



State of Ohio Environmental Protection Agency

Street Address:

Mailing Address:

Lazarus Gov. Center TELE: (614) 644-3020 FAX: (614) 644-2329

Lazarus Gov.  
Center

RE: **FINAL PERMIT TO INSTALL MODIFICATION** CERTIFIED MAIL  
STARK COUNTY  
Application No: 15-01339

DATE: 10/11/2001

The Timken Co  
Daniel Lake  
1835 Dueber Ave SW  
Canton, OH 447060928

Enclosed Please find a modification to the Ohio EPA Permit To Install referenced above which will modify the terms and conditions.

You are hereby notified that this action by the Director is final and may be appealed to the Ohio Environmental Review Appeals Commission pursuant to Chapter 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. It must be filed within thirty (30) days after the notice of the Directors action. A copy of the appeal must be served on the Director of the Ohio Environmental Protection Agency within three (3) days of filing with the Commission. An appeal may be filed with the Environmental Review Appeals Commission at the following address:

Environmental Review Appeals Commission  
236 East Town Street, Room 300  
Columbus, Ohio 43215

Very truly yours,

Thomas G. Rigo, Manager  
Field Operations and Permit Section  
Division of Air Pollution Control

CC: USEPA

Canton LAA



**Permit To Install  
Terms and Conditions**

**Issue Date: 10/11/2001  
Effective Date: 10/11/2001**

FINAL ADMINISTRATIVE MODIFICATION OF PERMIT TO INSTALL 15-01339

Application Number: **15-01339**  
APS Premise Number: **1576000613**  
Permit Fee: **\$4100**  
Name of Facility: **The Timken Co Lake**  
Person to Contact: **Daniel**  
Address: **1835 Dueber Ave SW  
Canton, OH 447060928**

Location of proposed air contaminant source(s) [emissions unit(s)]:  
**1835 Dueber Ave SW  
Canton, OHIO**

Description of modification:  
**Transformer upgrade and process improvement to EAF; 8 furnaces, soaking pit, ladle refiner.**

The above named entity is hereby granted a modification to the permit to install described above pursuant to Chapter 3745-31 of the Ohio Administrative Code. Issuance of this modification does not constitute expressed or implied approval or agreement that, if constructed or modified in accordance with the plans included in the application, the above described source(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 included in the application, the above described source(s) of pollutants will be granted the necessary operating permits.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency

Director

The Timken Co

Facility ID: 1576000613

PTI Application: 15-01339

Modification Issued: 10/11/2001

## **GENERAL PERMIT CONDITIONS**

### **TERMINATION OF PERMIT TO INSTALL**

Substantial construction for installation must take place within 18 months of the effective date of this permit. 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 party shows good cause for any such extension.

### **NOTICE OF INSPECTION**

The Director of the Ohio Environmental Protection Agency, or his authorized representatives, may enter upon the premises of the above-named applicant during construction and operation at any reasonable time for the purpose of making inspections, conducting tests, or to examine records or reports pertaining to the construction, modification or installation of the source(s) of environmental pollutants identified within this permit.

### **CONSTRUCTION OF NEW SOURCES**

The proposed emissions unit(s) shall be constructed in strict accordance with the plans and application submitted for this permit to the Director of the Ohio Environmental Protection Agency. There may be no deviation from the approved plans without the express, written approval of the Agency. Any deviations from the approved plans or the above conditions may lead to such sanctions and penalties as provided under Ohio law. Approval of these plans does not constitute an assurance that the proposed facilities will operate in compliance with all Ohio laws and regulations. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed sources cannot meet the requirements of this permit or cannot meet applicable standards.

If the construction of the proposed emissions unit(s) has already begun or has been completed prior to the date the Director of the Environmental Protection Agency approves the permit application and plans, the approval does not constitute expressed or implied assurance that the proposed facility has been constructed in accordance with the approved plans. 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 the Permit to Install does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. Approval of the plans in any case is not to be construed as an approval of the facility as constructed and/or completed. Moreover, issuance of the Permit to Install 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.

### **PERMIT TO INSTALL FEE**

In accordance with Ohio Revised Code 3745.11, the specified Permit to Install fee must be remitted within 30 days of the effective date of this permit to install.

**The Timken Co**  
**PTI Application: 15-01339**  
**Modification Issued: 10/11/2001**

Facility ID: 1576000613

### **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.

### **APPLICABILITY**

This Permit to Install is applicable only to the contaminant sources identified. Separate application must be made to the Director for the installation or modification of any other contaminant sources.

### **BEST AVAILABLE TECHNOLOGY**

As specified in OAC Rule 3745-31-05, all new sources must employ Best Available Technology (BAT). Compliance with the terms and conditions of this permit will fulfill this requirement.

### **SOURCE OPERATION AND OPERATING PERMIT REQUIREMENTS AFTER COMPLETION OF CONSTRUCTION**

If 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 the proposed new or modified source(s) would be prohibited by the terms and conditions of an existing Title V permit, a Title V permit modification must be obtained before the operation of such new or modified source(s) pursuant to OAC rule 3745-77-04(D) and OAC rule 3745-77-08(C)(3)(d).

If the permittee is required to apply for permit(s) pursuant to OAC Chapter 3745-35, the source(s) identified in this Permit To Install is (are) permitted to operate for a period of up to one year from the date the source(s) commenced operation. Permission to operate is granted only if the facility complies with all requirements contained in this permit and all applicable air pollution laws, regulations, and policies. Pursuant to OAC Chapter 3745-35, the permittee shall submit a complete operating permit application within thirty (30) days after commencing operation of the source(s) covered by this permit.

**The Timken Co**

Facility ID: **1576000613**

**PTI Application: 15-01339**

**Modification Issued: 10/11/2001**

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**AIR EMISSION SUMMARY**

The air contaminant emissions units listed below comprise the Permit to Install **15-01339** for **The Timken Company - Canton Steel Plant** located in **Stark** County. The emissions units listed below shall not exceed the emission limits/control requirements contained in the table. This condition in no way limits the applicability of any other state or federal regulations. Additionally, this condition does not limit the applicability of additional special terms and conditions of this permit.

**Ohio**

**EPA**

**Source**

**Number**

P102

(Mod)

6

**The Timken Co**

**PTI Application: 15-01339**

**Modification Issued: 10/11/2001**

Facility ID: **1576000613**

P102

(Mod)

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P126

7

**The Timken Co**

**PTI Application: 15-01339**

**Modification Issued: 10/11/2001**

Facility ID: **1576000613**

P126

Cont'd

P127

8

**The Timken Co**

**PTI Application: 15-01339**

**Modification Issued: 10/11/2001**

Facility ID: **1576000613**

P127

Cont'd

P128

9

**The Timken Co**  
**PTI Application: 15-01339**  
**Modification Issued: 10/11/2001**

Facility ID: **1576000613**

P128  
Cont'd

P090

10

**The Timken Co**

**PTI Application: 15-01339**

**Modification Issued: 10/11/2001**

Facility ID: **1576000613**

P090

Cont'd

P091

11

**The Timken Co**

**PTI Application: 15-01339**

**Modification Issued: 10/11/2001**

Facility ID: **1576000613**

P091

Cont'd

P092

12

**The Timken Co**

**PTI Application: 15-01339**

**Modification Issued: 10/11/2001**

Facility ID: **1576000613**

P092

Cont'd

P603

13

**The Timken Co**

**PTI Application: 15-01339**

**Modification Issued: 10/11/2001**

Facility ID: **1576000613**

P603

Cont'd

P604

14

**The Timken Co**

**PTI Application: 15-01339**

**Modification Issued: 10/11/2001**

Facility ID: **1576000613**

P604

Cont'd

P605

**The Timken Co**  
**PTI Application: 15-01339**  
**Modification Issued: 10/11/2001**

Facility ID: **1576000613**

P606

P129

**Source  
Identification  
Description**

P129  
Cont'd

200 tons/hour  
Electric Arc  
Furnace (#1 EAF)  
with direct  
evacuation control  
(DEC) and a  
building evacuation  
system for capture  
and a baghouse for  
control

MODIFICATION-  
process  
improvements, and  
operational  
improvements  
which promoted an  
increase in  
allowable  
production rate  
from 900,000  
tons/year to  
1,200,00 tons/year

110 mmBtu/hour  
natural gas-fired  
reheat furnace

20 MMBtu/hr natural  
gas-fired soaking pit

**The Timken Co**  
**PTI Application: 15-01339**  
**Modification Issued: 10/11/2001**

Facility ID: **1576000613**

Refiner,  
natural gas-fired

26.5 mmBtu/hr  
natural  
gas-fired annealing  
furnace; Annealing  
furnace #1

26.5 mmBtu/hr  
natural  
gas-fired annealing  
furnace; Annealing  
furnace #2

22 mmBtu/hr natural  
gas-fired annealing  
furnace; Annealing  
furnace #3

**The Timken Co**  
**PTI Application: 15-01339**  
**Modification Issued: 10/11/2001**

Facility ID: **1576000613**

36.89  
mmBtu/h  
r natural  
gas-fired  
Rotary  
Furnace

7.812 mmBtu/hr natural  
gas-fired Roller Hearth  
Furnace No. 1

7.812 mmBtu/hr  
natural  
gas-fired Roller  
Hearth  
Furnace No. 2

7.812 mmBtu/hr  
natural gas-fired  
Roller Hearth  
Furnace No. 3

Baghouse dust-handling  
system, including silo with  
fabric filter, dust conveying  
equipment, and dust  
transfer equipment from silo  
to truck/railcar.

**The Timken Co**  
**PTI Application: 15-01339**  
**Modification Issued: 10/11/2001**

Facility ID: **1576000613**

**BAT**  
**Determi**  
**nation**

Use of direct evacuation control (DEC) and building evacuation system for capture and the Melt Shop Baghouse for control, and compliance with the terms of this permit

and the terms and conditions of this permit, and the use of low NO<sub>x</sub> burners (0.14 lb NO<sub>x</sub>/mmBtu)

Compliance with the applicable OAC regulations and the terms and conditions of this permit, and low NO<sub>x</sub> burners (0.14 lb NO<sub>x</sub>/mmBtu)

Compliance with the applicable OAC regulations and the terms and conditions of this permit, and low NO<sub>x</sub> burners

Compliance with the applicable OAC regulations

Compliance with the applicable OAC regulations and the terms and conditions of this permit, and low NO<sub>x</sub> burners (0.14 lb NO<sub>x</sub>/mmBtu)

Compliance with the applicable OAC regulations and the terms and conditions of this permit, and low NO<sub>x</sub> burners (0.14 lb NO<sub>x</sub>/mmBtu)

Compliance with the applicable OAC regulations and the terms and conditions of this permit, and low NO<sub>x</sub> burners (0.14 lb NO<sub>x</sub>/mmBtu)

Compliance with the applicable OAC regulations and the terms and conditions of this permit, and low NO<sub>x</sub> burners (0.14 lb NO<sub>x</sub>/mmBtu)

Compliance with the applicable OAC regulations and the terms and conditions of this permit, and low NO<sub>x</sub> burners (0.14 lb NO<sub>x</sub>/mmBtu)

**The Timken Co**  
**PTI Application: 15-01339**  
**Modification Issued: 10/11/2001**

Facility ID: 1576000613

**Applicable Federal &  
OAC Rules**

OAC rule 3745-31-05 and  
3745-31-10 through 3745-  
31-02\*\*\*

Compliance with the applicable OAC regulations and the terms and conditions

of this permit, and the use of low NO<sub>x</sub> burners (0.14 lb NO<sub>x</sub>/mmBtu)

Compliance with the applicable OAC regulations and the terms and conditions of this permit and the use of low NO<sub>x</sub> burners (0.14 lb NO<sub>x</sub>/mmBtu)

Compliance with the applicable OAC regulations and the terms and conditions of this permit, and fabric filters meeting a 0.01 gr/DSCF control efficiency

**The Timken Co**  
**PTI Application: 15-01339**  
**Modification Issued: 10/11/2001**

Facility ID: 1576000613

OAC rule 3745-17-07 (A) (1)	31-05 and 3745-31-10 through 3745-31-20***	OAC rules 3745-31-05 and 3745-31-10 through 3745-31-20***	OAC rule 3745-18-06	OAC rule 3745-18-06
OAC rule 3745-17-07 (B)(3)			OAC rules 3745-31-05 and 3745-31-10 through 3745-31-20***	OAC rules 3745-31-05 and 3745-31-10 through 3745-31-20***
OAC rule 3745-17-08 (B) (3)				
OAC rule 3745-17-11				
OAC rule 3745-18-06 (E) (1)	OAC rule 3745-17-07			
NSPS 40 CFR Part 60 Subpart AAa	OAC rule 3745-17-11	OAC rule 3745-17-07		
OAC rule 3745-	OAC rule 3745-18-06	OAC rule 3745-17-11	OAC rule 3745-17-07	OAC rule 3745-17-11
			OAC rule 3745-17-11	OAC rule 3745-

**The Timken Co**  
**PTI Application: 15-01339**  
**Modification Issued: 10/11/2001**

Facility ID: 1576000613

17-07

OAC rule 3745-17-07

OAC rule 3745-17-11

OAC rule 3745-17-07

OAC rule 3745-17-11

OAC rule 3745-17-07

OAC rule 3745-17-11

OAC rule 3745-18-06  
OAC rule 3745-17-07  
OAC rule 3745-17-11

OAC rule 3745-17-11

OAC rule 3745-18-06

OAC rule 3745-18-06

OAC rules 3745-31-05 and 3745-31-10 through 3745-31-20\*\*\*  
OAC rule 3745-18-06  
OAC rules 3745-31-05 and 3745-31-10 through 3745-31-20\*\*\*

OAC rule 3745-18-06

OAC rules 3745-31-05 and 3745-31-10 through 3745-31-20\*\*\*

OAC rule 3745-31-05 and 3745-31-10 through 3745-31-20\*\*\*

OAC rule 3745-31-05 and 3745-31-10 through 3745-31-20\*\*\*

OAC rule 3745-17-07

23

**The Timken Co**

**PTI Application: 15-01339**

**Modification Issued: 10/11/2001**

Facility ID: **1576000613**

OAC

rule

3745-

17-11

OAC

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3745-

18-06

**The Timken Co**  
**PTI Application: 15-01339**  
**Modification Issued: 10/11/2001**

Facility ID: **1576000613**

OAC rule 3745-31-05 and 3745-31-10 through 3745-31-20**	rule 3745-17-11  OAC rule 3745-18-06  OAC rules 3745-31-05 and 3745-31-10 through 3745-31-20***	17-11	<b>Permit Allowable Mass Emissions and/or Control/Usage Requirements</b>	0.0037 lb/hr; 0.012 tpy  For visible emissions limits see Sec.I.A.7.
			particulate: 0.0032 GR/DSCF; 0.125 lb/ton, 25 lbs/hr; 109.5 tpy	BACT is more restrictive.  BACT is more restrictive.
*			PM <sub>10</sub> : 0.1 lb/ton; 19 lbs/hr; 83.22 tpy	BACT is more restrictive.
			sulfur dioxide: 0.04 lb/ton; 8 lbs/hr; 26.3 tpy	BACT is more restrictive.  BACT is more restrictive.
			nitrogen oxides: 0.2 lb/ton; 43.8 lbs/hr; 131.4 tpy	BACT is more restrictive.
			carbon monoxide: 4.8 lbs/ton; 960 lbs/hr; 2882 tpy	PM/PM <sub>10</sub> : 0.0076 lb/mmBtu; 0.84 lbhr; 3.68 tpy
	NSPS Part 60 Subpart AAa 60.272a (b)		VOC: 0.1 lb/ton; 20 lbs/hr; 60 tpy	nitrogen oxides: 0.14 lb/mmBtu; 15.4 lbs/hr; 67.5 tpy
OAC rule 3745-17-07	OAC rule 3745-17-07		lead: 0.26 lb/hr; 0.79 tpy	carbon monoxide: 0.084 lb/mmBtu; 9.24 lbs/hr; 40.47 tpy
OAC	OAC rule 3745-		flouride: 1.4 lbs/hr; 4.2 tpy	sulfur dioxide: 0.00064 lb/mmBtu;
			mercury:	0.07 lb/hr; 0.31 tpy

**The Timken Co**  
**PTI Application: 15-01339**  
**Modification Issued: 10/11/2001**

Facility ID: 1576000613

volatile organic compounds: 0.0055 lb/mmBtu; 0.6 lb/hr; 2.63 tpy	determined; therefore, no applicable emission limit.  No process weight rate can be determined; therefore, no applicable emission limit.	restrictive.  No process weight rate can be determined; therefore, no applicable emission limit.	percent opacity as a 6-minute average.  BACT is more restrictive.  No process weight rate can be determined; therefore, no applicable emission limit.	0.0057 lb/mmBtu; 0.15 lb/hr; 0.64 tpy  Visible particulate emissions from the stack servicing this emissions unit shall not exceed 5 percent opacity as a 6-minute average
visible particulate emissions from the stack servicing this emissions unit shall not exceed 5 percent opacity as a 6-minute average	PM/PM <sub>10</sub> : 0.008 lb/mmBtu; 0.16 lb/hr; 0.7 tpy  nitrogen oxides: 0.14 lb/mmBtu; 2.8 lbs/hr; 12.3 tpy  carbon monoxide: 0.085 lb/mmBtu 1.7 lbs/hr; 7.45 tpy  sulfur dioxide: 0.0006 lb/mmBtu; 0.012 lb/hr; 0.05 tpy	No process weight rate can be determined; therefore, no applicable emission limit.  particulate: 0.68 lb/hr; 3.0 tpy  PM <sub>10</sub> : 0.52 lb/hr; 2.3 tpy  nitrogen oxides: 1.67 lbs/hr; 7.3 tpy  carbon monoxide: 0.91 lb/hr; 4 tpy  sulfur dioxide: 0.94 lb/hr; 4.1 tpy	No process weight rate can be determined; therefore, no applicable emission limit.  PM/PM <sub>10</sub> : 0.0075 lb/mmBtu; 0.2 lb/hr; 0.88 tpy  nitrogen oxides: 0.14 lb mmBtu; 3.7 lbs/hr; 16.2 tpy  carbon monoxide: 0.084 lb/mmBtu; 2.23 lbs/hr; 9.76 tpy  sulfur dioxide: 0.00075 lb/mmBtu; 0.02 lb/hr; 0.09 tpy	BACT is more restrictive.  No process weight rate can be determined; therefore, no applicable emission limit.  PM/PM <sub>10</sub> : 0.0075 lb/mmBtu; 0.2 lb/hr; 0.88 tpy  nitrogen oxides: 0.14 lb mmBtu; 3.7 lbs/hr; 16.2 tpy  carbon monoxide: 0.084 lb/mmBtu; 2.23 lbs/hr; 9.76 tpy  sulfur dioxide: 0.00075 lb/mmBtu; 0.02 lb/hr; 0.09 tpy
BACT is more restrictive.  No process weight rate can be	Visible particulate emissions from the stack servicing this emissions unit shall not exceed 5 percent opacity as a 6-minute average  BACT is more	Visible particulate emissions from the stack servicing this emissions unit shall not exceed 3	volatile organic compounds:	

