REGION 3

PHILADELPHIA, PA 19103

Report Title:	Clean Air Act Inspection of Carpenter Technology Corp		
Inspection Date(s):	04/09/2024 – 04/12/2024		
Regulatory Program(s):	Title V, NSPS, NESHAP, MACT, SIP		
Company Name:	Carpenter Technology Corp		
Facility Name:	Carpenter Technology Corp		
Facility Location:	101 West Bern St Reading, PA 19612		
Latitude:	40.361105	**Longitude:**	-75.936838
County/Parish:	Berks County		
AFS/ICIS-Air Number:	PA000470235		
Permit Number:	06-05007		
NAICS Code:	331110	**SIC:**	3312
DSB ID #:	ECAD-123		

Facility Representatives: **Point of Contact**

Scott McGoldrick, Environmental Manager of Reading ☒
Phone: 610-208-2141 Email: smcgoldrick@cartech.com
Chris Luksic, Corporate Environmental Manager ☐
Phone: 610-208-2017 Email: cluksic@cartech.com
Harry Pehote, Environmental Engineer ☐
Phone: 610-208-2383 Email: hpehote@cartech.com

EPA Inspectors:

Scott Yanos, Life Scientist, 3ED21
Phone: 215-814-2128 Email: yanos.scott@epa.gov
Dean DeLuca, Physical Scientist, 3ED21
Phone: 304-234-0264 Email: deluca.dean@epa.gov

State/Local Inspectors:

Kayla Eller, Air Quality Inspector
Phone: 717-265-5366 Email: kaeller@pa.gov
William Borst, Air Quality Supervisor
Phone: 717-503-7550 Email: wborst@pa.gov

Other personnel present included in Attachment 3: Sign-in Sheet

EPA Lead Inspector Signature	SCOTT YANOS Digitally signed by SCOTT YANOS Date: 2024.06.04 13:13:13 -04'00'	
	Scott Yanos	**Date**
	1600 John F Kennedy Blvd Philadelphia, PA 19103-2852	
Supervisor Signature	KRISTEN HALL Digitally signed by KRISTEN HALL Date: 2024.06.04 14:25:37 -04'00'	
	Kristen Hall	**Date**

Table of Contents

I. Introduction

The United States Environmental Protection Agency (EPA) conducted a Clean Air Act (CAA) inspection at Carpenter Technology Corp (Carpenter or Facility) to verify compliance with applicable State and Federal regulations. The Pennsylvania Department of Environmental Protection (PA DEP) was notified of the inspection on March 20, 2024, via email. On April 5, 2024, EPA notified the Facility of the planned inspection via phone and email. EPA emailed a list of records for review to Scott McGoldrick, prior to the inspection (see Attachment 1). These records are listed in the Records Review section of the report.

The inspection included an evaluation of the Facility's processes and its compliance with the CAA. All information included in this report is the result of statements by the Facility representatives, materials shown to the inspectors by the Facility representatives, and/or documents provided by the Facility representatives to the inspectors at the time of, or subsequent to, the inspection. In addition, information gathered prior to the inspection from a review of EPA and State records may be included in Section A. Summary of the Facility.

A. Summary of the Facility

The Facility is located at 101 West Bern St, Reading, PA 19601. Carpenter Technology is a metallurgy company that uses high grade scrap metal to produce specialty metal alloys for various industries that require high grade metal alloys which includes the aerospace, medical, and oil/gas industries. The metal alloys are made into several products according to customer request via contract which includes billets, sheet metal, wire, and ingots.

The Facility received a Title V Permit (06-05007) from PA DEP issued on April 1, 2022.

Carpenter Technology is classified as major source for particulate matter (PM), sulfur dioxide (SO_2), volatile organic compounds (VOCs), nitrogen oxides (NOx), carbon monoxide (CO), and hazardous air pollutants (HAPs). The Facility is subject to, or potentially subject to the following federal regulations:

- 40 CFR Part 60 Subpart AAa – Standards of Performance for Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarbonization Vessels Constructed After August 17, 1983, and On or Before May 16, 2022
- 40 CFR Part 60 Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines
- 40 CFR Part 60 Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines
- 40 CFR Part 61 Subpart E – National Emission Standard for Mercury
- 40 CFR Part 64 Subpart T – National Emission Standards for Halogenated Solvent Cleaning
- 40 CFR Part 63 Subpart ZZZZ – National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines
- 40 CFR Part 63 Subpart DDDDD – National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters

B. Inspection Opening Conference

At 12:09 PM on April 9, 2024, EPA inspectors arrived at the Facility for a CAA Inspection and conducted a brief opening conference. Carpenter Technology was represented by Scott McGoldrick, Environmental Manager for Reading; Harry Pehote, Environmental Engineer; Chris Luksic, Corporate Environmental Manager; Ken Ross, Vice President for Environmental Health, and Safety; and Michael Sirbaugh, Vice President of Manufacturing. Also, Kayla Eller, Air Quality Inspector of PA DEP was present. EPA inspectors, Scott Yanos, Dean Deluca, and Kyle Krall presented their credentials and explained the purpose of the visit was to conduct a CAA inspection to determine compliance with their permit and any applicable regulations. Additionally, EPA informed the facility representatives of their right to claim any confidential business information (CBI). At that time, Scott McGoldrick did not claim any photos or documentation as CBI.

II. Site Activity/Process Description

Carpenter Technology Corp began operating in 1889 as a steel plant on the east shore of Schuylkill River. It has now expanded to 400 acres on both sides of the river focusing production on taking high grade steel scrap and producing various products for industries in need of high-grade steel and steel alloys. It is a publicly traded company with 'CSR' being its designation on the New York Stock Exchange. The main customers of Carpenter are as follows: the aerospace industry including both military and civilian, medical industry, the oil and gas industry, as well as producing stainless steel, nickel alloys and metal coatings by contract. Carpenter Technology Corp is an international company with manufacturing locations in Pennsylvania, Alabama, South Carolina, England, and Sweden. The international headquarters is located in Philadelphia, PA.

The production lines at Carpenter Technology run 24 hours a day, seven days a week; operating three 8-hour shifts each day. In total, there are 2,500-2,600 employees working at the facility with 1,600-1,700 of those employees being directly involved with the production lines. The production lines operate as a batch process based on customer orders. At the time of inspection, Carpenter Technology was not taking any new orders; due to having contracts that go out fifteen months. The high-grade products produced by Carpenter require certification for industries that Carpenter produces for. For example, the medical industry is a 5-10 year certification process and the aerospace industry is a 10-15 year certification process.

Carpenter manufacturing process begins by purchasing high grade metal scrap and metal alloys, melting the scrap and alloys using Electric Arc Furnaces and secondary melting then processing and forging the metal into a product specified in the customer's contract. Typically, the scrap metal is forged into billets, bars, wire, sheets, strips, or ingots. Carpenter only receives fully processed scrap from approved vendors that ensure the scrap does not contain any mercury or radiation. Once received, the scrap is sorted according to grade and stored in a segregated scrapyard where it sits until

it is ready to be processed. Carpenter has no coking batteries on premise to assist in steel production. Seventy five percent of the raw materials brought in for processing are metal scrap, the other 25% are alloys bought for specific contracts depending on what is needed. Scott McGoldrick stated that the alloys are not derived from scrap because the company doesn't use enough and often the alloy is specific to the contract making it highly variable in use.

