

N5391
manila
Ingham

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

N539138399

FACILITY: Orchid Orthopedic Solutions Plants A and B		SRN / ID: N5391
LOCATION: 1489 CEDAR ST, HOLT		DISTRICT: Lansing
CITY: HOLT		COUNTY: INGHAM
CONTACT: James Belloli , EHS Specialist		ACTIVITY DATE: 11/07/2016
STAFF: Daniel McGeen	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: MINOR
SUBJECT: Unannounced inspection of facility which was last inspected by AQD in 2009. Buildings A and B are at this site.		
RESOLVED COMPLAINTS:		

On 11/7/2016, the Michigan Department of Environmental Quality (DEQ), Air Quality Division (AQD) conducted an unannounced, scheduled inspection of Orchid Orthopedic Solutions Plants A and B, which share a site. This facility was last inspected by AQD in 2009.

Emission units:

Bldg. ID	Emission Unit ID*	Emission unit description	Permit no. or exemption rule	Compliance status
B	6 Electrical Discharge Machining (EDM) machines	Metal working processes sharing a common Smog Hog, which exhausts indoors.	Rule 285(l)(vi)(B)	Compliance
B	7 Computer Numerical Controlled (CNC) machines	Metal working processes which are enclosed, with no exhaust to the outdoors.	Rule 285(l)(vi)(B)	Compliance
B	3 graphite cutting machines	Metal working processes, 2 of which share a fabric filter, with the remaining unit having its own fabric filter. All exhaust indoors.	Rule 285(l)(vi)(B)	Compliance
B	Maintenance booth for welding and plasma cutting	Booth utilized by maintenance department for welding and cutting metal with plasma, with filter that exhausts outdoors.	Rules 285(i) and 285(l)(vi)(A)	Compliance
A	EU-ACIDCLEAN	"Clean Etch" hydrofluoric acid process, controlled by a scrubber, which exhausts outdoors.	PTI No. 428-94	Compliance
A	EU-120H-WW	All equipment with exhaust ducted to the Model 120h-ww wet dust collector; with the "whirl wet" collector ("Big Blue"). Typical equipment includes hand and belt grinders, buffers, and small blast-cleaners.	PTI No. 361-08	Compliance
A	EU-50MCD-WW	All equipment with exhaust ducted to the Model 50mcd-ww wet dust collector, with the "whirl wet" collector ("Little Blue"). Typical equipment includes hand and belt grinders, buffers, and small blast-cleaners.	PTI No. 361-08	Compliance
A	10 presses	9 installed presses, sharing two exhaust stacks, and one press which has not yet been installed.	Rule 285(l)(i)	Compliance
A	2 sandblasters and 2 shotblasters	2 sandblasters and 2 shotblasters	Rule 285(l)(vi)(B)	Compliance
A	"Electropolish" acid process	"Electropolish" orthophosphoric acid process, controlled by a scrubber, which exhausts outdoors.	Rule 290	Noncompliance

*An emission unit is any part of a stationary source which emits or has the potential to emit an air contaminant.

Environmental contact:

James Belloli, EHS Specialist; 517-694-2300, ext. 10158; james.belloli@orchid-ortho.com

Facility description:

Orchid Orthopedic Solutions Plants A and B manufacture joint replacement parts for hips, spinal parts, and the top and underside of knees. Both plants share this site.

Regulatory overview:

This facility is considered to be a true minor source, rather than a major source of air emissions. A *major source* has the potential to emit (PTE) of 100 tons per year (TPY) or more, of one of the criteria pollutants. *Criteria pollutants* are those for which a National Ambient Air Quality Standard exists, and include carbon monoxide, nitrogen oxides, sulfur dioxide, volatile organic compounds (VOCs), lead, particulate matter smaller than 10 microns, and particulate matter smaller than 2.5 microns. It is also considered a minor or area source for Hazardous Air Pollutants (HAPs), because it is not known to have a PTE of 10 TPY or more for a single HAP, nor to have a PTE of 25 TPY or more for combined HAPs.