**The Timken Co****PTI Application: 15-01339****Modification Issued: 10/11/2001**Facility ID: **1576000613**

<p>volatile organic compounds: 0.0057 lb/mmBtu;</p>	<p>, no applicable emission limit. No process weight rate can be determined; therefore, no applicable emission limit.</p>	<p>No process weight rate can be determined; therefore, no applicable emission limit.</p>	<p>restrictive. No process weight rate can be determined; therefore, no applicable emission limit.</p>	<p>emissions unit shall not exceed 5 percent opacity as a 6-minute average BAT is more restrictive.</p>
<p>0.15 lb/hr; 0.64 tpy</p>	<p>PM/PM<sub>10</sub>: 0.008 lb/mmBtu; 0.17 lb/hr; 0.74 tpy</p>	<p>PM/PM<sub>10</sub>: 0.008 lb/mmBtu; 0.28 lb/hr; 1.23 tpy</p>	<p>No process weight rate can be determined; therefore, no applicable emission limit.</p>	<p>No process weight rate can be determined; therefore, no applicable emission limit.</p>
<p>Visible particulate emissions from the stack servicing this emissions unit shall not exceed 5 percent opacity as a 6-minute average</p>	<p>nitrogen oxides: 0.14 lb mmBtu; 3.1 lbs/hr; 13.5 tpy carbon monoxide: 0.084 lb/mmBtu; 1.85 lbs/hr; 8.1 tpy sulfur dioxide: 0.0009 lb/mmBtu; 0.02 lb/hr; 0.09 tpy volatile organic compounds: 0.0055 lb/mmBtu; 0.12 lb/hr; 0.53 tpy Visible particulate emissions from the stack servicing this emissions unit shall not exceed 5 percent opacity as a 6-minute average</p>	<p>nitrogen oxides: 0.14 lb mmBtu; 5.16 lbs/hr; 22.6 tpy carbon monoxide: 0.084 lb/mmBtu; 3.1 lbs/hr; 13.58 tpy sulfur dioxide: 0.00054 lb/mmBtu; 0.02 lb/hr; 0.09 tpy volatile organic compounds: 0.0054 lb/mmBtu; 0.2 lb/hr; 0.88 tpy Visible particulate emissions from the stack servicing this emissions unit shall not exceed 5 percent opacity as a 6-minute average</p>	<p>PM/PM<sub>10</sub>: 0.008 lb/mmBtu; 0.06 lb/hr; 0.26 tpy nitrogen oxides: 0.14 lb mmBtu; 1.1 lbs/hr; 4.82 tpy carbon monoxide: 0.084 lb/mmBtu; 0.66 lbs/hr; 2.89 tpy sulfur dioxide: 0.00064 lb/mmBtu; 0.005 lb/hr; 0.02 tpy volatile organic compounds: 0.005 lb/mmBtu; 0.04 lb/hr; 0.18 tpy Visible particulate emissions from the stack servicing this</p>	<p>No process weight rate can be determined; therefore, no applicable emission limit. PM/PM<sub>10</sub>: 0.008 lb/mmBtu; 0.06 lb/hr; 0.26 tpy nitrogen oxides: 0.14 lb mmBtu; 1.1 lbs/hr; 4.82 tpy carbon monoxide: 0.084 lb/mmBtu; 0.66 lbs/hr; 2.89 tpy sulfur dioxide: 0.00064 lb/mmBtu; 0.005 lb/hr; 0.02 tpy volatile organic compounds: 0.005 lb/mmBtu; 0.04 lb/hr; 0.18 tpy Visible particulate emissions from the stack servicing this emissions unit shall not exceed 5 percent opacity as a 6-minute average</p>
<p>No process weight rate can be determined; therefore</p>	<p>BACT is more restrictive. No process weight rate can be determined; therefore, no applicable emission limit.</p>	<p>BAT is more</p>	<p>Visible particulate emissions from the stack servicing this</p>	<p>Visible particulate emissions from the stack servicing this emissions unit shall not exceed 5 percent opacity as a 6-minute average</p>

**The Timken Co**  
**PTI Application: 15-01339**  
**Modification Issued: 10/11/2001**

Facility ID: 1576000613

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**The Timken Co**  
**PTI Application: 15-01339**  
**Modification Issued: 10/11/2001**

Facility ID: 1576000613

PM/PM <sub>10</sub>	0.005 lb/mmBtu;	Total PM/PM <sub>10</sub>
:	0.04 lb/hr; 0.18 tpy	Emissions: 0.54
0.008		pound/hour;
lb/mmBt	Visible particulate	2.36 tons/year
u;	emissions from the stack	
0.06	servicing this emissions	Visible particulate
lb/hr;	unit shall not exceed 5	emissions shallnot
0.26 tpy	percent opacity as a	exceed 10%
	6-minute average	opacity from any
nitrogen		part of the dust
oxides:	BAT is more	handling system.
0.14 lb	restrictive.	This includes both
mmBtu;		stack and fugitive
1.1	No process weight rate	emissions.**
lbs/hr;	can be determined;	
4.82 tpy	therefore, no applicable	NSPS is more
	emission limit.	restrictive.
carbon		
monoxid	No process weight rate	
e:	can be determined;	BAT is more
0.084	therefore, no applicable	restrictive.
lb/mmBt	emission limit.	
u;		
0.66	PM/PM <sub>10</sub> emissions from	
lbs/hr;	the secondary negative	
2.89. tpy	pressure baghouse	
	handling the airstream	
sulfur	coming from the cyclone:	
dioxide:	0.01 gr/DSCF	
0.00064	0.27 lb PM/PM <sub>10</sub> /hr	
lb/mmBt	1.18 tons PM/PM <sub>10</sub> /yr	
u;		
0.005	PM/PM <sub>10</sub> emissions from	
lb/hr;	the tertiary negative	
0.02 tpy	pressure baghouse	
	handling the airstream	
volatile	coming from the silo:	
organic	0.01 gr/DSCF;	
compoun	0.27 lb/hr; 1.18 tons/yr	
ds:		

The Timken Co  
 PTI Application: 15-01339  
 Modification Issued: 10/11/2001

Facility ID: 1576000613

**\* SUMMARY**  
**TOTAL PERMIT TO INSTALL ALLOWABLE EMISSIONS**

<u>Pollutant</u>	<u>Emissions (Tons/Year)</u>	<u>Emissions Increase*** (Tons/Year)</u>	<u>Creditable Contemporaneous Emissions (Tons/Year)</u>	<u>Net Emissions (Tons/Year)</u>	<u>PSD "Significance" Threshold (Tons/Year)</u>
PM	123.39	49.5	7	56.5	25
PM <sub>10</sub>	96.77	41.1	7	48.1	15
VOC	66.64	25.8	NA	NA	40
CO	2983.79	1027.2	-2,425	-1397.8	100
SO <sub>2</sub>	31.18	12.9	NA	NA	40
NO <sub>x</sub>	301.46	216.1	86	302.1	40
Pb	0.79	0.25	NA	NA	0.6
Fluorides	4.20	1.3	NA	NA	3
Mercury	0.012	0.0046	NA	NA	--

\* The allowable emissions information contained under this Summary section is for informational purposes only and is not enforceable.

\*\* The application and enforcement of these standards are delegated to the Ohio EPA.

\*\*\* Includes debottlenecking emissions from steel finishing and steel grinding.

**\*\*\* PSD REQUIREMENTS**

The source described in this Permit to Install is subject to the applicable provisions of the Prevention of Significant Deterioration (PSD) regulations as promulgated by the United States Environmental Protection Agency 40 CFR 52.21. The authority to apply and enforce the PSD regulations has been delegated to the Ohio Environmental Protection Agency. The terms and conditions of this permit and the requirements of the PSD regulations are also enforceable by the United States Environmental Protection Agency.

In accordance with 40 CFR 124.15, 124.19 and 124.20, the following shall apply: (1) the effective date of this permit shall be 30 days after the service of notice to any public commentors of the final decision to issue, modify, or revoke and re-issue the permit, unless the service of notice is by mail, in which case the effective date of the permit shall be 33 days after the service of notice; and (2) if an appeal is made to the Environmental Appeals Board of the United States Environmental Protection Agency, the effective date of the permit is suspended until such time as the appeal is resolved or denied.

Appeals will be addressed to:

United States Environmental Protection Agency  
 Environmental Appeals Board  
 401 M Street, SW (MC-113do)  
 Washington, DC 20460

The Timken Co  
 PTI Application: 15-01339  
 Modification Issued: 10/11/2001

Facility ID: 1576000613

## ADDITIONAL SPECIAL TERMS AND CONDITIONS

### I. Emissions Unit P102 - Electric Arc Furnace

#### A. Operational Restrictions (P102)

1. The emissions from P102 shall be vented to the melt shop baghouse. In addition, the capture system shall be designed and operated such that all emissions are captured and ducted to the dropout chamber and then to the baghouse. The capture system for the emissions unit shall include a common canopy hood and a roof control system, both of which vent to the dropout chamber and then to the melt shop baghouse.
2. The maximum annual production rate for this emissions unit shall not exceed 1,200,000 tons of steel, based upon a rolling, 12-month summation of the tons of steel produced per month. In order to ensure federal enforceability during the first twelve months of operation after the permit issuance, the permittee shall comply with the following monthly production restrictions:

<u>Month(s)</u>	<u>Maximum Allowable Cumulative Production Totals (Tons)</u>
1	100,000
1-2	200,000
1-3	300,000
1-4	400,000
1-5	500,000
1-6	600,000
1-7	700,000
1-8	800,000
1-9	900,000
1-10	1,000,000
1-11	1,100,000
1-12	1,200,000

After the first 12 calendar months of operation after the issuance of this permit, compliance with the annual steel production limitation shall be based upon a rolling, 12-month summation of the steel production.

**The Timken Co**

Facility ID: **1576000613**

**PTI Application: 15-01339**

**Modification Issued: 10/11/2001**

3. Sulfur shall not be added at the electric arc furnace.
4. Prior to the modification of this emissions unit, the permittee shall submit a Scrap Management Plan (SMP) to the Canton local air agency for review and approval. The SMP shall be implemented immediately after approval by the Canton LAA. The main focus of the SMP will be to ensure that the purchase of excessively oily scrap and other combustible material will be minimized to the greatest extent possible. All grades of scrap shall be free of excessive dirt, oil, and grease. Heavily oiled scrap shall not be used. As part of the SMP, the permittee shall install a radionuclide detector which will be used to inspect all incoming scrap material into the facility. Radioactive scrap material shall not be used at this facility. Any scrap material which is determined to be radioactive shall be disposed of in accordance with the Nuclear Regulatory Commission's (NRC) requirements.
5. The permittee shall develop a parametric monitoring and recordkeeping plan in order to confirm that the Melt Shop Baghouse servicing this emissions unit is operating properly. This plan shall be developed prior to the transformer upgrade of this emissions unit and shall be consistent with the Title V and CAM requirements. The monitoring equipment (if necessary) shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manual(s).

The Timken Co

Facility ID: 1576000613

PTI Application: 15-01339

Modification Issued: 10/11/2001

6. No more than 200 tons of steel per hour shall be tapped from this emissions unit. This production rate is an average hourly rate determined by dividing the tons of steel produced per day by the number of operating hours per day.
7. The following standards are requirements of the NSPS Subpart AAa(The application and enforcement of these standards are delegated to the Ohio EPA.

The requirements of 40 CFR Part 60 are also federally enforceable.), BACT and BAT. Visible emissions shall not exceed the following limits as a six-minute average:

- a. 3 percent opacity from the baghouse exit; and,
- b. 6 percent opacity from the meltshop [Note: This limit is more restrictive than the NSPS limit which only limits emissions due solely to the operation of an EAF(s) or AOD vessel(s)].

**B. Monitoring and/or Recordkeeping Requirements (P102)**

1. In accordance with NSPS Subpart AAa, observations of the opacity of the visible emissions from the control devices shall be performed by a certified visible emission observer as follows:
  - a. Visible emission observations shall be conducted at least once per day when the furnace is operating in the meltdown and refining period. These observations shall be taken in accordance with Method 9 and, for at least three 6-minute periods, the opacity shall be recorded for any point(s) where visible emissions are observed. Where it is possible to determine that a number of visible emission sites relate to only one incident of the visible emission, only one set of three 6-minute observations will be required. In this case, Method 9 observations must be made for the site of highest opacity that directly relates to the cause (or location) of visible emissions observed during a single incident. Records shall be maintained of any 6-minute average that is in excess of the 3 percent opacity limit.

The appropriate records shall be maintained in the permittee's files to identify the persons responsible for conducting the opacity readings and to verify that the Method 9 certifications are up to date for the responsible individuals.
2. In accordance with NSPS Subpart AAa, observations of the opacity of the visible emissions from the shop shall be performed by a certified visible emission observer as follows:
  - a. Visible emission observations shall be conducted at least once per day when the furnace is operating in the meltdown and refining period. Shop opacity shall be determined as the arithmetic average of 24 consecutive 15-second opacity observations of emissions from the shop taken in accordance with Method 9.

The Timken Co

Facility ID: 1576000613

PTI Application: 15-01339

Modification Issued: 10/11/2001

Where it is possible to determine that a number of visible emission sites relate to only one incident of the visible emissions, only one observation of shop opacity will be required. In this case, the shop opacity observations must be made for the site of highest opacity that directly relates to the cause (or location) of visible emissions observed during a single incident. The owner or operator shall maintain records of all shop observations made in accordance with the above requirements. [The permittee has opted to take advantage of this option found in Section 60.273a(d). This Section was added as part of a rule revision found in the Federal Register March 2, 1999 (Volume 64, Number 40). This Section states the following: "A furnace static pressure monitoring device is not required on any EAF equipped with a DEC system that does the required observations of shop opacity]. The appropriate records shall be maintained in the permittee's files to identify the persons responsible for conducting the opacity readings and to verify that the Method 9 certifications are up to date for the responsible individuals.

3. The permittee shall monitor the operation of the furnace control systems and maintain records in accordance with the following requirements:
  - a. The permittee shall either (1) check and record the control system fan motor amperes and damper positions on a once-per-shift basis; or (2) install, calibrate, and maintain a monitoring device that continuously records the volumetric flow rate through each separately ducted hood. The monitoring device may be installed in any appropriate location in the exhaust duct such that reproducible flow rate monitoring will result. The flow rate monitoring devices shall have an accuracy of  $\pm 10$  percent over their normal operating range and shall be calibrated according to the manufacturer's instructions. The Ohio EPA, DAPC may require the permittee to demonstrate the accuracy of the monitoring devices relative to Methods 1 and 2 of Appendix A of 40 CFR, Part 60. The values of these parameters as determined during the most recent demonstration of compliance shall be maintained at the appropriate levels for each applicable period. Operation at other than baseline values will be considered by the Ohio EPA, DAPC to be unacceptable operation and maintenance of the control system. The permittee may petition the Ohio EPA for reestablishment of these parameters whenever the permittee can demonstrate to the Agency's satisfaction that the operating conditions upon which the parameters were previously established are no longer applicable.
  - b. The permittee shall perform monthly operational status inspections of the equipment that is important to the performance of the total capture systems (i.e., pressure sensors, dampers, and damper switches). This inspection shall include observations of the physical appearance of the equipment (e.g., presence of holes

**The Timken Co**

**PTI Application: 15-01339**

**Modification Issued: 10/11/2001**

Facility ID: **1576000613**

in ductwork or hoods, flow constrictions caused by dents or accumulated dust in ductwork, and fan erosion.) Any deficiencies shall be recorded and proper maintenance performed. The permittee may petition the Ohio EPA, DAPC to

**The Timken Co**  
**PTI Application: 15-01339**  
**Modification Issued: 10/11/2001**

Facility ID: 1576000613

approve any alternative to monthly operational status inspections that will provide a continuous record of the operation of each emission capture system.

- c. Upon approval by the USEPA, an alternative method may be established to replace the monitoring and recordkeeping requirements found in B.3., and B.3.b above.
4. The permittee shall perform the appropriate parametric monitoring and recordkeeping as identified in the plan established in Additional Special Term and Condition A.5 for the Melt Shop Baghouse.
5. The permittee shall maintain monthly records of the following information:
  - a. the tons of steel produced for each month; and
  - b. beginning after the first 12 calendar months after the transformer upgrade, the rolling, 12-month summation of the tons of steel produced per month.

