

B4847

MANILA

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

B484730140

FACILITY: PEERLESS METAL POWDERS AND ABRASIVES		SRN / ID: B4847
LOCATION: 124 S MILITARY ST, DETROIT		DISTRICT: Detroit
CITY: DETROIT		COUNTY: WAYNE
CONTACT: David Carter , Environmental Coordinator		ACTIVITY DATE: 05/01/2015
STAFF: Usama Amer	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MINOR
SUBJECT: Targeted Inspection of a Minor Source		
RESOLVED COMPLAINTS:		

On February 5, April 29, and May 1, 2015, I conducted a Scheduled Inspection at Peerless Metal Powders & Abrasives (Peerless), located at 124 S. Military, Detroit, Wayne County. The purpose of the inspection was to determine the facility's current compliance status with the federal Clean Air Act of 1990, as amended; Part 55 of Michigan Public Act 451 of 1994, as amended; the administrative rules, and the conditions of Wayne County Permits No. C-8129 through C-8134, and AQD PTI's No. 353-07 and No. 186-11. Mr. David Carter, Plant Manager represented Peerless during the inspection.

BACKGROUND & PROCESS DESCRIPTION

Peerless specializes in recycling of steel shavings and borings from machine shops. The steel remnants are received and piled before dried from cutting oils and other liquids. Next, these steel remnants are crushed by a hammer mill, shredded and grinded to produce small particles to be used by the shot blasting trades.

Peerless was issued the following air quality permits to cover the above crushing, shredding and grinding presses:

1) Wayne County Permits No. C-8129 thru C-8134 - issued on September 16, 1993 for:

- a) 1 Hammer mill Crusher
- b) 2 Screening Machines
- c) 1 Gas Fired Rotary Drying Furnace with an Afterburner
- d) 1 Baghouse Dust Collector

Note: The Hammer mill Crusher and the 2 Screening Machines have been out of service since November, 2014. Also, since November, 2014, the Gas Fired Rotary Drying Furnace has been used occasionally for heat treatment (tempering), which is an unrestricted operation for the unit.

2) AQD PTI No. 353-07 - issued on January 7, 2008 for:

- a) 1 Steel Chips and Turnings Process Line
- b) 3 Steel Milling Lines equipped with a Baghouse Dust Collector

3) AQD PTI No. 186-11 - issued on February 17, 2012 for:

- a) A Metal Chip Dryer controlled by a smoke hood, afterburner, and baghouse #1
- b) A cooling tube controlled by baghouse #1
- c) Heaters used for indirect heating of the dryer retort

THE INSPECTION

1) Wayne County Permits No. C-8129 thru C-8134

SPECIAL CONDITIONS (S. C.)

#17, #21 & #24 – stipulate that the PM emissions from the hammer mill crusher and the 48" screening machine not to exceed 0.33 lb/hr or 0.57 tpy, and the+ verification of these emissions via stack testing.

- PM emissions from the hammer mill crusher are controlled by a dust collector. The 48" screening machine is controlled by a separate baghouse dust collector. These 2 pieces of equipment have been out of service since November, 2014. No stack testing was ever conducted to verify compliance with the stipulated limits.

PM Emissions Calculations

Collector Capacity = 9600 cf/hr

Air Flow Rate = 0.004 grains/cf

1lb = 7000 grains

PM = (9600 cf/hr)(0.004 grains/cf)(1 lb/7000 grains) = 0.005486 lb/hr

Annual PM Emissions: (0.005486lb/hr)(1 ton/2000 lb)(24 hr/day)(365 day/yr) = 0.024 tpy

- Attachment A shows a sample of the maintenance record of the baghouse dust collectors.

#18, #19, & # 24 - stipulate that the PM emissions from the rotary drying furnace not to exceed 0.46 lb/hr or 0.79 tpy, and the verification of these emissions via stack testing.

- PM emissions from the rotary drying furnace are controlled by a baghouse dust collector. A copy of a summary of the results of a stack test, which was conducted in June, 1992, is available in the source's file. The stack test indicated that the hourly PM emission rate was 0.1798 lb/hr (<0.46 lb/hr). Based on the 2014 annual operating hours of 1,849.2 hrs (Attachment B), the actual PM emission rate is calculated to be 332.5 lb/yr = 0.17 tpy. Assuming a 24 hr/day operation, the PM annual potential to emit rate will be 0.785 tpy.

As I observed the operations of the rotary drying furnace, I did not see a need to ask Peerless to conduct additional stack testing.