This facility has two permits to install. It also has some metal working equipment which may be considered exempt from the requirement of Michigan Air Pollution Control Rule 201 to obtain a permit to install, under Rule 285(l)(vi), and an acid cleaning process using orthophosphoric acid, which may qualify for the Rule 290 exemption.

Fee status:

This facility is not a Category I fee subject source, because it is not a major source for criteria pollutants. It is not a Category II fee-subject source because it is not a major source for Hazardous Air Pollutants (HAPs), nor is it subject to federal New Source Performance Standards. Additionally, it is not Category III fee-subject, because it is not subject to federal Maximum Achievable Control Technology standards. The facility is not required to submit an annual air emissions report via the Michigan Air Emissions Reporting System (MAERS).

Location:

Buildings A and B are at this site, which is in Holt. Building C, which has its own SRN, N7933, is 1,200 feet south, in Mason, at Plant C. The surrounding area is a mix of rural, industrial and commercial. To the immediate east is Cedar Street and farmland. To the west, there is a subdivision, roughly 1,300 feet away. To the north is a single business, about 750 feet away, followed by undeveloped land. To the southeast by about 1,200 feet are a number of commercial businesses, in addition to Plant C. To the southwest is a business, about 290 feet away.

Recent history:

AQD last inspected this facility on 7/30/2009. AQD has never received any air pollution complaints regarding this facility. This facility has previously been identified in AQD files under the names Orchid Stealth, and Stealth Engineering.

Arrival:

This was an unannounced inspection. At approximately 10:15 AM, I drove past the site, to check for odors downwind. There were no visible emissions from either Buildings A or B. Weather conditions were sunny, clear, and 61 degrees F, with winds out of the west southwest at 5-10 miles per hour.

I arrived in the parking lot of the south building, Building B, at 10:18 AM. I detected no odors, and could not see any visible emissions from the plant. I met with Mr. James Belloli, EHS Specialist, and explained that one of the yearly goals of AQD inspectors is to inspect facilities which have not been visited for several or more years. He invited me to inspect this facility, and the nearby Orchid Orthopedic Solutions Plant C. He explained that he is the company's first designated EHS staff person, and would like to learn

what air requirements may apply to them. I also met with Mr. Mike Mullens, Facility Manager.

I provided my credentials, per AQD procedure. AQD is not currently handing out copies of the DEQ brochure *Environmental Inspections: Rights and Responsibilities*, during inspections, because the brochure is undergoing revision. I did, however, provide a copy of the DEQ card on the federal boiler National Emissions Standards for Hazardous Air Pollutants (NESHAP) regulations, 40 CFR Part 63, Subparts DDDDD and JJJJJJ.

This facility runs 5 days per week, I was informed, with 2 and sometimes 3 shifts per day.

Inspection:

Building B:

We began the inspection in Building B, where their offices are. Further north in building B are metal tooling processes. I was advised that they prepare the tooling here to make the dies that are used for forging, in nearby Building A.

6 Electrical Discharge Machining (EDM) machines; Rule 285(l)(vi)(B):

The 6 EDM machines are connected to a common Smog Hog control device, which exhausts to the in-plant environment. This satisfies the exemption criteria for Rule 285(l)(vi)(B), for metal machining operations which exhaust to the general, in-plant environment. There were 5 EDM machines at the time of the 2009 inspection.

7 Computer Numerical Controlled (CNC) machines; Rule 285(l)(vi)(B):

There were 7 CNC machines at the time of the 2009 inspection. There may be more than that now, I was informed. I was advised that the units are enclosed, so do not have any exhaust points. If there are no emissions, they may not be subject to the requirement of Rule 201. If there were any trace emissions, the processes would still qualify for the Rule 285(l)(vi)(B) exemption.

3 graphite cutting machines; Rule 285(l)(vi)(B):

Two graphite cutting machines are controlled by a fabric filter and exhaust to the interior atmosphere of the plant. Another graphite machine has its own fabric filter, and also exhausts to the in-plant environment. These processes appear to satisfy the exemption criteria for Rule 285(l)(vi)(B).

I observed 3 lathes which were cutting bar stock to shape. There were no visible emissions from the housings enclosing the lathes. It is my understanding that they each use water as a coolant and lubricant.