Also, during the first 12 calendar months of operation after the transformer upgrade, the permittee shall record the cumulative steel production for each calendar month.
6. The permittee shall maintain daily production records for this emissions unit. These records, at a minimum, shall contain the following information:
  - a. the number of hours the emissions unit was operated;
  - b. the tons of steel produced; and
  - c. the hourly production rates (b divided by a).
7. 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. Reporting Requirements (P102)**

1. The permittee shall submit deviation (excursion) reports to the Canton local air agency that identify all exceedances of the rolling 12-month production rate limitation and, for the

**The Timken Co**  
**PTI Application: 15-01339**  
**Modification Issued: 10/11/2001**

Facility ID: 1576000613

first 12 calendar months of operation after the transformer upgrade, all exceedances of the maximum allowable cumulative steel production levels. These reports are due by the date described in Part I - General Terms and Conditions of this permit.

2. The permittee shall submit a written report of all exceedances of the opacity restrictions contained in section A.7 above to the Canton local air agency semiannually. For the purposes of these reports, exceedances are defined as all 6-minute periods during which the average opacity exceeds these limits.
3. The permittee shall submit quarterly written deviation (excursion) reports that identify all periods of time during which the parameters established in the parametric monitoring plan for the Melt Shop Baghouse did not comply with the allowable range specified in the plan.
4. The permittee shall submit deviation (excursion) reports that identify any day in which the average hourly production rate of this emissions unit exceeded 200 tons/hour.
5. The permittee shall submit required reports in the following manner:
  - a. reports of any required monitoring and/or recordkeeping information shall be submitted to the Canton local air agency; and
  - b. quarterly written reports of (i) any deviations (excursions) from 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, (ii) the probable cause of such deviations, and (iii) any corrective actions or preventative measures taken, shall be promptly made to the Canton local air agency. If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report which states that no deviations occurred during that quarter. These quarterly written reports shall satisfy the requirements of OAC rules 3745-77-07(A)(3)(c)(i) and (ii) pertaining to the submission of monitoring reports every six months and OAC rule 3745-77-07(A)(3)(c)(iii) pertaining to the prompt reporting of all deviations except malfunctions, which shall be reported in accordance with OAC rule 3745-15-06. The written reports shall be submitted quarterly, i.e., 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.)
6. Pursuant to the NSPS, the source owner/operator is hereby advised of the requirement to report the following at the appropriate times:

**The Timken Co**

Facility ID: **1576000613**

**PTI Application: 15-01339**

**Modification Issued: 10/11/2001**

- a. construction date (no later than 30 days after such date);
- b. anticipated start-up date (not more than 60 days or less than 30 days prior to such date);
- c. actual start-up date (within 15 days after such date); and
- d. date of performance testing (If required, at least 30 days prior to testing).

**The Timken Co**  
**PTI Application: 15-01339**  
**Modification Issued: 10/11/2001**

Facility ID: 1576000613

Reports are to be sent to:

Ohio Environmental Protection Agency  
DAPC - Air Quality Modeling and Planning  
Lazarus Government Center  
P.O. Box 1049  
Columbus, OH 43216-1049

and

Air Pollution Control Division  
Canton City Health Dept.  
420 Market Ave. North  
Canton, Ohio 44702-1544

**D. Compliance Methods and Testing Requirements (P102)**

1. Compliance with the emission limitation(s) of this permit shall be determined in accordance with the following method(s):
  - a. Emission Limitation:  
0.0032 gr/dscf  
  
Applicable Compliance Method:  
Initial compliance shall be determined using Method 5, 40 CFR Part 60, Appendix A.
  - b. Emission Limitation:  
0.125 lb/ton and 25 pounds per hour of PM  
  
Applicable Compliance Method:  
Initial compliance shall be determined using Method 5, 40 CFR Part 60, Appendix A.
  - c. Emission Limitation:  
0.1 lb/ton and 19 pounds per hour of PM<sub>10</sub>  
  
Applicable Compliance Method:  
Initial compliance shall be determined using Method 201, 40 CFR Part 60, Appendix A.

**The Timken Co**

**PTI Application: 15-01339**

**Modification Issued: 10/11/2001**

Facility ID: **1576000613**

- d. Emission Limitation:  
3% opacity from the baghouse exit; 6% opacity from the melt shop; and 10% opacity from dust handling.

**The Timken Co**

Facility ID: **1576000613**

**PTI Application: 15-01339**

**Modification Issued: 10/11/2001**

Applicable Compliance Method:

Method 9, 40 CFR Part 60, Appendix A and the procedures of 40 CFR Part 60.11 shall be used to determine opacity as outlined in Additional Special Term and Condition B.1.a.

- e. Emission Limitation:  
0.04 lb/ton and 8 lbs/hour of sulfur dioxide

Applicable Compliance Method:

Initial compliance shall be demonstrated using Method 6, 40 CFR Part 60, Appendix A.

- f. Emission Limitation:  
0.2 lb/ton and 43.8 lbs/hour of nitrogen oxides

Applicable Compliance Method:

Initial compliance shall be demonstrated using Method 7, 40 CFR Part 60, Appendix A.

- g. Emission Limitation:  
4.8 lbs/ton and 960 pounds/hour of carbon monoxide

Applicable Compliance Method:

Initial compliance shall be demonstrated using Method 10, 40 CFR Part 60, Appendix A.

- h. Emission Limitation:  
0.1 lb/ton and 20 lbs/hour of volatile organic compounds (VOC)

Applicable Compliance Method:

Initial compliance shall be demonstrated using Method 25, 40 CFR Part 60, Appendix A.

- i. Emission Limitation:  
0.26 lb/hr of lead

Applicable Compliance Method:

Initial compliance shall be demonstrated using Method 12, 40 CFR Part 60, Appendix A.

- j. Emission Limitation:

The Timken Co

Facility ID: 1576000613

PTI Application: 15-01339

Modification Issued: 10/11/2001

1.4 lbs/hr of fluoride

Applicable Compliance Method:

Initial compliance shall be demonstrated using Method 13, 40 CFR Part 60, Appendix A.

- k. Emission Limitation:  
109.5 tons/year of PM

Applicable Compliance Method:

Multiply the stack test emission factor established per Additional Special Term and Condition D.2.e by the actual amount of steel produced per rolling, 12-month period and divide by 2000 lbs/ton.

- l. Emission Limitation:  
83.22 tons/year of PM<sub>10</sub>

Applicable Compliance Method:

Multiply the stack test emission factor established per Additional Special Term and Condition D.2.e by the actual amount of steel produced per rolling, 12-month period and divide by 2000 lbs/ton.

- m. Emission Limitation:  
26.3 tons/year of sulfur dioxide

Applicable Compliance Method:

Multiply the stack test emission factor established per Additional Special Term and Condition D.2.e by the actual amount of steel produced per rolling, 12-month period (tons/year) and divide by 2000 lbs/ton.

- n. Emission Limitation:  
131.4 tons/year of nitrogen oxide

Applicable Compliance Method:

Multiply the stack test emission factor established per Additional Special Term and Condition D.2.e by the actual amount of steel produced per rolling, 12-month period (tons/year) and divide by 2000 lbs/ton.

- o. Emission Limitation:  
2882 tons/year of carbon monoxide

Applicable Compliance Method:

Multiply the stack test emission factor established per Additional Special Term and Condition D.2.e by the actual amount of steel processed per rolling, 12-month period (tons/year) and divide by 2000 lbs/ton.

**The Timken Co**  
**PTI Application: 15-01339**  
**Modification Issued: 10/11/2001**

Facility ID: 1576000613

- p. Emission Limitation:  
60 tons/year of VOC

Applicable Compliance Method:  
Multiply the stack test emission factor established per Additional Special Term and Condition D.2.e by the actual amount of steel produced per rolling, 12-month period (tons/year), and divide by 2000 lbs/ton.

- q. Emission Limitation:  
0.79 ton/year of lead

Applicable Compliance Method:  
Multiply the stack test emission factor established per Additional Special Term and Condition D.2.e by the actual amount of steel produced per rolling, 12-month period (tons/year), and divide by 2000 lbs/ton.

- r. Emission Limitation:  
4.2 tons/year of fluoride

Applicable Compliance Method:  
Multiply the stack test emission factor established per Additional Special Term and Condition D.2.e by the actual amount of steel produced per rolling, 12-month period (tons/year) and divide by 2000 lbs/ton.

- s. Production Limitation:  
1,200,000 tons of steel produced per year, based upon a rolling, 12-month summation of the tons of steel produced per month.

Applicable Compliance Method:  
Recordkeeping per Additional Special Term and Condition B.6 and reporting per Additional Special Term and Condition C.1.

- t. Emission Limitation:  
0.0037 lb Hg/hr and 0.012 ton/yr

Applicable Compliance Method:  
Analysis of EAF baghouse dust

2. The permittee shall conduct, or have conducted, emission testing for this emissions unit in

**The Timken Co**

Facility ID: **1576000613**

**PTI Application: 15-01339**

**Modification Issued: 10/11/2001**

accordance with the following requirements:

- a. The emission testing shall be conducted no later than 90 days after the modifications to this emissions unit have been completed.
- b. The test(s) shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the Canton City Health Department, Air Pollution Control Division.
- c. The parametric monitoring requirements established per Additional Special Term and Conditions A.5 and B.2.
- d. The permittee shall determine compliance with the particulate matter standards as follows:
  - i. Method 5D shall be used for positive-pressure fabric filters to determine the particulate matter concentration and volumetric flow rate of the effluent gas. The sampling time and sample volume for each run shall be at least 4 hours and 4.50 dscm (160 DSCF) and, when a single EAF is sampled, the sampling time shall include an integral number of heats.
  - ii. Method 9 and the procedures of 40 CFR Part 60.11 shall be used to determine opacity.
  - iii. The test runs shall be conducted concurrently, unless inclement weather interferes.
- e. The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s):
  - i. for PM<sub>10</sub>, Method 201 of 40 CFR Part 60, Appendix A  
for PM<sub>10</sub>, Method 202 of 40 CFR Part 60, Appendix A (condensable)
  - ii. for SO<sub>2</sub>, Method 6 of 40 CFR Part 60, Appendix A
  - iii. for NO<sub>x</sub>, Method 7 of 40 CFR Part 60, Appendix A
  - iv. for CO, Method 10 of 40 CFR Part 60, Appendix A
  - v. for VOC, Method 25 of 40 CFR Part 60, Appendix A

- vi. for Pb, Method 12 of 40 CFR Part 60, Appendix A
- vii. for Fl, Method 13 of 40 CFR Part 60, Appendix A
- f. During the particulate matter runs, the permittee shall obtain the following additional information:
  - i. The pressure in the free space inside the furnace shall be determined during the melting and refining period(s) using the monitoring devices required under Additional Special Term and Additional Special Term and Condition B.2.a of this permit.
  - ii. The control system fan motor amperes and all damper positions or the volumetric flow rate through each separately ducted hood shall be determined during all periods in which a hood is operated for the purpose of capturing emissions from the EAFs.
- g. During performance tests, the permittee shall not add gaseous diluents to the effluent gas stream after the fabric in any pressurized fabric filter collector unless the amount of dilution is separately determined and considered in the determination of emissions.
- h. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the appropriate Ohio EPA District Office or local air agency. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA District Office's or local air agency's refusal to accept the results of the emission test(s).

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

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the appropriate Ohio EPA District Office or local air agency within 30 days following completion of the test(s).

**E. Miscellaneous Requirements (P102)**

**The Timken Co**

Facility ID: **1576000613**

**PTI Application: 15-01339**

**Modification Issued: 10/11/2001**

1. Pursuant to Engineering Guide #69, modeling to demonstrate compliance with the Ohio EPA's Air Toxic Policy was not necessary since the emissions unit's maximum annual emissions for each toxic compound will be less than 1.0 ton. OAC Chapter 3745-31 requires permittees to apply for and obtain a new or modified permit to install prior to making a "modification" as defined by OAC rule 3745-31-01. The permittee is hereby advised that changes in the composition of materials, or use of new materials, that would result in an increase in emissions of any pollutant that has a listed TLV to above 1.0 ton per year may require the permittee to apply for and obtain a new permit to install.
  
2. Netting Demonstration for CO

Emissions Increase Due to Modification:

The planned modification of emissions unit P102 (and increase in emissions from debottlenecking) and the planned installation of emissions units P090-P092, P126-P129, P603-P606 results in the following increases:

**The Timken Co**Facility ID: **1576000613****PTI Application: 15-01339****Modification Issued: 10/11/2001**

Pollutant	Increase in Production EAF (tons/yr)	Debottlenecking (tons/yr)	New Emissions Units (tons/yr)	Total (tons/yr)
PM	34.6	2.82	12.07	49.49
PM10	26.9	2.82	11.37	41.09
VOC	19.0	0.16	6.64	25.80
NOx	42.0	4.06	170.06	216.12
CO	923.0	2.44	101.79	1027.23
SO2	8.0	0.02	4.88	12.90
Pb	0.25	-----	-----	0.25
Fl	1.3	-----	-----	1.30

Pollutant	Emissions	
	Increase	PSD Threshold
PM	49.49	25
PM10	41.09	15
VOC	25.80	40
CO	1,027.23	100
SO2	12.90	40
NOx	216.12	40
Pb	0.25	0.6
Fluorides	1.3	3

PM, PM10, CO, & NOx emission increases are above the PSD thresholds. CO is the only pollutant that can net out of PSD.

Contemporaneous CO Emissions Increases & Decreases

Plant	Action	Date	EU Description	Increase (tpy)	Decrease (tpy)
Faircrest	Install	01/95	P024 Soaking Pit #11	7.4	----
Faircrest	Remove	1995	P013 Car Furnace	----	-4.6
Faircrest	Remove	1995	P014 Car Furnace	----	-4.6
Harrison	Modif.	1995	P058 EAF #9 Trans/4th hole	----	-947*
Harrison	Modif.	1995	---- Steel Finishing EAF #9	2.5	----
Harrison	Modif.	1995	P902 EAF #2 4th hole	----	-807*
Harrison	Remove	1998	P906 EAF #7	----	-706
Gambrinus	Install	1997	---- 25 MMBtu Reheat Furn	9.2	----
Harrison	Install	1997	P084 Reheat Furnace	68.0	----
Harrison	Install	1997	P085 Reheat Furnace	13.0	----
Harrison	Remove	1997	P032 124 MMBtu Reheat Furn	----	-24.0

**The Timken Co**  
**PTI Application: 15-01339**  
**Modification Issued: 10/11/2001**

Facility ID: 1576000613

Harrison	Remove	1998	P061	126 MMBtu Reheat Furn	----	-19.0
Harrison	Remove	1999	P066	122 MMBtu Reheat Furn	----	-13.0
						100.1
						-2525.2
						Net -2425.1

\*Timken installed fourth-hole evacuation controls on three Electric Arc Furnaces (EAFs) at the Harrison Steel Plant as follows:

EAF #2 (EPA EU P902/P292) 63 tons/hr: May 1995 (May 1993 to May 1995 used to determine two-year average actual steel production).

EAF #9 (EPA EU P058/P258) 63 tons/hr: October 1995 (May 1993 to May 1995 was used to determine two-year average actual steel production because the transformer upgrade occurred in May 1995 and in order to simplify the netting calculation, both projects were combined).

EAF #7 (EPA EU P906/P296) 32 tons/hr: March 1996 (July 1994 to July 1996 used to determine two-year average actual steel production). This emissions unit was removed in 1998.

The fourth-hole evacuation system consists of a fourth-hole in the furnace roof and a fourth-hole elbow to direct the off-gas into a fixed water-cooled duct. Fourth-hole evacuation provided operational benefits (e.g., reduced furnace pressure, slower electrode consumption, increased electrode clamp life) as well as environmental benefits. As USEPA notes in AP-42, section 12.5.2.5 - Steel making - Electric Arc Furnace:

...emission capture systems used in the industry are fourth hole (direct shell) evacuation, side draft hood, combination hood, canopy hood, and furnace enclosures. Direct shell evacuation consists of ductwork attached to a separate or fourth hole in the furnace roof which draws emissions to a gas cleaner. The fourth hole system works only when the furnace is upright with the roof in place... An airgap in the ducting introduces secondary air for combustion of CO in the exhaust gas.

Since the installation occurred within the previous 5-years, Timken is claiming the reduction in CO as a result of this installation to net out the CO increases from this permit based on the following tables:

Table 1 - Testing results

Date of test	CO Emissions, lb CO/ton steel produced	OEPA representative present as witness
12/7/1990 Run #1	1.75	Andy Pasko
12/7/1990 Run #2	3.74	Andy Pasko
12/7/1990 Run #3	4.8	Andy Pasko
12/7/1990 Run #4	3.87	Andy Pasko
12/7/1990 Run #5	1.99	Andy Pasko
12/7/1990 Run #6	4.4	Andy Pasko

**The Timken Co**Facility ID: **1576000613****PTI Application: 15-01339****Modification Issued: 10/11/2001**

Testing was conducted on EAF #1 (EPA EU P002/P102) at the Faircrest Steel Plant. This EAF's capacity in 1990 was 196 tons/melt or 96 tons/hr (Based on a 100 minute cycle). This test was conducted at a production rate of 196 tons/melt. The value from Run #3 of 4.8 tons CO/ton of steel produced was used to establish the emissions factor because it represents the highest value of the six runs.

Table 2 - Netting Demonstration

	EAF #2	EAF #9	
Emission factor in lbs CO/ton of steel produced, prior to fourth-hole evacuation installation (FHEI) <sup>1</sup>	18	18	
Total tons of steel produced during the 24 months prior to FHEI <sup>2</sup>	347,258	378,480	
Average 2-year emissions prior to FHEI in tons CO/year <sup>3</sup>	1,563	1,703	
Potential maximum throughput of each furnace after FHEI in tons steel produced/yr	315,000	315,000	
Emission factor, in lbs CO/ton of steel produced, after FHEI <sup>5</sup>	4.8	4.8	
Potential emissions after FHEI in tons CO/year <sup>6</sup>	756	756	
Net change in emissions in tons CO/yr <sup>7</sup>	-807	-947	

<sup>1</sup> Based on the results of Table 1.

<sup>2</sup> Monthly data collected by permittee for each 24-month period.

<sup>3</sup> Line 1 \* Line 2 divided by 4,000

<sup>4</sup> For EAFs #2 & #9 this limit is to be established in PTI 15-1293 as federally enforceable 12-month rolling average. For EAF #7 this limit is based on maximum production capability.

