

**ALLEGHENY COUNTY HEALTH DEPARTMENT  
AIR QUALITY PROGRAM**

November 30, 2015

**SUBJECT:** Review of Application  
Synthetic Minor Source Installation Permit  
McConway and Torley LLC  
109 48<sup>th</sup> Street  
Pittsburgh, PA 15201-2755

**RE:** Installation Permit File No. 0275-I0011

**TO:** Sandra L. Etzel  
Air Pollution Control Manager

**FROM:** David D. Good  
Air Pollution Control Engineer

**FACILITY DESCRIPTION:**

The McConway and Torley LLC (McConway and Torley) facility is a steel foundry that manufactures steel rail and mining castings. The types of processes conducted at the facility include steel melting, casting, heat-treating and finishing. The facility is a minor source of nitrogen oxides (NOX), particulate matter (PM), particulate matter less than 10 microns in diameter (PM10), particulate matter less than 2.5 microns in diameter (PM2.5) and sulfur dioxide (SO2), as defined in §2101.20 of Article XXI. The facility is a synthetic minor source, carbon monoxide (CO), volatile organic compounds (VOCs), and hazardous air pollutants (HAPs) emissions, as defined in §2101.20 of Article XXI.

**INSTALLATION DESCRIPTION**

This installation permit is for the replacement of the two existing 1.2 MMBTU/hr conventional ladle preheater burners with two 3.5 MMBTU/hr oxy-fuel ladle preheater burners.

**PROCESS DESCRIPTION**

<b>SOURCE DESCRIPTION</b>	<b>CONTROL DEVICE(S)</b>	<b>MAXIMUM PRODUCTION</b>	<b>FUEL/RAW MATERIAL</b>	<b>STACK I.D.</b>
Two Oxy-Fuel Ladle Preheater Burners	None	3.5 MMBtu/hr each	Oxy-Fuel	N/A

Scrap metal that is stored in an open building (separate from main building) is loaded onto a rail car by a large magnet. The scrap metal is transported to the main building by a railcar and loaded into one of the two (2) electric arc furnaces (EAF). The metal is melted for approximately three hours and tapped into a ladle. An overhead crane transfers the molten steel to the pouring area to be poured into individual molds. The sand molds are shaped internally by cores and are both produced in a separate area of the facility. The molten steel cools to a desired hardness and the molds are then sent to shakeout process to break apart the molds and recover the sand.

The two proposed new Ladle Preheaters are rated at 3.5 MMBTU/hr each. They combust oxy-fuel and can thus be operated at a higher temperature than the conventional Ladle Preheaters that they are replacing.

**EMISSION CALCULATIONS:**

Particulate Stack Emissions:

The particulate emissions are estimated using AP-42 Table 1.4-2. The emissions were assigned a 25% uncertainty in lieu of being a D-rated emissions factor. All PM = PM10 = PM2.5.

**PM, PM10, PM2.5** = [7.6 lb/MMCF x 15.33 MMCF/yr x 1.25 uncertainty] x 2 units = **0.063 lb/hr** = **0.28 ton/yr**

Gaseous Emissions:

McConway & Torley submitted vendor data for CO and NO<sub>x</sub> emissions estimates. Those estimates were assigned a 25% uncertainty factor. SO<sub>2</sub> and VOC emissions were derived from AP-42 estimates with a 25% uncertainty factor for VOC.

**Table 1: IP11 Potential Emissions Limitations Summary**

POLLUTANT	LBS/HR	TPY1
Particulate Matter	0.063	0.28
PM10	0.063	0.28
PM2.5	0.063	0.28
NOX	1.75	7.66
SO2	0.004	0.02
CO	0.03	0.13
VOC	0.05	0.20

<sup>1</sup> A year is defined as any 12 consecutive months.

Changes in Emissions:

POLLUTANT	Existing TPY	IP11 TPY	Change
Particulate Matter	0.095	0.28	+0.18
PM10	0.095	0.28	+0.18
PM2.5	0.095	0.28	+0.18
NOX	1.53	7.66	+6.13
SO2	0.006	0.02	+0.01
CO	1.29	0.13	-1.16
VOC	0.07	0.20	+0.13

## **INSTALLATION PERMIT APPLICATION COMPONENTS:**

1. Application for Permit to Install Modification of Existing Ladle Preheater System. Installation Permit No. 0275-I011 received December 19, 2014

## **REGULATORY APPLICABILITY:**

### **1. Article XXI Requirements for Issuance:**

See Permit Application No. 0275-I011, Section 5. The requirements of Article XXI, Parts B and C for the issuance of minor modification installation permits have been met for this facility. Article XXI, Part D, Part E & Part H will have the necessary sections addressed individually.

### **2. BACT Analysis:**

Proper operation of the combustion burner system was the only work practice found to be BACT. No effective control technologies exist for a small oxy-fuel burner.

### **3. Method(s) of Demonstrating Compliance:**

Compliance with the emission standards set forth in this Installation Permit will be demonstrated by recording the total amount of oxy-fuel (natural gas and oxygen). In addition, all instances of non-compliance will be reported to the Department on a semi-annual basis. See Installation Permit No. 0275-I013 for the specific conditions for determining compliance.

### **4. New Source Performance Standards (NSPS)**

There are no applicable NSPS for this installation.

### **5. National Emission Standards for Hazardous Air Pollutants (NESHAP)**

National Emission Standards for Hazardous Air Pollutants for Iron and Steel Foundries Area Sources (40 CFR Part 63 Subpart ZZZZZ) applies.

### **6. New Source Review/Prevention of Significant Deterioration (NSR/PSD):**

The installation is not subject to NSR/PSD, as the installation and facility are not a major source of pollutants.

### **7. Risk Management Plan; CAA Section 112(r):**

The facility is not required to have a risk management plan at this time because none of the regulated chemicals exceed the thresholds in the regulation.

### **8. Greenhouse Gas Reporting (40 CFR Part 98):**

There are presently no applicable requirements for greenhouse gases. Should the facility exceed 25,000 metric tons of actual CO<sub>2</sub>e emissions in any 12-month period, the facility would have to submit reports in accordance with 40 CFR Part 98. See §98.2(a)(3) for applicability.

### **9. Air Toxics Guidelines:**

The installation is subject this installation to the Air Toxics Policy (approved 11/7/2012 and amended on 1/9/2013), however, all air toxics emissions were found to be less than the de minimis thresholds in the Policy.

### **10. Emissions Inventory:**

This facility is required to provide an annual Emission Inventory report per §2108.01.e of Article XXI since the facility has the potential to emit twenty-five (25) or more tons of several criteria pollutants per year.

**NON-APPLICABLE REGULATIONS:**

New Source Performance Standards (§2105.05, 40 CFR Part 60 Subpart AAa)

The requirements of 40 CFR Part 60 Subpart AAa (Standards of Performance for Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels Constructed After August 7, 1983) are not included in the permit because of the exemption for facilities classified as 'Foundries' (Letter from EPA to McConway & Torley dated 3/2/01).

**RECOMMENDATION:**

The facility has no current unresolved Notices of Violation issued within the last 18 months and it is recommended that Installation Permit No. 0275-I011 be issued.