal to zero, which is less than 1,000 lbs/hour.

d. This emission unit is exempt from the opacity limitations in OAC rule 3745-17-07(A) pursuant to OAC rule 3745-17-07(A)(3)h. since this source is not subject to mass emission limitations from the rules in OAC rule 3745-17-11 and 3745-17-08(B)(3)-(4).

e. This permit establishes the following federally enforceable emission limitations for the purpose of limiting potential to emit (PTE) for Lead (Pb). The PTE is being restricted such that the emission increase for Pb allowed for in this Chapter 31 modification (PTI P0120406) will be below the Prevention of Significant Deterioration (PSD) “significant threshold” applicability level of 0.6 tpy for Lead. The federally enforceable emission limitations for Lead are the following:

i. Production of leaded steel processed in F010, P124 and P125 combined shall be restricted such that no 365-day rolling total for Lead exceeds the emission limit listed in b)(1)a. above.

ii. Implementation of the work practices listed in b)(2)l during leaded steel production.

iii. The quantity of lead added to P124 to process leaded steel shall be restricted to 1,293 lbs/heat, as a rolling 12-month average.

f. To ensure enforceability during the first 12 calendar months following the issuance of this permit of term b)(2)e.i, the permittee shall not exceed the following emission levels specified in the following table:

Months	Maximum Allowable Cumulative Lead (Pb) Emissions (tons)
1	0.05
1-2	0.10

1-3	0.15
1-4	0.20
1-5	0.25
1-6	0.30
1-7	0.35
1-8	0.40
1-9	0.45
1-10	0.50
1-11	0.55
1-12	0.599

g. The uncontrolled potential emissions of carbon monoxide (CO), sulfur dioxide (SO_2) and volatile organic compounds (VOC) from this emissions unit are negligible (less than 1.0 ton/year), and therefore emissions limits for these pollutants have not been established.

h. The emissions limitations for $PM_{2.5}$ and NOx are based on the emission unit's potential to emit. Therefore, no monitoring, record keeping, and reporting requirements are necessary to ensure ongoing compliance with these emissions limitations.

i. The Best Available Technology (BAT) requirements for Pb in b)(1)h. above apply until U.S. EPA approves Ohio Administrative Code (OAC) paragraph 3745-31-05(A)(3)(a)(ii) (the less than 10 tons per year BAT exemption) into the Ohio State Implementation Plan (SIP).

j. The exemption described below and referenced in b)(1)k. above applies once U.S. EPA approves OAC paragraph 3745-31-05(A)(3)(a)(ii) (the less than 10 tons per year BAT exemption) as part of the Ohio SIP).

   i. The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the emissions of Pb from the emissions units in this emissions unit since the potential to emit is less than ten tons per year, taking into account the federally enforceable restriction on emissions pursuant to OAC rule 3745-31-05(D).

k. The fugitive dust operations that are covered by this permit and subject to the requirements of OAC rules 3745-17-07 and 3745-17-08 include, but not limited to:

   i. Emissions from covered ladle while on rotation stand at caster and rotation into and out of the casting position at caster (on rotation stand).

   ii. E-ladle episodes: When casting process “freezes” causes the molten metal flow to cease from ladle, the ladle is moved from the rotation stand

to a nearby empty ladle. The emissions occur when the ladle nozzle shroud is removed and an oxygen lance is used to remove the plug, then the molten steel is tested for flow out of the ladle without the shroud into the empty ladle.

iii. Emissions from tundish during molten metal casting

iv. Emissions from torch cutting cast metal lengths

v. Emissions from covered ladle top and at molten metal pouring point during molten metal pouring/transfer to tundish

vi. Emissions from the casting tundish nozzle heater

l. The permittee shall employ reasonably available control measures for the above-identified fugitive dust operations for the purpose of ensuring compliance with the above-mentioned applicable requirements. In accordance with the permittee's application, the permittee has committed to perform the following control measures to ensure compliance during any time this emission unit is in operation:

i. Use of ladle cover while ladle is on rotation stand at caster.

ii. Use of ladle cover during molten metal pouring into tundish;

iii. Use of enclosed ladle nozzle (i.e. shroud) attached to the ladle and lowered into the tundish opening during molten metal pouring; use of tundish cover during molten metal pouring or holding; use of shrouds that surround the molten metal streams at tundish nozzles during molten metal pouring into caster mold tray.

iv. Use of molten metal bottom pouring from ladle only (no top pouring).

v. For leaded steel production only: Use of diaper that surrounds tundish opening during molten metal pouring from ladle into tundish;

vi. Nozzle heater: Use of natural gas only as fuel

vii. Torch cutting: Use of natural gas only as fuel and use of water sprays.

viii. E-ladle episodes: minimize emissions from e-ladle episodes by limiting the number of episodes per year according to term c)(3).

ix. Perform all operations within a building

Nothing in this paragraph shall prohibit the permittee from employing other control measures to ensure compliance.

c) Operational Restrictions

(1) Leaded steel processed in P125 shall be restricted per b)(2)a. and b)(2)e.

(2) The permittee shall conduct all lead inoculation of steel at the P124 VTD process only for the CBCF production area by wire type alloy only. The permittee shall not conduct lead inoculation of steel at the P125 Caster tundish.

(3) The permittee shall limit the amount of steel processed by emergency ladle (e-ladle) episodes of leaded steel to 227 tons per year and of non-leaded steel to 2,497 tons per year.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall collect and record the following information each day that leaded steel is processed in F010, P124 and/or P125:

a. the date(s) that leaded steel is processed from heat record tap date field;

b. the heat number(s) associated with the leaded steel processed from heat record (Furnace Data heat field);

c. the grade(s) of leaded steel processed from heat record (Furnace Data heat field);

d. the heat weight of leaded steel processed, in pounds, at tundish from heat record (Production Total Wgt field);

e. the weight of actual lead coil added in pounds from LMF/ Degas heat log production sheet (wire after degas pounds field (alloy field = pb));

f. the calculated amount of lead added in pounds for the heat (i.e. the pounds of lead coil added from ‘e’ multiplied by the weight percent (expressed as a decimal fraction) of lead in the coil, which is currently 93%*);