<sup>5</sup> This emission factor was developed based on the CO emission test conducted on EAF #1 (EPA EU P002/P102) at the Faircrest Steel Plant.

<sup>6</sup> Line 4 \* Line 5 divided by 2,000.

<sup>7</sup> Line 3 minus Line 6.

The sum of the net change from the two EAFs is -1,754 tons CO/year.

Because of the large emission reduction, the emissions factors used in the determination of the PTE, after controls will be verified for EAFs #2 & #9 through a stack testing requirement found in PTI 15-1293).

The Timken Co  
 PTI Application: 15-01339  
 Modification Issued: 10/11/2001

Facility ID: 1576000613

"Net" Emissions change due to modification:

PTI Increase (tpy)	Contemporaneous Increase (tpy)	Contemporaneous Net Decrease (tpy)	(tpy)
1,027.23	+ 100.1	- 2,525.2	= -1,397.87

Conclusion

The modification of P102 (with associated emission increases from debottlenecking) and the installation of emissions units P090-P092, P126-P129, P603-P606 in conjunction with the contemporaneous changes and installation of various emissions units results in a "net" decrease in facility emissions of 1,397.87 tpy of carbon monoxide. The PSD major modification significance threshold for CO is 100 tpy. Consequently, since the "net" change is less than this threshold, the modification of P102 and the installation of emissions units P090-P092, P126-P129, P603-P606 has "netted out" of Prevention of Significant Deterioration review for CO emissions.

**II. Emissions Unit P603 - Rotary Furnace**

**A. Operational Restrictions (P603)**

1. The permittee shall only burn natural gas in this emissions unit.
2. The rotary furnace, including all associated equipment (including but not limited to low NOx burners), shall be operated and maintained in accordance with the manufacturer's specifications.

**B. Monitoring and/or Recordkeeping Requirements (P603)**

1. For each day during which the permittee burns a fuel other than natural gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
2. 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. Reporting Requirements (P603)**

1. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas was burned in this emissions unit.

2. The permittee shall submit required reports in the following manner:
  - a. reports shall be submitted to the Canton local air agency; and
  - 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 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 preventative measures which have been or will be taken shall be submitted to the Canton local air agency. 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, i.e., by January 15, April 15, July 15, and October 15 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).

**D. Compliance Methods and Testing Requirements (P603)**

1. Compliance with the emissions limitations of this permit shall be determined in accordance with the following methods:
  - a. Emission Limitation:  
0.008 lb/MMBtu and 0.28 lb/hr of particulate matter  
  
Applicable Compliance Method:  
Multiply the particulate matter emission factor of 7.6 lbs PM per million cubic feet of natural gas (AP42 Table 1.4-2, 3/98 Edition) by the maximum hourly natural gas consumption rate of 0.03689 million cubic feet/hour = 0.28 lb/hr.
  - b. Visible Emission Limitation:  
Visible particulate emissions from this emissions unit's stack shall not exceed 5% opacity for a 6-minute average.  
  
Applicable Compliance Method:  
Presumptive compliance shall be achieved with the visible emission limit based on the exclusive use of natural gas in this emissions unit.
  - c. Emission Limitation:  
5.16 lbs NO<sub>x</sub>/hr and 0.14 lb NO<sub>x</sub>/MMBtu  
  
Applicable Compliance Method:  
Emissions test see Additional Special Term and Condition D.2

- d. Emission Limitation:  
0.084 lb/MMBtu and 3.1 lbs/hr of carbon monoxide
- Applicable Compliance Method:  
Multiply the carbon monoxide emission factor of 84 lbs CO per million cubic feet of natural gas (AP42 Table 1.4-1, 3/98 Edition) by the maximum hourly natural gas consumption rate 0.03689 million cubic feet/hr = 3.1 lbs/hr.
- e. Emission Limitation:  
0.00054 lb/MMBtu and 0.02 lb/hr of sulfur dioxide
- Applicable Compliance Method:  
Multiply the sulfur dioxide emission factor of 0.6 lb SO<sub>2</sub> per million cubic feet of natural gas (AP42 Table 1.4-2, 3/98 Edition) by the maximum hourly natural gas consumption rate 0.03689 million cubic feet/hr = 0.02 lb/hr.
- f. Emission Limitation:  
0.0054 lb/MMBtu and 0.2 lb/hr of volatile organic compounds
- Applicable Compliance Method:  
Multiply the volatile organic compound emission factor of 5.5 lbs VOC per million cubic feet of natural gas (AP42 Table 1.4-2, 3/98 Edition) by the maximum hourly natural gas consumption rate of 0.03689 million cubic feet/hr.
- g. Emission Limitation:  
1.23 tons PM/yr, 22.6 tons NO<sub>x</sub>/yr, 13.58 tons CO/yr, 0.09 ton SO<sub>2</sub>/yr & 0.88 ton VOC/yr
- Applicable Compliance Method:  
These limits are simply the product of the hourly limits times 8,760 hrs/year.
2. The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:
- a. The emission testing shall be conducted within 6 months after the start-up of this emissions unit.
- b. The emissions testing shall be conducted to demonstrate compliance with the combined allowable mass emission rate for nitrogen oxides of 5.16 lbs/hr.
- c. Method 7, found in 40 CFR 60 Appendix A, shall be employed to demonstrate compliance.
- d. This emissions unit shall be operated at maximum capacity during the emissions

test.

- e. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Canton local air agency. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Canton local air agency's refusal to accept the results of the emission test(s).

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

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Canton local air agency within 30 days following completion of the test(s).

**E. Miscellaneous Requirements (P603)**

1. Netting Demonstration for CO

Emissions Increase Due to Modification:

The planned modification of emissions unit P102 (and increase in emissions from debottlenecking) and the planned installation of emissions units P090-P092, P126-P129, P603-P606 results in the following increases:

Pollutant	Increase in Production EAF (tons/yr)	Debottlenecking (tons/yr)	New Emissions Units (tons/yr)	Total (tons/yr)
PM	34.6	2.82	12.07	49.49
PM10	26.9	2.82	11.37	41.09
VOC	19.0	0.16	6.64	25.80
NOx	42.0	4.06	170.06	216.12
CO	923.0	2.44	101.79	1027.23
SO2	8.0	0.02	4.88	12.90
Pb	0.25	-----	-----	0.25

53

**The Timken Co**  
**PTI Application: 15-01339**  
**Modification Issued: 10/11/2001**

Facility ID: **1576000613**

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**The Timken Co**  
**PTI Application: 15-01339**  
**Modification Issued: 10/11/2001**

Facility ID: 1576000613

Pollutant	Emissions Increase	PSD Threshold
PM	49.49	25
PM10	41.09	15
VOC	25.80	40
CO	1,027.23	100
SO2	12.90	40
NOx	216.12	40
Pb	0.25	0.6
Fluorides	1.3	3

PM, PM10, CO, & NOx emission increases are above the PSD thresholds. CO is the only pollutant that can net out of PSD.

Contemporaneous CO Emissions Increases & Decreases

Plant	Action	Date	EU Description	Increase (tpy)	Decrease (tpy)
Faircrest	Install	01/95	P024 Soaking Pit #11	7.4	----
Faircrest	Remove	1995	P013 Car Furnace	----	-4.6
Faircrest	Remove	1995	P014 Car Furnace	----	-4.6
Harrison	Modif.	1995	P058 EAF #9 Trans/4th hole	----	-947*
Harrison	Modif.	1995	---- Steel Finishing EAF #9	2.5	----
Harrison	Modif.	1995	P902 EAF #2 4th hole	----	-807*
Harrison	Remove	1998	P906 EAF #7	----	-706
Gambrinus	Install	1997	---- 25 MMBtu Reheat Furn	9.2	----
Harrison	Install	1997	P084 Reheat Furnace	68.0	----
Harrison	Install	1997	P085 Reheat Furnace	13.0	----
Harrison	Remove	1997	P032 124 MMBtu Reheat Furn	----	-24.0
Harrison	Remove	1998	P061 126 MMBtu Reheat Furn	----	-19.0
Harrison	Remove	1999	P066 122 MMBtu Reheat Furn	----	-13.0
				100.1	-2525.2
				Net --2425.1	

\*Timken installed fourth-hole evacuation controls on three Electric Arc Furnaces (EAFs) at the Harrison Steel

**The Timken Co**Facility ID: **1576000613****PTI Application: 15-01339****Modification Issued: 10/11/2001**

Plant as follows:

EAF #2 (EPA EU P902/P292) 63 tons/hr: May 1995 (May 1993 to May 1995 used to determine two-year average actual steel production).

EAF #9 (EPA EU P058/P258) 63 tons/hr: October 1995 (May 1993 to May 1995 was used to determine two-year average actual steel production because the transformer upgrade occurred in May 1995 and in order to simplify the netting calculation, both projects were combined).

EAF #7 (EPA EU P906/P296) 32 tons/hr: March 1996 (July 1994 to July 1996 used to determine two-year average actual steel production). This emissions unit was removed in 1998.

The fourth-hole evacuation system consists of a fourth-hole in the furnace roof and a fourth-hole elbow to direct the off-gas into a fixed water-cooled duct. Fourth-hole evacuation provided operational benefits (e.g., reduced furnace pressure, slower electrode consumption, increased electrode clamp life) as well as environmental benefits. As USEPA notes in AP-42, section 12.5.2.5 - Steel making - Electric Arc Furnace:

...emission capture systems used in the industry are fourth hole (direct shell) evacuation, side draft hood, combination hood, canopy hood, and furnace enclosures. Direct shell evacuation consists of ductwork attached to a separate or fourth hole in the furnace roof which draws emissions to a gas cleaner. The fourth hole system works only when the furnace is upright with the roof in place... An airgap in the ducting introduces secondary air for combustion of CO in the exhaust gas.

Since the installation occurred within the previous 5-years, Timken is claiming the reduction in CO as a result of this installation to net out the CO increases from this permit based on the following tables:

Table 1 - Testing results

Date of test	CO Emissions, lb CO/ton steel produced	OEPA representative present as witness
12/7/1990 Run #1	1.75	Andy Pasko
12/7/1990 Run #2	3.74	Andy Pasko
12/7/1990 Run #3	4.8	Andy Pasko
12/7/1990 Run #4	3.87	Andy Pasko
12/7/1990 Run #5	1.99	Andy Pasko
12/7/1990 Run #6	4.4	Andy Pasko

Testing was conducted on EAF #1 (EPA EU P002/P102) at the Faircrest Steel Plant. This EAF's capacity in 1990 was 196 tons/melt or 96 tons/hr (Based on a 100 minute cycle). This test was conducted at a production rate of 196 tons/melt. The value from Run #3 of 4.8 tons CO/ton of steel produced was used to establish the emissions factor because it represents the highest value of the six runs.

Table 2 - Netting Demonstration

	EAF #2	EAF #9	
Emission factor in lbs CO/ton of steel produced, prior to fourth-hole evacuation installation (FHEI) <sup>1</sup>	18	18	
Total tons of steel produced during the 24 months prior to FHEI <sup>2</sup>	347,258	378,480	

**The Timken Co**  
**PTI Application: 15-01339**  
**Modification Issued: 10/11/2001**

Facility ID: 1576000613

Average 2-year emissions prior to FHEI in tons CO/year <sup>3</sup>	1,563	1,703	
Potential maximum throughput of each furnace after FHEI in tons steel produced/yr	315,000	315,000	
Emission factor, in lbs CO/ton of steel produced, after FHEI <sup>5</sup>	4.8	4.8	
Potential emissions after FHEI in tons CO/year <sup>6</sup>	756	756	
Net change in emissions in tons CO/yr <sup>7</sup>	-807	-947	

<sup>1</sup> Based on the results of Table 1.

<sup>2</sup> Monthly data collected by permittee for each 24-month period.

<sup>3</sup> Line 1 \* Line 2 divided by 4,000

<sup>4</sup> For EAFs #2 & #9 this limit is to be established in PTI 15-1293 as federally enforceable 12-month rolling average. For EAF #7 this limit is based on maximum production capability.

<sup>5</sup> This emission factor was developed based on the CO emission test conducted on EAF #1 (EPA EU P002/P102) at the Faircrest Steel Plant.

<sup>6</sup> Line 4 \* Line 5 divided by 2,000.

<sup>7</sup> Line 3 minus Line 6.

The sum of the net change from the two EAFs is -1,754 tons CO/year.

Because of the large emission reduction, the emissions factors used in the determination of the PTE, after controls will be verified for EAFs #2 & #9 through a stack testing requirement found in PTI 15-1293).

"Net" Emissions change due to modification:

PTI Increase (tpy)	Contemporaneous Increase (tpy)	Contemporaneous Net Decrease (tpy)	Net (tpy)
1,027.23	+ 100.1	- 2,525.2	= -1,397.87

Conclusion

The modification of P102 (with associated emission increases from debottlenecking) and the installation of emissions units P090-P092, P126-P129, P603-P606 in conjunction with the contemporaneous changes and installation of various emissions units results in a "net" decrease in facility emissions of 1,397.87 tpy of carbon monoxide. The PSD major modification significance threshold for CO is 100 tpy. Consequently, since the "net" change is less than this threshold, the modification of P102 and the installation of

The Timken Co

Facility ID: 1576000613

PTI Application: 15-01339

Modification Issued: 10/11/2001

emissions units P090-P092, P126-P129, P603-P606 has "netted out" of Prevention of Significant Deterioration review for CO emissions.

**III. Emissions Unit P604 - Roller Hearth Furnace No. 1**  
**Emissions Unit P605 - Roller Hearth Furnace No. 2**  
**Emissions Unit P606 - Roller Hearth Furnace No. 3**

**A. Operational Restrictions (P604, P605, P606)**

1. The permittee shall only burn natural gas in this emissions unit.
2. The roller hearth furnace, including all associated equipment (including but not limited to low NO<sub>x</sub> burners), shall be operated and maintained in accordance with the manufacturer's specifications.

**B. Monitoring and/or Recordkeeping Requirements (P604, P605, P606)**

1. For each day during which the permittee burns a fuel other than natural gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
2. 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. Reporting Requirements (P604, P605, P606)**

1. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas was burned in this emissions unit.
2. The permittee shall submit required reports in the following manner:
  - a. reports shall be submitted to the Canton local air agency; and
  - 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 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 preventative measures which have been or will be taken shall be submitted to the Canton local air agency. 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, i.e., by January 15, April 15, July 15, and

58

**The Timken Co**

**PTI Application: 15-01339**

**Modification Issued: 10/11/2001**

Facility ID: **1576000613**

October 15 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).

**D. Compliance Methods and Emission Testing Requirements (P604, P605, P606)**

1. Compliance with the emissions limitations of this permit shall be determined in accordance with the following methods:

- a. Emission Limitation:  
0.008 lb/MMBtu and 0.06 lb/hr of particulate matter

Applicable Compliance Method:

Multiply the particulate matter emission factor of 7.6 lbs PM per million cubic feet of natural gas (AP42 Table 1.4-2, 3/98 Edition) by the maximum hourly natural gas consumption rate of 0.007812 million cubic feet/hr = 0.059 lb/hr.

- b. Visible Emission Limitation:  
Visible particulate emissions from this emissions unit's stack shall not exceed 5% as a 6-minute average.

Applicable Compliance Method:

Presumptive compliance shall be achieved with the visible emission limit based on the exclusive use of natural gas in this emissions unit.

- c. Emission Limitation:  
0.14 lb NO<sub>x</sub>/MMBtu and 1.1 lbs NO<sub>x</sub>/hr

Applicable Compliance Method:

Mfg. guarantee

- d. Emission Limitation:  
0.084 lb/MMBtu and 0.66 lb/hr of carbon monoxide

Applicable Compliance Method:

Multiply the carbon monoxide emission factor of 84 lbs CO per million cubic feet of natural gas (AP42 Table 1.4-1, 3/98 Edition) by the maximum hourly natural gas consumption rate 0.007812 million cubic feet/hr = 0.656 lb/hr.

- e. Emission Limitation:  
0.00064 lb/MMBtu and 0.005 lb/hr of sulfur dioxide

Applicable Compliance Method:

Multiply the sulfur dioxide emission factor of 0.6 lb SO<sub>2</sub> per million cubic feet of natural gas (AP42 Table 1.4-2, 3/98 Edition) by the maximum hourly natural gas consumption rate of 0.007812 million cubic feet/hr = 0.0047 lb/hr.

The Timken Co

Facility ID: 1576000613

PTI Application: 15-01339

Modification Issued: 10/11/2001

- f. Emission Limitation:  
0.005 lb/MMBtu and 0.04 lb/hr of volatile organic compounds

Applicable Compliance Method:

Multiply the volatile organic compound emission factor of 5.5 lbs VOC per million cubic feet of natural gas (AP42 Table 1.4-2 3/98 Edition) by the maximum hourly natural gas consumption rate 0.007812 million cubic feet/hr = 0.043 lb/hr.

- g. Emission Limitation:  
0.26 ton PM/yr, 4.82 tons NO<sub>x</sub>/yr, 2.89 tons CO/yr, 0.02 ton SO<sub>2</sub>/yr & 0.18 ton VOC/yr

Applicable Compliance Method:

These limits are simply the product of the hourly limits times 8,760.