#20 – stipulates that the rotary drying furnace is not to operate unless an afterburner is installed and properly operated.

- An afterburner is installed at the rotary drying furnace and is being properly operated. A log for the operating temperature of the afterburner is being kept. Attachment C

#22 – stipulates that a hopper cover must be used while operating the drum packaging line.

- A hopper cover is installed and used for the "Carl" drum packaging line.

#25 – stipulates that the rotary drying furnace shall be operated with a minimum temperature of 1,200 °F in the secondary combustion zone (afterburner), except when heat treating abrasive materials. Temperature of the gas stream in the secondary combustion zone (afterburner) must be monitored and recorded on a continuous basis.

- An afterburner is installed at the rotary drying furnace and is being properly operated. A log for the operating temperature of the afterburner is being kept. On 2/10/12, the said log indicated the operating temperature of the afterburner to be above 1,300 °F. Attachment C

#26 - stipulates that temperature monitoring device of the rotary drying furnace afterburner shall be calibrated every six months and after any repair conducted.

- Controls Service, Inc., of Livonia, Mi, is contracted to conduct the required device calibrations.
Attachment D

#29 & #31 – stipulate the annual operating hours of the rotary drying furnace not to exceed 3,432 hrs/yr; and to keep a log of the said annual operating hours.

- For the year 2014, the annual operating hours of the rotary drying furnace were reported at 1,849.2 hrs. Attachment B

#30 & #31 - stipulate the hourly average metal fines processing amount in the rotary drying furnace not to exceed 2,000 lb/hr; and to keep a log of the said hourly average.

- For the year 2014, the maximum hourly metal fines processing amount in the rotary drying furnace were reported at 1,966 lb/hr. Attachment B

#35 – stipulates the implementation of a fugitive dust emissions control program.

- Attachment E is a sample of a "Daily Plant and Grounds Cleanliness Report".

2) AQD PTI No. 353-07

EUTURNINGSLINE

A steel chips and turnings processing line used to prepare the material before it is transferred to a milling line for further processing. The line consists of a chip loading deck with a feed conveyor; a turnings crusher; a discharge conveyor; a screen; and an oversize return conveyor. This line is not directly vented, via an exhaust stack, to the outside atmosphere.

SPECIAL CONDITIONS (S. C.)

#1.1a & #1.1b – stipulate the limits of PM & PM-10 at 0.004 lb/1000 lb of exhaust gases & 0.75 lb/hr, respectively.

- Attachment F shows the estimated PM emission rates calculations.

Additionally, the above 2 conditions set General Condition #13 as the basis of showing compliance with the stipulated PM & PM-10 limits. Therefore, it's the inspector discretion to decide whether a stack test is necessary for compliance demonstration. As I observed the operations of EUTURNINGSLINE, I did not see a need to ask Peerless to conduct stack testing; especially, when there's no stack to test.

FGSP&WSMILL

Flexible Group containing EUSPMILLLINE and EUWSMILLLINE

EUSPMILLLINE is a steel milling line used to manufacture steel powders and abrasive materials. The line consists of a dump station a feed bucket elevator; a mill with a controlled feeder; a discharge conveyor with counter-flow air cooling; and a discharge bucket elevator and screen. Particulate emissions from the line are controlled by a baghouse dust collector.

SPECIAL CONDITIONS (S. C.)

#2.1a & #2.1b – stipulate the limits of PM & PM-10 at 0.019 lb/1000 lb of exhaust gases & 1.3 lb/hr, respectively.

- Attachment G shows the estimated PM emission rates calculations for the combined EUSPMILLLINE and EUWSMILLLINE, as they share a common baghouse dust collector.

PM₁₀ Emissions Calculations

Collector Capacity = 15000 cft/min
 Exhaust Gas PM₁₀ Conc. = 0.01 grains/cft
 1lb = 7000 grains

$PM_{10} = (15000 \text{ cft/min}) * (60 \text{ min/hr}) * (0.01 \text{ grains/cft}) * (1 \text{ lb}/7000 \text{ grains}) = 1.29 \text{ lb/hr}$

Annual PM₁₀ Emission: $(1.29 \text{ lb/hr})(1 \text{ ton}/2000 \text{ lb})(24 \text{ hr/day})(365 \text{ day/yr}) = 5.65 \text{ tpy}$

Additionally, the above 2 conditions set General Condition #13 as the basis of showing compliance with the stipulated PM & PM-10 limits. Therefore, it's at the inspector's discretion to decide whether a stack test is necessary for compliance demonstration. As I observed the operations of FGSP&WSMILL, I did not see a need to ask Peerless to conduct stack testing.

