

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

N512923605

FACILITY: TRW		SRN / ID: N5129
LOCATION: 500 E VAN RIPER RD, FOWLerville		DISTRICT: Lansing
CITY: FOWLerville		COUNTY: LIVINGSTON
CONTACT: Gary Novak, HSE Manager		ACTIVITY DATE: 11/08/2013
STAFF: Daniel McGeen	COMPLIANCE STATUS: Compliance	SOURCE CLASS: Minor
SUBJECT: Unannounced compliance inspection of TRW Fowlerville plant.		
RESOLVED COMPLAINTS:		

On 11/8/2013, the Air Quality Division (AQD) of the Department of Environmental Quality (DEQ) conducted an unannounced inspection of the TRW Fowlerville plant.

**Environmental contact:**

Gary Novak, Health Safety and Environmental (HSE) Manager; (517) 223-6951; [gary.novak@trw.com](mailto:gary.novak@trw.com)

**Facility description:**

This facility manufactures anti-lock brake system (ABS) control systems, by machining aluminum castings, and then cleaning and assembling them.

**Regulatory overview:**

This facility is classified as a minor source, because it does not have the Potential to Emit (PTE) to be a major source of criteria pollutants (carbon monoxide, nitrogen oxides, sulfur dioxides, volatile organic compounds, lead, particulate matter smaller than 10 microns, or particulate matter smaller than 2.5 microns), nor of Hazardous Air Pollutants (HAPs). For major sources, a Renewable Operating Permit would be required.

The facility operates a number of emission units which are considered exempt from the requirement to obtain a Permit to Install of Rule 201 of the Air Pollution Control Rules. These processes are identified below, along with the exemptions which apply to them.

**Emission units:**

Quantity	Emission unit description	Control equipment	Exemption rule	Compliance status
11	Aluminum machining processes (cells 1-7), with water-based cooling solutions	Torit dust collectors	Rules 290 and/or 285(l)(vi)(B)	Compliance
3	Rock parts washers, using an alkaline cleaning solution		Rules 290 and/or 285(l)(iii)	Compliance
1	Non-Rock parts washer, not in use			Not in use
2	Thermal deburring furnaces, natural gas fired; with Lewis parts washer		Rules 290 and/or 282(a)(i) for furnaces; Rule 290 for parts washer	Not operating, at time of inspection
2	Ink marking lines		Rules 290 and/or 287(c)	Not in use
1	Detergent wash for small parts, using alkaline cleaning solution		Rules 290 and/or 285(l)(iii)	Compliance

**Recent history:**

Starting in October 2013, the AQD began to receive complaints of musty odors in Fowlerville, believed to be associated with TRW, and/or the Ventra Fowlerville LLC plant, which is located about a mile to the northwest of TRW. AQD has followed up on these complaints, and has worked with the companies to try to resolve the odor issues.

**Location:**

This facility is located on the south side of the Village of Fowlerville, about 200 feet north of I-96. About 600 feet to the west are a number of restaurants, and 600 feet to the northwest is a medical/professional

office, with a subdivision north of that. To the immediate north and northeast are industries. Roughly 2300 feet to the east is Asahi Kasei Plastics. To the south is I-96, and mostly undeveloped land.

**Arrival:**

I drove to the plant at 10:37 AM. I detected no odors in the parking lot north of the plant. Weather conditions were partly sunny, with winds 10-15 miles per hour (mph) out of the west. In the north lobby, I left a voice mail message for Mr. Gary Novak, HSE Manager, explaining that I would like to conduct an inspection of the facility today. I returned to my vehicle. At 10:59 AM, I noticed a barely detectable (level 1 on the 0 to 5 odor scale used by AQD) musty odor in the north parking lot. Winds were out of the south southwest at the time.

At 11:45 AM, after doing other field work in the area, I called Mr. Novak again, and reached him. He explained he was currently at the TRW Fenton plant, finishing up a training session he was conducting. We agreed to meet at 1 PM today, at the Fowlerville plant. He advised me to park at the south side of the plant, and meet him in the south lobby, where they receive visitors.

I arrived at the plant at 1:02 PM, in the south parking lot. I could not detect any odors, nor see any visible emissions from the plant. Weather conditions were sunny, and clear, with winds 10-15 mph out of the west.