Maintenance booth for welding and plasma cutting, with filter; Rule 285(i) and 285(l)(vi)(A):

I was shown a booth with a filtration system which is used by their maintenance department, for welding and plasma cutting. Rule 285(i) exempts welding from needing a permit to install. Rule 285(l)(vi)(A) exempts metal working processes which are used on a non-production basis, such as for maintenance. The booth was not in use, at the time of the inspection. A light switch turns on an exhaust fan for the filter, as well as a light, I was shown. It is my understanding that the fan exhausts through the roof.

At 11:45 AM, Mr. Belloli and I walked all the way around the outside of Building B, and could not detect any odors, nor see any visible emissions.

Building A:

All their forging is done in Building A, I was told. Mr. Belloli and I walked all the way around the outside

of the building, at 11:48 AM, to check for odors and visible emissions. The only odor detected was a very faint, brief odor, which reminded me of oil, next to the northwest corner of the building. I did not believe that this odor would be sufficient to cause nuisance impacts offsite. No visible emissions were seen coming from Building A, nor the exhaust stacks which serve it.

EU-ACIDCLEAN; PTI No. 428-94;

This is a "Clean Etch" acid process, with a wet scrubber. This process was originally permitted to use either nitric acid or hydrofluoric acid. It currently uses hydrofluoric acid, diluted to 5%, I was informed. There was one tank of acid and 3 rinse tanks. The scrubber is located on the outside of the building, near the street. It is my understanding that no chemicals are added to the scrubber water.

The PTI Special Condition (SC) No. I. 1 and I. 2 limit emissions of nitric acid and hydrofluoric acid, respectively, but stack testing would be necessary in order to verify the emission rates. SC No. V. 1 states that stack testing may be required, but at present, there does not appear to be a need for testing. SC No. I. 3 limits opacity, or visible emissions, from the scrubber exhaust stack to 5%. There were no visible emissions seen from any of the exhaust stacks for Building A. SC No. III. 1 requires that the scrubber be installed and operating properly, and the scrubber appeared to satisfy this condition. The PTI contains no specific recordkeeping requirements for the scrubber.

EU-120H-WW, with wet collector "Big Blue"; PTI No. 361-08;

This emission unit includes all metal working processes which exhaust to "Big Blue," a Model 120h-ww "whirl wet" dust collector, and the collector itself. Typical examples of the equipment served include hand and belt grinders, buffers, and small blast-cleaners, according to the emission unit description in the PTI.

I was shown a metal grinding room where there were numerous grinding stations, each connected to a duct that was routed to Big Blue. 3 sandblast stations in the room shared a small dust collector, which exhausted indoors. There were no visible emissions from the processes in the room.

Big Blue is physically located inside Building A. At 11:57 AM, the collector's pressure drop gauge read 6.0", water column (w.c.), and the designated range on the gauge was 6-10", w.c. It is my understanding that collected sludge is removed from the unit periodically by Safety-Kleen, for proper disposal.

The PTI No. 361-08 incorporates the requirements for EU-120H-WW and EU-50MCD-WW into a single flexible group, FG-WETCOLL, as the requirements for the two emission units are the same. Conditions include the following:

- SC No. I. 4 for FG-WETCOLL limits visible emissions, or opacity, from EU-120H-WW to 15%. There were no visible emissions.
- SC No. IV. 1 states that the permittee shall not operate any equipment in FG-WETCOLL unless the associated wet dust collector is installed, maintained, and operated in a satisfactory manner. I looked at the 2 ports which made up the water sight glass on the side of Big Blue, but they looked like they might need cleaning. I could not verify proper operation in this manner. Mr. Belloli indicated that he would follow up on this. However, as previously mentioned, there were no visible emissions from the unit.
- SC No. VI. 1 states that the permittee shall monitor, in a satisfactory manner, the liquid level for each wet dust collector, and check whether the wet dust collector is operating, each shift that any equipment exhausted to the collector operates. This was not being done, to my knowledge, at the present time. However, Mr. Belloli committed to correcting this by the end of the day.
- SC No. VI. 2 states that the permittee shall keep, in a satisfactory manner, a record of the results of all per-shift liquid level checks and operating status checks for each wet dust collector (as required by SC VI. 1, above). This was not being done, at the present time. However, Mr. Belloli committed to correcting this by the end of the day. Following the inspection, but before the end of the workday, he sent me the attached e-mail and photo. The photo shows a new recordkeeping form for Big Blue, the date (11/7), the shift (first), the magnehelic gauge pressure drop reading (6), and the initials of the person conducting the check. Mr. Belloli also indicated in the e-mail that they will follow up on the liquid level, and on the view ports which I had not been able to see through, earlier.