#### E. Miscellaneous Requirements (P604, P605, P606)

1. Netting Demonstration for CO

##### Emissions Increase Due to Modification:

The planned modification of emissions unit P102 (and increase in emissions from debottlenecking) and the planned installation of emissions units P090-P092, P126-P129, P603-P606 results in the following increases:

Pollutant	Increase in Production EAF (tons/yr)	Debottlenecking (tons/yr)	New Emissions Units (tons/yr)	Total (tons/yr)
PM	34.6	2.82	12.07	49.49
PM10	26.9	2.82	11.37	41.09
VOC	19.0	0.16	6.64	25.80
NO <sub>x</sub>	42.0	4.06	170.06	216.12
CO	923.0	2.44	101.79	1027.23
SO <sub>2</sub>	8.0	0.02	4.88	12.90
Pb	0.25	-----	-----	0.25
Fl	1.3	-----	-----	1.30

Pollutant	Emissions Increase	PSD Threshold
PM	49.49	25
PM10	41.09	15
VOC	25.80	40
CO	1,027.23	100

**The Timken Co**

Facility ID: 1576000613

**PTI Application: 15-01339****Modification Issued: 10/11/2001**

SO2	12.90	40
NOx	216.12	40
Pb	0.25	0.6
Fluorides	1.3	3

PM, PM10, CO, & NOx emission increases are above the PSD thresholds. CO is the only pollutant that can net out of PSD.

Contemporaneous CO Emissions Increases & Decreases

Plant	Action	Date	EU Description	Increase (tpy)	Decrease (tpy)
Faircrest	Install	01/95	P024 Soaking Pit #11	7.4	----
Faircrest	Remove	1995	P013 Car Furnace	----	-4.6
Faircrest	Remove	1995	P014 Car Furnace	----	-4.6
Harrison	Modif.	1995	P058 EAF #9 Trans/4th hole	----	-947*
Harrison	Modif.	1995	---- Steel Finishing EAF #9	2.5	----
Harrison	Modif.	1995	P902 EAF #2 4th hole	----	-807*
Harrison	Remove	1998	P906 EAF #7	----	-706
Gambrinus	Install	1997	---- 25 MMBtu Reheat Furn	9.2	----
Harrison	Install	1997	P084 Reheat Furnace	68.0	----
Harrison	Install	1997	P085 Reheat Furnace	13.0	----
Harrison	Remove	1997	P032 124 MMBtu Reheat Furn	----	-24.0
Harrison	Remove	1998	P061 126 MMBtu Reheat Furn	----	-19.0
Harrison	Remove	199 9	P066 122 MMBtu Reheat Furn	----	-13.0
				100.1	-2525.2
				Net -2425.1	

\*Timken installed fourth-hole evacuation controls on three Electric Arc Furnaces (EAFs) at the Harrison Steel Plant as follows:

EAF #2 (EPA EU P902/P292) 63 tons/hr: May 1995 (May 1993 to May 1995 used to determine two-year average actual steel production).

EAF #9 (EPA EU P058/P258) 63 tons/hr: October 1995 (May 1993 to May 1995 was used to determine two-year average actual steel production because the transformer upgrade occurred in May 1995 and in order to simplify the netting calculation, both projects were combined).

**The Timken Co**Facility ID: **1576000613****PTI Application: 15-01339****Modification Issued: 10/11/2001**

EAF #7 (EPA EU P906/P296) 32 tons/hr: March 1996 (July 1994 to July 1996 used to determine two-year average actual steel production). This emissions unit was removed in 1998.

The fourth-hole evacuation system consists of a fourth-hole in the furnace roof and a fourth-hole elbow to direct the off-gas into a fixed water-cooled duct. Fourth-hole evacuation provided operational benefits (e.g., reduced furnace pressure, slower electrode consumption, increased electrode clamp life) as well as environmental benefits. As USEPA notes in AP-42, section 12.5.2.5 - Steel making - Electric Arc Furnace:

...emission capture systems used in the industry are fourth hole (direct shell) evacuation, side draft hood, combination hood, canopy hood, and furnace enclosures. Direct shell evacuation consists of ductwork attached to a separate or fourth hole in the furnace roof which draws emissions to a gas cleaner. The fourth hole system works only when the furnace is upright with the roof in place... An airgap in the ducting introduces secondary air for combustion of CO in the exhaust gas.

Since the installation occurred within the previous 5-years, Timken is claiming the reduction in CO as a result of this installation to net out the CO increases from this permit based on the following tables:

Table 1 - Testing results

Date of test	CO Emissions, lb CO/ton steel produced	OEPA representative present as witness
12/7/1990 Run #1	1.75	Andy Pasko
12/7/1990 Run #2	3.74	Andy Pasko
12/7/1990 Run #3	4.8	Andy Pasko
12/7/1990 Run #4	3.87	Andy Pasko
12/7/1990 Run #5	1.99	Andy Pasko
12/7/1990 Run #6	4.4	Andy Pasko

Testing was conducted on EAF #1 (EPA EU P002/P102) at the Faircrest Steel Plant. This EAF's capacity in 1990 was 196 tons/melt or 96 tons/hr (Based on a 100 minute cycle). This test was conducted at a production rate of 196 tons/melt. The value from Run #3 of 4.8 tons CO/ton of steel produced was used to establish the emissions factor because it represents the highest value of the six runs.

Table 2 - Netting Demonstration

	EAF #2	EAF #9	
Emission factor in lbs CO/ton of steel produced, prior to fourth-hole evacuation installation (FHEI) <sup>1</sup>	18	18	
Total tons of steel produced during the 24 months prior to FHEI <sup>2</sup>	347,258	378,480	
Average 2-year emissions prior to FHEI in tons CO/year <sup>3</sup>	1,563	1,703	
Potential maximum throughput of each furnace after FHEI in tons steel produced/yr	315,000	315,000	
Emission factor, in lbs CO/ton of steel produced, after FHEI <sup>5</sup>	4.8	4.8	
Potential emissions after FHEI in tons CO/year <sup>6</sup>	756	756	

The Timken Co

Facility ID: 1576000613

PTI Application: 15-01339

Modification Issued: 10/11/2001

Net change in emissions in tons CO/yr <sup>7</sup>	-807	-947	
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<sup>1</sup> Based on the results of Table 1.

<sup>2</sup> Monthly data collected by permittee for each 24-month period.

<sup>3</sup> Line 1 \* Line 2 divided by 4,000

<sup>4</sup> For EAFs #2 & #9 this limit is to be established in PTI 15-1293 as federally enforceable 12-month rolling average. For EAF #7 this limit is based on maximum production capability.

<sup>5</sup> This emission factor was developed based on the CO emission test conducted on EAF #1 (EPA EU P002/P102) at the Faircrest Steel Plant.

<sup>6</sup> Line 4 \* Line 5 divided by 2,000.

<sup>7</sup> Line 3 minus Line 6.

The sum of the net change from the two EAFs is -1,754 tons CO/year.

Because of the large emission reduction, the emissions factors used in the determination of the PTE, after controls will be verified for EAFs #2 & #9 through a stack testing requirement found in PTI 15-1293).

"Net" Emissions change due to modification:

PTI Increase (tpy)	Contemporaneous Increase (tpy)	Contemporaneous Decrease (tpy)	Net (tpy)
1,027.23	+ 100.1	- 2,525.2	= -1,397.87

Conclusion

The modification of P102 (with associated emission increases from debottlenecking) and the installation of emissions units P090-P092, P126-P129, P603-P606 in conjunction with the contemporaneous changes and installation of various emissions units results in a "net" decrease in facility emissions of 1,397.87 tpy of carbon monoxide. The PSD major modification significance threshold for CO is 100 tpy. Consequently, since the "net" change is less than this threshold, the modification of P102 and the installation of emissions units P090-P092, P126-P129, P603-P606 has "netted out" of Prevention of Significant Deterioration review for CO emissions.

**IV. Emissions Unit P128 - Ladle Refiner**

**A. Operational Restrictions (P128)**

1. The permittee shall burn only natural gas in this emissions unit.
2. The ladle refiner, including all associated equipment, shall be operated and maintained in accordance with the manufacturer's specifications.
3. All of the emissions from this emissions unit shall be captured and vented through the fabric filter serving emissions unit P102 (EAF).

**B. Monitoring and/or Recordkeeping Requirements (P128)**

1. For each day during which the permittee burns a fuel other than natural gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
2. 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, all original strip-charts recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. Such records may be maintained in computerized form.

**C. Reporting Requirements (P128)**

1. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas was burned in this emissions unit. Each report shall be submitted to the Canton local air agency within 30 days after the deviation occurs.

**D. Compliance Methods and Emission Testing Requirements (P128)**

1. Compliance with the emissions limitations of this permit shall be determined in accordance with the following methods:
  - a. Emission Limitation:  
0.68 lb/hr of PM  
  
Applicable Compliance Method:  
See emissions testing for P102.
  - b. Emission Limitation:  
0.53 lb/hr of PM<sub>10</sub>  
  
Applicable Compliance Method:  
See emissions testing for P102.

65

**The Timken Co**

**PTI Application: 15-01339**

**Modification Issued: 10/11/2001**

Facility ID: **1576000613**

- c. Emission Limitation:  
1.67 lbs/hr of nitrogen oxides

**The Timken Co**

**PTI Application: 15-01339**

**Modification Issued: 10/11/2001**

Facility ID: **1576000613**

Applicable Compliance Method:  
See emissions testing for P102.

- d. Emission Limitation:  
0.41 lb/hr of carbon monoxide

Applicable Compliance Method:  
See emissions testing for P102.

- e. Emission Limitation:  
0.98 lb/hr of sulfur dioxide

Applicable Compliance Method  
See emissions testing for P102.

- f. Emission Limitation:  
0.03 lb/hr of volatile organic compounds

Applicable Compliance Method:  
See emissions testing for P102.

- g. Emission Limitation:  
3.0 tons/year of PM  
2.3 tons/year of PM<sub>10</sub>  
7.3 tons/year of nitrogen oxides  
4 tons/year of carbon monoxide  
4.1 tons/year of sulfur dioxide  
0.3 ton/year of volatile organic compounds

Applicable Compliance Method:  
The ton/year limitations were developed by multiplying the lb/hr limitations by the maximum operating schedule of 8760 hrs/year and dividing by 2000 lbs/ton. Therefore, provided compliance is shown with the hourly limitations, compliance will also be shown with the annual limitations.

- h. Visible Emission Limitation:  
Visible particulate emissions from the stack servicing this emissions unit shall not exceed 3 percent opacity as a 6-minute average.  
Applicable Compliance Method:  
See Additional Special Term and Condition I.B.2.a from emissions unit P102.

The Timken Co

Facility ID: 1576000613

PTI Application: 15-01339

Modification Issued: 10/11/2001

**E. Miscellaneous Requirements (P128)**

Netting Demonstration for CO

Emissions Increase Due to Modification:

The planned modification of emissions unit P102 (and increase in emissions from debottlenecking) and the planned installation of emissions units P090-P092, P126-P129, P603-P606 results in the following increases:

Pollutant	Increase in Production EAF (tons/yr)	Debottlenecking (tons/yr)	New Emissions Units (tons/yr)	Total (tons/yr)
PM	34.6	2.82	12.07	49.49
PM10	26.9	2.82	11.37	41.09
VOC	19.0	0.16	6.64	25.80
NOx	42.0	4.06	170.06	216.12
CO	923.0	2.44	101.79	1027.23
SO2	8.0	0.02	4.88	12.90
Pb	0.25	-----	-----	0.25
Fl	1.3	-----	-----	1.30

Pollutant	Emissions Increase	PSD Threshold
PM	49.49	25
PM10	41.09	15
VOC	25.80	40
CO	1,027.23	100
SO2	12.90	40
NOx	216.12	40
Pb	0.25	0.6
Fluorides	1.3	3

PM, PM10, CO, & NOx emission increases are above the PSD thresholds. CO is the only pollutant that can net out of PSD.

Contemporaneous CO Emissions Increases & Decreases

Plant	Action	Date	EU Description	Increase (tpy)	Decrease (tpy)
Faircrest	Install	01/95	P024 Soaking Pit #11	7.4	----
Faircrest	Remove	1995	P013 Car Furnace	----	-4.6

**The Timken Co**Facility ID: **1576000613****PTI Application: 15-01339****Modification Issued: 10/11/2001**

Faircrest	Remove	1995	P014	Car Furnace	----	-4.6
Harrison	Modif.	1995	P058	EAF #9 Trans/4th hole	----	-947*
Harrison	Modif.	1995	----	Steel Finishing EAF #9	2.5	----
Harrison	Modif.	1995	P902	EAF #2 4th hole	----	-807*
Harrison	Remove	1998	P906	EAF #7	----	-706
Gambrinus	Install	1997	----	25 MMBtu Reheat Furn	9.2	----
Harrison	Install	1997	P084	Reheat Furnace	68.0	----
Harrison	Install	1997	P085	Reheat Furnace	13.0	----
Harrison	Remove	1997	P032	124 MMBtu Reheat Furn	----	-24.0
Harrison	Remove	1998	P061	126 MMBtu Reheat Furn	----	-19.0
Harrison	Remove	199 9	P066	122 MMBtu Reheat Furn	----	-13.0
					100.1	-2525.2
					Net -2425.1	

\*Timken installed fourth-hole evacuation controls on three Electric Arc Furnaces (EAFs) at the Harrison Steel Plant as follows:

EAF #2 (EPA EU P902/P292) 63 tons/hr: May 1995 (May 1993 to May 1995 used to determine two-year average actual steel production).

EAF #9 (EPA EU P058/P258) 63 tons/hr: October 1995 (May 1993 to May 1995 was used to determine two-year average actual steel production because the transformer upgrade occurred in May 1995 and in order to simplify the netting calculation, both projects were combined).

EAF #7 (EPA EU P906/P296) 32 tons/hr: March 1996 (July 1994 to July 1996 used to determine two-year average actual steel production). This emissions unit was removed in 1998.

The fourth-hole evacuation system consists of a fourth-hole in the furnace roof and a fourth-hole elbow to direct the off-gas into a fixed water-cooled duct. Fourth-hole evacuation provided operational benefits (e.g., reduced furnace pressure, slower electrode consumption, increased electrode clamp life) as well as environmental benefits. As USEPA notes in AP-42, section 12.5.2.5 - Steel making - Electric Arc Furnace:

...emission capture systems used in the industry are fourth hole (direct shell) evacuation, side draft hood, combination hood, canopy hood, and furnace enclosures. Direct shell evacuation consists of ductwork attached to a separate or fourth hole in the furnace roof which draws emissions to a gas cleaner. The fourth hole system works only when the furnace is upright with the roof in place... An airgap in the ducting introduces secondary air for combustion of CO in the exhaust gas.

Since the installation occurred within the previous 5-years, Timken is claiming the reduction in CO as a result of this installation to net out the CO increases from this permit based on the following tables:

Table 1 - Testing results

Date of test

**The Timken Co**

Facility ID: 1576000613

**PTI Application: 15-01339****Modification Issued: 10/11/2001**

	CO Emissions, lb CO/ton steel produced	OEPA representative present as witness
12/7/1990 Run #1	1.75	Andy Pasko
12/7/1990 Run #2	3.74	Andy Pasko
12/7/1990 Run #3	4.8	Andy Pasko
12/7/1990 Run #4	3.87	Andy Pasko
12/7/1990 Run #5	1.99	Andy Pasko
12/7/1990 Run #6	4.4	Andy Pasko

Testing was conducted on EAF #1 (EPA EU P002/P102) at the Faircrest Steel Plant. This EAF's capacity in 1990 was 196 tons/melt or 96 tons/hr (Based on a 100 minute cycle). This test was conducted at a production rate of 196 tons/melt. The value from Run #3 of 4.8 tons CO/ton of steel produced was used to establish the emissions factor because it represents the highest value of the six runs.

Table 2 - Netting Demonstration

	EAF #2	EAF #9	
Emission factor in lbs CO/ton of steel produced, prior to fourth-hole evacuation installation (FHEI) <sup>1</sup>	18	18	
Total tons of steel produced during the 24 months prior to FHEI <sup>2</sup>	347,258	378,480	
Average 2-year emissions prior to FHEI in tons CO/year <sup>3</sup>	1,563	1,703	
Potential maximum throughput of each furnace after FHEI in tons steel produced/yr	315,000	315,000	
Emission factor, in lbs CO/ton of steel produced, after FHEI <sup>5</sup>	4.8	4.8	
Potential emissions after FHEI in tons CO/year <sup>6</sup>	756	756	
Net change in emissions in tons CO/yr <sup>7</sup>	-807	-947	

<sup>1</sup> Based on the results of Table 1.

<sup>2</sup> Monthly data collected by permittee for each 24-month period.

<sup>3</sup> Line 1 \* Line 2 divided by 4,000

<sup>4</sup> For EAFs #2 & #9 this limit is to be established in PTI 15-1293 as federally enforceable 12-month rolling average. For EAF #7 this limit is based on maximum production capability.

<sup>5</sup> This emission factor was developed based on the CO emission test conducted on EAF #1 (EPA EU P002/P102) at the Faircrest Steel Plant.

<sup>6</sup> Line 4 \* Line 5 divided by 2,000.

<sup>7</sup> Line 3 minus Line 6.

The sum of the net change from the two EAFs is -1,754 tons CO/year.

Because of the large emission reduction, the emissions factors used in the determination of the PTE, after

**The Timken Co**  
**PTI Application: 15-01339**  
**Modification Issued: 10/11/2001**

Facility ID: **1576000613**

controls will be verified for EAFs #2 & #9 through a stack testing requirement found in PTI 15-1293).

"Net" Emissions change due to modification:

PTI Increase (tpy)	Contemporaneous Increase (tpy)	Contemporaneous Decrease (tpy)	Net (tpy)
1,027.23	+ 100.1	- 2,525.2	= -1,397.87

Conclusion

The modification of P102 (with associated emission increases from debottlenecking) and the installation of emissions units P090-P092, P126-P129, P603-P606 in conjunction with the contemporaneous changes and installation of various emissions units results in a "net" decrease in facility emissions of 1,397.87 tpy of carbon monoxide. The PSD major modification significance threshold for CO is 100 tpy. Consequently, since the "net" change is less than this threshold, the modification of P102 and the installation of emissions units P090-P092, P126-P129, P603-P606 has "netted out" of Prevention of Significant Deterioration review for CO emissions.

