

COMMONWEALTH OF PENNSYLVANIA
 Department of Environmental Protection
 Southwest Regional Office

TO AQ Case File TVOP-04-00227

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DATE September 18, 2014

RE Review of Title V Operating Permit Renewal Application
 IPSCO Koppel Tubular Corp.
 Ambridge Plant
 Beaver County

APS 699045 AUTH 801504 PF 256797

Background

The IPSCO Koppel Tubulars LLC is a seamless steel tubing ranging in diameter from 2.375" thru 5.500" manufacturing operation located in Ambridge, Harmony Township, Beaver County. The majority of that tubing production is from solid 6.5" diameter steel billets produced at other locations. This facility include various heat treating furnaces, saws, straighteners, lathes, tube upsetters, draft station and coaters. Although actual emissions do not exceed any major source thresholds, Ambridge is a Title V facility because it's potential to emit (PTE) NOx is greater than the major source threshold (100 tpy).

Initial Title V Operating Permit was issued on October 19, 1999 with an expiration date of October 19, 2004. First Title V Operating Permit renewal was issued on January 20, 2005 with an expiration date of January 20, 2010. The permit was amended on January 16, 2007 to change the name from Koppel Steel Corporation to IPSCO Koppel Tubulars Corporation. Second Title V Operating Permit renewal application was received on July 2, 2009.

The Table below summarizes the list of sources that have been exempted from Plan Approval/Operating Permit requirements since last TVOP renewal was issued, under Pa Code §127.14 (a)(8) through Request for Determination (RFD) or De Minimis Notification (DMN) under 25 Pa Code §127.449(i) due to the insignificant amount of emissions.

Source	Date
DMN Transmittal - ReHeat Furnace	February 7, 2007
DMN Transmittal—Rotary Burners Replacement	October 16, 2008
RFD Approval—Mandrel Mill Baghouse No. 2	February 3, 2012
RFD Approval—Oxygen Storage Plant	February 13, 2012
RFD Approval SRM dust collector (This was never built)	August 21, 2012
DMN Transmittal - Trial of Alternate Coatings	June 11, 2014

PA-04-00227B was issued on July 9, 2012, to modify existing burners to accommodate oxy/fuel firing and add additional oxy/fuel burner capacity to the existing Rotary Hearth Furnace. A total of 116 MMBtu/hr of burners was replaced to have the capability of operating in air/fuel or oxy/fuel mode. Also, an additional 40 MMBtu/hr of burner capacity was added that operate in oxy/fuel mode exclusively. Based on the manufacturer's guarantee, the proposed oxy/fuel burners should reduce the NOx emission rate by 60%.

The oxy/fuel burners were installed during the July outage and operation commenced on July 24, 2012. Operation of the furnace in oxy/fuel mode increased after August 15, 2012, however; tube mill production was low in September due to lack of customer orders, and the mill was shut down. Orders increased in October, but it became apparent that the new equipment was not operating as expected. On June 18, 2013 Plan Approval PA-04-00227B was modified de-rating the total furnace capacity to protect the refractory heat recuperator system and moving of some of the heat capacity to initial heat zones in the furnace. The Company requested that the Department to change the short-term NOx emission limit from 0.17 lb/MMBtu to 31.51 lb/hr. The annual NOx emission limit will remain at 135 tpy. Annual emissions are based upon operating 8,568 hours per year.

The applicant's experience in running the Rotary Hearth Furnace with the newly installed oxy/fuel burners since late 2012 revealed a problem with maintaining the proper billet temperature as the billet leaves the furnace and is transferred to the tube rolling mill. PA-04-00227B was again modified on July 10, 2014 to authorize installation of 2 slightly larger discharge door burners capable of being fired using air/fuel or oxy/fuel. The discharge door burners were rated at 4 MMBtu/hr each, for a total of 8 MMBtu/hr. As part of this modification, the applicant replaced the existing burners with 2 – 6 MMBtu/hr burners, for a total increase of 4 MMBtu/hr.

An amendment to Title V Operating Permit renewal application was received on November 21, 2013.

Regulatory Analysis:

Per Pa. Code Title 25 Section 127.402(a), a permit is required to operate a stationary air contamination source. The applicable emission limitations, monitoring, recordkeeping, reporting and work practice standard requirements of Pa. Code Title 25 Sections 123.1, 123.2, 123.13, 123.21, 123.22, 123.31, 123.41, 123.42, 123.43, 135.5, 129.14, 129.52, 129.56, 129.57 and 129.63 have been included in this TVOP Renewal.

Emission Reduction Credits (ERC) Pa. Code Title 25 Section 127.207 — On May 1, 2008 the Department received an Emission Reduction Credits (ERC) registry application from IPSCO. The application is being processed with this Title V renewal. In 2007 IPSCO modified the existing heat treating furnace at the exit end of the continuous tube mill to enlarge the furnace by 10 feet to allow it to accommodate longer tubes. Two burners were added to the existing 15, and upgraded the heating capacity of the furnace from 20 mmbtu/hr to 30 mmbtu/hr. The existing burners were replaced with 17 bloom 1500 series ultra-low NOx burners, resulting in decrease in potential NOx emission from this unit. It was done De Minimis Notification (DMN) under 25 Pa Code§127.449(i). The ERC generated through this process is 1.9 tons/year of NOx.

