

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

A016930839

FACILITY: Bradford White Corporation		SRN / ID: A0169
LOCATION: 200 Lafayette Street, MIDDLEVILLE		DISTRICT: Grand Rapids
CITY: MIDDLEVILLE		COUNTY: BARRY
CONTACT: Mark Kluting , Facilities Engineer		ACTIVITY DATE: 08/27/2015
STAFF: Steve Lachance	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Scheduled Inspection for FY '015		
RESOLVED COMPLAINTS:		

This was an unannounced inspection. SL was accompanied by KDeVries of this office. Weather conditions were generally cloudy, with mild southerly winds and about 65 F, but warming. Prior to plant entry at about 10 AM, Thursday 8-27-15, we conducted visible emissions and odor surveys from surrounding properties; and no issues were noted.

The primary purpose of the inspection was to determine compliance with Opt-Out PTI No. 207-04A. This permit was modified in 2014 to include the installation of new tank insulation lines.

As part of the Full Compliance Evaluation (FCE) of the source, SL compared collected records to the Michigan Air Emissions Reporting System (MAERS) submittal for EI2014. These appeared to be consistent and based on the same recordkeeping principles/practices as were noted in the 2014 facility inspection.

Former site contact, Mr. Boyea, had recently retired; and Mr. Mark Kluting, Supervisor of Facilities Engineering, having recently taken over these responsibilities from Mr. Boyea, presented himself to AQD in the main lobby at about 10:15 AM. After introductions, SL announced his intention to complete an air quality inspection on this date and shared the DEQ's "Environmental Inspections; Rights and Responsibilities" brochure.

- Mr. Kluting was somewhat familiar with PTI No. 207-04A and had inherited procedures, checklists and spreadsheets from Mr. Boyea. He was familiar with the timelines and general restrictions within the permit. Connecting these activities with particular aspects of the permit was a continuing theme throughout the day.
- SL requested and received a current copy of FG-FACILITY records; this was readily available, up to date, and is attached. This record provided EU-specific and Facility Total emissions on a monthly and 12-month rolling time period basis. These appeared to be consistent with those presented by Mr. Boyea in previous inspection(s) and as used in reporting to MAERS. See further discussion, below.
- Mr. Kluting stated that the insulation line project permitted above has been installed and has operated since about April of 2015;
- A Powder Coating line, installed under exemption 287(d) has assumed all the tank coating operations. Wet coating was discontinued in the March/April transition from wet to powder coating. Wet coating was the primary source of VOC/HAP at the facility and so the switch to powder coating results in reduced facility emissions.

Mr. Kluting then provided an informative plant tour while describing the hot-water heater

manufacturing process on site.

Compliance determination high-lights are listed below, especially with respect to the pertinent conditions of PTI #207-04A (and with special focus on the new insulation foam lines as these were observed for the first time.)

### **SPECIAL CONDITIONS**

#### **The following conditions apply to :** **EU-Burnoff**

The burnoff oven was formerly used in a batch manner to clean overspray from hangers, etc. It has not been used recently based on the switch to Powder Coating. This switch was implemented in approximately April 2015.

The unit was not in operation at this time. Physical interlock controls reportedly preclude improper operations. Required records were readily available; an on-site clipboard stationed for future records; and within Mr. Kluting's main spread-sheet.

#### **The following conditions apply to :** **EU-ComEnamel**

A non-VOC porcelain-like coating is spray- or dip-applied to internal heater parts for commercial heaters. The coating is then dried/hardened in ovens. Particulate matter from overspray is now controlled by filter cartridges and emitted back into the plant.

No visible emissions or any physical evidence of operational problems from/with the com enamel cartridge filter/baghouse. Housekeeping in this area was good/above average.

#### **The following conditions apply to :** **EU-Paint**

This was the main source of HAP/VOC emissions at the facility. It is no longer in use, having been supplanted by powder coating operations. The hot-water heater housings were triple-coated with a single coating deposited through electro-deposition. VOC content of the final coating was reduced in 2014. The successful switch to powder coating was implemented in approximately April 2015. See attached records. With the switch to powder coatings, facility VOC/HAP emissions are reducing (per month, per 12-month rolling period.)

### **Emission Limits**

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	Pollutant	Equipment	Limit	Time Period
I.1	VOC	EU-Paint	25.2 lb	Hourly based upon a monthly average.
I.2	VOC	EU-Paint	71.06 ton	12-month rolling time period.

From attached records: 0 lb./hr and **37.14 tons/12-month rolling time period** through July 2015. Records were readily available and current.

