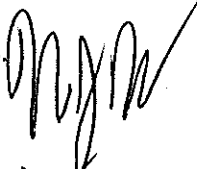




**COMMONWEALTH OF PENNSYLVANIA**  
 Department of Environmental Protection  
 Southwest Regional Office

MEMO

**TO:** Air Quality File TVOP-65-00016

**FROM:** Nicholas J. Waryanka, P.E.  
 Air Quality Engineer  
 Air Quality 

**THROUGH:** Barbara Hatch, P.E.  
 Environmental Engineer Manager  
 Air Quality  Mark A. Wayner, P.E.  
 Regional Manager  
 Air Quality 

**DATE:** July 25, 2012

**RE:** TVOP Renewal Application #65-00016  
 Latrobe Specialty Metals, A Carpenter Company  
 Latrobe Borough, Westmoreland County  
 APS 599529 AUTH 654524 PF 238451

**BACKGROUND**

Latrobe Specialty Metals, A Carpenter Company (LSM) is a manufacturer of specialty stainless and alloy steels. Steel production begins in the Melt Shop where molten metal is produced in one electric arc furnace (EAF) from steel scrap and raw materials. Steel is refined in an AOD vessel before being poured into various ingot and billet forms. Subsequently, steel is sent to other parts of the plant for further processing such as rolling, shearing and grinding operations. However, before this processing can be done, the steel must be heat-treated to relieve internal stresses. This heat-treating is done in numerous furnaces throughout the facility. As a result of the levels of nitrous oxides (NOx) and carbon monoxide (CO) emitted, LSM is a major stationary source as defined in Title I, Part D of the Clean Air Act Amendments. As such, the facility is subject to the Title V permitting requirements adopted at 25 Pa. Code, Chapter 127, Subchapter G.

LSM submitted the application to the Department on November 8, 2006. The application was deemed administratively complete on December 12, 2006. An application shield, as described in 25 Pa. Code §125.505(e), was granted at that time.

**REGULATORY ANALYSIS**

A RACT Operating Permit was issued to the facility on December 22, 1995 under Permit No. 65-000-016. The RACT determination made for LSM was to follow the presumptive RACT requirements of 25 Pa. Code Section 129.93. For combustion units and sources equal to or greater

than 20 mmbtu/hr but less than 50 mmbtu/hr, RACT was the performance of an annual adjustment or tuneup on the combustion process as well as recordkeeping of the adjustments made. We also required these sources to be tested annually for NOx and CO using portable analyzers and at least once during the term of the operating permit using EPA Reference Method stack tests. However, since the RACT Operating Permit has been issued, No. 50 Carbottom Furnace in the Mesta Press, the Salem Walking Beam Furnace (formerly Source #041) in the Continuous Rolling Mill, and the Selas Barrel Furnace (formerly Source #128) in the Continuous Rolling Mill have been shutdown. Therefore, the emission limits for these three sources from the RACT operating permit have not been included in this version of the Title V permit.

For combustion units and sources less than 20 mmbtu/hr, RACT was the installation, maintenance and operation of the source in accordance with manufacturers' specifications.

There have been 2 new plan approvals at the facility since the issuance of the original Title V permit:

- #PA-65-00016H Construction of a Vacuum Induction Melting Line was issued 4/30/2008
- #PA-65-00016F Conversion of EAF A to a Ladle Furnace (Plan Approval was withdrawn because there was no emissions increase.)

Copies of these plan approvals/operating permits will be included with the submission to US EPA for their review.

LSM also has submitted a number of Request for Determination (RFD) for review by the Department since the original Title V operating permit was issued on July 25, 2002. These are summarized below:

RFD #	Date	Description
#65-00016A	July 2005	Construction of Sulfuric Acid Pickle Tank with Scrubber
11/28/2005	Nov 2005	Construction of 2 Vacuum Arc Furnaces
#65-00016B	Jan 2006	Conversion of Melt Shop Ladle Preheaters to oxy-fuel combustion
#65-00016C	June 2007	Construction of new Annealing Furnace
#65-00016H	July 2010	Construction of two (2) new Annealing Furnaces
#65-00016K	June 2011	Construction of Cummins Model #WSG-1068, 131.6 bhp, natural gas-fired emergency engine

The following construction activities were handled as de minimis emission increases at the facility in accordance with 25 Pa. Code Section 127.449:

RFD #	Date	Description
#65-00016D	Jan 2009	Slag Handling & Torch Cutting Operation
#65-00016E	Mar 2009	Construction of Cummins 80DSFAE diesel emergency generator
#65-00016F	Oct 2009	Construction of Spray-on rust inhibitor process

Where appropriate, the TVOP has been revised to include these sources.