I met Mr. Novak, and gave him a copy of the "DEQ Environmental Inspections: Rights and Responsibilities" brochure, during our pre-inspection meeting. He explained that this plant has been a Clean Corporate Citizen (C3) for 10 years in a row, and showed me their 2/4/2013 C3 certificate from DEQ Director Dan Wyant.

We discussed TRW's efforts to reduce or eliminate musty odors that were reported in October, 2013, as well as the difficulties faced in attempting to identify an odor source when there may be more than one potential source, in a community. They identified bacteria growing in their metal working fluids as the source of musty odors inside of their plant, with this odor occasionally being detectable outside, near their plant.

TRW has a metal working fluid protocol, which includes weekly sampling of levels of pH, bacteria, and sulfates. Additionally, since becoming aware of odor issues in Fowlerville this autumn, they have taken steps to reduce emissions which might be coming from their plant. Mr. Novak provided me with a copy of a 10/9 letter to their internal files, which summarizes these actions (attached for reference).

At the end of September this year, the pH of the cooling fluids used in their metal machining processes had dropped to 8.4, which is in a range bacteria find desirable. Their in-house procedures are to keep the pH between 8.5 and 9. They added a pH booster on 10/4, to raise the pH level. A weekly test for bacteria levels in the cooling fluid showed that colonies of bacteria were at  $10^4$ . Their procedures are to treat the coolants with a biocide when bacteria colonies are at a level of  $10^6$ , but they wanted to act on immediately. Once the pH had reached a desirable level, they treated the fluids with 6.9 gallons of Kathon, which is a heavy biocide, on 10/9. Mr. Novak gave me a copy of the Material Safety Data Sheet (MSDS) for this product, which is attached for reference.

They have around 60,000-70,000 gallons of coolant within the plant's systems. The coolant is a water soluble product called Superedge 6754, made by Castrol (a MSDS, from Mr. Novak, is attached for reference). The pH of their cooling fluids is currently 9.2.

In early October, they cleaned two of their three parts washers at the plant, and treated the third with Kathon. They have also wiped down various surfaces around the plant, where cooling fluids could conceivably have splashed.

Additionally, as explained in Mr. Novak's letter to their files, they replaced a control unit for their cooling tower, as a malfunctioning unit did not allow for treating the water with chemicals. They did not detect any odors from this process, but they have resumed using chemicals for water treatment.

They have also been conducting their own odor evaluations in the area around TRW.

Since the 10/9 letter to file, they have taken additional steps to reduce odors, discussed below.

On 10/26, they cleaned five of their eleven machining cells (numbers 1, 2, 6, 7, and 10), to eliminate any odor causing bacteria. They will clean the rest on Saturday, 11/9. On Friday, 11/1, they discovered and removed a chip dam, made of small metal chips, in the cooling fluid in one of their processes. The now removed mass of metal chips could potentially have contained odor causing bacteria.

During their upcoming 4 day shut down in December, they will replace all cooling fluids in the plant, as the fluids will be 24 months old. This should eliminate or reduce odors. If they were to shut down for 4 days during a normal work week, the resulting shortage of brake parts would halt production at General Motors plants.

#### Review of facility recordkeeping:

Mr. Novak provided documentation (attached for reference) on TRW's 2012 emissions, as well as for 2013, year to date. Monthly plantwide emissions were below 1,000 lbs for each of the following pollutants: nitrogen oxides (NOx), carbon monoxide (CO), Volatile Organic Compounds (VOC), and particulate matter smaller than 10 microns (PM10).

#### Inspection:

There are two main areas within the plant, parts preparation, and assembly.

Mr. Novak provided an Oil and Critical Materials diagram for the plant (attached for reference), which shows the plant layout, as well as the storage locations of oil and other materials. Machining cells 1-6 are in a row, to the south of the row which includes cells 7-11.

11 aluminum machining cells, with Torit dust collectors; Rules 290 and/or 285(l)(vi)(B):

We observed the machining cells in operation. They take aluminum blocks, and machine holes in them, with water soluble coolant. A number of the cells are served by Torit Dry Flo dust collectors, which, it was explained, utilize three different filter types. They exhaust to the in plant atmosphere. I could not see any visible emissions. However, I was able to detect distinct and definite musty odors, which were at their strongest when we were right next to machining processes.