*See term C.1.d)(8) for P124

g. the calculated lead concentration in the heat in weight percent (i.e. the pounds of lead added from ‘f’ divided by the pounds of heat weight from ‘d’, then multiplied by 100);

h. the lab measured lead concentration in molten metal at the VTD in weight percent, from heat record (last EARLY row, Pb column field);

i. the lab measured lead concentration in molten metal at the tundish in weight percent, from heat record (TUND-2 row, Pb column field), which is same as value used for final steel product analysis;

j. the quantity of lead in the steel final bloom or billet product using the VTD concentration, in pounds (i.e. the pounds of heat weight from ‘d’ multiplied by the VTD weight percent (expressed as a decimal fraction) of lead from ‘h’);

k. the quantity of lead in the steel final bloom or billet product using the tundish concentration, in pounds (i.e. the pounds of heat weight from ‘d’ multiplied by the tundish weight percent (expressed as a decimal fraction) of lead from ‘i’);

l. the quantity of lead lost using the VTD concentration, in pounds (i.e. the pounds of lead added to steel from 'f' minus the pounds of lead in steal using the VTD concentration from 'j');

m. the quantity of lead emitted during the process from lead inoculation through tundish, based on VTD concentration and applying 98.522%** overall control efficiency (i.e. the pounds of lead lost using VTD from 'l' multiplied by [1 - 0.98522]);

**This is the overall control efficiency attributed to F010, P124 and P125 combined with their combined control measures.

n. the quantity of lead lost using the tundish concentration, in pounds (i.e. the pounds of lead added to steel from 'f' minus the pounds of lead in steal using the VTD concentration from 'k');

o. the quantity of lead emitted during the process from lead inoculation through tundish, based on tundish concentration and applying 98.522% overall control efficiency, in pounds (i.e. the pounds of lead lost using tundish from 'n' multiplied by [1 - 0.98522]);

p. the worst case lead emitted, in pounds, during the process from lead inoculation through tundish, for each heat (i.e. the higher of m. or o.);

q. the total daily lead emitted, in tons, based on lead mass balance calculation (i.e. the summation of the all values from 'p' of the heats for the day, in pounds, converted to tons by dividing by 2000 lbs/ton);

r. the rolling, 365-day summation of the lead emitted from F010, P124 and P125 combined, in tons (i.e. the summation of the tons from 'q' and the previous 364 daily emissions, and added to 0.00576*** tons/year from other process activities from these EUs); and

***Basis for this value is detailed in term f)(1)a.

s. the rolling, 12 month average of the lead amount added per heat to P124, in pounds, to process leaded steel (i.e. the summation of the pounds/heat from 'f' for 12 months divided by the number of leaded steel heats for those 12 months).

(2) The permittee shall maintain records of:

a. the date of each emergency ladle (e-ladle) episode;

b. and the grade of steel processed (with identification if it is leaded or non-leaded grade); and

c. the total amount of steel processed to e-ladle (in tons/heat and the summation for tons/yr for leaded and non-leaded steel processed).

(3) The permittee shall perform checks per the frequency specified in term d)(4) below, when the emissions unit is in operation (for any steel production) and when the weather conditions allow, for any visible fugitive particulate emissions from any non-stack egress point (e.g. windows, wall vent, doors, roof monitors, etc.) serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:

a. the color of the emissions;

b. whether the emissions are representative of normal operations;

c. if the emissions are not representative of normal operations, the cause of the abnormal emissions;

d. the total duration of any visible emissions incident; and

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

If visible emissions are present, a visible emissions incident has occurred. The observer does not have to document the exact start and end times for the visible emissions incident under item (d) above or continue the check until the incident has ended. The observer may indicate that the visible emissions incident was continuous during the observation period (or, if known, continuous during the operation of the emissions unit). With respect to the documentation of corrective actions, the observer may indicate that no corrective actions were taken if the visible emissions were representative of normal operations, or specify the minor corrective actions that were taken to ensure that the emissions unit continued to operate under normal conditions, or specify the corrective actions that were taken to eliminate abnormal visible emissions.

(4) The checks required by term d)(3) above shall be performed in accordance with the following frequency schedule:

a. Daily: Perform once per day, on each day the emissions unit is in operation, during the time the emissions unit is operating;

b. Weekly: If no visible emissions are detected from the stack and fugitive egress points in 10 consecutive daily checks performed per “a”, the permittee may decrease the frequency to conduct the checks once every 5 days of operation of the emission unit (one calendar week). If visible stack or fugitive emissions are detected during these checks, the permittee must resume the checks per the frequency in “a”;

c. Monthly: If no visible emissions are detected from the stack and fugitive egress points in 4 consecutive weekly checks performed per “b”, the permittee may decrease the frequency to conduct the checks once every 21 days of operation of the emission unit (one calendar month). If visible stack or fugitive emissions are detected during these checks, the permittee must resume the checks per the frequency in “b”.

(5) The permittee shall maintain records that specify any time that the work practices listed in term b)(2)l. were not implemented.

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports, which identify all exceedances of the following, at a minimum:

a. the rolling, 365-day restriction on total lead emissions for F010, P124 and P125 combined; and

b. the limit of the amount of steel processed by emergency ladle (e-ladle) episodes listed in term c)(3).

These quarterly deviation reports shall be submitted in accordance with the Part A Standard Terms and Conditions of this permit along with any deviations that are not specified above. If no deviations/excursions occurred during the period, the report shall so state that no deviations occurred during the reporting period.

(2) The permittee shall submit semi-annual written reports that identify the following information concerning the operation of the emissions unit, at a minimum:

a. each day during which the work practices listed in term b)(2)l. were not implemented;

b. each day during which any visible fugitive particulate emissions were observed from the non-stack egress points; and

c. the corrective actions, if any, taken to eliminate the visible particulate emissions.

The semi-annual deviation reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit. If no deviations/excursions occurred during the 6-month period, the report shall so state that no deviations occurred during the reporting period.

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 Limitation:</u>

Lead (Pb) from F010, P124 and P125 combined shall not exceed 0.599 tons per year (tpy) (stack and fugitive combined), based upon a rolling, 365-day summation of daily emissions.

Applicable Compliance Method:

The lead emission limitation for F010, P124 and P125 combined was established based on the following calculation methods as provided in the permit application and adjusted by the permit writer during permit development:

0.59324 tons/year (tpy) for the sum of the contributions of lead emissions from the VTD degassing (P124), Ladle transfer (F010), e-ladle (P125), casting tundish (P125), and casting ladle (P125) activities calculated as a lead mass balance of emissions. The details of how the lead mass balance shall be calculated on an ongoing basis is specified in term d)(1) above. The details of how the lead mass balance emissions were estimated for the setting of the lead emission limit are included in the permit application and are based on actual production and concentration measurement values during previous trial operations.