Once scrap is sorted, it is then sent to the Electric Arc Furnaces (EAF) to be fully melted into molten metal. Carpenter has a total of five EAFs on premise, all are used consistently on a rotating schedule with two EAFs operating at the same time. The particulate emissions control for emissions captured from the EAFs' canopy hoods are two large baghouses with twenty compartments each. For controlling the emissions from the EAFs, the compartments in each of the two baghouses are connected via a duct with the emissions entering the first baghouse and then the second baghouse. After the EAFs, the molten metal is sent to the Argon Oxygen Decarbonization (AOD) unit which takes the impurities out of the metal. Emissions from the AODs are vented to the same baghouses as the EAFs.

In addition to the EAFs, the facility uses three other processes to melt, refine and condition the metals for further processing in the finishing operations. The Vacuum Induction Melting (VIM) units use electric coils and a vacuum to melt the metals for further refinement. After being formed into a cylinder by the VIM unit, further processing is done depending on the product's intended use. The Electro-Slag Remelting (ESR) unit follows the process started using the VIM units to remelt and refine the metal for aerospace and military applications. Vacuum Arc Remelting (VAR) uses electrodes in a vacuum to further refine high-grade alloys which are used in the aerospace and medical industries.

Once the desired quality and grade is achieved, the metal is sent to various finishing processes that process the metal into the desired final form requested by the customer. These processes include pickling, coiling, annealing, both cold and hot rolling, along with general drawing and shaping of the metal according to customer specifications in the contract. Carpenter uses hot box burners to keep the metal hot for some of these processes and uses annealing furnaces to bring the metal up to temperature required for processes like hot rolling. All the hot box burners and furnaces use natural gas and vent inside the building. The finishing processes that require grinders, saws, blasting units and rolling mills all have their own baghouses with direct intakes on the process itself. Carpenter recycles what they can from baghouse collection to be re-melted and re-used in production. Scott McGoldrick stated anything that cannot be recycled by Carpenter is disposed of by certified waste disposal. For all processes that require heating during the processing of the metal, Carpenter uses natural gas fired boilers which have no emission controls.

Carpenter has two strip cleaning lines and two pickling lines that use acid to clean and finish the metal parts. The two strip cleaning lines are located within the same building. The two cleaning lines use a combination of nitric acid and hydrofluoric acid baths to clean and finish the metal. Each cleaning line has its own water scrubber that dilutes the acid emissions and condenses the acid to be sent to the wastewater system. The two pickling lines use nitric acid, hydrochloric acid, and hydrofluoric acid to finish various products. Both pickling lines are a series of acid baths and rinses. The newer pickling line

is fully automated. Both pickling lines have intake vents along the side of the pickling line, and both have water scrubbers with caustic injection to balance pH of before it is sent to the wastewater treatment system.

Carpenter has 25 emergency generators onsite. The four emergency generators which are meant to power processes during a power outage are diesel powered while the other 21 generators are natural gas fired. The natural gas emergency generators are meant to keep lighting and other basic functions in case of a power outage. None of the generators have emission controls. Only 12 of the emergency generators were available to be inspected during the walkthrough which are referenced in the observation section of this report and listed in the table below. The other 13 generators were in spaces only accessible to the master electrician who was not available for the walkthrough.

Emergency Generators Inspected

Name and Rating	Run Time (hours)	Fuel	Location
Oman 9 KW/12 HP	165.9	Natural Gas	Building 120
Onan 15.0JC-18R 19 KW/25 HP	296.0	Natural Gas	Building 118
Kohler 15REYG 15 KW/25 HP	76.9	Natural Gas	Building 118
Kohler 25RZGB 25KW/25 HP	844	Natural Gas	Building 84
Caterpillar DG80-2 80 KW/107 HP	57.1	Natural Gas	Building 55
Kohler 30RZ282 30 KW/40 HP	299.3	Natural Gas	Building 55
Kohler 50RZ 55 KW/74 HP	1,655	Natural Gas	Building 48
Caterpillar C27 ATAAC 750 KW/1006 HP	475.2	Diesel	Building 48
Kohler 20RZ 19 KW/25 HP	563	Natural Gas	Building 94
Kohler 3RM62 3 KW/3 HP	104.4	Natural Gas	Building 53
Onan 12.5JC-18R131/11917A 13 KW/17HP	767.1	Natural Gas	Building 108
Cummins DQFAB 800 KW/ 1073 HP	211.0	Diesel	Building 108

All wastewater generated from Carpenter's production processes is treated by Carpenter's wastewater treatment plant. This plant has several treatment ponds that flocculates particles suspended within the water which forms into a sludge. This sludge is then piped to a natural gas fired sludge dryer which dries the sludge into a dust and the dust is collected in the bag house at the side of the building.

The opening conference concluded on April 9, 2024, at 1:08 PM. After the opening conference, the EPA Inspectors proceeded with records review, see section IV of this report.

III. Observations

EPA inspectors were led on a walkthrough of the Facility April 10, 2024, at 9:00 AM by Scott McGoldrick, Harry Pehote and Chris Luksic of Carpenter Technology. Kalya Eller and William Borst, Air Quality Supervisor of PA DEP were also present for the walkthrough. EPA inspectors noted photos would be taken during the Facility walkthrough (Attachment 2).

The walkthrough started at Building 112. The main operation of this building is for the hot rolling mill, which takes steel billets that have been heated to a certain temperature in order to send them through the rolling mill which will form the steel billet into the desired shape. The mill batch furnaces preheat the metal billets before they are sent to the walking beam furnaces, which bring the steel billet up to the full desired temperature before it is introduced to the rolling mill. In addition to the furnaces, there are hot box burner stations which allow already heated billets to stay at temperature while awaiting further processing. The walking beam furnaces only operate when the rolling mill is operating while the mill batch furnaces are operating at all times, only being off when the refractory has to be changed.

The following is the specifications of the furnaces observed:

Source ID	Source Name	Rated Input (MMBTU/hr)	Fuel	Control
185	Walking Beam Furnace #1	43.1	Natural Gas	No control, Vented inside
187	Walking Beam Furnace #2	37.6	Natural Gas	No control, Vented inside
330	#5 Mill Furnace A	10.6	Natural Gas	No control, Vented inside
331	#5 Mill Furnace B	10.6	Natural Gas	No control, Vented inside
332	#5 Mill Furnace C	10.6	Natural Gas	No control, Vented inside
333	#5 Mill Furnace D	10.6	Natural Gas	No control, Vented inside

334	#5 Mill Furnace E	10.6	Natural Gas	No control, Vented inside
336	#5 Mill Furnace F	10.6	Natural Gas	No control, Vented inside
337	#5 Mill Furnace G	10.6	Natural Gas	No control, Vented inside
338	#5 Mill Furnace H	10.6	Natural Gas	No control, Vented inside
344	#5 Mill Furnace I	10.6	Natural Gas	No control, Vented inside
345	#5 Mill Furnace J	10.6	Natural Gas	No control, Vented inside
335	Trial Bit Furnace	0.6	Natural Gas	No control, Vented inside
386	Burner Box Stations #1 - #3	4.0 each	Natural Gas	No control, Vented inside
484	#5 Mill Furnace K	4.0	Natural Gas	No control, Vented inside
485	#5 Mill Furnace L	4.0	Natural Gas	No control, Vented inside
486	#5 Mill Furnace M	4.0	Natural Gas	No control, Vented inside

Walking Beam Furnace #1 was not operating at the time of inspection while Walking Beam Furnace #2 was in an idle mode. Number 5 Mill Furnaces B, K and M were not in operation due to the refractory being changed.

Once the rollers have rolled the steel billets into the desired shape, the material proceeds to the two abrasive saws which cut the billets to desired specifications. Both abrasive saws are electric powered. Both saws have a baghouse for emission control with the intake at the place where the saw cuts the metal and the baghouse vents back inside the building.