### Material Limits

	Pollutant	Equipment	Limit	Time Period
II.1	VOCs	EU-Paint	2.4 lb/gal (minus water)* as applied	Instantaneous

The only wet paint they used during the previous 12 months contained 1.70#VOC/gal. (same as last inspection); see attached records. VOC emissions are further reduced with the switch to powder coating.

### Process / Operational Limits

The permittee shall not spray more than 59,216 gallons of materials based upon a 12-month rolling time period as determined at the end of each calendar month. **[R336.1205]**

**The current 12-month rolling total is 33,874 gallons.; see attached.**

### **Recordkeeping/Reporting**

All required calculations shall be completed in a format acceptable to the AQD District Supervisor and made available by the 15th day of the calendar month, for the previous calendar month, unless otherwise specified in any recordkeeping, reporting or notification special condition. **[R336.1205, R336.1702(a)]**

**These records were readily available, see attached.**

The permittee shall maintain a current listing from the manufacturer of the chemical composition of each material, including the weight percent of each component. The data may consist of Material Safety Data Sheets, manufacturer's formulation data, or both as deemed acceptable by the AQD District Supervisor. All records shall be kept on file for a period of at least five years and made available to the Department upon request. **[R336.1205, R336.1702(a)]**

**See above; these are incorporated into the Master Spreadsheet as demonstrated during the shared time in Mr. Kluting's office.**

The permittee shall keep the following records/calculations in a satisfactory manner for EU-paint: **[R336.1205, R336.1702(a)]**

1. For each coating used during a calendar month:

Coating identification.

VOC content (minus water and with water) of each coating as applied.

Coating usage in gallons.

Monthly calculations determining the total amount in gallons of materials sprayed and the pounds per hour VOC based upon a monthly average for each month.

Monthly calculations determining the monthly and annual mass VOC emission rates, in tons per month and tons per 12-month rolling time period as determined at the end of each calendar month.

Calculations determining the amount of materials sprayed, in gallons per 12-month rolling time period as determined at the end of each calendar month.

records/calculations shall be kept in a format acceptable to the AQD District Supervisor. All records/calculations shall be kept on file for a period of at least five years and made available to the Department upon request.

**See attached records; these were generally reviewed in Mr. Kluting's office. Mr. Kluting had overlapped with Mr. Boyea and these records (and the means of collecting and compiling them) had been transferred to Mr. Kluting. The records appear to incorporate the required elements. They include various cross-checks (production records, inventory records, purchase records) in the spreadsheet/data entry process to keep these records "real." This review also offered an opportunity to review purpose for these records/efforts with respect to air quality compliance.**

**The following conditions apply to :**  
**EU-ResEnamel**

A non-VOC porcelain-like coating is spray- or dip-applied to internal heater parts for residential heaters. The coating is then dried/hardened in ovens.

**No visible emissions or operational issues noted.**

**Design/Equipment**

The permittee shall not operate EU-ResEnamel unless the multiclone collector is installed, maintained and operated in a satisfactory manner. **[R336.1331, R336.1910]**

**This was observed to be the case; no visible emissions during operation.**

**Recordkeeping**

The permittee shall keep in a satisfactory manner records of visual inspections of the multi clone collector system which includes the dates and results of the inspections and the dates and reasons for repairs. All records shall be kept on file for a period of at least five years and made available to the Department upon request.  
**[R336.1331, R336.1910]**

The permittee shall design and implement a preventative/malfunction abatement plan for the multiclone. **[R336.1331, R336.1910]**

**Visual inspection logs are kept per the required PM plan; no visible emissions were observed.**

**The following conditions apply to :**  
**EU-Traystripper**

A groundwater remediation system is housed in a separate room. This is a contain/treat system with contaminants transferred to the air. Groundwater contaminant concentrations are low; the facility reports to DEQ's Remediation and Redevelopment Division, and air emission estimates are included in site-wide HAP calculations. Based on small emissions and SL's familiarity with this system from previous activities, this was not assessed any further during this on-site inspection; but calculated emissions are included in site-wide HAP records.

**The following conditions apply to :**  
**EU-Spraybooths**

These conditions address particulate emissions from the porcelain enamel booths (very low VOC content) and associated dry/bake ovens.