The facility has three source types for which New Source Performance Standards regulations have been promulgated: Source 101, EAF B And Source 102, AOD Vessel (Subpart AA, Standards of Performance for Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels Constructed After August 7, 1983, effective date: October 21, 1974) and Source 031, Therm-I-Vac Boiler (Subpart Dc, Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units, effective date: June 9, 1989). Due to their construction dates, EAF B (1963), the AOD (January 1983), and the boiler (1980) predate their respective NSPS and were not subject to these requirements. However, EAF B underwent a significant modification under plan approval #PA-65-00016E when the unit's transformer was upgraded from 10 MVA to 15 MVA. Upgrading to a larger transformer on EAF B decreased heat times and thus increased the unit's potential to emit. The modification did subject EAF B to Subpart AAa which applies to "each affected facility...that commences construction, *modification*, or reconstruction after August 17, 1983. 40 CFR 60.2 defines *modification* as meaning "any physical change in, or change in the method of operation of, an existing facility which increases the amount of any air pollutant (to which a standard applies) emitted into the atmosphere by that facility or which results in the emission of any air pollutant (to which a standard applies) into the atmosphere not previously emitted." 40 CFR 60.272(a)(1) limits particulate matter emissions from this unit to 0.0052 gr/dscf. However, LSM's vendor designed a baghouse for the EAF and Melt Shop that would comply with a limit of 0.0032 gr/dscf. Therefore, this was the limit that was included in plan approval #PA-65-00016D.

LSM is also subject to 40 CFR Part 63, Subpart YYYYYY—National Emission Standards for Hazardous Air Pollutants for Area Sources: Electric Arc Furnace Steelmaking Facilities. This regulation requires the owner/operator to implement a scrap metal pollution prevention plan to minimize the amount of chlorinated plastics, lead, and free organic liquids that is charged to the furnace. It also requires facilities using automotive scrap to meet specific requirements for the removal of mercury switches. There are also particulate matter and opacity limits for EAFs and AOD vessels subject to Subpart YYYYYY along with testing, recordkeeping, and reporting requirements.

### **COMPLIANCE ASSURANCE MONITORING (CAM)**

The Compliance Assurance Monitoring (CAM) requirements of 40 CFR Part 64 are applicable to LSM. There are two sources equipped with control devices which would be major sources by themselves without their control devices: Source 101, Electric Arc Furnace B, which is equipped with a baghouse and Source 102, Argon Oxygen Decarburization (AOD) vessel which is also equipped with a baghouse.

As discussed above, EAF B is subject to a particulate matter emission limit of 0.0032 gr/dscf which was imposed in Plan Approval #PA-65-00016D. LSM has chosen pressure drop across the fabric filter as the first indicator of a malfunction with the control system. Each baghouse compartment is equipped with a manometer and the indicator range is between 3 and 7 inches, w.g. The QIP threshold proposed is 6 deviations in 6 months. LSM has proposed quarterly calibration using oil type manometers to confirm that the magnehelic gauges on the compartments are functioning

correctly. This method provides instantaneous readings and continuous monitoring data to ensure compliance with the particulate matter emission limit. Pressure drop data is collected daily.

Visible emissions were chosen as the second indicator of compliance. The approach is to perform visual stack observations by a certified observer. The indicator range is 0 – 3% opacity and the QIP threshold is 6 deviations in 6 months. When operating normally there should not be any opacity, however the NSPS does allow for 3%. LSM will take visual readings on a daily basis when melting is occurring. Observations will be for at least 3 six-minute periods in accordance with Subpart AA. QA/QC practices will include semi-annual confirmation observations by an independent certified reader. A manual log of opacity readings will be maintained.

The CAM plan for the AOD vessel is essentially the same as for the EAF with a few minor differences. Like the EAF, pressure drop is indicator #1 and visible emissions are indicator #2 for the AOD. The AOD vessel predates Subpart AA however so the applicable limitation for particulate matter is 0.04 gr/dscf from 25 Pa. Code Section 123.13. Likewise, the applicable opacity regulation is from 25 Pa. Code Section 123.41. For this reason, an opacity indicator range of 0 – 15% was chosen. The pressure drop indicator range for the AOD is also 3 – 7 inches, w.g. Because the AOD baghouse is older than the EAF's and the technology is not as modern, LSM will calibrate the AOD baghouse magnehelic gauges on a monthly basis. The monitoring frequency will be a daily check of the gauges as well as a daily recording of the observed values. Likewise, visible emission observations and the manual logging of the observations will be performed on a daily basis when the AOD is operating.