Next, the EPA Inspectors were led to inspect Building 120. The main purpose of this building is to put the steel billets through the annealing process utilizing a variety of furnaces. The type of furnace utilized for annealing the steel is determined by the form that the steel is in for the process. These furnaces are constantly operating and only taken out of service for a planned shutdown or planned maintenance.

The following furnaces were observed:

Source ID	Source Name	Rated Input (MMBTU/hr)	Fuel	Control
312	#70 Annealing Furnace	12.0	Natural Gas	No control, Vented inside
313	#44 Roller Rail Furnace	16.4	Natural Gas	No control, Vented inside
314	#71 Car Bottom Furnace	8.6	Natural Gas	No control, Vented inside
315	#72 Car Bottom Furnace	8.6	Natural Gas	No control, Vented inside
316	#73 Car Bottom Furnace	8.0	Natural Gas	No control, Vented inside
317	#74 Car Bottom Furnace	8.0	Natural Gas	No control, Vented inside
318	#75 Car Bottom Furnace	6.0	Natural Gas	No control, Vented inside
395	#45 Roller Rail Furnace	16.4	Natural Gas	No control, Vented inside
396	#60 Rotary Annealing	12.0	Natural Gas	No control, Vented inside
397	#76 Car Bottom Furnace	8.6	Natural Gas	No control, Vented inside
398	#77 Car Bottom Furnace	8.6	Natural Gas	No control, Vented inside

During the inspection of Building 120, the EPA Inspectors observed sweeper cars cleaning the floors as a form of dust control with a filter that captures the dust and clean the floors. The sweeper cars operate during all three daily shifts.

Building 120 has one Oman 9 KW/12 HP natural gas emergency generator with a run time of 165.9 hours.

Building 122 was inspected next. Located within this building were two boilers. The boilers are used for comfort heat in the nearby buildings, but it was unclear whether the two boilers were also used for process heat because they are shut off in the summer according to Harry Pehote. Both boilers are dual fuel being able to use both natural gas and No.2 Fuel Oil but Carpenter only runs them with natural gas. Both Boiler 122-1 and Boiler 122-2 were installed in 1985, have a rated input of 9.9 MMBTU/hr and no emission controls.

DSB ID #: ECAD-123

On the way to inspect Building 118, the EPA Inspectors observed the slag and refactory pit where all the slag and refactory waste is kept outside. Carpenter pulls what metal they can from the waste to be recycled back into production. For material that cannot be recycled, a certified waste company comes in to haul away. In order to control fugitive PM emissions, whirly bird sprinklers are used to wet the pit whenever needed.

Building 118 is where the Rotary Forge and Finish Operations occur. Building 118 has two emergency generators which are an Onan 15.0JC-18R rated at 19KW/25HP with 296.0 hours of runtime with natural gas as a fuel source and a Kohler 15REYG rated at 15KW/25HP with 76.9 hours of runtime with natural gas as a fuel source.

The follow furnaces were observed:

Source ID	Source Name	Rated Input (MMBTU/hr)	Fuel	Controls
186	Rotary Forge Arc Furnace	50.0	Natural Gas	No controls, Vents outside
356	Rotary Forge #2 Batch N	12.0	Natural Gas	No controls, Vents inside
357	Rotary Forge #1 Batch S	12.0	Natural Gas	No controls, Vents inside
358	12 Ton Walking Beam Furnace	19.8	Natural Gas	No controls, Vents inside
386	Burner Box Stations: A - C	4.0 each	Natural Gas	No controls, Vents inside
389	#3 Batch Reheat Furnace	4.7	Natural Gas	No controls, Vents inside
703	#4 Batch Reheat Furnace	12.0	Natural Gas	No controls, Vents inside
704	#5 Batch Reheat Furnace	15.0	Natural Gas	No controls, Vents inside
705	#6 Batch Reheat Furnace	15.0	Natural Gas	No controls, Vents inside
471	#7 Batch Heating Furnace	12.0	Natural Gas	No controls, Vents inside

The Batch Reheat Furnaces reheat steel billets to prepare them for processing in the Rotary Forge and the Walking Beam Furnace. Three Burner Box Stations are nearby in order to keep the steel billets at temperature while awaiting processing. The Rotary Forge Arc Furnace is a circular furnace with many

chambers. The steel billets are loaded into the furnace and then the furnace rotates allowing for other steel billets to be loaded. Once the steel billets reach the desired temperature, they go to the forge which shapes the steel according to contract. The Walk Beam Furnace preheats the steel billets for the smaller forges and processing.

The EPA Inspectors observed several processes within Building 118. The Billet Grinder which is used to prepare steel billets for further processing. The Billet Grinder has a baghouse as an emission control. The intake is directly at the process where it proceeds to a two-cell baghouse and then vents back inside. Since billet grinder was not operating during the inspection, the baghouse was not in operation. However, the facility turned the baghouse on so that EPA could observe pressure drop readings at the baghouse. The pressure gauge outside was at 0.4 inches of water. It is not checked regularly due to the control being vented back inside after treatment. A small saw within the building, which is intermittently used, is equipped with a bag house with one cell that also vents back inside. The Cold Abrasive Saw cuts steel when it is fully cooled. This saw has a baghouse emission control that has three cells and it vents to the atmosphere after treatment. The vent intake is not directly at the saw but a larger intake on the wall near the saw. Carpenter conducts periodic EPA Method 22 stack observations on the exhaust of the baghouse for the Cold Abrasive Saw. The Belt Polisher uses an abrasive strip to finish the surface of steel products and has a baghouse emission control with the intake for the baghouse directly on the processing area. It is a one cell baghouse which exhausts to the outside and the pressure gauge for the baghouse is checked regularly which had a reading of 1.2 inches of water at the time of inspection. The CMI cutoff saw is another saw that cold cuts the steel so the steel must be fully cold before the CMI cutoff saw can be used. It has an emission control that is a four-stage bag house with an intake directly on the process area and that exhausts to the outside with a pressure gauge that is checked weekly. At the time of inspection, the gauge read one inch of water.

After Building 118, the EPA inspectors proceeded to an inspection of Building 84, which is where the Electro-Slag Reheat (ESR) and Vacuum Arc Remelting (VAR) occur. The process of the ESR is to take steel billets and widen their diameter by using pressure from pistons. The ESR units use electricity as an energy source. For emission control, the ESR units have two lime feeder baghouses. ESR units A, B, C, D, E, and F share one lime feeder baghouse and ESR units G, H, and L share the other lime feeder baghouse. The intakes for all the baghouses are directly on the process area and the baghouse exhaust vents to atmosphere. At the time of inspection, there were visible emissions coming off the process and being drawn into the intake. Lime is manually fed into the baghouse in order to strip the chlorides from emissions generated from the process which help explains the lime dust on the ground. Both baghouses are a 2-cell bag house that have their pressure gauges checked regularly. The baghouse for ESR units A, B, C, D, E, and F had a pressure reading of 2.5 inches of water and the baghouse for ESR units G, H, and L was at 4.4 inches of water. The VAR furnaces within Building 84 are all run on electricity as an energy source and have no emission controls. The VAR are used to remelt the steel for further processing.

Building 84 also has cold cut off saw and a shot blaster. The cold cut off saw has a two-stage baghouse with an intake directly on the process area and an exhaust that vents directly back into the building. The shot blaster which is used to clean the surface of the steel after the ESR process has a rotorclones built into the machine as an emission control.

Building 84 has one emergency generator which is a Kohler 25RZGB 25 KW/34 HP natural gas generator with a reading of 844.7 hours.