EU-50MCD-WW, with wet collector "Little Blue"; PTI No. 361-08;

This emission unit includes all metal working processes which exhaust to "Little Blue," a Model 50mcd-ww "whirl wet" dust collector, and the collector itself. Typical examples of the equipment served include hand and belt grinders, buffers, and small blast-cleaners, according to the emission unit description in the PTI. It is my understanding that collected sludge is removed from the unit periodically by Safety-Kleen, for proper disposal.

Little Blue's pressure drop gauge read 8.5", w.c., and the pressure drop range was identified as 6.0-10.0", w.c. I could not see through the portal or sight glass, to check for the flow of water, and Mr. Belloli indicated that he would follow up on this.

This collector is subject to essentially the same PTI requirements in FG-WETCOLL as Big Blue:

- SC No. I. 5 limits opacity from EU-50MCD-WW to 15%. There were no fugitive emissions from the collector, and no opacity could be seen outside the building.
- SC No. IV. 1 requires the wet dust collector be installed, maintained, and operated in a satisfactory manner. The water sight glass could not be seen through, so I could not verify proper operation in this manner.
- SC No. VI. 1 requires that the permittee shall monitor, in a satisfactory level, the liquid level for the wet dust collector. See comments for SC No. IV. 1.
- SC No. VI. 2 requires that the permittee shall keep, in a satisfactory manner, a record of the results of all per-shift liquid level check and operating status checks for each dust collector. These records were not currently being kept, I was informed. However, Mr. Belloli indicated that he would have a recordkeeping form developed by the end of the day, and send a photo showing proof that they were now keeping the records. I received an e-mail and photo before the end of the day; please see attached. I was advised that they will follow up on the concerns I expressed about the view ports not being possible to see through.

10 presses; Rule 285(l)(i):

There are 9 stamping presses currently installed, sharing two exhaust stacks. There is another onsite, which has not yet been installed. Rule 285(l)(i) exempts equipment used for bending, forming, expanding, rolling, forging, pressing, drawing, stamping, spinning, or extruding either hot or cold metals. There were no visible emissions from the presses.

Electrically heated furnaces are used for forging, I was advised. Rule 282(a)(i) exempts furnaces used for heat treating metals, the use of which does not involve molten materials, oil-coated parts, or quenching.

2 sandblasters and 2 shotblasters; Rule 285(l)(vi)(B):

In Building A, I observed two small sandblasters, which were not running. They appeared to exhaust into the general, in-plant environment, and so would be exempt under Rule 285(l)(vi)(B). The manufacturer appeared to be Goff. It was not immediately known what their control method was. They were no ductwork linking them to the plant exterior, so they appear to meet the exemption criteria for exhausting to the in-plant environment of Rule 285(l)(vi)(B).

A large, free standing shotblaster was nearby. It was controlled by a cyclone and what appeared to be either a large cartridge filter or baghouse. My understanding was that it exhausts indoors. It was not initially running, but started around 12:12 PM. It had a pressure drop reading of 6.5", w.c. I did not see any visible emissions or fugitive emissions from the unit.

A second shot blaster was near the acid area. it was not running at the moment. Empire appeared to be the manufacturer. The pressure drop gauge had a desired range identified on it as 1-4" w.c.

"Electropolish" orthophosphoric acid process with a scrubber; Rule 290:

The "Electropolish" process has two tanks of acid, with a hood, leading to a scrubber which is located indoors. The scrubber exhausts to the outdoors. Through the translucent sides of the unit, water could be seen flowing at 2 levels. It was pointed out to me that there was a third acid tank, but I was advised that it cannot be run at the same time as the first two. It is my understanding that the scrubber only has enough air flow for the first two tanks, or this one. I was informed that no chemicals are added to the scrubber water. I was shown that there are rinse tanks, and tanks of soap or surfactant, after the acid tanks.