0.00576 tons/year for the sum of the contributions of lead emissions from other process activities from these EUs F010, P124, and P125, as detailed below:

0.000000489 tpy for the contribution of tundish nozzle heater (P125) natural gas combustion emissions using AP-42 emission factors for natural gas combustion (7.6 lb/mmcf) and a maximum heat input of 235,000 BTU/hr.

0.00504 tpy for the contribution of torch cutoff (P125) emissions using the PM filterable AP-42 12.5-1-1 emission factor (adjusted for control efficiency of 90% for water sprays, increased PM for leaded steel processing and to include condensable particulate to get 0.055 lb/ton), a max % Pb in leaded steel of 0.35%, and an estimated restricted throughput of 52,671 tons per year of leaded steel production.

0.000506 tpy for the contribution of tundish cooling (Z231) emissions using the PM emission factor from USS/Kobe Study total dust from tundish cooling (adjusted to include condensable particulate to get 0.0055 lb/ton), a max % Pb in leaded steel of 0.35%, and an estimated restricted throughput of 52,671 tons per year of leaded steel production.

0.000078 tpy for the contribution of tundish dump (Z231) emissions using a similar operation PM AP-42 11.24 emission factor for metallic mineral processing of 0.51 lb/ton, and a max % Pb in leaded steel of 0.35%, and an estimated restricted throughput of 88 tons/yr material dumped based on 52,671 tons per year of leaded steel production.

0.000135 tpy for the contribution of Chem Lab Sample Grinder (P127) emissions when processing leaded steel samples using control device emission flow rate (0.01 grains PM/dscf) multiplied by outlet grain loading (2000 scfm), a max % Pb in leaded steel of 0.35%, and an estimated restricted 449 operating hours/year based on 52,671 tons per year of leaded steel production.

Total other process activities equals: 0.000000543 + 0.00412 + 0.000413 + 0.000064 + 0.00263 = 0.0072275 ≈ 0.00723

Pb Limitation becomes: 0.59324 + 0.00576 = 0.59897 ≈ 0.599 tpy

Actual emissions can be calculated by substituting the above process variables with actual process conditions.

Ongoing compliance with the lead emission limitation is assumed provided compliance is demonstrated with the operational restrictions listed in terms c)(1)-(2) through the monitoring and recordkeeping listed in term d)(1).

b. Emission Limitation:

$PM_{2.5}$ emissions from this emissions unit shall not exceed 13.42 tons per year (tpy) (fugitive only)

Applicable Compliance Method:

The emission limitation was established by using the following calculation methods as provided in the permit application and adjusted by the permit writer during permit development.

The $PM_{2.5}$ emissions were calculated for each process activity for the emission unit P125 during the production of both leaded and non-leaded steel for the three different operational scenarios allowed by term b)(2)a. The scenario that produced the highest $PM_{2.5}$ emissions is when the leaded steel production was the highest possible. To calculate the emissions from that scenario, the average amount of lead emissions per heat (provided in application) was adjusted by about one standard deviation to determine maximum amount of leaded steel production projected while remaining under emission PSD thresholds for both Pb and $PM_{2.5}$, which was estimated to be 81,171 tons per year.

Using that annual leaded steel production rate and the balance of non-leaded steel production, emissions were calculated from the process activities for P125 based on the following information:

i. E-Ladle Episodes:

Total leaded steel processed as e-ladle episode: 227 tons/year (set as operational restriction term c)(3)) based on the annual leaded steel production and facility operational data.

Total non-leaded steel processed as e-ladle episode: 2497 tons/year (set as operational restriction term c)(3)) based on the balance annual non-leaded steel production and facility operational data.

Emission factor leaded steel: 4.10 lb PM/ton uncontrolled ladle heating and transfer emission factor from AP-42 12.5.1-1 adjusted to include processing leaded steel and condensable particulate. No reduction

applied for control measures. $PM_{2.5}$ estimated at 43% of PM based on AP-42 12.5-2 EAF uncontrolled particle sizing distribution.

Emission factor non-leaded steel: 0.35 lb PM/ton uncontrolled ladle heating and transfer emission factor from AP-42 12.5.1-1 adjusted to include condensable particulate. No reduction applied for control measures. $PM_{2.5}$ estimated at 43% of PM based on AP-42 12.5-2 EAF uncontrolled particle sizing distribution.

$PM_{2.5}$ emissions: [(4.10 lb PM/ton x 227 tons/yr) + (0.35 lb PM/ton x 2497 tons/yr] x 0.43 ÷ 2000 lbs/ton = 0.3880 ≈ 0.388 tons $PM_{2.5}$/yr

ii. Casting: emissions from ladle top and tundish during active molten metal transfer in to and out of tundish during casting:

Highest leaded steel production estimate: 81,171 tons/year

Balance non-leaded steel production estimate: 996,700 tons/year maximum potential production minus leaded steel production estimate = 996700 - 81171 = 915,529 non-leaded steel tons/year

Emission factor leaded steel: 0.24 lb PM/ton controlled based on uncontrolled leaded steel teeming emission factor from AP-42 12.5-1 adjusted to include condensable particulate and reduced for 90% efficient control measures. $PM_{2.5}$ estimated at 43% of PM based on AP-42 12.5-2 EAF uncontrolled particle sizing distribution.

Emission factor non-leaded steel: 0.031 lb PM/ton controlled based on uncontrolled non-leaded steel teeming emission factor from AP-42 12.5-1 adjusted to include condensable particulate and reduced for 85% efficient control measures. $PM_{2.5}$ estimated at 43% of PM based on AP-42 12.5-2 EAF uncontrolled particle sizing distribution.

$PM_{2.5}$ emissions: [(0.24 lb PM/ton x 81,171 tons/yr) + (0.031 lb PM/ton x 915,529 tons/yr] x 0.43 ÷ 2000 lbs/ton = 10.2904 ≈ 10.290 tons $PM_{2.5}$/yr

iii. Tundish Nozzle Heater (emissions from natural gas combustion only):

Natural gas maximum heat input: 235,000 btu/hr. This was converted to cf/hr by dividing by the heating value of natural gas (1000 Btu/scf) to get 235 cf/hr. This was then converted to get 0.000235 mmcf/hr

Emission factor: 7.60 lb/mmcf for total $PM_{2.5}$ based on the summation of the filterable particulate (less than 1 micron size) and condensable particulate factors from AP-42 1.4-1.