**V. Emissions Unit P090 - 26.5 MMBtu/hr Annealing Furnace No. 1**  
**Emissions Unit P091 - 26.5 MMBtu/hr Annealing Furnace No. 2**

**A. Operational Restrictions (P090 & P091)**

1. The permittee shall burn only natural gas in this emissions unit.
2. The annealing furnace, including all associated equipment (including but not limited to low NOx burners), shall be operated and maintained in accordance with the manufacturer's specifications.

**B. Monitoring and/or Recordkeeping Requirements (P090 & P091)**

1. For each day during which the permittee burns a fuel other than natural gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
2. 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, 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. Reporting Requirements (P090 & P091)**

1. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas was burned in this emissions unit. Each report shall be submitted to the Canton local air agency within 30 days after the deviation occurs.

**D. Compliance Methods and Emission Testing Requirements (P090 & P091)**

1. Compliance with the emissions limitations of this permit shall be determined in accordance with the following methods:

- a. Emission Limitation:  
0.0075 lb/MMBtu and 0.2 lb/hr of PM/PM<sub>10</sub>

Applicable Compliance Method:

Multiply the particulate matter AP 42 Table 1.4-2 7/98 Edition emission factor of 7.6 lbs PM/PM<sub>10</sub> per million cubic feet of natural gas by the maximum hourly natural gas consumption rate of 0.0265 million cubic feet/hr = 0.2 lb PM/PM<sub>10</sub>/hr.

- b. Emission Limitation:  
0.14 lb/MMBtu and 3.7 lbs/hr of nitrogen oxides

Applicable Compliance Method:

Multiply the nitrogen oxide emission factor of 140 lbs NO<sub>x</sub> per million cubic feet of natural gas by the maximum hourly natural gas consumption rate of 0.0265 million cubic feet/hr = 3.7 lbs NO<sub>x</sub>/hr.

- c. Emission Limitation:  
0.084 lb/MMBtu and 2.23 lbs/hr of carbon monoxide

Applicable Compliance Method:

Multiply the carbon monoxide AP 42 Table 1.4-1 7/98 Edition emission factor of 84 lbs CO per million cubic feet of natural gas by the maximum hourly natural gas consumption rate of 0.0265 million cubic feet/hr = 2.23 lbs CO/hr.

- d. Emission Limitation:  
0.00075 lb/MMBtu and 0.02 lb/hr of sulfur dioxide

Applicable Compliance Method:

Multiply the sulfur dioxide AP 42 Table 1.4-2 7/98 Edition emission factor of 0.6 lb SO<sub>2</sub> per million cubic feet of natural gas by the maximum hourly natural gas consumption rate 0.0265 million cubic feet/hr = 0.016 lb SO<sub>2</sub>/hr.

72

**The Timken Co**

**PTI Application: 15-01339**

**Modification Issued: 10/11/2001**

Facility ID: **1576000613**

The Timken Co

Facility ID: 1576000613

PTI Application: 15-01339

Modification Issued: 10/11/2001

- e. Emission Limitation:  
0.0057 lb/MMBtu and 0.15 lb/hr of volatile organic compounds

Applicable Compliance Method:

Multiply the volatile organic compound AP 42 Table 1.4-2 7/98 Edition emission factor of 5.5 lbs VOC per million cubic feet of natural gas by the maximum hourly natural gas consumption rate of 0.0265 million cubic feet/hr = 0.15 lb VOC/hr.

- f. Emission Limitation:  
0.88 ton/year of PM/PM<sub>10</sub>  
16.2 tons/year of nitrogen oxides  
4.1 tons/year of carbon monoxide  
0.09 ton/year of sulfur dioxide  
0.31 ton/year of volatile organic compounds

Applicable Compliance Method:

The ton/year limitations were developed by multiplying the lb/hr limitations by the maximum operating schedule of 8760 hrs/year and dividing by 2000 lbs/ton. Therefore, provided compliance is shown with the hourly limitations, compliance shall also be shown with the annual limitations.

- g. Visible Emission Limitation:  
Visible particulate emissions from this emissions unit's stack shall not exceed 5% opacity, as a six-minute average.

Applicable Compliance Method:

Presumptive compliance shall be achieved with the visible emission limit based on the exclusive use of natural gas in this emissions unit.

**E. Miscellaneous Requirements (P090 & P091)**

Netting Demonstration for CO

Emissions Increase Due to Modification:

The planned modification of emissions unit P102 (and increase in emissions from debottlenecking) and the planned installation of emissions units P090-P092, P126-P129, P603-P606 results in the following increases:

Increase in Production EAF	Debottlenecking	New Emissions Units	Total
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**The Timken Co**Facility ID: **1576000613****PTI Application: 15-01339****Modification Issued: 10/11/2001**

Pollutant	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)
PM	34.6	2.82	12.07	49.49
PM10	26.9	2.82	11.37	41.09
VOC	19.0	0.16	6.64	25.80
NOx	42.0	4.06	170.06	216.12
CO	923.0	2.44	101.79	1027.23
SO2	8.0	0.02	4.88	12.90
Pb	0.25	-----	-----	0.25
Fl	1.3	-----	-----	1.30

Pollutant	Emissions	
	Increase	PSD Threshold
PM	49.49	25
PM10	41.09	15
VOC	25.80	40
CO	1,027.23	100
SO2	12.90	40
Nox	216.12	40
Pb	0.25	0.6
Fluorides	1.3	3

PM, PM10, CO, & NOx emission increases are above the PSD thresholds. CO is the only pollutant that can net out of PSD.

Contemporaneous CO Emissions Increases & Decreases

Plant	Action	Date	EU Description	Increase (tpy)	Decrease (tpy)
Faircrest	Install	01/95	P024 Soaking Pit #11	7.4	----
Faircrest	Remove	1995	P013 Car Furnace	----	- -4.6
Faircrest	Remove	1995	P014 Car Furnace	----	-4.6
Harrison	Modif.	1995	P058 EAF #9 Trans/4th hole	----	-947*
Harrison	Modif.	1995	---- Steel Finishing EAF #9	2.5	----
Harrison	Modif.	1995	P902 EAF #2 4th hole	----	-807*
Harrison	Remove	1998	P906 EAF #7	----	-706
Gambrinus	Install	1997	---- 25 MMBtu Reheat Furn	9.2	----
Harrison	Install	1997	P084 Reheat Furnace	68.0	----
Harrison	Install	1997	P085 Reheat Furnace	13.0	----
Harrison	Remove	1997	P032 124 MMBtu Reheat Furn	----	-24.0
Harrison	Remove	1998	P061 126 MMBtu Reheat Furn	----	-19.0
Harrison	Remove	199 9	P066 122 MMBtu Reheat Furn	----	-13.0

**The Timken Co**  
**PTI Application: 15-01339**  
**Modification Issued: 10/11/2001**

Facility ID: 1576000613

100.1      -2525.2  
 Net --2425.1

\*Timken installed fourth-hole evacuation controls on three Electric Arc Furnaces (EAFs) at the Harrison Steel Plant as follows:

EAF #2 (EPA EU P902/P292) 63 tons/hr: May 1995 (May 1993 to May 1995 used to determine two-year average actual steel production).

EAF #9 (EPA EU P058/P258) 63 tons/hr: October 1995 (May 1993 to May 1995 was used to determine two-year average actual steel production because the transformer upgrade occurred in May 1995 and in order to simplify the netting calculation, both projects were combined).

EAF #7 (EPA EU P906/P296) 32 tons/hr: March 1996 (July 1994 to July 1996 used to determine two-year average actual steel production). This emissions unit was removed in 1998.

The fourth-hole evacuation system consists of a fourth-hole in the furnace roof and a fourth-hole elbow to direct the off-gas into a fixed water-cooled duct. Fourth-hole evacuation provided operational benefits (e.g., reduced furnace pressure, slower electrode consumption, increased electrode clamp life) as well as environmental benefits. As USEPA notes in AP-42, section 12.5.2.5 - Steel making - Electric Arc Furnace: ...emission capture systems used in the industry are fourth hole (direct shell) evacuation, side draft hood, combination hood, canopy hood, and furnace enclosures. Direct shell evacuation consists of ductwork attached to a separate or fourth hole in the furnace roof which draws emissions to a gas cleaner. The fourth hole system works only when the furnace is upright with the roof in place... An airgap in the ducting introduces secondary air for combustion of CO in the exhaust gas.

Since the installation occurred within the previous 5-years, Timken is claiming the reduction in CO as a result of this installation to net out the CO increases from this permit based on the following tables:

Table 1 - Testing results

Date of test	CO Emissions, lb CO/ton steel produced	OEPA representative present as witness
12/7/1990 Run #1	1.75	Andy Pasko
12/7/1990 Run #2	3.74	Andy Pasko
12/7/1990 Run #3	4.8	Andy Pasko
12/7/1990 Run #4	3.87	Andy Pasko
12/7/1990 Run #5	1.99	Andy Pasko
12/7/1990 Run #6	4.4	Andy Pasko

Testing was conducted on EAF #1 (EPA EU P002/P102) at the Faircrest Steel Plant. This EAF's capacity in 1990 was 196 tons/melt or 96 tons/hr (Based on a 100 minute cycle). This test was conducted at a production rate of 196 tons/melt. The value from Run #3 of 4.8 tons CO/ton of steel produced was used to establish the emissions factor because it represents the highest value of the six runs.

**The Timken Co**  
**PTI Application: 15-01339**  
**Modification Issued: 10/11/2001**

Facility ID: **1576000613**

Table 2 - Netting Demonstration

	EAF #2	EAF #9	
Emission factor in lbs CO/ton of steel produced, prior to fourth-hole evacuation installation (FHEI) <sup>1</sup>	18	18	
Total tons of steel produced during the 24 months prior to FHEI <sup>2</sup>	347,258	378,480	
Average 2-year emissions prior to FHEI in tons CO/year <sup>3</sup>	1,563	1,703	
Potential maximum throughput of each furnace after FHEI in tons steel produced/yr	315,000	315,000	
Emission factor, in lbs CO/ton of steel produced, after FHEI <sup>5</sup>	4.8	4.8	
Potential emissions after FHEI in tons CO/year <sup>6</sup>	756	756	
Net change in emissions in tons CO/yr <sup>7</sup>	-807	-947	

<sup>1</sup> Based on the results of Table 1.

<sup>2</sup> Monthly data collected by permittee for each 24-month period.

<sup>3</sup> Line 1 \* Line 2 divided by 4,000

<sup>4</sup> For EAFs #2 & #9 this limit is to be established in PTI 15-1293 as federally enforceable 12-month rolling average. For EAF #7 this limit is based on maximum production capability.

<sup>5</sup> This emission factor was developed based on the CO emission test conducted on EAF #1 (EPA EU P002/P102) at the Faircrest Steel Plant.

<sup>6</sup> Line 4 \* Line 5 divided by 2,000.

<sup>7</sup> Line 3 minus Line 6.

The sum of the net change from the two EAFs is -1,754 tons CO/year.

Because of the large emission reduction, the emissions factors used in the determination of the PTE, after controls will be verified for EAFs #2 & #9 through a stack testing requirement found in PTI 15-1293).

"Net" Emissions change due to modification:

PTI Increase (tpy)	Contemporaneous Increase (tpy)	Contemporaneous Net Decrease (tpy)	Net (tpy)
1,027.23	+ 100.1	- 2,525.2	= -1,397.87

### Conclusion

The modification of P102 (with associated emission increases from debottlenecking) and the installation of emissions units P090-P092, P126-P129, P603-P606 in conjunction with the contemporaneous changes and installation of various emissions units results in a "net" decrease in facility emissions of 1,397.87 tpy of carbon monoxide. The PSD major modification significance threshold for CO is 100 tpy. Consequently, since the "net" change is less than this threshold, the modification of P102 and the installation of emissions units P090-P092, P126-P129, P603-P606 has "netted out" of Prevention of Significant Deterioration review for CO emissions.

## **VI. Emissions Unit P092 - 22 MMBtu/hr Annealing Furnace No. 3**

### **A. Operational Restrictions (P092)**

1. The permittee shall burn only natural gas in this emissions unit.
2. The annealing furnace, including all associated equipment, shall be operated and maintained in accordance with the manufacturer's specifications.

### **B. Monitoring and/or Recordkeeping Requirements (P092)**

1. For each day during which the permittee burns a fuel other than natural gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
2. 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, 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. Reporting Requirements (P092)**

1. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas was burned in this emissions unit. Each report shall be submitted to the Canton local air agency within 30 days after the deviation occurs.

### **D. Compliance Methods and Emission Testing Requirements (P092)**

1. Compliance with the emissions limitations of this permit shall be determined in accordance with the following methods:
  - a. Emission Limitation:  
0.008 lb/MMBtu and 0.17 lb/hr of PM/PM<sub>10</sub>

Applicable Compliance Method:

Multiply the particulate matter AP 42 Table 1.4-2 7/98 Edition emission factor of 7.6 lbs PM/PM<sub>10</sub> per million cubic feet of natural gas by the maximum hourly natural gas consumption rate of 0.022 million cubic feet/hr = 0.167 lb PM/PM<sub>10</sub>/hr.

- b. Emission Limitation:  
0.14 lb/MMBtu and 3.1 lbs/hr of nitrogen oxides

Applicable Compliance Method:

Multiply the nitrogen oxide AP 42 emission factor of 140 lbs NO<sub>x</sub> per million cubic feet of natural gas by the maximum hourly natural gas consumption rate of 0.022 million cubic feet/hr = 3.08 lbs NO<sub>x</sub>/hr.

- c. Emission Limitation:  
0.084 lb/MMBtu and 1.85 lbs/hr of carbon monoxide

Applicable Compliance Method:

Multiply the carbon monoxide AP 42, Table 1.4-1, 7/98 Edition emission factor of 84 lbs CO per million cubic feet of natural gas by the maximum hourly natural gas consumption rate of 0.022 million cubic feet/hr = 1.85 lbs CO/hr.

- d. Emission Limitation:  
0.0009 lb/MMBtu and 0.02 lb/hr of sulfur dioxide

Applicable Compliance Method:

Multiply the sulfur dioxide AP 42, Table 1.4-2, 7/98 Edition emission factor of 0.6 lb SO<sub>2</sub> per million cubic feet of natural gas by the maximum hourly natural gas consumption rate 0.022 million cubic feet/hr = 0.01 lb SO<sub>2</sub>/hr.

- e. Emission Limitation:  
0.0055 lb/MMBtu and 0.12 lb/hr of volatile organic compounds

Applicable Compliance Method

Multiply the volatile organic compound AP 42, Table 1.4-2, 7/98 Edition emission factor of 5.5 lbs VOC per million cubic feet of natural gas by the maximum hourly natural gas consumption rate of 0.022 million cubic feet/hr = 0.12 lb VOC/hr.

- f. Emission Limitation:  
0.74 ton/year of PM/PM<sub>10</sub>

The Timken Co

Facility ID: 1576000613

PTI Application: 15-01339

Modification Issued: 10/11/2001

13.5 tons/year of nitrogen oxides  
 8.1 tons/year of carbon monoxide  
 0.09 ton/year of sulfur dioxide  
 0.53 ton/year of volatile organic compounds

Applicable Compliance Method:

The ton/year limitations were developed by multiplying the lb/hr limitations by the maximum operating schedule of 8760 hrs/year and dividing by 2000 lbs/ton.

Therefore, provided compliance is shown with the hourly limitations, compliance shall also be shown with the annual limitations.

g. Visible Emission Limitation:

Visible particulate emissions from this emissions unit's stack shall not exceed 5% opacity, as a six-minute average.

Applicable Compliance Method:

Presumptive compliance shall be achieved with the visible emission limit based on the exclusive use of natural gas in this emissions unit.

**E. Miscellaneous Requirements (P092)**

Netting Demonstration for CO

Emissions Increase Due to Modification:

The planned modification of emissions unit P102 (and increase in emissions from debottlenecking) and the planned installation of emissions units P090-P092, P126-P129, P603-P606 results in the following increases:

Pollutant	Increase in Production EAF (tons/yr)	Debottlenecking (tons/yr)	New Emissions Units (tons/yr)	Total (tons/yr)
PM	34.6	2.82	12.07	49.49
PM10	26.9	2.82	11.37	41.09
VOC	19.0	0.16	6.64	25.80
NOx	42.0	4.06	170.06	216.12
CO	923.0	2.44	101.79	1027.23
SO2	8.0	0.02	4.88	12.90
Pb	0.25	-----	-----	0.25
Fl	1.3	-----	-----	1.30

Pollutant	Emissions	
	Increase	PSD Threshold
PM	49.49	25

The Timken Co

Facility ID: 1576000613

PTI Application: 15-01339

Modification Issued: 10/11/2001

PM10	41.09	15
VOC	25.80	40
CO	1,027.23	100
SO2	12.90	40
Nox	216.12	40
Pb	0.25	0.6
Fluorides	1.3	3

PM, PM10, CO, & NOx emission increases are above the PSD thresholds. CO is the only pollutant that can net out of PSD.

Contemporaneous CO Emissions Increases & Decreases

Plant	Action	Date	EU Description	Increase (tpy)	Decrease (tpy)
Faircrest	Install	01/95	P024 Soaking Pit #11	7.4	----
Faircrest	Remove	1995	P013 Car Furnace	----	- -4.6
Faircrest	Remove	1995	P014 Car Furnace	----	-4.6
Harrison	Modif.	1995	P058 EAF #9 Trans/4th hole	----	-947*
Harrison	Modif.	1995	---- Steel Finishing EAF #9	2.5	----
Harrison	Modif.	1995	P902 EAF #2 4th hole	----	-807*
Harrison	Remove	1998	P906 EAF #7	----	-706
Gambrinus	Install	1997	---- 25 MMBtu Reheat Furn	9.2	----
Harrison	Install	1997	P084 Reheat Furnace	68.0	----
Harrison	Install	1997	P085 Reheat Furnace	13.0	----
Harrison	Remove	1997	P032 124 MMBtu Reheat Furn	----	-24.0
Harrison	Remove	1998	P061 126 MMBtu Reheat Furn	----	-19.0
Harrison	Remove	199 9	P066 122 MMBtu Reheat Furn	----	-13.0
				100.1	-2525.2
				Net --2425.1	

\*Timken installed fourth-hole evacuation controls on three Electric Arc Furnaces (EAFs) at the Harrison Steel Plant as follows:

EAF #2 (EPA EU P902/P292) 63 tons/hr: May 1995 (May 1993 to May 1995 used to determine two-year average actual steel production).