Rule 290(a)(ii)(A) recordkeeping of controlled orthophosphoric acid emissions was kept during 2009, the previous inspection at this site confirmed. The interim threshold screening level (ITSL) of phosphoric acid is 10 micrograms per cubic meter, and Rule 290(a)(ii)(A) allows for the emission of noncarcinogenic air contaminants with an ITSL greater than 2.0 micrograms per cubic meter, provided controlled emissions are less than 500 lbs per month, and records are kept. However, during the years since, awareness of Rule 290 and the need to keep records to qualify for the exemption may have been lost.

Note: Rule 290 was revised on 12/20/2016, several weeks after this inspection. The version of Rule 290 in use from 1997 until 12/20/2016 applies to the "Electropolish" orthophosphoric acid process, because that version was concurrent with installation of the acid process.

Rule 290 (a)(ii)(A) requires:

Rule 290. The requirement of R 336.1201(1) to obtain a permit to install does not apply to any of the emission units listed in (a) if the conditions listed in (b), (c), and (d) are met. Notwithstanding the definition in R 336.1121 (a), for the purpose of this rule, uncontrolled emissions are the emissions from an emission unit based on actual operation, not taking into account any emission control equipment. Controlled emissions are the emissions from an emission unit based on actual operation, taking into account the control equipment.

(a) An emission unit which meets any of the following criteria:

(i) Any emission unit that emits only noncarcinogenic volatile organic compounds or noncarcinogenic materials which are listed in R 336.1122(f) as not contributing appreciably to the formation of ozone, if the uncontrolled or controlled emissions of air contaminants are not more than 1,000 or 500 pounds per month, respectively.

(ii) Any emission unit that the total uncontrolled or controlled emissions of air contaminants are not more than 1,000 or 500 pounds per month, respectively, and all of the following criteria are met:

(A) For noncarcinogenic air contaminants, excluding noncarcinogenic volatile organic compounds and noncarcinogenic materials which are listed in R 336.1122(f) as not contributing appreciably to the formation of ozone, with initial threshold screening levels greater than or equal to 2.0 micrograms per cubic meter, the uncontrolled or controlled emissions shall not exceed 1,000 or 500 pounds per month, respectively.

Additionally, Rule 290(b), (c), and (d) require the following:

(b) A description of the emission unit is maintained throughout the life of the unit.

(c) Records of material use and calculations identifying the quality, nature, and quantity of the air contaminant emissions are maintained in sufficient detail to demonstrate that the emissions meet the emission limits outlined in this rule.

(d) The records are maintained on file for the most recent 2-year period and are made available to the air quality division upon request.

Because the company had not kept records for the most recent two-year period, the "Electropolish" process did not at present satisfy the criteria for the Rule 290 exemption. The options to resolve this were to apply for a permit to install, or keep records in accordance with Rule 290. Under the recordkeeping option, the company could choose to either track monthly emissions, or determine the production levels they could reach without exceeding an estimated 500 lbs of controlled orthophosphoric acid emissions per month, for each unit exempt under Rule 290.

Miscellaneous:

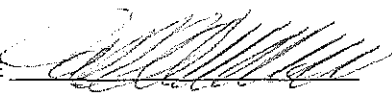
it is my understanding that the building is heated by natural gas make up units, and radiant heat. A water jet cutter in Building A is used on occasion to remove flash from parts, but may be removed, I was

told. It was not running, at the moment.

Mr. Belloli and I left this site at 12:26 PM, and inspected the nearby Plant C, SRN N7933, which is documented in a separate activity report.

Conclusion:

The single instance of noncompliance found was that the company had not been keeping records pursuant to Rule 290 of controlled emissions from the "Electropolish" orthophosphoric acid process in Building A. This constituted a violation of Rule 290, and a Violation Notice (VN) is being sent.

NAME 

DATE 2/13/2017

SUPERVISOR 