#2.4 - #2.7 – stipulate that a baghouse dust collector must be installed, maintained, and operated in a satisfactory manner and that the baghouse dust collector must be equipped with a gauge, which measures the pressure drop across the baghouse dust collector. The said pressure drop gauge must be calibrated, maintained and operated in a satisfactory manner. Furthermore, daily records of the pressure drop across the baghouse dust collector must be kept.

- Attachments H and I are samples of the daily records of the pressure drop across the baghouse dust collectors.

EUEASTMILLLINE

A steel milling line used to manufacture steel powders and abrasive materials. The line consists of a dump station a feed bucket elevator; a mill with a controlled feeder; a discharge conveyor with counter flow air cooling; and a discharge bucket elevator and screen. Particulate emissions from the line are controlled by a baghouse dust collector.

EUEASTMILLLINE is similar to EUSPMILLLINE; however, it was never installed.

3) AQD PTI No. 186-11FGNGCOMBUST

A steel chip dryer with a drying capacity of 10,000 pounds of steel turnings per hour and is controlled by a smoke hood, an afterburner, and baghouse #1. From the dryer the chips are dropped into a cooling tube before processing into metal powders and abrasives. The cooling tube exhausts through the same stack as the chip dryer and afterburner, controlled by baghouse #1. The drum heaters (for heating the dryer retort), smoke hood, and afterburner all use natural gas as fuel. Indirect combustion gases from the drum heaters are exhausted through an independent and uncontrolled stack.

Emission Units: EUCHIPDRYER, EUCOOLER and EUHEATERS

Pollution Control Equipment: Smoke hood, afterburner, and baghouse

EUCHIPDRYER and EUCOOLER share the same baghouse.

SPECIAL CONDITIONS (S. C.)

#I.1 – stipulates the limit of PM at 0.010 lb/1000 lb of exhaust gas, on a dry gas basis.

- The PM concentration of 0.010 lb/1000 lb of exhaust gas, on a dry gas basis, is to be determined by stack testing. Peerless has not conducted a stack test to verify this concentration.

Estimated PM emissions Calculation:

$(0.005 \text{ gr PM/ft}^3\text{Air}) * (\text{lb PM}/7000 \text{ gr PM}) * (\text{ft}^3 \text{ Air}/0.075 \text{ lb Air}) * (1000 \text{ lb Air}/1000 \text{ lb gas}) = 0.0095 \text{ lb PM}/1000 \text{ lb gas}$

Additionally, Peerless provided a calculated PM emission rate of 0.86 lb/hr. Attachment J

#II.1 – stipulates the Natural Gas usage not to exceed 64.3 million cubic feet per year, based on 12-month rolling, as determined at the end of each month.

- For 2014, the Natural Gas usage was reported at 13.1 million cubic feet. Attachment K

#III.1 – stipulates that no later than 60 days after issuance of this permit, Peerless shall submit to the AQD District Supervisor, for review and approval, a preventative maintenance / malfunction abatement plan (PM / MAP)

for FGNGCOMBUST. After approval of the PM / MAP by the AQD District Supervisor, Peerless shall not operate FGNGCOMBUST unless the PM / MAP, or an alternate plan approved by the AQD District Supervisor, is implemented and maintained. The plan shall incorporate procedures recommended by the equipment manufacturer as well as incorporating standard industry practices.

- A copy of Peerless' PM / MAP is available in Peerless file.

#III.2 – stipulates that Peerless shall not operate EUCHIPDRYER of FGNGCOMBUST unless a minimum temperature of 1400°F and a minimum retention time of 0.5 seconds in the afterburner for EUCHIPDRYER is maintained.

- The afterburner temperature has been set at a higher temperature than 1,400° F. Attachment L

#IV.4 – stipulates that the nameplate capacity of EUCHIPDRYER shall not exceed 10,000 pounds per hour of metal chips, as certified by the equipment manufacturer.

- The nameplate states that the capacity is 5 tons per hour, which is equivalent to 10,000 lb per hour. Attachment M

CONCLUSION

Peerless appears to be in compliance with the conditions of Wayne County Permits No. C-8129 through C-8134, AQD PTI's No. 353-07 and No. 186-11, and the applicable Air Pollution Control Rules.

NAME Sam Amer

DATE 7/10/15

SUPERVISOR JK