### **EMISSION INFORMATION**

The Title V Permit for the site will include forty-nine (49) sources: three (3) combustion units, twenty-five (25) furnaces or groups of furnaces, four (4) grinding operations, four (4) sawing/shearing operations, two (2) shot blasting operations, two (2) welding operations, pickle tanks, an acid etch lab, a slag handling building, vehicle travel, and five (5) miscellaneous sources. In addition to those already acknowledged by the Department, additional insignificant activities are listed in Section H of the proposed Title V permit under Miscellaneous Text.

The following changes involving emission sources have occurred since the issuance of the previous Title V Operating Permit:

- EAF A converted to Ladle Furnace and is now Source #101A
- EAF B upgraded transformer from 10 MVA to 15 MVA and is now Source #101, "Electric Arc Furnace B"
- Source #103, "Teeming – Ingot Pouring" is exhausted to the Melt Shop roof monitors. Therefore, the mapping has been changed to C16, "EAF Baghouse" and S56, "EAF Baghouse Stack" instead of being mapped as fugitive emissions to Z03. Z03 has been deleted from the permit.
- Source #110, "Midwest Grinders" is now "Midwest Grinder" and includes only Grinder #7. Grinders #1 and #2 were shut down

- G&B Billet Grinder #2 installed under RFD #65-00016B has been grouped with Source #111, "Grinding Operations"
- Source #128, "Selas Furnace" has been physically removed from the site and the permit
- The 2 Vacuum Arc Furnaces approved in the 11/28/2005 RFD have been added to Source #133, "Vacuum Arc Remelt Furnaces (13)"
- Source #139, "Pickle Tank" – a new pickle tank and a new acid scrubber were installed at the facility in 2006 through RFD #65-00016I. Source #139 is now "Pickle Tanks" and the control acid scrubber has been added as control device #C139
- Source #115, "Melt Shop Furnaces" do not exhaust through stacks but result in fugitive emissions. The exhaust for this source has been changed from stack "S32" to fugitive exhaust "Z32"
- Source #118, "Heating/Cooling Furnaces Mesta Press" do not exhaust through stacks but result in fugitive emissions. The exhaust for this source has been changed from stack "S33" to fugitive exhaust "Z33"
- Source #122, "Heating & Annealing Furnaces (Former Sack Press)" do not exhaust through stacks but result in fugitive emissions. The exhaust for this source has been changed from stack "S34" to fugitive exhaust "Z34"
- Source #126, "Annealing/Heat Treat Furnaces" was modified to account for the construction of the new 5.0 mmbtu/hr annealing furnace approved under RFD #65-00016C
- The Slag Handling & Torch Cutting Operations constructed under RFD #65-00016D in Jan 2009 were added to the Miscellaneous Section as a de minimis emissions increase
- Construction of a Cummins 80DSFAE diesel emergency generator under RFD #65-00016E in March 2009 was added to the Miscellaneous Section as a de minimis emission increase
- Construction of the spray-on rust inhibitor process under RFD #65-00016F in October 2009 was added to the Miscellaneous Section as a de minimis emission increase
- Construction of two new natural gas-fired annealing furnaces under RFD #65-00016H in July 2010 was added to the permit as Source #142
- Construction of Cummins Model #WSG-1068, 131.6 bhp, natural gas-fired emergency engine under RFD #65-00016K in June 2011 was added to the permit as Source #143

As stated above, LSM is a major source of NO<sub>x</sub> and CO. The following table estimates the emissions changes which have occurred at the facility based since issuance of the previous Title V permit.

**Table I – New Emission Sources Since Issuance of Previous Title V OP**

Source	Plan Approval or RFD#	Pollutant in Tons Per Year				
		NOx	CO	VOC	PM10	SO2
EAFs Transformer Upgrades*	PA-65-00016E	n/a	n/a	n/a	n/a	n/a
EAF A Conversion To Ladle Furnace	PA-65-00016F (withdrawn)	-31.1	-86.7	-56.4	0.4	0.0
2 New Vac Arc Furnaces	RFD 11/28/2005	0.0	0.0	0.0	0.0	0.0
Construction of Sulfuric Acid Pickle Tank with Scrubber	RFD #65-00016A	n/a	n/a	n/a	0.0	n/a
Conversion to oxy-fuel combustion Melt Shop Ladle Preheaters	RFD #65-00016B	0.0	0.0	0.0	0.0	0.0
Construction of new Annealing Furnace	RFD #65-00016C	2.2	1.8	0.1	0.2	0.0
Construction of Slag Handling & Torch Cutting Operations	RFD #65-00016D (De Minimis)	0.0	0.0	0.0	0.6	0.0
Construction of Cummins 80DSFAE diesel emergency generator	RFD #65-00016E (De Minimis)	0.0	0.0	0.0	0.0	0.0
Construction of spray-on rust inhibitor process	RFD #65-00016F (De Minimis)	0.0	0.0	0.0	1.0	0.0
Construction of two (2) new Annealing Furnaces	RFD #65-00016H	2.9	4.7	0.3	0.4	0.0
Construction of Cummins Model #WSG-1068, 131.6 bhp, natural gas-fired emergency engine	RFD #65-00016K	0.1	0.0	0.0	0.0	0.0
VIM/VAR	PA-65-00016H	8.1	7.1	1.1	6.1	0.1