Next to Building 84 is Building 78 which mainly contains furnaces that heat and reheat the steel billets for other processes at Carpenter. The following furnaces where observed:

Source ID	Source Name	Rated Input (MMBTU/hr)	Fuel	Controls
283	#37 Annealing Furnace	6.3	Natural Gas	No controls, Vents inside
284	#38 Annealing Furnace	6.3	Natural Gas	No controls, Vents inside
290	#2 Car Bottom Furnace	8.0	Natural Gas	No controls, Vents inside
291	#3 Car Bottom Furnace	7.8	Natural Gas	No controls, Vents inside
293	3,000 Ton #9 Batch Furnace	12.0	Natural Gas	No controls, Vents inside
390.0	Reheat Furnace	3.5	Natural Gas	No controls, Vents inside
391	3,000 Ton #8A Batch Furnace	3.5	Natural Gas	No controls, Vents inside
392	#63 Annealing Furnace	7.0	Natural Gas	No controls, Vents inside
393	#64 Annealing Furnace	7.0	Natural Gas	No controls, Vents inside
701	#6A Batch Furnace	15.0	Natural Gas	No controls, Vents inside
702	#10 Reheat Furnace	15.0	Natural Gas	No controls, Vents inside
706	#1 Batch Reheat Furnace	15.0	Natural Gas	No controls, Vents inside
707	#3 Batch Reheat Furnace	15.0	Natural Gas	No controls, Vents inside
779	#11 Annealing Furnace	10.0	Natural Gas	No controls, Vents inside

728	Batch Reheat Furnace	15.0	Natural Gas	No controls, Vents inside
729	Batch Reheat Furnace	15.0	Natural Gas	No controls, Vents inside
730	Batch Reheat Furnace	15.0	Natural Gas	No controls, Vents inside
731	Batch Reheat Furnace	15.0	Natural Gas	No controls, Vents inside
732	Batch Reheat Furnace	15.0	Natural Gas	No controls, Vents inside
733	Batch Reheat Furnace	15.0	Natural Gas	No controls, Vents inside
734	Batch Reheat Furnace	15.0	Natural Gas	No controls, Vents inside
736	Batch Reheat Furnace	15.0	Natural Gas	No controls, Vents inside
777	Batch Reheat Furnace	21.0	Natural Gas	No controls, Vents inside
778	Batch Reheat Furnace	21.0	Natural Gas	No controls, Vents inside
790	Batch Reheat Furnace	21.2	Natural Gas	No controls, Vents inside
475	Batch Reheat Furnace	12.0	Natural Gas	No controls, Vents inside
476	Batch Reheat Furnace	12.0	Natural Gas	No controls, Vents inside
477	Batch Reheat Furnace	12.0	Natural Gas	No controls, Vents inside
296A	Batch Reheat Furnace	12.0	Natural Gas	No controls, Vents inside
708	Batch Reheat Furnace	12.0	Natural Gas	No controls, Vents inside
718	Batch Reheat Furnace	12.0	Natural Gas	No controls, Vent inside

Building 78 also has 4,500-ton press machine that is used to stretch and press heated steel billets to be longer and smaller in diameter.

Building 105 was inspected next and only contains furnaces to heat and prepare the steel for further processing. The following furnaces were observed:

Source ID	Source Name	Rated Input (MMBTU/hr)	Fuel	Controls
321	#19 Annealing Furnace	9.2	Natural Gas	No controls, Vent inside
322	#20 Ball Track Furnace	9.2	Natural Gas	No controls, Vent inside
323	#21 Annealing Furnace	9.2	Natural Gas	No controls, Vent inside
324	#25 Car Bottom Tip Up Furnace	6.4	Natural Gas	No controls, Vent inside
325	#26 Car Bottom Tip Up Furnace	6.4	Natural Gas	No controls, Vent inside
326	#29 Annealing Furnace	9.4	Natural Gas	No controls, Vent inside
327	#30 Car Bottom	8.0	Natural Gas	No controls, Vent inside
328	#31 Annealing Furnace	12.0	Natural Gas	No controls, Vent inside
602	#12 Ball Track Furnace	9.2	Natural Gas	No controls, Vent inside
292A	#66 Annealing Furnace	9.7	Natural Gas	No controls, Vent inside
292A	#65 Annealing Furnace	9.7	Natural Gas	No controls, Vent inside

The EPA Inspectors finished the second day of the inspection at the Melt Shop which encompasses Buildings 28, 31, 89, 101, and 113. The EPA Inspectors were shown around by the Melt Shop Manager Mike Machusik. Outside of the Melt Shop are two 20-cell Reverse Air Baghouses which Carpenter labeled as Baghouse #1 and Baghouse #2. Baghouse #1 is connected to Baghouse #2 with Baghouse #2 having the only exhaust to atmosphere. Once emissions are treated in Baghouse #1, they go to Baghouse #2 for further treatment before being released to atmosphere. The majority of the processes in the Melt Shop are sent to Baghouse #1 but the processes in Buildings 101 and 113 are only sent to Baghouse #2. The two baghouses have multiple monitors throughout the system. At the time of inspection Baghouse #1 had 7.4 inches of water reading and Baghouse #2 had 8.0 inches of water reading. During the inspection it was observed that PM emissions were coming from the reverse air fan

duct for Baghouse #2. Carpenter found and plugged the hole as a temporary fix and put in a work order to have the duct repaired.

The Argon Oxygen Decarbonization (AOD) vessel #1 and #2 along with their preheaters and weekend burners are located next to each other in Building 89. AOD #3 is located in Building 113 behind Building 89. Natural gas is used as a fuel source and the emissions vent inside the building. The purpose of the AOD is to purify the steel after being melted by using argon and oxygen to take the carbon out of the steel. The AOD is also where other metals will be added in order to make alloys. The emission controls for the AOD vessels are Baghouse #1 and #2 with the intake at the vessel which leads to Baghouse #1. After the AOD is when the molten metal is taken to the mold to produce ingots, rounds, octagons, squares, and pigs. Molds vary in size and is determined by the contract. The specifications for the AODs are as follows:

Source ID	Source Name	Rated Input (MMBTU/hr)	Fuel	Controls
169	#1 AOD Preheater	2.3	Natural Gas and Diesel Fuel	No controls, Vents inside
171	#1 AOD Vessel	20 Tons	O_2	Baghouse #1
601	#1 AOD Weekend Burner	3.0	Natural Gas	No controls, Vents inside
170	#2 AOD Preheater	3.7	Natural Gas	No controls, Vents inside
176	#2 AOD Vessel	20 Tons	O_2	Baghouse #1
383	#2 AOD Weekend Burner	3.0	Natural Gas	No controls, Vents inside
307	#3 AOD Preheater	10.0	Natural Gas	No controls, Vents inside
189	#3 AOD Vessel	40 Tons	O_2	Baghouse #2
308	#3 AOD Weekend Burner	10.0	Natural Gas	No controls, Vents inside

The Electric Arc Furnaces (EAF) A, B, and D are located in Building 31 next to Building 89, EAF E is located in Building 28 and EAF F is located in Building 113 behind Building 89. The EAFs take the scrap steel and use high voltage graphite electrodes to melt the scrap into a liquid where is transported to the AOD vessels to be purified. Canopy hoods are above each EAF that go to Baghouse #1 except for EAF F which has an intake hood that goes to Baghouse #2. During the inspection, emissions were observed not being captured by the intake hood for EAF B. Later in the inspection, the facility told the EPA inspectors that EAF B had recently been initially charged when these emissions were observed. There were also gaps and holes in the building structure around EAF A and B canopy hoods. The typical tap-to-tap duration of a melt is 2.5-3.5 hours using two charges per melt and the typical load that is put

into an EAF is 16 tons, except for EAF F which is a forty-ton furnace. There are always three EAFs being run during two shifts of work, but they will use more, if needed, to meet deadlines. At the time of inspection only EAF E was not being used. The EAFs are run year-round except a two-week shutdown in July where the entire melt shop shuts down for maintenance. The facility stated the shells were replaced approximately around 2007-2012 and that EAFs A, B, and D are still using the original transformer from 1917 which is what the facility considers to be the source. The facility also stated that EAF E was built in the 1950's and EAF F was built in 1984.