EAF #9 (EPA EU P058/P258) 63 tons/hr: October 1995 (May 1993 to May 1995 was used to determine

**The Timken Co**

Facility ID: 1576000613

**PTI Application: 15-01339****Modification Issued: 10/11/2001**

two-year average actual steel production because the transformer upgrade occurred in May 1995 and in order to simplify the netting calculation, both projects were combined).

EAF #7 (EPA EU P906/P296) 32 tons/hr: March 1996 (July 1994 to July 1996 used to determine two-year average actual steel production). This emissions unit was removed in 1998.

The fourth-hole evacuation system consists of a fourth-hole in the furnace roof and a fourth-hole elbow to direct the off-gas into a fixed water-cooled duct. Fourth-hole evacuation provided operational benefits (e.g., reduced furnace pressure, slower electrode consumption, increased electrode clamp life) as well as environmental benefits. As USEPA notes in AP-42, section 12.5.2.5 - Steel making - Electric Arc Furnace:

...emission capture systems used in the industry are fourth hole (direct shell) evacuation, side draft hood, combination hood, canopy hood, and furnace enclosures. Direct shell evacuation consists of ductwork attached to a separate or fourth hole in the furnace roof which draws emissions to a gas cleaner. The fourth hole system works only when the furnace is upright with the roof in place... An airgap in the ducting introduces secondary air for combustion of CO in the exhaust gas.

Since the installation occurred within the previous 5-years, Timken is claiming the reduction in CO as a result of this installation to net out the CO increases from this permit based on the following tables:

Table 1 - Testing results

Date of test	CO Emissions, lb CO/ton steel produced	OEPA representative present as witness
12/7/1990 Run #1	1.75	Andy Pasko
12/7/1990 Run #2	3.74	Andy Pasko
12/7/1990 Run #3	4.8	Andy Pasko
12/7/1990 Run #4	3.87	Andy Pasko
12/7/1990 Run #5	1.99	Andy Pasko
12/7/1990 Run #6	4.4	Andy Pasko

Testing was conducted on EAF #1 (EPA EU P002/P102) at the Faircrest Steel Plant. This EAF's capacity in 1990 was 196 tons/melt or 96 tons/hr (Based on a 100 minute cycle). This test was conducted at a production rate of 196 tons/melt. The value from Run #3 of 4.8 tons CO/ton of steel produced was used to establish the emissions factor because it represents the highest value of the six runs.

Table 2 - Netting Demonstration

	EAF #2	EAF #9	
Emission factor in lbs CO/ton of steel produced, prior to fourth-hole evacuation installation (FHEI) <sup>1</sup>	18	18	
Total tons of steel produced during the 24 months prior to FHEI <sup>2</sup>	347,258	378,480	
Average 2-year emissions prior to FHEI in tons CO/year <sup>3</sup>	1,563	1,703	
Potential maximum throughput of each furnace after FHEI in tons steel produced/yr	315,000	315,000	
Emission factor, in lbs CO/ton of steel produced, after FHEI <sup>5</sup>	4.8	4.8	

The Timken Co

Facility ID: 1576000613

PTI Application: 15-01339

Modification Issued: 10/11/2001

Potential emissions after FHEI in tons CO/year <sup>6</sup>	756	756	
Net change in emissions in tons CO/yr <sup>7</sup>	-807	-947	

<sup>1</sup> Based on the results of Table 1.

<sup>2</sup> Monthly data collected by permittee for each 24-month period.

<sup>3</sup> Line 1 \* Line 2 divided by 4,000

<sup>4</sup> For EAFs #2 & #9 this limit is to be established in PTI 15-1293 as federally enforceable 12-month rolling average. For EAF #7 this limit is based on maximum production capability.

<sup>5</sup> This emission factor was developed based on the CO emission test conducted on EAF #1 (EPA EU P002/P102) at the Faircrest Steel Plant.

<sup>6</sup> Line 4 \* Line 5 divided by 2,000.

<sup>7</sup> Line 3 minus Line 6.

The sum of the net change from the two EAFs is -1,754 tons CO/year.

Because of the large emission reduction, the emissions factors used in the determination of the PTE, after controls will be verified for EAFs #2 & #9 through a stack testing requirement found in PTI 15-1293).

"Net" Emissions change due to modification:

PTI Increase (tpy)	Contemporaneous Increase (tpy)	Contemporaneous Decrease (tpy)	Net (tpy)
1,027.23	+ 100.1	- 2,525.2	= -1,397.87

Conclusion

The modification of P102 (with associated emission increases from debottlenecking) and the installation of emissions units P090-P092, P126-P129, P603-P606 in conjunction with the contemporaneous changes and installation of various emissions units results in a "net" decrease in facility emissions of 1,397.87 tpy of carbon monoxide. The PSD major modification significance threshold for CO is 100 tpy. Consequently, since the "net" change is less than this threshold, the modification of P102 and the installation of emissions units P090-P092, P126-P129, P603-P606 has "netted out" of Prevention of Significant Deterioration review for CO emissions.

**VII. Emissions Unit P126 - Reheat Furnace**

The Timken Co

Facility ID: 1576000613

PTI Application: 15-01339

Modification Issued: 10/11/2001

**A. Operational Restrictions (P126)**

1. The permittee shall burn only natural gas in this emissions unit.
2. The reheat furnace, including all associated equipment (including but not limited to low NOx burners), shall be operated and maintained in accordance with the manufacturer's specifications.

**B. Monitoring and/or Recordkeeping Requirements (P126)**

1. For each day during which the permittee burns a fuel other than natural gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
2. 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, 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. Reporting Requirements (P126)**

1. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas was burned in this emissions unit. Each report shall be submitted to the Canton local air agency within 30 days after the deviation occurs.

**D. Compliance Methods and Emission Testing Requirements (P126)**

1. Compliance with the emissions limitations of this permit shall be determined in accordance with the following methods:

- a. Emission Limitation:  
0.0076 lb/MMBtu and 0.84 lb/hr of PM/PM<sub>10</sub>

Applicable Compliance Method:

Multiply the particulate matter AP 42, Table 1.4-2, 7/98 Edition emission factor of 7.6 lbs PM/PM<sub>10</sub> per million cubic feet of natural gas by the maximum hourly natural gas consumption rate of 0.11 million cubic feet/hr = 0.836 lb PM/PM<sub>10</sub>/hr.

- b. Emission Limitation:  
0.14 lb/MMBtu and 15.4 lbs/hr of nitrogen oxides

Applicable Compliance Method:

Multiply the nitrogen oxide Mfg. emission factor of 140 lbs NOx per million cubic feet of natural gas by the maximum hourly natural gas consumption rate of 0.11

million cubic feet/hr = 15.4 lbs NO<sub>x</sub>/hr.

- c. Emission Limitation:  
0.084 lb/MMBtu and 9.24 lbs/hr of carbon monoxide

Applicable Compliance Method:

Multiply the carbon monoxide AP 42, Table 1.4-1, 7/98 Edition emission factor of 84 lbs CO per million cubic feet of natural gas by the maximum hourly natural gas consumption rate 0.11 million cubic feet/hr = 9.24 lbs CO/hr.

- d. Emission Limitation:  
0.00064 lb/MMBtu and 0.07 lb/hr of sulfur dioxide

Applicable Compliance Method:

Multiply the sulfur dioxide AP 42, Table 1.4-2, 7/98 Edition emission factor of 0.6 lb SO<sub>2</sub> per million cubic feet of natural gas by the maximum hourly natural gas consumption rate 0.11 million cubic feet/hr = 0.066 lb SO<sub>2</sub>/hr.

- e. Emission Limitation:  
0.0055 lb/MMBtu and 0.6 lb/hr of volatile organic compounds

Applicable Compliance Method:

Multiply the volatile organic compound AP 42, Table 1.4-2, 7/98 Edition emission factor of 5.5 lbs VOC per million cubic feet of natural gas by the maximum hourly natural gas consumption rate of 0.11 million cubic feet/hr = 0.6 lb VOC/hr.

- f. Emission Limitation:  
3.68 tons/year of PM/PM<sub>10</sub>  
67.5 tons/year of nitrogen oxides  
40.47 tons/year of carbon monoxide  
0.31 ton/year of sulfur dioxide  
2.63 tons/year of volatile organic compounds

Applicable Compliance Method:

The ton/year limitations were developed by multiplying the lb/hr limitations by the maximum operating schedule of 8760 hrs/year and dividing by 2000 lbs/ton. Therefore, provided compliance is shown with the hourly limitations, compliance shall also be shown with the annual limitations.

**The Timken Co**

Facility ID: **1576000613**

**PTI Application: 15-01339**

**Modification Issued: 10/11/2001**

- g. Visible Emission Limitation:  
Visible particulate emissions from this emissions unit's stack shall not exceed 5% opacity, as a six-minute average.

Applicable Compliance Method:

Presumptive compliance shall be achieved with the visible emission limit based on the exclusive use of natural gas in this emissions unit.

**The Timken Co**  
**PTI Application: 15-01339**  
**Modification Issued: 10/11/2001**

Facility ID: **1576000613**

**E. Miscellaneous Requirements (P126)**

Netting Demonstration for CO

Emissions Increase Due to Modification:

The planned modification of emissions unit P102 (and increase in emissions from debottlenecking) and the planned installation of emissions units P090-P092, P126-P129, P603-P606 results in the following increases:

Pollutant	Increase in Production EAF (tons/yr)	Debottlenecking (tons/yr)	New Emissions Units (tons/yr)	Total (tons/yr)
PM	34.6	2.82	12.07	49.49
PM10	26.9	2.82	11.37	41.09
VOC	19.0	0.16	6.64	25.80
NOx	42.0	4.06	170.06	216.12
CO	923.0	2.44	101.79	1027.23
SO2	8.0	0.02	4.88	12.90
Pb	0.25	-----	-----	0.25
Fl	1.3	-----	-----	1.30

Pollutant	Emissions Increase	PSD Threshold
PM	49.49	25
PM10	41.09	15
VOC	25.80	40
CO	1,027.23	100
SO2	12.90	40
NOx	216.12	40
Pb	0.25	0.6
Fluorides	1.3	3

PM, PM10, CO, & NOx emission increases are above the PSD thresholds. CO is the only pollutant that can net out of PSD.

Contemporaneous CO Emissions Increases & Decreases

Increase    Decrease

**The Timken Co**  
**PTI Application: 15-01339**  
**Modification Issued: 10/11/2001**

Facility ID: 1576000613

Plant	Action	Date	EU Description	(tpy)	(tpy)
Faircrest	Install	01/95	P024 Soaking Pit #11	7.4	----
Faircrest	Remove	1995	P013 Car Furnace	----	- -4.6
Faircrest	Remove	1995	P014 Car Furnace	----	-4.6
Harrison	Modif.	1995	P058 EAF #9 Trans/4th hole	----	-947*
Harrison	Modif.	1995	---- Steel Finishing EAF #9	2.5	----
Harrison	Modif.	1995	P902 EAF #2 4th hole	----	-807*
Harrison	Remove	1998	P906 EAF #7	----	-706
Gambrinus	Install	1997	---- 25 MMBtu Reheat Furn	9.2	----
Harrison	Install	1997	P084 Reheat Furnace	68.0	----
Harrison	Install	1997	P085 Reheat Furnace	13.0	----
Harrison	Remove	1997	P032 124 MMBtu Reheat Furn	----	-24.0
Harrison	Remove	1998	P061 126 MMBtu Reheat Furn	----	-19.0
Harrison	Remove	199 9	P066 122 MMBtu Reheat Furn	----	-13.0
				100.1	-2525.2
				Net --2425.1	

\*Timken installed fourth-hole evacuation controls on three Electric Arc Furnaces (EAFs) at the Harrison Steel Plant as follows:

EAF #2 (EPA EU P902/P292) 63 tons/hr: May 1995 (May 1993 to May 1995 used to determine two-year average actual steel production).

EAF #9 (EPA EU P058/P258) 63 tons/hr: October 1995 (May 1993 to May 1995 was used to determine two-year average actual steel production because the transformer upgrade occurred in May 1995 and in order to simplify the netting calculation, both projects were combined).

EAF #7 (EPA EU P906/P296) 32 tons/hr: March 1996 (July 1994 to July 1996 used to determine two-year average actual steel production). This emissions unit was removed in 1998.

The fourth-hole evacuation system consists of a fourth-hole in the furnace roof and a fourth-hole elbow to direct the off-gas into a fixed water-cooled duct. Fourth-hole evacuation provided operational benefits (e.g., reduced furnace pressure, slower electrode consumption, increased electrode clamp life) as well as environmental benefits. As USEPA notes in AP-42, section 12.5.2.5 - Steel making - Electric Arc Furnace:

...emission capture systems used in the industry are fourth hole (direct shell) evacuation, side draft hood, combination hood, canopy hood, and furnace enclosures. Direct shell evacuation consists of ductwork attached to a separate or fourth hole in the furnace roof which draws emissions to a gas cleaner. The fourth hole system works only when the furnace is upright with the roof in place... An airgap in the ducting introduces secondary air for combustion of CO in the exhaust gas.

**The Timken Co**Facility ID: **1576000613****PTI Application: 15-01339****Modification Issued: 10/11/2001**

Since the installation occurred within the previous 5-years, Timken is claiming the reduction in CO as a result of this installation to net out the CO increases from this permit based on the following tables:

Table 1 - Testing results

Date of test	CO Emissions, lb CO/ton steel produced	OEPA representative present as witness
12/7/1990 Run #1	1.75	Andy Pasko
12/7/1990 Run #2	3.74	Andy Pasko
12/7/1990 Run #3	4.8	Andy Pasko
12/7/1990 Run #4	3.87	Andy Pasko
12/7/1990 Run #5	1.99	Andy Pasko
12/7/1990 Run #6	4.4	Andy Pasko

Testing was conducted on EAF #1 (EPA EU P002/P102) at the Faircrest Steel Plant. This EAF's capacity in 1990 was 196 tons/melt or 96 tons/hr (Based on a 100 minute cycle). This test was conducted at a production rate of 196 tons/melt. The value from Run #3 of 4.8 tons CO/ton of steel produced was used to establish the emissions factor because it represents the highest value of the six runs.

Table 2 - Netting Demonstration

	EAF #2	EAF #9	
Emission factor in lbs CO/ton of steel produced, prior to fourth-hole evacuation installation (FHEI) <sup>1</sup>	18	18	
Total tons of steel produced during the 24 months prior to FHEI <sup>2</sup>	347,258	378,480	
Average 2-year emissions prior to FHEI in tons CO/year <sup>3</sup>	1,563	1,703	
Potential maximum throughput of each furnace after FHEI in tons steel produced/yr	315,000	315,000	
Emission factor, in lbs CO/ton of steel produced, after FHEI <sup>5</sup>	4.8	4.8	
Potential emissions after FHEI in tons CO/year <sup>6</sup>	756	756	
Net change in emissions in tons CO/yr <sup>7</sup>	-807	-947	

<sup>1</sup> Based on the results of Table 1.

<sup>2</sup> Monthly data collected by permittee for each 24-month period.

<sup>3</sup> Line 1 \* Line 2 divided by 4,000

<sup>4</sup> For EAFs #2 & #9 this limit is to be established in PTI 15-1293 as federally enforceable 12-month rolling average. For EAF #7 this limit is based on maximum production capability.

<sup>5</sup> This emission factor was developed based on the CO emission test conducted on EAF #1 (EPA EU P002/P102) at the Faircrest Steel Plant.

<sup>6</sup> Line 4 \* Line 5 divided by 2,000.

**The Timken Co**  
**PTI Application: 15-01339**  
**Modification Issued: 10/11/2001**

Facility ID: 1576000613

<sup>7</sup> Line 3 minus Line 6.

The sum of the net change from the two EAFs is -1,754 tons CO/year.

Because of the large emission reduction, the emissions factors used in the determination of the PTE, after controls will be verified for EAFs #2 & #9 through a stack testing requirement found in PTI 15-1293).

"Net" Emissions change due to modification:

PTI Increase (tpy)	Contemporaneous Increase (tpy)	Contemporaneous Decrease (tpy)	Net (tpy)
1,027.23	+ 100.1	- 2,525.2	= -1,397.87

Conclusion

The modification of P102 (with associated emission increases from debottlenecking) and the installation of emissions units P090-P092, P126-P129, P603-P606 in conjunction with the contemporaneous changes and installation of various emissions units results in a "net" decrease in facility emissions of 1,397.87 tpy of carbon monoxide. The PSD major modification significance threshold for CO is 100 tpy. Consequently, since the "net" change is less than this threshold, the modification of P102 and the installation of emissions units P090-P092, P126-P129, P603-P606 has "netted out" of Prevention of Significant Deterioration review for CO emissions.

**VIII. Emissions Unit P127 - Soaking Pit**

**A. Operational Restrictions (P127)**

1. The permittee shall burn only natural gas in this emissions unit.
2. The soaking pit, including all associated equipment (including but not limited to low NOx burners), shall be operated and maintained in accordance with the manufacturer's specifications.

**B. Monitoring and/or Recordkeeping Requirements (P127)**

1. For each day during which the permittee burns a fuel other than natural gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.

2. 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, 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. Reporting Requirements (P127)**

1. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas was burned in this emissions unit. Each report shall be submitted to the Canton local air agency within 30 days after the deviation occurs.