**Emission Limits**

	<b>Pollutant</b>	<b>Equipment</b>	<b>Limit</b>	<b>Time Period</b>
I.1	<b>PM</b>	<b>EU-Spraybooths</b>	<b>0.01 lbs per 1000 lbs exhaust gas</b>	<b>Test Protocol</b>
I.2	<b>PM</b>	<b>EU-Spraybooths</b>	<b>0.7 lbs*</b>	<b>Monthly Average</b>

**Baghouse control; with no observed visible emissions, assumed compliance. Their calculated number based on engineering principles and flow is 0.04#/hr. See attached. No visible emissions were noted. Filters were observed in the booths.**

**The following conditions apply to:**  
**FGFOAMLINES**

**DESCRIPTION:** Three residential water heater cyclopentane-based polyurethane foam insulation lines and one commercial water heater cyclopentane-based polyurethane foam insulation line. All lines share two 10,000 gallon bulk isocyanate tanks. The residential lines share three 7,000 gallon bulk polyol storage tanks and there is one 7,000 gallon bulk polyol storage tank for the commercial line.

**Emission Units:** EURESFOAM1, EURESFOAM2, EURESFOAM3, EUCOMFOAM1

**I. EMISSION LIMITS**

1. VOC; 16 tpy 12-month rolling time period from EACH LINE ; and

5. VOC 31.1 tpy 12-month rolling time period from FGFOAMLINES

Per attached records, which are maintained per line and per FGFOAMLINES, indicates combined VOC emissions of about 5.5 tpy so far.

**II. MATERIAL LIMITS**

1. Resin usage 4,270,000 pounds per 12-month rolling time period as determined at the end of each calendar month for EACH LINE; and
2. Resin usage 8,300,000 pounds per 12-month rolling time period as determined at the end of each calendar month for FGFOAMLINES.
3. Cyclopentane content of resin Maximum 15% by weight Instantaneous for FGFOAMLINES.

Per attached records, material use so far has topped out at about 290,000 pounds per month per line and about 1,470,000 pounds used, combined. These calculations are based on 15% cyclopentane content for the foaming resin.

**DESIGN/EQUIPMENT PARAMETERS**

1. The permittee shall not transfer material into any polyol day tank unless the closed loop system is installed, maintained and operated in a satisfactory manner. Satisfactory operation includes using the temperature interlock system. (R 336.1205, R 336.1225, R 336.1702(a), R 336.1910)
2. The permittee shall not transfer material into any polyol bulk tank from a day tank

unless the closed loop system is installed, maintained and operated in a satisfactory manner. Satisfactory operation includes using the temperature interlock system. (R 336.1205, R 336.1225, R 336.1702(a), R 336.1910)

3. The permittee shall not transfer material into any polyol bulk tank from a tank truck unless the vapor balance system is installed, maintained and operated in a satisfactory manner. Satisfactory operation includes using the temperature interlock system. (R 336.1205, R 336.1225, R 336.1702(a), R 336.1910)

Per discussion and on-site observation, this appears to be the case.

## VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. (R 336.1201(3))

1. All required calculations shall be completed in a format acceptable to the AQD District Supervisor and made available by the 15th day of the calendar month, for the previous calendar month, unless otherwise specified in any recordkeeping, reporting or notification special condition. (R 336.1205, R 336.1205, R 336.1225, R 336.1702(a))

2. The permittee shall maintain a current listing from the manufacturer of the chemical composition of each material, including the weight percent of each component. The data may consist of Safety Data Sheets, manufacturer's formulation data, or both as deemed acceptable by the AQD District Supervisor. The permittee shall keep all records on file at the facility and make them available to the Department upon request. (R 336.1205, R 336.1225, R 336.1702(a))

3. The permittee shall monitor and record, in a satisfactory manner, the resin usage rate, in pounds, for each emission unit in FGFOAMLINES and the total usage rate for FGFOAMLINES for each month and 12-month rolling time period, as determined at the end of each calendar month. The permittee shall keep all records on file at the facility and make them available to the Department upon request. (R 336.1205, R 336.1225, R 336.1702(a))

4. The permittee shall calculate the VOC emission rate from each emission unit in FGFOAMLINES and the total VOC emission rate for FGFOAMLINES monthly, for the preceding 12-month rolling time period, using a method acceptable to the AQD District Supervisor. The permittee shall keep all records on file at the facility and make them available to the Department upon request. (R 336.1205, R 336.1702)

Per discussion and on-site observation, this appears to be the case. See attached records.

## VIII. STACK/VENT RESTRICTIONS

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwardsto the ambient air unless otherwise noted:

Maximum Diameter for each stack = 24 inches;  
Minimum Height for each stack = 40 feet.

This appeared to be the case.



**FG-Facility**

These are the “opt-out” conditions that maintain the source’s “synthetic Minor” status, and per above, these records were current and readily available.

**Emission Limits**

	<b>Pollutant</b>	<b>Equipment</b>	<b>Limit</b>	<b>Time Period</b>
I.1	VOC	FG-Facility	Less than 90 tpy	12-month rolling time period as determined at the end of each calendar month.
I.2	EACH INDIVIDUAL HAP	FG-Facility	Less than 9.0 tpy	12-month rolling time period as determined at the end of each calendar month.
I.3	Aggregate HAPs	FG-Facility	Less than 22.5 tpy	12-month rolling time period as determined at the end of each calendar month.