The molten metal is transported through the buildings and kept at temperature through the use of vertical and horizontal ladles. Each ladle has a preheater in order to achieve this. The ladle stations are located in various buildings in and around the EAFs and AODs. The following were observed:

Source ID	Source Name and Location	Rated Input (MMBTU/hr)	Fuel	Controls
211	Vertical Ladle Heater - Building 28	3.5	Natural Gas and Fuel Oil	No controls, Vents inside
212	Center Vertical Ladle – Building 31	1.8	Natural Gas	No controls, Vents inside
213	South Vertical Ladle – Building 31	3.7	Natural Gas	No controls, Vents inside
215	South Horizontal Ladle – Building 31	2.4	Natural Gas	No controls, Vents inside
216	North Horizontal Ladle – Building 31	2.7	Natural Gas	No controls, Vents inside
217	Center Horizontal Ladle – Building 31	2.7	Natural Gas	No controls, Vents inside
214	North Vertical Ladle – Building 89	1.8	Natural Gas	No controls, Vents inside
305	Vertical Ladle – Building 113	1.8	Natural Gas and Diesel Fuel	No Controls, Vents inside
306	South Horizontal Ladle – Building 113	4.0	Natural Gas and Diesel Fuel	No controls, Vents inside

309	North Horizontal Ladle – Building 113	6.0	Natural Gas	No controls, Vents inside
310	Center Horizontal Ladle – Building 113	6.0	Natural Gas	No controls, Vents inside

The products produced in Building 113 directly feed into the Caster operations which take place in Building 101 with some of the Tundish heaters in Building 89 which is directly next to Building 101. Continuous casting is where the molten steel is poured from the ladle through the tundish in order to create a continuous piece of steel. A torch cutter using oxygen and natural gas then cuts the steel into the desired lengths. The torch cutter has an intake that goes to Baghouse #2 in order to control emissions from cutting operations. The following heating elements were inspected:

Source ID	Source Name	Rated Input (MMBTU/hr)	Fuel	Controls
173	Tundish Heaters – Building 101	4.4	Natural Gas	No controls, Vents inside
174	Tundish Heaters - Building 101	4.4	Natural Gas	No controls, Vents inside
767	Tundish Shroud Preheat – Building 101	5.0	Natural Gas	No controls, Vents inside
208	Tundish Lining Heater #14	0.5	Natural Gas	No controls, Vents inside
209	Tundish Lining Heater #15	0.5	Natural Gas	No controls, Vents inside
386	Tundish Heater	1.9	Natural Gas	No controls, Vents inside

Within the Melt Shop are furnaces that help to preheat or heat the molten or semi-molten steel while awaiting further processing. The following furnaces were inspected during the inspection of the Melt Shop:

Source ID	Source Name and Location	Rated Input (MMBTU/hr)	Fuel	Controls
386	General Furnace – Building 28	0.4	Natural Gas	No controls, Vents inside

386	General Furnace – Building 28	0.5	Natural Gas	No controls, Vents inside
386	General Furnace – Building 31	0.5	Natural Gas	No controls, Vents inside

In order for Carpenter to make alloys from the steel, they receive alloys at the back of Building 113 where trucks unload loads of alloy metals into a bin. The alloy delivery area has an emission control in the form of a one-cell baghouse to control PM emissions from the deliveries.

The second day of inspection for 4/10/2024 ended at 4:50 PM.

The inspection of Carpenter continued on 4/11/2024 at 09:10 AM starting at Building 41 which houses cutting and grinding processes. Scott McGoldrick, Harry Pehote and Chris Luksic of Carpenter Technology led the EPA Inspectors through the walkthrough. Kalya Eller and William Borst, Air Quality Supervisor of PA DEP were also present for the walkthrough. All the processing done within Building 41 are cold cutting and grinding so there are no furnaces to preheat or heat the steel. The Saw Cell #1 and #2 and the Grinder Cell all share one six-cell baghouse. Only four of the cells in the baghouse are being used with the two of the cells permanently shut down. At the time of inspection, only the grinder cell baghouse was operating which had a reading of 3.8 inches of water. This area of Building 41 was down for maintenance at the time of inspection.

On the other side of Building 41 are 4 Midwest Grinders, 1 Vulcan Grinder and 1 Swing Frame Grinder. Each grinder has a bay to conduct operations within the bay and each bay has an intake which leads to a baghouse emission control and all the baghouses exhaust to atmosphere after treatment. The Midwest Grinders each have a 4-cell Baghouse. During the inspection, there was mounded dust observed near the Midwest grinder #3 exhaust. The first cell in each of these baghouses is a heavy drop out which go directly back to the Melt Shop to be recycled. The rest of the cells have bags as well that will be sorted and sent back to the melt shop according to grade of steel. The Vulcan Grinder has two baghouses, one three-cell baghouse used for normal steel operations and one one-cell baghouse for when titanium is being processed. The first cell of the steel processing baghouse is a heavy drop out which goes directly back to the Melt Shop to be recycled with the other two cells needing to be sorted first before heading directly back to the Melt Shop. The titanium cell baghouse is collected and sent to a certified waste disposal company. The Swing Arm Grinder has a one cell baghouse that also has its grindings collected, sorted, and recycled. The following readings were observed at the baghouses during the inspection:

	Inches of Water		**Inches of Water**
Midwest Grinder 1-1	6.5	**Midwest Grinder 1-2**	5.5
Midwest Grinder 1-3	7.4	**Midwest Grinder 1-4**	6.5

Midwest Grinder 2-1	5.5	**Midwest Grinder 2-2**	4.5
Midwest Grinder 2-3	4.3	**Midwest Grinder 2-4**	4.5
Midwest Grinder 3-1	5.5	**Midwest Grinder 3-2**	3.0
Midwest Grinder 3-3	5.9	**Midwest Grinder 3-4**	2.9
Midwest Grinder 4-1	6.4	**Midwest Grinder 4-2**	6.2
Midwest Grinder 4-3	4.3	**Midwest Grinder 4-4**	4.4
Vulcan Grinder Steel	0.3	**Vulcan Grinder Titanium**	5.4
Swing Frame Grinder	3.9		

Building 58 was the next building inspected which contains the original VAR furnace, which is powered by electricity and has no emission controls. The shot blaster in this area has its own self-contained baghouse and vents inside the building. There are also four Burner Box stations in this area all with a rated input of 4.0 MMBTU/hr that use natural gas as a fuel source.