$PM_{2.5}$ emissions: 0.000235 mmcf/hr x 7.60 lb/mmcf x 8760 hrs/yr ÷ 2000 lb/ton = 0.007823 ≈ 0.008 tons/yr

iv. Torch Cutting:

Highest leaded steel production estimate: 81,171 tons/year

Balance non-leaded steel production estimate: 915,529 tons/year

Emission factor leaded steel: 0.055 lb PM/ton controlled based on uncontrolled billet cutting torches emission factor from AP-42 12.5.1-1 adjusted to include leaded steel processing, condensable particulate and reduced for 90% efficient water spray control measures. $PM_{2.5}$ estimated at 43% of PM based on AP-42 12.5-2 EAF uncontrolled particle sizing distribution.

Emission factor non-leaded steel: 0.009 lb PM/ton controlled based on uncontrolled billet cutting torches emission factor from AP-42 12.5.1-1 adjusted to include condensable particulate and reduced for 90% efficient water spray control measures. $PM_{2.5}$ estimated at 43% of PM based on AP-42 12.5-2 EAF uncontrolled particle sizing distribution.

$PM_{2.5}$ emissions: [(0.055 lb PM/ton x 81,171 tons/yr) + (0.009 lb PM/ton x 915,529 tons/yr] x 0.43 ÷ 2000 lbs/ton = 2.7314 ≈ 2.731 tons $PM_{2.5}$/yr

v. Emission limitation becomes: 0.388 + 10.290 + 0.008 + 2.731 = 13.417 ≈ 13.42 ton/yr

Actual emissions can be calculated by substituting the above process variables with actual process conditions.

Since the above emission limit is based on potential to emit emission factors, the implementation of the work practices and the restricted leaded steel production, compliance is assumed provided compliance is demonstrated with the Pb emission limitation listed in term b)(1)a and the implementation of the work practices listed in b)(2)l. as demonstrated by the monitoring and recordkeeping in terms d)(2) and d)(5).

c. Emission Limitation:

Nitrogen oxides (NOx) emissions shall not exceed 0.10 lb/mmbtu and 1.18 tons per year (tpy)

Applicable Compliance Method:

The emission limitation was established in the previous PTI 15-1093. The limitation was administratively modified as part of this permit action to remove other NOx emitting sources (tundish preheaters and dryers EU IDs P150, P151, P171, P172 and P173) which were previously considered part of this emission unit but have since been separated as their own emission units as part of the PTI 15-1340 permit action. The emission limitation was updated is based on the following calculation:

The lb/mmbtu limitation is equal to the 100 lb/mmcf emission factor specified by USEPA reference document AP-42, Fifth Edition, Compilation of Air Pollution Emission Factors, Section 1.4 Table 1.4-1 (7/98) and converted to lb/mmbtu by dividing by the heating value of natural gas (1000 Btu/scf). The annual limitation uses the lb/mmbtu limitation multiplied by the summation of the maximum natural gas heat input for torch cutting (2,460 cf/hr converted to 2.46 mmbtu/hr) and tundish nozzle heater (0.235 mmbtu/hr) then converted to tons/year as follows:

(2.46 mmbtu/hr + 0.235 mmbtu/hr) x 0.10 lb/mmbtu x 8760 hrs/yr ÷ 2000 lb/ton =

=1.18 tons NOx/yr

Actual emissions can be calculated by substituting the above process variables with actual process conditions.

Compliance is assumed since the emission limitation was set equal to the maximum potential to emit for this emission unit provided compliance is demonstrated with the work practices required by b)(2)l through the monitoring and recordkeeping per d)(5).

d. Emission Limitation:

Visible particulate emissions from any fugitive dust source shall not exceed 20% opacity as a 3-minute average

Applicable Compliance Method:

If required, compliance with the limitation for visible emissions of fugitive dust shall be determined through visible emissions observations performed in accordance U.S. EPA Method 9 and the procedures specified in OAC rule 3745-17-03(B)(3).

e. Operational Restriction:

The permittee shall limit the amount of steel processed by emergency ladle (e-ladle) episodes of leaded steel to 227 tons per year and of non-leaded steel to 2,497 tons per year.

Applicable Compliance Method:

The operational restriction was established so that the $PM_{2.5}$ emissions would be limited to within the $PM_{2.5}$ emission limitation. The throughput values for the restriction were determined by using the same method as for the $PM_{2.5}$ emission limitation specified in f)(1)b. and are based on the operational scenario that produced the highest $PM_{2.5}$ emissions of when the leaded steel production was the highest possible with the balance of the maximum annual production as non-leaded steel. The throughput values are based on the calculation methods as provided in the permit application for that operational scenario based on facility operational data.

Ongoing compliance with the restriction above is demonstrated through the monitoring and recordkeeping listed in terms d)(2).

f. Operational Restriction:

The quantity of lead added to P124 to process leaded steel shall be restricted to 1,293 lbs/heat, as a rolling 12-month average.

Applicable Compliance Method:

See permit terms for P124 for compliance method.

g) Miscellaneous Requirements

(1) Modeling to demonstrate compliance with, the "Toxic Air Contaminant Statute", ORC 3704.03(F)(4)(b), was not necessary because the emissions unit's maximum annual emissions for each toxic air contaminant, as defined in OAC rule 3745-114-01, will be less than 1.0 ton per year, taking into account the federally enforceable restrictions pursuant to OAC rule 3745-31-05(D). OAC Chapter 3745-31 requires a permittee to apply for and obtain a new or modified permit-to-install (PTI) prior to making a "modification" as defined by OAC rule 3745-31-01. The permittee is hereby advised that changes in the composition of the materials, or use of new materials that would cause the emissions of any toxic air contaminant to increase to above 1.0 ton per year may require the permittee to apply for and obtain a new PTI.

(2) Due to the federally enforceable restrictions pursuant to OAC rule 3745-31-05(D) above, the permittee has successfully avoided there requirements to perform state modeling for lead. However, the permittee has triggered the requirement to conduct lead ambient air monitoring and is subject to the requirements listed in term B.3. of this permit.