\* Project emission changes were negated by PA-65-00016E where EAF A was converted to a Ladle Furnace. Emission estimates are for PA-65-00016E are based on post-modification stack test results.

The new emission sources listed above in Table I have been incorporated into the Title V permit, either at the Source level or in the miscellaneous section as insignificant activities.

For numerous small combustion sources which are subject to particulate matter and/or sulfur dioxide emissions standards, emissions factors from US EPA's AP-42 Manual and/or manufacturer's data will be used to demonstrate that additional periodic monitoring is not required for these sources.

LSM reported the following actual emissions in 2011:

**Table 2 – 2011 Actual Emissions Reported by LSM**

<b>Pollutant</b>	<b>Actual Emissions in tpy</b>
NOx	104.8
CO	103.8
SO2	2.4
VOC	7.7
PM10	13.9
Total HAPs	1.6
Ammonia	1.9

### **OPERATIONAL FLEXIBILITY**

The Title V permit may include provisions to allow a permitted facility to make certain changes without requiring a permit revision. LSM has requested the flexibility of increasing emissions by the de minimus levels specified in 25 Pa. Code §127.449(d) and the installation of the minor sources listed in 25 Pa. Code §127.449(e). These provisions will be specified in the Title V permit.

LSM has requested that the permit shield be granted for this permit. The permit shield has been specified in the permit special conditions.

No alternate operating scenarios were proposed by LSM.

### **CONCLUSIONS AND RECOMMENDATIONS**

I have completed my review of Latrobe Specialty Metal's Title V permit application for their facility in Westmoreland County. LSM has met the regulatory requirements associated with this application submittal. The attached proposed operating permit reflects terms and conditions as described in Latrobe Specialty Metal's permit application. It is my recommendation to issue a final Title V permit for this facility.

Section 1: Introduction and Purpose of the Document

Item	Description
1	Item 1 Description
2	Item 2 Description
3	Item 3 Description
4	Item 4 Description
5	Item 5 Description
6	Item 6 Description
7	Item 7 Description
8	Item 8 Description
9	Item 9 Description
10	Item 10 Description

SECTION 2: TERMS AND CONDITIONS

Section 2: Terms and Conditions of the Agreement

SECTION 3: SIGNATURES AND DATES

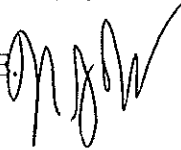
Section 3: Signatures and Dates of the Parties




COMMONWEALTH OF PENNSYLVANIA  
Department of Environmental Protection  
Southwest Regional Office

MEMO

**TO:** Air Quality File TVOP-65-00016

**FROM:** Nicholas J. Waryanka, P.E.   
Air Quality Engineer  
Air Quality

**THROUGH:** Barbara Hatch, P.E.  
Environmental Engineer Manager  
Air Quality

Mark A. Wayner, P.E.  
Regional Manager  
Air Quality 

**DATE:** January 4, 2013

**RE:** TVOP Renewal Application #65-00016 Review Memo Addendum  
Latrobe Specialty Metals, A Carpenter Company  
Latrobe Borough, Westmoreland County  
APS 599529 AUTH 923130 PF 238451

Since the issuance of the draft TVOP in July 2012, the following Requests for Determination (RFDs) have been reviewed and exempted from plan approval requirements by DEP AQ. The RFDs have been incorporated into the renewal TVOP issued on Jan. 4, 2013.

- \* 65-00016L: Replacement of #8 Midwest Grinder Baghouse, new Control Device #C07A, controlling emissions from existing #8 Midwest Grinder, Source #107. Additional conditions from the RFD have been added to the TVOP.
- \* 65-00016M: Installation and Operation of 3 Additional VAR furnaces, Source #133.
- \* 65-00016N: Installation and Operation of #10 Midwest Grinder, new Source #110A, being controlled by existing Control Device, #C10.

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