DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection

N278525788

FACILITY: SULZER METCO FORMERLY SULZER PLASMA TECHNIK INC		SRN / ID: N2785
LOCATION: 1972 MEIJER DR, TROY		DISTRICT: Southeast Michigan
CITY: TROY		COUNTY: OAKLAND
CONTACT: Kevin Luer ,		ACTIVITY DATE: 04/04/2014
STAFF: Joyce Zhu	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MINOR
SUBJECT: Level 2 inspection		
RESOLVED COMPLAINTS:		

On 4/4/2014, I conducted an annual inspection at Sulzer Metco, Inc. The facility is located on 1972 Meijer Dr. Troy. Mr. Samuel Liveson from AQD also joined me during the inspection. We arrived at the site around 9:10 AM. We met with Mr. John Schneider, the Environmental, Health, & Safety manager for the facility. After I explained the purpose of the inspection, Mr. Schneider took us to see the operation. At the end of the inspection, Mr. Fred Stephenson & Mr. Douglas Cox from the company also joined us for discussion.

Inspection:

Sulzer is a company based from Switzerland although soon will be sold to Oerlikon company. This facility manufactures metal alloy powders which are used as thermal barrier protection materials in aviation industries as well as in military. They currently operate 24 hours a day & 6 days a week.

Permit # 192-10
This permit covers the cladding operation, four atomization units, & non-cladding operations involving screening, packaging, & blending/mixing processes. The emissions from all of the processes are controlled by dust collectors. The company has developed a malfunction abatement plan (MAP) for the controls.
1. Atomization units & screening/packaging processes
The atomization unit is an electric induction furnace, where raw materials & off-size powder are melted in an inert environment. The molten metal is combined with a high-pressure stream of nitrogen or argon gas to produce the atomized metal powder & purred into an atomizing vessel (which is funnel like with a nozzle at the bottom). The nitrogen or argon gas is used in the process to prevent molten metal from contacting the oxygen. Afterwards, the powder is separated by a cyclone where the particulate emissions from the nitrogen atomization process are controlled by a cartridge filter dust collector system. The powder is undergone a screening process; only 25% of the powder is usable. The other 75% will be sent back to the furnace. Due to argon gas is more expensive than nitrogen; the company has chosen a close loop system where the argon gas is recycled. The difference between the argon gas atomization and the nitrogen gas atomization is that after the process cyclone where the gas & powder are separated, the argon gas will go to a baghouse followed by Cryogenic Argon Recycling System for recovering. In the Cryogenic Argon Recycling System, the argon gas will be cooled by nitrogen & condensed into a liquid form. The argon liquid will be stored in a tank, or sent back to the production process. There is no emission from the argon atomization process because of the close loop system. There are 17 screen lines in the screening area. In the blending process, hoppers are spun to achieve the desired products. At the end, the powder product is packaged into jars. During the inspection, all of the working areas were fairly clean. I didn't observe any fallout near the dust collector area; nor did I hear any air infiltrations from the control. The pressure drop for the primary filter was at 0.8 inches of water; and for secondary filter, 1.9 inches of water. The dust collected from the processes will be sold as scrap metal. Although the filters were replaced on 2/24/2014, the pressure drop readings I observed during the inspection were higher than the reading I observed during the stack test of 2011. According to the company's Malfunction Abatement Plan (MAP), the pressure drop readings are within the normal operational range. The company keeps following records:
a. Pounds of material atomized that contains nickel (Ni) or manganese (Mn)
b. Emission factors (EF) for Ni & Mn from the atomize/screening processes (Note the EF was obtained from the stack test in Aug. 2011)
c. Ni & Mn emission calculations (lb/mon & lb/[12-mon rolling time period])
d. Cobalt (Co) containing materials atomized & processed per shift as well as per day
e. Co emissions per shift & per day

f. Pressure drop across the dust collector.

According to the company's record, the Mn & Ni emissions (lb/[12-mon rolling time period]) were well below the corresponding permit limits in 2013. The Co emissions in terms of lb/shift were well below the permit limit for the period from 3/31 -4/4/14.

2. Cladding operation
In the Cladding operation, graphite & aluminum powder are mixed in a bowl. Afterwards, the bowl is heated by a steam jacket, a liquid mix of the acetic acid and formaldehyde is introduced to the powder mixer. This causes the powder to conglomerate. This mixer will sit until it's dried to form the desired products. There are two bowls for the process. Each bowl has a capacity of 200 gallon. According to the company, they only operate this process for 2 hours per day. Due to the presence of graphite, the emission from the process is controlled by a separate dust collector. The dust collected from the control would have no value to sell & will be sent to a landfill. During the inspection, the pressure drop for the dust collector was at 0.25 inches of water. I did not see any corrosive appearance on the collector system; nor did I hear any air infiltration. On an average, they empty the drum beneath the dust collector every two weeks. Although the filters were replaced on 2/24/2014, the pressure drop readings I observed during the inspection were higher than the reading I observed during the stack test of 2011. According to the company's Malfunction Abatement Plan (MAP), the pressure drop readings are within the normal operational range. The company keeps the following information:
a. Number of batches which contains formaldehyde, glacial acetic acid, or methanol.
b. The % of the above material in the batch
c. Daily formaldehyde, glacial acetic acid, methanol emission & the number of shifts operated that day
d. Methanol, glacial acetic acid, & formaldehyde emissions in tons per 12-month rolling time period
e. Daily pressure drop across the dust collector.
The record shows that the formaldehyde emission (lb/hr) & the glacial acetic acid emission (lb/shift) has been below the corresponding permit limits since April of 2011. The total VOC emission (the sum of glacial acetic acid, formaldehyde, & methanol emission) as well as formaldehyde emission are well below the corresponding permit limits in terms of tons per 12-month rolling time period at the end of Dec. 2013. As for the daily pressure drop record, it's very confusing. There're days that the company indicated that they were running the batches from the production log, yet there's no pressure drop recorded from the clad dust collector inspection sheets. I have brought this to the company's attention. Mr. Kevin Luer, the V.P from the company, responded that the clad process required the dust collector be operational for air flow purpose; or else product fails quality inspection and batch would be scrapped. The company would align the dust collector inspection reading into the clad production batch data.

Permit #50-91
This permit covers tape making process. The process involves mixing metal powder with various binders, resins, & solvents to make tape like material on a plastic backing. The tape enables customer to have precise application during brazing operation. If a double face cover on the tape is demanded, a laminator machine will be used to apply another plastic sheet substrate on the uncovered face of the tape. During the inspection, they did not operate this process. According to the company's record, the VOC emission was well below the permit limit for 2013.

In conclusion, other than the daily dust collector reading for the clad operation, the company appeared to operate in compliance with the Air Quality Regulations & Permits.

NAME Joyce Zhang DATE 7/8 SUPERVISOR CJE