3. F010, CBCF Ladle Transfer

Operations, Property and/or Equipment Description:

Fugitive emissions from molten metal stored in the ladle during ladle transfer (i.e. movement) within the CBCF building for CBCF processes. Includes the moving/transfer of the ladle from the transfer car to the CBCF LMF (P123), CBCF LMF to the CBCF slag rake (Z233), CBCF slag rake to the CBCF VTD (P124), CBCF VTD to CBCF Caster/Tundish (P125), and from CBCF Caster/Tundish to the Ladle dump (P158) (until outside of CBCF building).

a) For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) b)(2)i.

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(D) [Federally enforceable limitations to avoid PSD and State Modeling requirements established in this permit]	The following limitations apply to F010, P124 and P125, as combined total emissions: Lead (Pb) emissions from these emissions units combined shall not exceed 0.599 tons per year (tpy) (stack and fugitive combined), based upon a rolling, 365-day summation of daily emissions. See b)(2)d. and b)(2)e.
b.	OAC rule 3745-18-06(E)(1) OAC rule 3745-18-82	Exempt. See b)(2)b.
c.	OAC rule 3745-17-11(B)	Exempt. See b)(2)a.
d.	OAC rule 3745-17-08(B)	The permittee shall minimize or eliminate visible fugitive particulate through the employment of reasonably available control measures (RACM). See b)(2)i and b)(2)j.
e.	OAC rule 3745-17-07(A)	Exempt. See b)(2)c.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
f.	OAC rule 3745-17-07(B)	Visible particulate emissions from any fugitive dust source shall not exceed 20% opacity as a 3-minute average.
g.	OAC rule 3745-31-05(F) June 30, 2008 [Voluntary restrictions as proposed by the permittee to be federally enforceable]	$PM_{2.5}$ emissions from this emissions unit shall not exceed 1.99 tons per year (tpy) (fugitive only). See b)(2)f., b)(2)j. and c)(2).
h.	OAC rule 3745-31-05(A)(3) June 30, 2008 [Chapter 31 modification for existing permit exempt sources that trigger permit requirements and Best Available Technology (BAT) requirements for pollutants less than 10 TPY]	Best Available Technology (BAT) requirements for Pbemissions under this rule for F010 have been determined to be compliance with the annual emission limitations for Pb as established pursuant to OAC rule 3745-31-05(D). Best Available Technology (BAT) requirements for the control of $PM_{2.5}$ emissions under this rule for F010 have been determined to be compliance with the work practices listed in term b)(2)j and c)(2). See b)(2)g.
i.	OAC rule 3745-31-05(A)(3)(a)(ii) June 30, 2008 [Less than 10 TPY BAT exemption]	See b)(2)h.

(2) Additional Terms and Conditions

a. This emission unit is exempt from the emission limitations in OAC rule 3745-17-11(B) pursuant to OAC rule 3745-17-11(A)(1)f. since it is a fugitive dust source subject to the rules in OAC rule 3745-17-08.

b. There are no sources of sulfur dioxide from this emissions unit since all SO_2 emissions are assumed to have occurred at the VTD (P124) emissions unit. Pursuant to OAC rule 3745-18-06(C), this emissions unit is exempt from OAC rules 3745-18-06(E) and 3745-18-82 because the process weight input that causes any emissions of sulfur dioxide is equal to zero, which is less than 1,000 lbs/hour.

c. This emission unit is exempt from the opacity limitations in OAC rule 3745-17-07(A) pursuant to OAC rule 3745-17-07(A)(3)h. since this source is not subject to mass emission limitations from the rules in OAC rule 3745-17-11 and 3745-17-08(B)(3)-(4).

d. This permit establishes the following federally enforceable emission limitations for the purpose of limiting potential to emit (PTE) for Lead (Pb). The PTE is

being restricted such that the emission increase for Pb allowed for in this Chapter 31 modification (PTI P0120406) will be below the Prevention of Significant Deterioration (PSD) "significant threshold" applicability level of 0.6 tpy for Lead. The federally enforceable emission limitations for Lead are the following:

i. Production of leaded steel processed in F010, P124 and P125 combined shall be restricted such that no 365-day rolling total for Lead exceeds the emission limit listed in b)(1)a. above.

ii. Implementation of the work practices listed in b)(2)j during leaded steel production.

iii. The quantity of lead added to P124 to process leaded steel shall be restricted to 1,293 lbs/heat, as a rolling 12-month average.

e. To ensure enforceability during the first 12 calendar months following the issuance of this permit of term b)(2)d.i, the permittee shall not exceed the following emission levels specified in the following table:

Months	Maximum Allowable Cumulative Lead (Pb) Emissions (tons)
1	0.05
1-2	0.10
1-3	0.15
1-4	0.20
1-5	0.25
1-6	0.30
1-7	0.35
1-8	0.40
1-9	0.45
1-10	0.50
1-11	0.55
1-12	0.599

f. The emissions limitations for $PM_{2.5}$ are based on the emission unit's potential to emit. Therefore, no monitoring, record keeping, and reporting requirements are necessary to ensure ongoing compliance with these emissions limitations.

g. The Best Available Technology (BAT) requirements for $PM_{2.5}$ and Pb in b)(1)h. above apply until U.S. EPA approves Ohio Administrative Code (OAC) paragraph 3745-31-05(A)(3)(a)(ii) (the less than 10 tons per year BAT exemption) into the Ohio State Implementation Plan (SIP).

h. The exemption described below and referenced in b)(1)i. above applies once U.S. EPA approves OAC paragraph 3745-31-05(A)(3)(a)(ii) (the less than 10 tons per year BAT exemption) as part of the Ohio SIP).

i. The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the emissions of Pb from the emissions units in this Emissions Unit Group since the potential to emit is less than ten tons per year, taking into account the federally enforceable restriction on emissions pursuant to OAC rule 3745-31-05(D).

ii. The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the emissions of $PM_{2.5}$ from the emissions unit since the controlled potential to emit is less than ten tons per year and taking into account the voluntary restriction on emissions pursuant to OAC rule 3745-31-05(F).

i. The fugitive dust operations that are covered by this permit and subject to the requirements of OAC rules 3745-17-07 and 3745-17-08 include, but not limited to:

i. Emissions from molten metal within covered ladle when ladle is moved throughput CBCF building for CBCF processes. This includes movements of the ladle from the transfer car to the CBCF LMF (P123), CBCF LMF to the CBCF slag rake (Z233), CBCF slag rake to the CBCF VTD (P124), CBCF VTD to CBCF Caster/Tundish (P125), and from CBCF Caster/Tundish to the Ladle dump (P158) (until outside of CBCF building).

ii. Emissions from molten metal within ladle when the ladle cover is off when being transferred into and out of the VTD (P124) and while the VTD lid is removed.

j. The permittee shall employ reasonably available control measures for the above-identified fugitive dust operations for the purpose of ensuring compliance with the above-mentioned applicable requirements. In accordance with the permittee's application, the permittee has committed to perform the following control measures to ensure compliance during any time this emission unit is in operation:

i. Use of ladle cover during all ladle movements/transfers within the CBCF building. See term c)(2).

ii. Minimize length of time the ladle cover is off and VTD lid is off when uncovered ladle is being transferred into and out of the VTD.

iii. Perform all operations within a building.