**D. Compliance Methods and Emission Testing Requirements (P127)**

1. Compliance with the emissions limitations of this permit shall be determined in accordance with the following methods:
  - a. Emission Limitation:  
0.008 lb/MMBtu and 0.16 lb/hr of PM/PM<sub>10</sub>  
  
Applicable Compliance Method:  
Multiply the particulate matter AP 42, Table 1.4-2, 7/98 Edition emission factor of 7.6 lbs PM/PM<sub>10</sub> per million cubic feet of natural gas by the maximum hourly natural gas consumption rate 0.02 MMCF/hr = 0.152 lb PM/PM<sub>10</sub>/hr.
  - b. Emission Limitation:  
0.14 lb/MMBtu and 2.8 lbs/hr of nitrogen oxides  
  
Applicable Compliance Method:  
Multiply the nitrogen dioxide AP42, Table 1.4-1, 7/98 edition emission factor of 140 lbs NO<sub>x</sub> per million cubic feet of natural gas by the maximum hourly natural gas consumption rate of 0.02 million cubic feet/hr = 2.8 lbs NO<sub>x</sub>/hr.
  - c. Emission Limitation:  
0.085 lb/MMBtu and 1.7 lbs/hr of carbon monoxide  
  
Applicable Compliance Method:  
Multiply the carbon monoxide AP 42, Table 1.4-2, 7/98 Edition emission factor of 84 lbs CO per million cubic feet of natural gas by the maximum hourly natural gas consumption rate of 0.02 million cubic feet/hr = 1.7 lb CO/hr.
  - d. Emission Limitation:  
0.0006 lb/MMBtu and 0.012 lb/hr of sulfur dioxide

**The Timken Co**  
**PTI Application: 15-01339**  
**Modification Issued: 10/11/2001**

Facility ID: 1576000613

Applicable Compliance Method:

Multiply the sulfur dioxide AP 42, Table 1.4-2, 7/98 edition emission factor of 0.6 lb SO<sub>2</sub> per million cubic feet of natural gas by the maximum hourly natural gas consumption rate 0.02 million cubic feet/hr = 0.012 lb SO<sub>2</sub>/hr.

- e. Emission Limitation:  
 0.0055 lb/MMBtu and 0.11 lb/hr of volatile organic compounds

Applicable Compliance Method:

Multiply the volatile organic compound AP 42, Table 1.4-2, 7/98 Edition emission factor of 5.5 lbs VOC per million cubic feet of natural gas by the maximum hourly natural gas consumption rate of 0.02 million cubic feet/hr = 0.11 lb VOC/hr.

- f. Emission Limitation:  
 0.7 ton/year of PM/PM<sub>10</sub>  
 12.3 tons/year of nitrogen oxides  
 7.45 tons/year of carbon monoxide  
 0.05 ton/year of sulfur dioxide  
 0.48 ton/year of volatile organic compounds

Applicable Compliance Method:

The ton/year limitations were developed by multiplying the lb/hr limitations by the maximum operating schedule of 8760 hrs/year, and dividing by 2000 lbs/ton. Therefore, provided compliance is shown with the hourly limitations, compliance shall also be shown with the annual limitations.

- g. Visible Emission Limitation:  
 Visible particulate emissions from this emissions unit's stack shall not exceed 5% opacity, as a six-minute average.

Applicable Compliance Method:

Presumptive compliance shall be achieved with the visible emission limit based on the exclusive use of natural gas in this emissions unit.

**E. Miscellaneous Requirements (P127)**

Netting Demonstration for CO

Emissions Increase Due to Modification:

**The Timken Co**Facility ID: **1576000613****PTI Application: 15-01339****Modification Issued: 10/11/2001**

The planned modification of emissions unit P102 (and increase in emissions from debottlenecking) and the planned installation of emissions units P090-P092, P126-P129, P603-P606 results in the following increases:

Pollutant	Increase in Production EAF (tons/yr)	Debottlenecking (tons/yr)	New Emissions Units (tons/yr)	Total (tons/yr)
PM	34.6	2.82	12.07	49.49
PM10	26.9	2.82	11.37	41.09
VOC	19.0	0.16	6.64	25.80
NOx	42.0	4.06	170.06	216.12
CO	923.0	2.44	101.79	1027.23
SO2	8.0	0.02	4.88	12.90
Pb	0.25	-----	-----	0.25
Fl	1.3	-----	-----	1.30

Pollutant	Emissions Increase	PSD Threshold
PM	49.49	25
PM10	41.09	15
VOC	25.80	40
CO	1,027.23	100
SO2	12.90	40
NOx	216.12	40
Pb	0.25	0.6
Fluorides	1.3	3

PM, PM10, CO, & NOx emission increases are above the PSD thresholds. CO is the only pollutant that can net out of PSD.

Contemporaneous CO Emissions Increases & Decreases

Plant	Action	Date	EU Description	Increase (tpy)	Decrease (tpy)
Faircrest	Install	01/95	P024 Soaking Pit #11	7.4	----
Faircrest	Remove	1995	P013 Car Furnace	----	- -4.6
Faircrest	Remove	1995	P014 Car Furnace	----	-4.6
Harrison	Modif.	1995	P058 EAF #9 Trans/4th hole	----	-947*
Harrison	Modif.	1995	---- Steel Finishing EAF #9	2.5	----
Harrison	Modif.	1995	P902 EAF #2 4th hole	----	-807*
Harrison	Remove	1998	P906 EAF #7	----	-706

**The Timken Co**Facility ID: **1576000613****PTI Application: 15-01339****Modification Issued: 10/11/2001**

Gambrinus	Install	1997	----	25 MMBtu Reheat Furn	9.2	----
Harrison	Install	1997	P084	Reheat Furnace	68.0	----
Harrison	Install	1997	P085	Reheat Furnace	13.0	----
Harrison	Remove	1997	P032	124 MMBtu Reheat Furn	----	-24.0
Harrison	Remove	1998	P061	126 MMBtu Reheat Furn	----	-19.0
Harrison	Remove	199 9	P066	122 MMBtu Reheat Furn	----	-13.0
					100.1	-2525.2
					Net --2425.1	

\*Timken installed fourth-hole evacuation controls on three Electric Arc Furnaces (EAFs) at the Harrison Steel Plant as follows:

EAF #2 (EPA EU P902/P292) 63 tons/hr: May 1995 (May 1993 to May 1995 used to determine two-year average actual steel production).

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...emission capture systems used in the industry are fourth hole (direct shell) evacuation, side draft hood, combination hood, canopy hood, and furnace enclosures. Direct shell evacuation consists of ductwork attached to a separate or fourth hole in the furnace roof which draws emissions to a gas cleaner. The fourth hole system works only when the furnace is upright with the roof in place... An airgap in the ducting introduces secondary air for combustion of CO in the exhaust gas.

Since the installation occurred within the previous 5-years, Timken is claiming the reduction in CO as a result of this installation to net out the CO increases from this permit based on the following tables:

Table 1 - Testing results

Date of test	CO Emissions, lb CO/ton steel produced	OEPA representative present as witness
12/7/1990 Run #1	1.75	Andy Pasko
12/7/1990 Run #2	3.74	Andy Pasko
12/7/1990 Run #3	4.8	Andy Pasko
12/7/1990 Run #4	3.87	Andy Pasko
12/7/1990 Run #5	1.99	Andy Pasko
12/7/1990 Run #6	4.4	Andy Pasko

Testing was conducted on EAF #1 (EPA EU P002/P102) at the Faircrest Steel Plant. This EAF's capacity in

**The Timken Co**

Facility ID: **1576000613**

**PTI Application: 15-01339**

**Modification Issued: 10/11/2001**

1990 was 196 tons/melt or 96 tons/hr (Based on a 100 minute cycle). This test was conducted at a production rate of 196 tons/melt. The value from Run #3 of 4.8 tons CO/ton of steel produced was used to establish the emissions factor because it represents the highest value of the six runs.

**The Timken Co**  
**PTI Application: 15-01339**  
**Modification Issued: 10/11/2001**

Facility ID: **1576000613**

Table 2 - Netting Demonstration

	EAF #2	EAF #9	
Emission factor in lbs CO/ton of steel produced, prior to fourth-hole evacuation installation (FHEI) <sup>1</sup>	18	18	
Total tons of steel produced during the 24 months prior to FHEI <sup>2</sup>	347,258	378,480	
Average 2-year emissions prior to FHEI in tons CO/year <sup>3</sup>	1,563	1,703	
Potential maximum throughput of each furnace after FHEI in tons steel produced/yr	315,000	315,000	
Emission factor, in lbs CO/ton of steel produced, after FHEI <sup>5</sup>	4.8	4.8	
Potential emissions after FHEI in tons CO/year <sup>6</sup>	756	756	
Net change in emissions in tons CO/yr <sup>7</sup>	-807	-947	

<sup>1</sup> Based on the results of Table 1.

<sup>2</sup> Monthly data collected by permittee for each 24-month period.

<sup>3</sup> Line 1 \* Line 2 divided by 4,000

<sup>4</sup> For EAFs #2 & #9 this limit is to be established in PTI 15-1293 as federally enforceable 12-month rolling average. For EAF #7 this limit is based on maximum production capability.

<sup>5</sup> This emission factor was developed based on the CO emission test conducted on EAF #1 (EPA EU P002/P102) at the Faircrest Steel Plant.

<sup>6</sup> Line 4 \* Line 5 divided by 2,000.

<sup>7</sup> Line 3 minus Line 6.

The sum of the net change from the two EAFs is -1,754 tons CO/year.

Because of the large emission reduction, the emissions factors used in the determination of the PTE, after controls will be verified for EAFs #2 & #9 through a stack testing requirement found in PTI 15-1293).

"Net" Emissions change due to modification:

PTI Increase (tpy)	Contemporaneous Increase (tpy)	Contemporaneous Net Decrease (tpy)	Net (tpy)
1,027.23	+ 100.1	- 2,525.2	= -1,397.87

Conclusion

The modification of P102 (with associated emission increases from debottlenecking) and the installation of emissions units P090-P092, P126-P129, P603-P606 in conjunction with the contemporaneous changes and installation of various emissions units results in a "net" decrease in facility emissions of 1,397.87 tpy of carbon monoxide. The PSD major modification significance threshold for CO is 100 tpy. Consequently, since the "net" change is less than this threshold, the modification of P102 and the installation of emissions units P090-P092, P126-P129, P603-P606 has "netted out" of Prevention of Significant Deterioration review for CO emissions.

**IX. Emissions Unit P129 - Baghouse Dust Handling System****A. Operational Restrictions (P129)**

1. The Baghouse Dust Silo shall be equipped with a fabric filter. The fabric filter shall capture and control particulate matter entrained in the air displaced from the silo when the silo is filled. The exhaust from this fabric filter shall have a maximum particulate matter emission rate of 0.01 gr/DSCF.
2. The exhaust from the pneumatic conveying system between the cyclone and the silo shall pass through a fabric filter. The fabric filter shall control particulate matter entrained in the air. The exhaust from this fabric filter shall have a maximum particulate matter emission rate of 0.01 gr/DSCF.
3. As required by 40 CFR 60.272a(b), no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from the dust handling system any gases that exhibit 10 percent opacity or greater. Dust handling system means equipment used to handle particulate matter collected by the control device for an electric arc furnace or AOD vessel subject to Subpart AAa. For the purposes of this subpart, the dust-handling system shall consist of the control device dust hoppers, the dust-conveying equipment, any central dust storage equipment [in this case the silo, the dust-treating equipment, dust transfer equipment(from storage to truck/railcar, etc.)], and any secondary control device used with the dust transfer equipment.

**B. Monitoring and/or Recordkeeping Requirements (P129)**

1. The permittee shall perform daily observations, when the emissions unit is in operation, for any visible particulate emissions coming from this emissions unit. Since the dust handling equipment is located inside a three-sided structure and the stacks servicing this equipment vent inside this three-sided structure, these observations shall be made on any visible particulate emissions coming from any opening in this structure. These observations shall be taken for at least ten minutes. If visible emissions are observed, the permittee shall also note the following in the operations log:

**The Timken Co**  
**PTI Application: 15-01339**  
**Modification Issued: 10/11/2001**

Facility ID: **1576000613**

- a. the total duration of any visible emission incident;
  - b. the probable cause of the visible emissions; and
  - c. the corrective actions taken to eliminate the visible emissions.
2. 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. Reporting Requirements (P129)**

1. The permittee shall submit quarterly written deviation (excursion) reports which (a) identify all days during which any visible particulate emissions were observed coming from the structure housing the dust handling equipment and (b) describe any corrective actions taken to eliminate the visible particulate emissions.
2. The permittee shall submit required reports in the following manner:
  - a. Reports of any required monitoring and/or recordkeeping information shall be submitted to the Canton local air agency; and
  - b. Quarterly written reports of (i) any deviations (excursions) from 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, (ii) the probable cause of such deviations, and (iii) any corrective actions or preventative measures taken shall be promptly made to the Canton local air agency. If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report which states that no deviations occurred during that quarter. These quarterly written reports shall satisfy the requirements of OAC rules 3745-77-07(A)(3)(c)(i) and (ii) pertaining to the submission of monitoring reports every six months and OAC rule 3745-77-07(A)(3)(c)(iii) pertaining

The Timken Co

Facility ID: 1576000613

PTI Application: 15-01339

Modification Issued: 10/11/2001

to the prompt reporting of all deviations except malfunctions, which shall be reported in accordance with OAC rule 3745-15-06. The written reports shall be submitted quarterly, i.e., 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.)

3. Pursuant to the NSPS, the source owner/operator is hereby advised of the requirement to report the following at the appropriate times:
- a. construction date (no later than 30 days after such date);
  - b. anticipated start-up date (not more than 60 days or less than 30 days prior to such date);
  - c. actual start-up date (within 15 days after such date); and
  - d. date of performance testing (If required, at least 30 days prior to testing).

Reports are to be sent to:

Ohio Environmental Protection Agency  
DAPC - Air Quality Modeling and Planning  
P.O. Box 1049  
Columbus, OH 43216-1049

And

Air Pollution Control Division  
Canton City Health Dept.  
420 Market Ave. North  
Canton, Ohio 44702-1544

**D. Compliance Methods and Testing Requirements (P129)**

1. Compliance with the emission limitation(s) of this permit shall be determined in accordance with the following method(s):
  - a. Emission Limitation:  
Visible emissions limit of 10% opacity

Applicable Compliance Method:

If needed, visible emissions shall be determined by using 40 CFR 60, Appendix A, Method 9. Daily observations for any visible emissions are required. These observations are not required to be done using Method 9 procedures.

**The Timken Co**  
**PTI Application: 15-01339**  
**Modification Issued: 10/11/2001**

Facility ID: 1576000613

- b. Emission Limitation  
 PM/PM<sub>10</sub> emissions from the silo tertiary baghouse shall not exceed 0.01 gr/ACFM, 0.27 lb/hr & 1.18 tons/yr.

**Applicable Compliance Method**

Daily checks for visible emissions coming from the structure housing handling the dust handling system should assure compliance with this limit.

- c. Emission Limitation:  
 PM/PM<sub>10</sub> emissions from the secondary baghouse shall not exceed 0.01 gr/ACFM, 0.27 lb/hr & 1.18 tons/yr.

**Applicable Compliance Method:**

Daily checks for visible emissions coming from the structure housing the dust handling system should assure compliance with this limit.

**E. Miscellaneous Requirements (P129)**

Netting Demonstration for CO

Emissions Increase Due to Modification:

The planned modification of emissions unit P102 (and increase in emissions from debottlenecking) and the planned installation of emissions units P090-P092, P126-P129, P603-P606 results in the following increases:

Pollutant	Increase in Production EAF (tons/yr)	Debottlenecking (tons/yr)	New Emissions Units (tons/yr)	Total (tons/yr)
PM	34.6	2.82	12.07	49.49
PM10	26.9	2.82	11.37	41.09
VOC	19.0	0.16	6.64	25.80
NOx	42.0	4.06	170.06	216.12
CO	923.0	2.44	101.79	1027.23
SO2	8.0	0.02	4.88	12.90
Pb	0.25	-----	-----	0.25
Fl	1.3	-----	-----	1.30

Pollutant	Emissions Increase	PSD Threshold
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**The Timken Co****PTI Application: 15-01339****Modification Issued: 10/11/2001**Facility ID: **1576000613**

PM	49.49	25
PM10	41.09	15
VOC	25.80	40
CO	1,027.23	100
SO2	12.90	40
NOx	216.12	40
Pb	0.25	0.6
Fluorides	1.3	3

PM, PM10, CO, & NOx emission increases are above the PSD thresholds. CO is the only pollutant that can net out of PSD.

**The Timken Co**Facility ID: **1576000613****PTI Application: 15-01339****Modification Issued: 10/11/2001**Contemporaneous CO Emissions Increases & Decreases

Plant	Action	Date	EU Description	Increase (tpy)	Decrease (tpy)
Faircrest	Install	01/95	P024 Soaking Pit #11	7.4	----
Faircrest	Remove	1995	P013 Car Furnace	----	- -4.6
Faircrest	Remove	1995	P014 Car Furnace	----	-4.6
Harrison	Modif.	1995	P058 EAF #9 Trans/4th hole	----	-947*
Harrison	Modif.	1995	---- Steel Finishing EAF #9	2.5	----
Harrison	Modif.	1995	P902 EAF #2 4th hole	----	-807*
Harrison	Remove	1998	P906 EAF #7	----	-706
Gambrinus	Install	1997	---- 25 MMBtu Reheat Furn	9.2	----
Harrison	Install	1997	P084 Reheat Furnace	68.0	----
Harrison	Install	1997	P085 Reheat Furnace	13.0	----
Harrison	Remove	1997	P032 124 MMBtu Reheat Furn	----	-24.0
Harrison	Remove	1998	P061 126 MMBtu Reheat Furn	----	-19.0
Harrison	Remove	199 9	P066 122 MMBtu Reheat Furn	----	-13.0
				100.1	-2525.2
				Net --2425.1	

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**The Timken Co**  
**PTI Application: 15-01339**  
**Modification Issued: 10/11/2001**

Facility ID: 1576000613

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**The Timken Co**

Facility ID: **1576000613**

**PTI Application: 15-01339**

**Modification Issued: 10/11/2001**

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