**Per attached records;**

**VOC: 34.8 tons per 12 month rolling period through July 2015.**

**Highest HAP: EGME-Acetate from discontinued wet coating; 3.22 tons per 12 month**

rolling period through July 2015.

**Aggregate HAPs – 11.13 tons per 12 month rolling period through July 2015.**

**With the switch to powder coating, these are all falling.**

### **Testing**

The HAP content of any material as received and as applied, shall be determined using manufacturer's formulation data. Upon request of the AQD District Supervisor, the manufacturer's HAP formulation data shall be verified using EPA Test Method 311. **[R336.1205(3)]**

Formulation data is incorporated into the spreadsheet.

### **Monitoring/Recordkeeping**

All required calculations shall be completed in a format acceptable to the AQD District Supervisor and made available by the 15th day of the calendar month, for the previous calendar month, unless otherwise specified in any recordkeeping, reporting or notification special condition. **[R336.1205(3)]**

Attached; current and complete.

VI.2 The permittee shall keep the following information on a monthly basis for FG-Facility:

- a) Gallons or pounds of each VOC and HAP containing material used.
- b) Where applicable, gallons or pounds of each VOC and HAP containing material reclaimed.
- c) VOC and HAP content, in pounds per gallon or for HAP, pounds per pound, of each HAP containing material used.
- d) Individual and aggregate VOC and HAP emission calculations determining the monthly emission rate of each in tons per calendar month.
- e) Individual and aggregate VOC and HAP emission calculations determining the annual emission rate of each in tons per 12-month rolling time period as determined at the end of each calendar month.

The records shall be kept in an format acceptable to the AQD District Supervisor. All records

shall be kept on file for a period of at least five years and made available to the Department upon request. **[R336.1205(3)]**

**Attached; current and complete.**

**ALSO**

**FORMER/Existing Reaction Injection Molding Operations;** these have been replaced by the new/permitted processes (*except for some commercial heaters.*) The remaining (original) foam operations involve in-place injection of MDI and water-based isocyanide compounds, which react to form insulating foam within the heater. Production/Inventory/Emission records are maintain; see attached. Emissions from these remaining operations are incorporated into FG-FACILITY.)

**POWDER COATING Line;** one was installed, and there's space for a sister line. The coating line and associated curing oven is exempt per Rule 287(d). They utilize a single powder coating (Bradford White Gray from Valspar) and this area was new, clean and modern. Associated parts preparation (Water wash/rinse; Phosphate wash/rinse; oven dry and final coating cure) is also exempt per Rule 281(e) or Rule 285(r).

**7 Natural Gas-fired Emergency Gen-Sets.** Most of these are "new" post 2012 installations (MG150); literature provided during the 2014 inspection indicated that these are "EPA Certified." All burn natural gas, only. One is older, but also small; all are exempt per Rule 285 (g) based on heat input capacity. See attached. SL viewed one particular engine (the SE Compressor; with 27.3 hours of service) as a representation of the rest), and at 150 kW, this gen-set is indeed small enough to qualify for exemption. And while SL does not consider this to be a complete RICE inspection, Mr. Kluting was aware of periodic maintenance requirements and hour metering. These are all very small units, infrequently used and only for testing.)

**BOILER MACT NOTE;** as an Area Source for HAPs and with natural gas the only fuel used on-site, the observed natural gas boilers (Five at 4 mmBtu/hr heat input; only one in use at this time; each exempt per Rule 282(b)(i)) are not regulated by 40 CFR 63, Subpart JJJJJJ. Moreover, this rule does not affect process heaters, so there are no BOILER MACT considerations for this source at this time.

## SUMMARY

The facility's transformation has brightened, modernized and streamlined their production. Equipment has been re-located, replaced with permitted equipment, or low-emitting, exempt devices/processes installed. All requested records were current and readily available. Mr. Kluting was informative and accommodating.

SL considers the facility to be in compliance with PTI No. 207-04A and applicable air use requirements.

A      *FG-Facility Records (VOCs)*

A'     *FG-Facility Records (HAPs)*

B      *EU-PAINT Records (VOC)*

C1-C3                *NEW EUFoam Lines Records (HAPs and VOC)*

D      *NEW FGFOAMLINES Records (HAPs and VOC)*

E1-E3                *Safety Data Sheets for Foam Resins*

F      *RICE Summary*

NAME 

DATE 9/10/15

SUPERVISOR 