Nothing in this paragraph shall prohibit the permittee from employing other control measures to ensure compliance.

c) Operational Restrictions

(1) Leaded steel processed in F010 shall be restricted per b)(2)d.

(2) The ladle cover shall fit the ladle appropriately to minimize emissions. The permittee shall implement a work practice plan to minimize buildup of material on the ladle lip and ladle cover so the ladle cover fits appropriately to minimize emissions.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall collect and record the following information each day that leaded steel is processed in F010, P124 and/or P125:

a. the date(s) that leaded steel is processed from heat record tap date field;

b. the heat number(s) associated with the leaded steel processed from heat record (Furnace Data heat field);

c. the grade(s) of leaded steel processed from heat record (Furnace Data heat field);

d. the heat weight of leaded steel processed, in pounds, at tundish from heat record (Production Total Wgt field);

e. the weight of actual lead coil added in pounds from LMF/ Degas heat log production sheet (wire after degas pounds field (alloy field = pb));

f. the calculated amount of lead added in pounds for the heat (i.e. the pounds of lead coil added from 'e' multiplied by the weight percent (expressed as a decimal fraction) of lead in the coil, which is currently 93%*);

*See term C.1.d)(8) for P124

g. the calculated lead concentration in the heat in weight percent (i.e. the pounds of lead added from 'f' divided by the pounds of heat weight from 'd', then multiplied by 100);

h. the lab measured lead concentration in molten metal at the VTD in weight percent, from heat record (last EARLY row, Pb column field);

i. the lab measured lead concentration in molten metal at the tundish in weight percent, from heat record (TUND-2 row, Pb column field), which is same as value used for final steel product analysis;

j. the quantity of lead in the steel final bloom or billet product using the VTD concentration, in pounds (i.e. the pounds of heat weight from 'd' multiplied by the VTD weight percent (expressed as a decimal fraction) of lead from 'h');

k. the quantity of lead in the steel final bloom or billet product using the tundish concentration, in pounds (i.e. the pounds of heat weight from 'd' multiplied by the tundish weight percent (expressed as a decimal fraction) of lead from 'i');

l. the quantity of lead lost using the VTD concentration, in pounds (i.e. the pounds of lead added to steel from 'f' minus the pounds of lead in steal using the VTD concentration from 'j');

m. the quantity of lead emitted during the process from lead inoculation through tundish, based on VTD concentration and applying 98.522%** overall control efficiency (i.e. the pounds of lead lost using VTD from 'l' multiplied by [1 - 0.98522]);

**This is the overall control efficiency attributed to F010, P124 and P125 combined with their combined control measures.

n. the quantity of lead lost using the tundish concentration, in pounds (i.e. the pounds of lead added to steel from 'f' minus the pounds of lead in steal using the VTD concentration from 'k');

o. the quantity of lead emitted during the process from lead inoculation through tundish, based on tundish concentration and applying 98.522% overall control efficiency, in pounds (i.e. the pounds of lead lost using tundish from 'n' multiplied by [1 - 0.98522]);

p. the worst case lead emitted, in pounds, during the process from lead inoculation through tundish, for each heat (i.e. the higher of m. or o.);

q. the total daily lead emitted, in tons, based on lead mass balance calculation (i.e. the summation of the all values from 'p' of the heats for the day, in pounds, converted to tons by dividing by 2000 lbs/ton);

r. the rolling, 365-day summation of the lead emitted from F010, P124 and P125 combined, in tons (i.e. the summation of the tons from 'q' and the previous 364 daily emissions, and added to 0.00576*** tons/year from other process activities from these EUs); and

***Basis for this value is detailed in term f)(1)a.

s. the rolling, 12 month average of the lead amount added per heat to P124, in pounds, to process leaded steel (i.e. the summation of the pounds/heat from 'f' for 12 months divided by the number of leaded steel heats for those 12 months).

(2) The permittee shall develop and implement a site-specific written work practice plan designed to minimize fugitive dust from the ladle by ensuring the ladle cover fits on the ladle appropriately. The work practice plan shall include, at a minimum, the following elements:

a. Identification of total number of ladles used for steel production and their unique identification numbers (if applicable)

b. A determination of the frequency that each ladle will be inspected for material buildup on the ladle lip and ladle cover interfering with appropriate fit of the ladle cover on the ladle

c. Identification of the corrective measures to be taken if material buildup is found to be interfering with appropriate fit of the ladle cover on the ladle

d. Identification of the record keeping form/record that will be used to track inspections and corrective measures. This form/record shall include, at a minimum, the following elements:

i. Ladle identification number (if applicable)

ii. Date inspected

iii. Name of employee responsible for inspection

iv. Result of the inspection (does or does not need corrective measures)

v. A description of the corrective measure implemented

vi. Date of corrective measure was implemented

vii. Name of employee responsible for corrective measure implementation

e. A description of how and where the records will be maintained. This should be in accordance with the Standard Terms and Conditions Part A of this permit.

The permittee shall submit the plan to Canton City Health Department, Air Pollution Control Division (Canton APC) for approval within 30 days of the effective date of this permit. The permittee shall begin using the plan within 30 days from the date Canton APC approved the initial plan. As needs warrant, the permittee can modify the plan without additional approval by Canton APC.

(3) The permittee shall implement and perform all the monitoring and recordkeeping as identified in the approved plan established in term d)(2).