After Building 58, the EPA Inspectors were led to Building 55 where hot rolling mill operations take place. This process uses heat and pressure to produce sheets and strips of steel. The facility uses two industrial boilers as process heat. Boilers 55-1 and 55-2 are both BIR-3WB-100 Model Boilers built in 1985 with the ability to use both Natural Gas and Diesel but Carpenter only uses Natural Gas with a Rated Input of 4.2 MMBTU/hr. To finish the strips, there is a three-head strip grinder which grinds the surface of strips to give it a shined finish. This grinder has a rotor-clone as an emission control and vents indoors. The following furnaces and burners are used in the hot rolling mill operations to preheat or heat the steel for processing:

Source ID	Source Name	Rated Input (MMBTU/hr)	Fuel	Controls
158	Strip Quench Furnace	3.3	Natural Gas	No controls, Vents inside
159	#4 Mill – D Batch Furnace	7.9	Natural Gas and Diesel Fuel	No controls, Vents inside
163	#4 Mill – G Batch Furnace	7.5	Natural Gas	No controls, Vents inside
164	#4 Mill – H Batch Furnace	9.4	Natural Gas and Diesel Fuel	No controls, Vents inside
382	#4 Mill – F Batch Furnace	10.0	Natural Gas	No controls, Vents inside
070	Steckel Mill Burner 1	0.9	Natural Gas	No controls, Vents inside
071	Steckel Mill Burner 2	0.9	Natural Gas	No controls, Vents inside

072	Steckel Mill Burner 3	0.9	Natural Gas	No controls, Vents inside
073	Steckel Mill Burner 4	0.9	Natural Gas	No controls, Vents inside
132	Batch Reheat Furnace	21.0	Natural Gas	No controls, Vents inside
133	Batch Reheat Furnace	21.0	Natural Gas	No controls, Vents inside
134	Batch Reheat Furnace	21.0	Natural Gas	No controls, Vents inside

Building 55 has two emergency generators that were inspected. The Caterpillar DG80-2 80 KW/ 107 HP natural gas emergency generator is used for water cooling in the rolling mill to safely shutdown operations in the event of power loss. It has 57.1 hours recorded at the time of inspection. The Kohler 30RZ282 30 KW/ 40 HP natural gas emergency generator is used for emergency lights. It has 299.3 hours recorded at the time of inspection.

Building 48 is one of the largest on the Carpenter campus with many different processes and production areas. The first area inspected was the cleaning line in which parts go through a shot blaster which cleans the surface and prepares the parts for the acid baths. The shot blaster has a 2-cell baghouse which had a reading of 2.8 inches of water at the time of inspection. The exhaust vents back into the building.

After the shot blaster, the product is sent to one of the two acid bath cleaning lines which finishes the surface of the steel. The acid baths use a combination of nitric acid and hydrofluoric acid. Each of the acid cleaning lines is at least partially uncovered and has its own water mist scrubber with intakes directly on the process with an exhaust to atmosphere. The water mist dilutes and condenses the acid emissions which are sent to the wastewater treatment facility onsite. Line #1 Scrubber had a flow rate of 35 GPM and Line #2 Scrubber had a flow rate of 40 GPM. Scott McGoldrick said that the ideal flow rate for the best treatment of the acid is 35-40 GPM. Outside of Building 48 are four aboveground storage tanks (AST) that are used to store the acid used in the cleaning lines. The tank used to store new nitric acid has a capacity of 5,700 gallons, the tank used to store new hydrofluoric acid is 8,000 gallons, the tank used to store recycled nitic acid is 10,000 gallons and the tanks used to store recycled nitric and hydrofluoric acid are each 10,000 gallons. All of the tanks have an intake that is connected to the Line #1 Scrubber. The concrete containment and interior liner located underneath these tanks appeared to be complete without any noted tears or damage.

Building 48 has two processes that use a mist eliminator emission control. The Wet Strip Grinder which grinds the surface of strips to finish the surface of steel strips uses mist eliminator pad to control emissions and exhausts to atmosphere. The cold rolling mill only uses pressure to mill the steel flat which creates PM emissions. The cold rolling mill uses a mineral water mist to condense the PM

emissions as a control. Both of these mist eliminators send the water to the wastewater treatment plant.

During the inspection of Building 48, the EPA inspectors asked about air intakes observed on some of the processes that went up to the roof and exhausted to the atmosphere. These were not mentioned nor were they in the permit. Scott McGoldrick told the EPA Inspectors that these process vents are used to vent hydrogen gas that is used in some of the processes and is used to prevent explosions.

There is a vapor degreaser that uses ethylene in the form of Trichloroethylene (TCE) bath in Building 48. The degreaser is within a totally enclosed space within Building 48 and is used infrequently, only a couple hours a month because it is used for a specific type of steel strip. The vapor degreaser has a wiper that wipes the TCE off the strip as it leaves the self-contained booth as the form of emission control for this process.

Carpenter has a nickel and copper plating line in Building 48 which is used to put a nickel and copper plating on steel wire. The wire goes through several baths in order to plate the wire with nickel and copper. These baths include a cleaner, nickel chloride and copper sulfate and several rinses. The electroplating lines use a wet bed scrubber which injects caustic for treatment and then exhausts to atmosphere. The scrubber intakes are located on the plating baths. Copper sulfate oxidation buildup was observed at several points at the intakes and duct work at the time of the inspection. The EPA inspectors told Scott McGoldrick of this buildup and Scott McGoldrick promptly put in a work order to have gaskets replaced and bolts tightened. The readings from the scrubber at the time of inspection were as follows: 7.03 pH; 47.4 GPM and 89.6°F.

The following are all the furnaces observed during the Building 48 inspection:

Source ID	Source Name	Rated Input (MMBTU/hr)	Fuel	Controls
221	Morrison Baker – Block #1	1.2	Natural Gas	No controls, Vented Inside
234	Bench Sodium Furnace	5.0	Natural Gas	No controls, Vented Inside
248	#32 Annealing Furnace	6.5	Natural Gas	No controls, Vented Inside
160	#55 Annealing Furnace	7.9	Natural Gas	No controls, Vented Inside
222	#84 Annealing Furnace	5.3	Natural Gas	No controls, Vented Inside
223	#83 Annealing Furnace	3.2	Natural Gas	No controls, Vented Inside
224	#85 Annealing Furnace	2.7	Natural Gas	No controls, Vented Inside

225	#86 Annealing Furnace	2.5	Natural Gas	No controls, Vented Inside
226	#94 Annealing Furnace	8.7	Natural Gas	No controls, Vented Inside
227	#22 Annealing Furnace	10.0	Natural Gas	No controls, Vented Inside
394	#62 Rectangular Bell Furnace	6.5	Natural Gas	No controls, Vented Inside
242A	#87 Annealing Furnace	4.8	Natural Gas	No controls, Vented Inside
254	#1 Strip Line Furnace	2.3	Natural Gas	No controls, Vented Inside
719	Ebner Bell Furnace	2.76	Natural Gas	No controls, Vented Inside
720	Heavy Gauge Vertical Furnace	3.25	Natural Gas	No controls, Vented Inside
721	Medium Gauge Vertical Furnace	3.25	Natural Gas	No controls, Vented Inside
722	Medium Gauge Vertical Furnace	3.25	Natural Gas	No controls, Vented Inside
773	Coil Bake Oven – North	2.0	Natural Gas	No controls, Vented Inside
774	Coil Bake Oven – South	2.0	Natural Gas	No controls, Vented Inside
242	#11 Bright Annealing Line Furnace	1.6	Natural Gas	No controls, Vented Inside
245	#10 Bright Annealing Line Furnace	3.9	Natural Gas	No controls, Vented Inside
246	#4 Bright Annealing Line Furnace	2.6	Natural Gas	No controls, Vented Inside

The Hurst Boiler Model F18.1-60-200 is a dual fuel boiler used for process heat in Building 48. It was built in 1999 and can use natural gas and diesel fuel but Carpenter only uses natural gas with a Rated Input of 25.0 MMBTU/hr. Within this same space is a Kohler 50RZ 55 KW/ 74 HP natural gas emergency generator with 1,655.0 hours recorded at the time of the inspection which is used for emergency lighting. Right outside this space is a Caterpillar C27 ATAAC 750 KW/ 1006 HP diesel emergency

generator used to get steel out of acid baths in case of a loss of power. It had 475.2 hours recorded at the time of inspection.

Building 73 which is right next to Building 48 has a lot of varied finishing processes as they prepare the products to be shipped in the attached warehouse. There are various small saws and grinders within this area. All of them have small dust collectors with heavy drop outs that exhaust into the building after treatment.