Metal chips in the coolant are sent to the hydromation room. The chips get washed, and travel up through a conveyor, to a centrifuge. They are spun dry, and are loaded into a truck, to be recycled. Last year, they recycled 700 tons of aluminum chips.

I was shown where a chip dam had been, in the hydromation rooms fluid handling systems. The piling up of the metal chips had created a densely packed area where the biocide Kathon could not penetrate, and may have allowed for odorous bacteria to grow. Removing the chips may help reduce odors.

Two thermal deburring chambers, with aqueous parts washer; Rules 290 and/or 282(a)(i):

In the preparation area, parts are sent through one of two thermal deburring chambers. Intense heat (5,600 degrees F) is used to deburr cast parts. Natural gas and oxygen are ignited at a predetermined pressure in a sealed chamber. During his 2/8/2012 inspection of the facility, AQD's Brad Myott felt the deburring processes were exempt from needing an air use permit under Rule 282(a)(i). This exempts furnaces for heat treating of glass or metals, the use of which does not involve molten materials, oil-coated parts, or oil quenching, which fire sweet gas fuel at a maximum total heat input rate of not more than 10,000,000 Btu/hour.

After deburring, parts go through a Lewis parts washer, which uses an Oaklite 33 phosphoric acid-based detergent, with a pH of 2.5 (MSDS attached). Recordkeeping for October 2013 showed that 55 gallons were used, with VOC emissions of 123.2 lbs, for that month. These emissions are far below the 1,000 lbs per month of VOC which the Rule 290 exemption allows.

Parts washing/cleaning; Rules 290 and/or 285(l)(iii):

The parts washers they use here are Rock units 1, 2, and 3. As previously mentioned in this report, two of the Rock units have been cleaned in recent weeks, while the third was treated with Kathon. They also have an unused parts washer, which is not a Rock unit. The solution they use in their parts washers is

99% water and 1% detergent. Rule 285(l)(iii) applies to equipment for surface preparation of metals by use of aqueous solutions, except for acid solutions. Mr. Novak provided a MSDS, attached for reference, for a cleaning solution called CareClean XHP, which is produced by Castrol. Undiluted, this material has a pH of 7.8 to 8.6, and is therefore considered to be an alkaline solution.

**Assembly area:**

There are numerous cells for assembling the brake components. Some are fully automated. The assembly activities I observed appeared to be exempt from needing an air use permit.

**Two ink marking lines; Rules 290 and/or 287(c):**

They no longer apply dot markings to parts by using ink. They now use a laser to mark the parts. The ink marking processes are not in use, but will remain at the plant, in case there is a need to use them, in the future. An attached 2013 emissions summary shows predicted VOC emissions for December 2013 for the category "Inks & Solvents" to be 57.8 lbs. Although the inks are no longer in use, other solvents at the plant may contribute to these estimated VOC emissions for the upcoming month of December.

**Detergent washer for small parts; Rules 290 and/or 285(l)(iii):**

There is a detergent wash for small parts to be installed in braking units, which uses another alkaline cleaner, Ultra Clean 210P. Rule 285(l)(iii), as previously mentioned in this report, exempts equipment for surface preparation of metals by aqueous solutions, except for acidic solutions. This washing unit exhausts through the roof. Mr. Novak indicated that there are no odors from this process, if one were to stand atop the roof. Recordkeeping for October 2013 showed that 55 gallons of the alkaline cleaner were used, with VOC emissions of 23.5 lbs for that month.

Mr. Novak and I walked around the south and east sides of the facility, as the wind was currently out of the west. We detected odors when we were about 200 feet east of the plant, at 2:33 PM. The odors ranged from barely detectable (level 1) to distinct and definite (level 2) but my impression was that the odors were less than I had detected downwind of the plant on 10/10/2013, while I was doing a complaint investigation. We walked to a vantage point northeast of the facility, and I was not able to detect any odors.

**Conclusion:**

I found no instances of non-compliance during the inspection. The facility is aware of the odor issues in Fowlerville, and has actively taken steps to reduce musty odors from their facility. They will continue to do so in the weeks to come, culminating in replacing all cooling fluids in the plant during their 4-day December shutdown. Mr. Novak was very knowledgeable and professional.

NAME 

DATE 1/2/2014

SUPERVISOR 

RS