The emissions described in this registry application are part of the emission inventory for this facility, and were derived from 2006, and 2007 AIMS submittals. These emission reductions are beyond those required by any applicable regulatory requirement, including BAT and RACT. In addition, the amount of ERCs being applied for does not exceed the emission limitations specified in the Title V Operating Permit for this facility.

Section 127.207(1) requires that ERCs be federally enforceable and §127.206(l) requires that ERCs be federally enforceable before they can be traded. Federally enforceable status will be attained through the issuance of this ERC approval & the incorporation of this approval into the Title V permit.

It has been determined that 1.9 tons of NOx ERCs are surplus, permanent, quantified and enforceable. I recommend that these ERCs be added to the ERC Registry as follows:

Facility Information:	Criteria Pollutant	Certified ERCs Available (tpy)	Expiration Date	Intended Use of ERCs
IPSCO Koppel Tubular Corp. Source Location: Ambridge Facility County: Beaver Contact Person: Mike Alderson Telephone Number: 724-847-6372	NOx	1.9	2/07/2017	Trading

The facility went through NSR and PSD review requirements through Plan Approval PA-04-00227B in 2012. Requirements have been included in this permit.

The applicability of 40 CFR 63, Subpart XXXXXX—National Emission Standards for Hazardous Air Pollutants Area Source Standards for Nine Metal Fabrication and Finishing Source Categories has been evaluated for this site. This rule applies to certain operations at facilities that fall under specific SIC and NAICS classifications. As a metal tube manufacturing facility operating under NAICS Code is 331211, the SIC code is 331701, this facility is not subject to this rule.

Additional conditions included in this TVOP are appropriate testing, emission reduction, work practice standards, monitoring, recordkeeping and reporting requirements.

Process and Emissions:

The production of seamless tubing begins with the heating of billets in an 80' diameter rotary furnace prior to piercing. The Ambridge rotary furnace holds ~ 200 billets and utilizes conventional natural gas burners to heat billets as they travel around the furnace from the charging area to the furnace discharge. A total of five heating zones and one discharge door burner zone raise the billet temperature from ambient to a discharge temperature of approximately 2400 degrees Fahrenheit (depending on the grade being produced). A 6.5" billet is in the furnace for about 80 minutes, and allows enough time to "soak" the billet to the target temperature variation between the surfaces to center of the billet, of less than 25 degrees Fahrenheit. In normal operation, billets are loaded, and extracted, from the Rotary furnace about every 25 seconds.

After billets are heated in the rotary furnace they are pierced on a two roll piercing mill by placing a solid steel "Mandrel" into the hot steel billet. The Mandrel is lubricated with a powdered graphite compound to allow the Mandrel to be withdrawn from the hot billet, creating the rough tube shape. Two baghouses and a hood system are used for local ventilation.

While the theoretical rated capacity of the Rotary Furnace was ~200 mmbtu/hr, before 2012 oxy-firing project (adding the rated capacity of all the burners) it has a practical working capacity limitation of about 180 mmbtu/hr, due to physical limitations in a) the amount of heated intake or combustion air introduced to the furnace and b) limited exhaust air capacity. This furnace rarely operates at its maximum practical capacity. The occasions when it is used at close to practical capacity are when it is heated to working capacity after a cold shutdown—usually once a year—or when it is brought back into service after a maintenance outage when the temperature is kept at 1600°F. The normal maintenance schedule is to reduce temperature to 1600° every 10 days for a 10 hour period, to allow maintenance on the other components of the tube mill.

The hollow steel tube shape or "shell" produced is then run through an eight stand Aetna Standard retained "Mandrel Mill" set of electrically powered rolling mills. The tube shell is then reheated in a Salem Furnace walking beam "Reheat Furnace". The shell is then rolled to the final tube size by passing through the electrically powered Stretch Reducing Mill. After the final rolling process of the Stretch Reducing Mill, tubes are cooled by traveling across a walking beam cooling bed and then cut to length by way of "in line" carbide tipped Linsinger saws.

Seventy-five to eighty percent of the steel tube produced in the Mandrel Mill is shipped offsite after leaving the Mandrel Mill. The Ambridge plant has limited capacity to further process or "Finish" the raw steel tube in the following operations such as saws, pipe straighteners, draft station, facing lathes 5" and 7 ½", tube upsetters, heat treating furnaces and East Bay and West Bay coaters.

Facility-wide emissions reported for the 2013 calendar year include approximately 83.81 tons of NO_x, 52.87 tons of filterable PM₁₀, 18.7 tons of VOC, 10.83 tons of CO, and 0.33 tons of SO_x.

Conclusions and Recommendations:

I have completed my review of IPSCO Koppel Tubular Corp. Title V renewal application for their facility in Ambridge, Beaver County. IPSCO has met the regulatory requirements associated with this application submittal. The attached proposed permit reflects terms and conditions as described in IPSCO's permit application. It is my recommendation to issue the proposed Title V Operating Permit renewal for this facility.