(4) The permittee shall perform checks per the frequency specified in term d)(4) below, when the emissions unit is in operation (for any steel production) and when the weather conditions allow, for any visible fugitive particulate emissions from any non-stack egress point (e.g. windows, wall vent, doors, roof monitors, etc.) serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:

a. the color of the emissions;

b. whether the emissions are representative of normal operations;

c. if the emissions are not representative of normal operations, the cause of the abnormal emissions;

d. the total duration of any visible emissions incident; and

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

If visible emissions are present, a visible emissions incident has occurred. The observer does not have to document the exact start and end times for the visible emissions incident under item (d) above or continue the check until the incident has ended. The observer may indicate that the visible emissions incident was continuous during the observation period (or, if known, continuous during the operation of the emissions unit). With respect to the documentation of corrective actions, the observer may indicate that no corrective actions were taken if the visible emissions were representative of normal operations, or specify the minor corrective actions that were taken to ensure that the emissions unit continued to operate under normal conditions, or specify the corrective actions that were taken to eliminate abnormal visible emissions.

(5) The checks required by term d)(3) above shall be performed in accordance with the following frequency schedule:

a. Daily: Perform once per day, on each day the emissions unit is in operation, during the time the emissions unit is operating;

b. Weekly: If no visible emissions are detected from the stack and fugitive egress points in 10 consecutive daily checks performed per “a”, the permittee may decrease the frequency to conduct the checks once every 5 days of operation of the emission unit (one calendar week). If visible stack or fugitive emissions are detected during these checks, the permittee must resume the checks per the frequency in “a”;

c. Monthly: If no visible emissions are detected from the stack and fugitive egress points in 4 consecutive weekly checks performed per “b”, the permittee may decrease the frequency to conduct the checks once every 21 days of operation of the emission unit (one calendar month). If visible stack or fugitive emissions are detected during these checks, the permittee must resume the checks per the frequency in “b”.

(6) The permittee shall maintain records that specify any time that the work practices listed in term b)(2)j. were not implemented.

e) Reporting Requirements

(1) Within 30 days of the final issuance date of this permit, the permittee shall submit the proposed initial plan term per d)(2) to the Canton City Health Department, Air Pollution Control Division.

(2) The permittee shall submit quarterly deviation (excursion) reports, which identify all exceedances of the following, at a minimum:

a. the rolling, 365-day restriction on total lead emissions for F010, P124, P125, combined;

b. each day during which an inspection was not performed by the required frequency in accordance with the plan requirements in term d)(2); and

c. each instance when corrective measures that was to be implemented as a result of an inspection, was not implemented in accordance with the plan requirements in term d)(2).

These quarterly deviation reports shall be submitted in accordance with the Part A Standard Terms and Conditions of this permit along with any deviations that are not specified above. If no deviations/excursions occurred during the period, the report shall so state that no deviations occurred during the reporting period.

(3) The permittee shall submit semi-annual written reports that identify the following information concerning the operation of the emissions unit, at a minimum:

a. each day during which the work practices listed in term b)(2)j. were not implemented;

b. each day during which any visible fugitive particulate emissions were observed from the non-stack egress points; and

c. the corrective actions, if any, taken to eliminate the visible particulate emissions.

The semi-annual deviation reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit. If no deviations/excursions occurred during the 6-month period, the report shall so state that no deviations occurred during the reporting period.

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 Limitation:</u>

Lead (Pb) from F010, P124 and P125 combined shall not exceed 0.599 tons per year (tpy) (stack and fugitive combined), based upon a rolling, 365-day summation of daily emissions.

<u>Applicable Compliance Method:</u>

The lead emission limitation for F010, P124 and P125 combined was established based on the following calculation methods as provided in the permit application and adjusted by the permit writer during permit development:

0.59324 tons/year (tpy) for the sum of the contributions of lead emissions from the VTD degassing (P124), Ladle transfer (F010), e-ladle (P125), casting tundish (P125), and casting ladle (P125) activities calculated as a lead mass balance of emissions. The details of how the lead mass balance shall be calculated on an ongoing basis is specified in term d)(1) above. The details of how the lead mass balance emissions were estimated for the setting of the lead emission limit are included in the permit application and

are based on actual production and concentration measurement values during previous trial operations.

0.00576 tons/year for the sum of the contributions of lead emissions from other process activities from these EUs F010, P124, and P125, as detailed below:

0.000000489 tpy for the contribution of tundish nozzle heater (P125) natural gas combustion emissions using AP-42 emission factors for natural gas combustion (7.6 lb/mmcf) and a maximum heat input of 235,000 BTU/hr.

0.00504 tpy for the contribution of torch cutoff (P125) emissions using the PM filterable AP-42 12.5-1-1 emission factor (adjusted for control efficiency of 90% for water sprays, increased PM for leaded steel processing and to include condensable particulate to get 0.055 lb/ton), a max % Pb in leaded steel of 0.35%, and an estimated restricted throughput of 52,671 tons per year of leaded steel production.

0.000506 tpy for the contribution of tundish cooling (Z231) emissions using the PM emission factor from USS/Kobe Study total dust from tundish cooling (adjusted to include condensable particulate to get 0.0055 lb/ton), a max % Pb in leaded steel of 0.35%, and an estimated restricted throughput of 52,671 tons per year of leaded steel production.

0.000078 tpy for the contribution of tundish dump (Z231) emissions using a similar operation PM AP-42 11.24 emission factor for metallic mineral processing of 0.51 lb/ton, and a max % Pb in leaded steel of 0.35%, and an estimated restricted throughput of 88 tons/yr material dumped based on 52,671 tons per year of leaded steel production.

0.000135 tpy for the contribution of Chem Lab Sample Grinder (P127) emissions when processing leaded steel samples using control device emission flow rate (0.01 grains PM/dscf) multiplied by outlet grain loading (2000 scfm), a max % Pb in leaded steel of 0.35%, and an estimated restricted 449 operating hours/year based on 52,671 tons per year of leaded steel production.

Total other process activities equals: 0.000000543 + 0.00412 + 0.000413 + 0.000064 + 0.00263 = 0.0072275 ≈ 0.00723

Pb Limitation becomes: 0.59324 + 0.00576 = 0.59897 ≈ 0.599 tpy

Actual emissions can be calculated by substituting the above process variables with actual process conditions.

Ongoing compliance with the lead emission limitation is assumed provided compliance is demonstrated with the operational restrictions listed in terms c)(1)-(2) through the monitoring and recordkeeping listed in term d)(1).

b. Emission Limitation:

$PM_{2.5}$ emissions from this emissions unit shall not exceed 1.99 tons per year (tpy) (fugitive only)

Applicable Compliance Method:

The emission limitation was established by using the following calculation methods as provided in the permit application and adjusted by the permit writer during permit development.