The Pickling Lines for Carpenter are within Building 48 and Building 154. The two lines are set up the same with salt descaling baths, rinses and various baths containing the acid baths utilizing a hydrochloric acid bath, a nitric acid bath and an acid bath containing both nitric and hydrofluoric acid. The hydrochloric acid baths are heated because the chemical reaction taking place is exothermic. The Building 48 Pickling Line is the older line and is used to clean and polish large steel billets. The Building 73 Pickling Line is fully automated and is mostly used for steel wire products. The amount a product is cleaned and polished with the pickling line is determined by grade and customer specifications. Both pickling lines have the bath tanks near the wall and are open air with the intakes for the scrubbers mounted on the wall itself. Each pickling line has two scrubbers at the north and south of the line for a total of four scrubbers. The two scrubbers for Building 48 are referred to as the North and South Bench Scrubbers and the two Building 154 Scrubbers are referred to as North and South Block Scrubbers. All four scrubbers are packed bed wet scrubbers with caustic injection with an exhaust to atmosphere and wastewater sent to the wastewater treatment plant. The scrubbers can be monitored from the wastewater treatment plant and has alarms for the flow rate and pH. The following readings were taken from scrubbers at the time of inspection:

	Flow Rate (GPM)	pH	Temperature (°F)
Block North Scrubber	1,040	7.36	70.4
Block South Scrubber	1,040	8.41	72.3
Bench North Scrubber	723	5.17	75.9
Bench South Scrubber	685	3.84	79.8

Caustic was being injected into the Bench Scrubbers at the time of the inspection to bring the pH back up.

Outside of the Pickling Lines are three tanks. The 6,300-gallon Sulfuric Acid tank was installed in case Carpenter wanted to use sulfuric acid in their pickling lines but at the time of inspection, the tank has never been filled and sulfuric acid has never been used in the pickling process. There are also two 1,000 calcium nitrate tanks to be used for the nitric acid baths in case of a runaway chemical reaction, the calcium nitrate is dumped into the bath to act as deluge and stop the reaction. No other chemical storage is in this area, Carpenter uses tanker trucks to fill the acid baths when fresh acid is needed.

Building 94 is next to Building 154 and contains two Annealing Furnaces with the following specifications:

Source ID	Source Name	Rated Input (MMBTU/hr)	Fuel	Controls

300	#14 Annealing Furnace	31.3	Natural Gas	No controls, Vents inside
381	#4 Annealing Furnace	26.0	Natural Gas	No controls, Vents inside

There is also one emergency generator for Building 94 used for emergency lighting. It is a Kohler 20RZ 19 KW/ 25 HP natural gas generator with 563 hours recorded at the time of inspection.

Building 75 contains more finishing processes which includes a wire draw which uses diatomaceous earth to finish the surface of the wire. It has a dust collector with a single cell that has a dropout collection under it. The exhaust vents back inside the building.

The wastewater treatment plant contains a rotary sludge dryer. The sludge generated from the water treatment drops into the sludge dryer where a burner dries it into a dust which goes to a single cell baghouse outside of the wastewater treatment plant. The baghouse has a dropout which is used to fill trucks which disposes of the dust contained within the baghouse. The burner uses natural gas and has a rated input of 6.0 MMBTU/hr.

The third day of inspection for Carpenter ended at 4:36 PM on 4/11/2024.

The final day of inspection began at 08:05 AM on 4/12/2024. Scott McGoldrick, Harry Pehote and Chris Luksic of Carpenter Technology led the EPA Inspectors through the walkthrough. Kalya Eller from PA DEP was also present for the walkthrough. William Borst, from PADEP, did not attend this day of inspection. The inspection started in Building 53 where there is an Abrasive Bar Point which grinds the ends of bars to be drawn in for further processing. It has a single cell baghouse with a heavy drop out. Once treated, the baghouse exhausts to atmosphere. There is also a wet cut off saw which uses a coolant during cutting operations. It also has a single cell baghouse with a heavy drop out that exhausts to atmosphere. There is a single hot box burner within this building that is infrequently used. It uses natural gas with a Rated Input of 0.75 MMBTU/hr. A Kohler 3RM62 3 KW/ 3HP natural gas emergency generator is used for emergency lighting in Building 53 with 104.4 hours recorded at the time of inspection.

Within Buildings 6 & 7 there is a shot blaster used in preparing of steel for further processing. It has a single cell baghouse with a bag drop out and then exhausts to atmosphere. This was not listed with other sources. Welding activity was also occurring at the time of inspection in an enclosed area within Buildings 6 & 7 and has a filtration system for emission control that has a filter then exhausts into the building. It was unknown how much welding occurs and how many days and hours it occurs.

Building 4 has more processes that prepare steel billets for processing. There is an oil quench tank that billets are dipped to be coated in oil before heading to a liquid nitrogen tank that hardens the oil coat. When asked what process this is involved with, Scott McGoldrick said they would have to ask the

metallurgist who was away on a break at the time of inspection. The following furnaces were observed in Building 4:

Source ID	Source Name	Rated Input (MMBTU/hr)	Fuel	Controls
200	#96 Annealing Furnace	2.6	Natural Gas	No controls, Vents inside
201	#97 Annealing Furnace	2.6	Natural Gas	No controls, Vents inside
202	#23 Annealing Furnace	10.4	Natural Gas	No controls, Vents inside
203	#24 Annealing Furnace	10.4	Natural Gas	No controls, Vents inside
204	#98 Annealing Furnace	2.6	Natural Gas	No controls, Vents inside
205	#99 Annealing Furnace	2.6	Natural Gas	No controls, Vents inside

Buildings 1, 2, and 3 share the same structure but any walls separating them are now gone with an open expansive area now that holds preheat and heat furnaces along with some abrasive saws used to cut materials. The two abrasive saws have rotorclones as an emission control that exhausts into the building. According to Carpenter records, the abrasive saws are in Building 3. The following furnaces were observed during the inspection:

Source ID	Source Name and Location	Rated Input (MMBTU/hr)	Fuel	Controls
146	#10 Mill, #1 Chamber Furnace – Building 1	9.0	Natural Gas	No controls, Vents inside
147	#10 Mill, #2 Chamber Furnace – Building 1	9.0	Natural Gas	No controls, Vents inside
149	#10 Mill, #4 Chamber Tip Furnace – Building 1	4.0	Natural Gas	No controls, Vents inside
151	16” Mill – C Furnace – Building 1	2.7	Natural Gas	No controls, Vents inside

154	16” Mill – A Batch Furnace – Building 1	6.0	Natural Gas	No controls, Vents inside
156	16” Mill – D Batch Furnace – Building 1	2.7	Natural Gas	No controls, Vents inside
157	16” – B Batch Furnace – Building 1	2.5	Natural Gas	No controls, Vents inside
152	#35 Annealing Furnace – Building 2	5.6	Natural Gas	No controls, Vents inside
153	#36 Annealing Furnace – Building 2	6.4	Natural Gas	No controls, Vents inside
155	#18 Annealing Furnace	8.5	Natural Gas	No controls, Vents inside

The Vacuum Induction Melting (VIM) furnaces are located in Building 64 and Building 108. The purpose of the VIMs is to continue to purify the steel using heat and pressure which is why the process occurs within a vacuum. VIMs use electricity as their energy source. In Building 64, VIM B and C use a Mist Eliminator to control emissions. At the time of the inspection, VIM B was on a temporary outage but had ductwork which was dented to about 25% of the duct diameter. In Building 108, VIM D also uses a Mist Eliminator while VIM E and F use Rotorclones and due to this, Scott McGoldrick explained they are exempt from emission control regulations. The Mist Eliminators have filters to capture the oil vapors, these filters are changed regularly. Around this time, EAF E was being charged in the adjacent portion of the building and was observed from a doorway. A thick, white cloud of emissions were observed to be overtaking the canopy hood and lingering in the building. See Photo Number 157 in Attachment 2.

The following furnaces were observed during the inspection of Building 64 and 108:

Source ID	**Source Name and Location**	**Rated Input (MMBTU/hr)**	**Fuel**	**Controls**
769	General Furnace – Building 64	1.0	Natural Gas	No controls, Vents inside
461	#5 Annealing Furnace – Building 108	8.0	Natural Gas	No controls, Vents inside

462	#6 Annealing Furnace – Building 108	8.0	Natural Gas	No controls, Vents inside
463	#7 Annealing Furnace – Building 108	8.0	Natural Gas	No controls, Vents inside
464	#8 Annealing Furnace – Building 108	8.0	Natural Gas	No controls, Vents inside
709	Launder Preheat East	1.5	Natural Gas	No controls, Vents inside
768	Drying Oven	0.8	Natural Gas	No controls, Vents inside
MS	2 Steel Heating Furnaces	0.95	Natural Gas	No controls, Vents inside
771	Launder Preheat West	1.5	Natural Gas	No controls, Vents inside
449	Vertical Ladle Heater	3.5	Natural Gas	No controls, Vents inside

Building 108 had two emergency generators that were observed during the inspection. The Onan 12.5JC-18R131/11917A 13 KW/ 17 HP natural gas generator is used for emergency lighting and had 767.1 hours record at the time of inspection. The Cummins DQFAB 800 KW/ 1073 HP diesel emergency generator is used to safely shutdown VIM operations in the case of a power outage. PM emissions were observed to be leaving the VIM F rotoclone duct from two gaskets.

The walkthrough concluded on April 12, 2024 at 10:14 AM.

IV. Records Review

The records review commenced after the opening conference with the Facility at 01:55 PM on April 9, 2024. EPA inspectors reviewed documents requested in the April 5, 2024 email to Scott McGoldrick (see Attachment 1). Records were provided at the time of the inspection by Scott McGoldrick and Harry Pehote. Below are the records requested and what was provided:

1. Provide a plot plan of the Facility. The plot plan should identify each production process unit to include but not limited to: Boilers, electric arc furnaces, batch furnaces, reheat furnaces, heating units, sludge dryers, grinders, blasting units, rolling mills, pickling lines, and generators. *Facility provided at the time of the inspection.*
2. Provide a detailed process description of the facility. This should include a description of each production process unit to include but not limited to: Boilers, electric arc furnaces, batch

furnaces, reheat furnaces, heating units, sludge dryers, grinders, blasting units, rolling mills, pickling lines, and generators.
Facility provided at the time of the inspection.

3. For each of the electric arc furnaces, provide the following information:
    a. Date that construction was completed
    b. Date operation commenced at the facility;
    c. Date(s) the furnace(s) was modified or reconstructed;
    d. Provide the current and rated production capacity for each furnace
    e. All monthly operational status inspections for the years 2022-2024
    Facility provided at the time of the inspection.

4. A list of all combustion sources at the Facility such as furnaces, boilers, and/or engines.
    a. For each boiler or engine identified, provide:
        i. Date of installation;
        ii. Type of fuel(s) combusted;
        iii. Maximum heat input rating (MMBtu, HP or kW/hr);
        iv. Fuel type, fuel usage and hours of operation[1] monthly from January 2020 to the present.
    b. Fuel usage on a monthly basis for any combustion equipment at the Facility (boilers, emergency generators, fire pumps, etc.) since January 2020 and include fuel certification for all No. 2 fuel oil.
    c. Records of annual maintenance conducted at each unit since January 2020.
    Facility provided at the time of the inspection.

5. For the rotary sludge dryer, provide the following information:
    a. Hours of operation
    b. Monthly amount of dried sludge for the past 2 years
    c. Monthly emissions of NOx and mercury for the past 2 years
    d. Records of the quarterly and annual equipment inspections for 2020-2023
    Facility provided at the time of the inspection.
6. Provide copies of the emission statements submitted to PA DEP for the years 2021-2023. These emission statements shall include the emission factors used to determine emissions and the derivation of each factor (stack test, CEMS, AP-42, etc.).
    Facility provided at the time of the inspection.

7. Annual emissions calculations (preferably emailed in an unlocked Microsoft Excel format) since 2020, including but not limited to:
    a. Annual or biannual emissions of VOCs, HAPs and NOx for each process unit and facility wide along with supporting calculations for 2021-2023.

[1] For Emergency Generators: Hours of operation for each month should identify whether the hours were for testing, emergency, or non-emergency purposes.

Facility provided at the time of the inspection.

8. Provide a list of any and each control device currently in use at Carpenter Technology used to control or reduce emissions from any emission point at the site. The list should include:
    a. The make/model of the control device;
    b. Date of installation at the Facility;
    c. Which pollutant(s) are being controlled;
    d. Each source or emission point being controlled;
    e. The capture and destruction efficiency for each control device;
    f. If applicable, records of the pressure drop readings for the control device and the manufacturer's recommendations for the pressure drop readings.
    Facility provided at the time of the inspection.

9. Copies of any stack test summaries conducted on any boilers, electric arc furnaces, batch furnaces, reheat furnaces, heating units, sludge dryers, grinders, blasting units, rolling mills, pickling lines, and generators to determine emission rate, control, and destruction efficiency, or for compliance demonstrations, etc. conducted at the Facility since 2020.
    Carpenter provided the stack testing they perform for greenhouse gases.

10. Provide a list of each request for permit determination or permit application submitted to the PA DEP since January 2020. Also, provide a list of each permit or permitting determination issued to Carpenter Technology. This should include the date of the request/permit and the permit number, if applicable.
    Facility provided at the time of the inspection.

11. Provide copies of any initial notifications, compliance reports since 2020, and/or periodic reports since 2020 submitted to either EPA or PA DEP pursuant to applicable regulations under 40 C.F.R. Part 60 and 63.
    Facility provided at the time of the inspection.

The records review concluded at 4:10 PM on April 9, 2024

V. Closing Conference

After the full facility walkthrough which concluded on April 12, 2024 at 10:14 AM, EPA inspectors, Ken Ross, Mike Sirbaugh, Chris Luksic, Scott McGoldrick and Harry Pehote for Carpenter Technology as well as Kayla Eller from PA DEP had a brief closing conference to ask additional questions and discuss observations at 11:00 AM. The EPA inspectors noted that the investigation is on-going, and any areas of concern identified in the final report do not necessarily reflect a violation or deviation, rather, they are areas that will require further investigation. EPA also noted that they would issue an inspection report within 60 days, with a copy to the State. Simultaneously, EPA will perform a detailed review of records and may have additional questions. The inspection concluded April 12, 2024 at 11:18 AM.

The following have been identified as potential issues during the inspection. They are issues that require either further investigation by EPA or additional information or explanation by Scott McGoldrick.

- The PM emissions coming from Baghouse #2 due to a leak in the duct. This was temporarily plugged, and a work order was issued to repair the duct.
- The copper sulfate build up on intake ducts around the gaskets and bolts of the electroplating line. A work order was issued to repair the intake ducts.
- The PM emissions coming from the VIM F Rotorclone duct. A work order was issued to repair the duct.

VI. List of Attachments

Attachment 1:	Email correspondence to Scott McGoldrick of records requested to review during inspection
Attachment 2:	Photo Log
Attachment 3:	Sign-In Sheet