The $PM_{2.5}$ emissions were calculated for each process activity for the emission unit F010 during the production of both leaded and non-leaded steel for the three different operational scenarios allowed by this permit. The scenario that produced the highest $PM_{2.5}$ emissions is when the leaded steel production was the highest possible. To calculate the emissions from that scenario, the average amount of lead emissions per heat (provided in application) was adjusted by about one standard deviation to determine maximum amount of leaded steel production projected while remaining under emission PSD thresholds for both Pb and $PM_{2.5}$, which was estimated to be 81,171 tons per year.

Using that annual leaded steel production rate and the balance of non-leaded steel production, emissions were calculated from the process activities for F010 based on the following information:

i. Ladle Movement/Transfer when ladle cover is on:

Highest leaded steel production estimate: 81,171 tons/year

Balance non-leaded steel production estimate: 996,700 tons/year maximum potential production minus leaded steel production estimate = 996700 - 81171 = 915,529 non-leaded steel tons/year

Total time ladle is transferred/moved per heat: 60 mins/heat

Time per heat ladle cover is off when transferring ladle into and out of the VTD: 3 mins/heat

Time per heat ladle cover is on during ladle transfer: 60 - 3 = 57 mins/heat

Emission factor leaded steel: 0.0299 lb PM/ton uncontrolled based on uncontrolled leaded steel teeming emission factor from AP-42 12.5-1 adjusted to include condensable particulate, reduced to represent ladle emissions when no molten metal material is transferring, and reduced for 95% efficiency ladle cover control. $PM_{2.5}$ estimated at 43% of PM based on AP-42 12.5-2 EAF uncontrolled particle sizing distribution.

Emission factor non-leaded steel: 0.0026 lb PM/ton controlled based on uncontrolled non-leaded steel teeming emission factor from AP-42 12.5-1 adjusted to include condensable particulate, reduced to represent ladle

emissions when no molten metal material is transferring, and reduced for 95% efficiency ladle cover control. $PM_{2.5}$ estimated at 43% of PM based on AP-42 12.5-2 EAF uncontrolled particle sizing distribution.

PM emissions: [(0.0026 lb PM/ton x 915,529 tons/yr x 57 min/60 min) + (0.0299 lb PM/ton x 81,171 tons/yr x 57 min/60 min)] ÷ 2000 lbs/ton = 2.2835 tons PM/yr

$PM_{2.5}$ emissions: 0.43 x 2.2835 = 0.9819 tons $PM_{2.5}$/yr

ii. Ladle Movement/Transfer when ladle cover is off (into and out of VTD):

Time per heat ladle cover is off when transferring ladle into and out of the VTD: 1.5 mins transfer in + 1.5 mins transfer out = 3 mins/heat

Total time ladle is transferred/moved per heat: 60 mins/heat

Highest leaded steel production estimate: 81,171 tons/year

Balance non-leaded steel production estimate: 915,529 tons/year

Emission factor leaded steel: 0.5974 lb PM/ton uncontrolled based on uncontrolled leaded steel teeming emission factor from AP-42 12.5-1 adjusted to include condensable particulate and reduced to represent ladle emissions when no molten metal material is transferring. $PM_{2.5}$ estimated at 43% of PM based on AP-42 12.5-2 EAF uncontrolled particle sizing distribution.

Emission factor non-leaded steel: 0.0516 lb PM/ton controlled based on uncontrolled non-leaded steel teeming emission factor from AP-42 12.5-1 adjusted to include condensable particulate and reduced to represent ladle emissions when no molten metal material is transferring. $PM_{2.5}$ estimated at 43% of PM based on AP-42 12.5-2 EAF uncontrolled particle sizing distribution.

PM emissions: [(0.0516 lb PM/ton x 915,529 tons/yr x 3 min/60 min) + (0.5974 lb PM/ton x 81,171 tons/yr x 3 min/60 min)] ÷ 2000 lbs/ton = 2.3933 tons PM/yr

$PM_{2.5}$ emissions: 0.43 x 2.3933 = 1.0291 tons $PM_{2.5}$/yr

iii. Emission limitation becomes: 0.9819 + 1.0291 = 2.0110 ≈ 2.01 ton/yr

Actual emissions can be calculated by substituting the above process variables with actual process conditions.

Since the above emission limit is based on potential to emit emission factors, the implementation of the work practices and the restricted leaded steel production, compliance is assumed provided compliance is demonstrated with the Pb emission limitation listed in term b)(1)a and the implementation of the work

practices listed in b)(2)j. as demonstrated by the monitoring and recordkeeping in terms d)(2)-(3) and d)(6).

c. Emission Limitation:

Visible particulate emissions from any fugitive dust source shall not exceed 20% opacity as a 3-minute average

Applicable Compliance Method:

If required, compliance with the limitation for visible emissions of fugitive dust shall be determined through visible emissions observations performed in accordance U.S. EPA Method 9 and the procedures specified in OAC rule 3745-17-03(B)(3).

d. Operational Restriction:

The quantity of lead added to P124 to process leaded steel shall be restricted to 1,293 lbs/heat, as a rolling 12-month average.

Applicable Compliance Method:

See permit terms for P124 for compliance method.

g) Miscellaneous Requirements

(1) Modeling to demonstrate compliance with, the “Toxic Air Contaminant Statute”, ORC 3704.03(F)(4)(b), was not necessary because the emissions unit’s maximum annual emissions for each toxic air contaminant, as defined in OAC rule 3745-114-01, will be less than 1.0 ton per year, taking into account the federally enforceable restrictions pursuant to OAC rule 3745-31-05(D). OAC Chapter 3745-31 requires a permittee to apply for and obtain a new or modified permit-to-install (PTI) prior to making a "modification" as defined by OAC rule 3745-31-01. The permittee is hereby advised that changes in the composition of the materials, or use of new materials that would cause the emissions of any toxic air contaminant to increase to above 1.0 ton per year may require the permittee to apply for and obtain a new PTI.

(2) Due to the federally enforceable restrictions pursuant to OAC rule 3745-31-05(D) above, the permittee has successfully avoided there requirements to perform state modeling for lead. However, the permittee has triggered the requirement to conduct lead ambient air monitoring and is subject to the requirements listed in term B.3. of this permit.