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

A163747503

FACILITY: Pratt & Whitney AutoAir		**SRN / ID:** A1637
LOCATION: 5640 ENTERPRISE DR, LANSING		**DISTRICT:** Lansing
CITY: LANSING		**COUNTY:** INGHAM
CONTACT: Michele Strickland , Consultant		**ACTIVITY DATE:** 12/11/2018
STAFF: Michelle Luplow	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** SM OPT OUT
SUBJECT: Scheduled, announced, Partial Compliance Evaluation, as part of a Full Compliance Evaluation, to determine compliance with Opt-out Permit # 40-03		
RESOLVED COMPLAINTS:		

Inspected by: Michelle Luplow (author) and accompanied by DEQ Intern, Jennifer Bush

Personnel Present: Michael Bennett, Senior Manager EHS (Michael.bennett3epw.utc.com)
Michele Strickland, temporary EH&S manager (michele.strickland@pw.utc.com)

Purpose: Conduct an announced, scheduled, partial compliance evaluation (PCE) inspection by determining compliance with Pratt & Whitney's Permit No. 40-03, including verification that Pratt & Whitney stayed within the permit's emission limits to remain an opt-out source and not enter Title V status. This inspection was done as part of a full compliance evaluation (FCE).

Facility Background/Regulatory Overview: Pratt & Whitney is involved in fabricating and coating repair parts for commercial aircraft passenger planes, along with some work for military and federal projects (e.g. blade reworking).

Pratt & Whitney (P&W) is an opt-out facility. The entire opt-out permit consists only of FGFACILITY where VOC's are limited to 90.0 tpy; individual HAP limited to less than 9.0 tpy; and aggregate HAP limited to less than 22.5 tpy on a 12-month rolling time period. This location currently has a total of 4 plants and all are considered part of the same stationary source. All plants contain all, or a combination of, the following types of equipment: coating booths, alkaline phosphate metal surface treatment, power wash cleaning, shotblasting, grinding, abrasive cutting, cold cleaners, and ovens. It is routine practice for P&W to move these pieces of equipment between the 4 plants.

Plant 5 of P&W is located at their Holt facility (P0774).

This facility was last inspected in December of 2015.

Inspection: At approximately 8:40 a.m. on December 11, 2018, Jennifer Bush and I arrived, announced, at P&W and met with Michele Strickland and briefly with Senior Manager of EHS, Michael Bennett. We provided her with the January 2017 Permit to Install Exemptions handbook.

Equipment installed at P&W was inspected per plant and is identified per plant in this report. Attached is a complete listing of all emission units present in each of the plants, with approximate installation dates and the applicable exemptions for each unit, as I had requested.

Plant 1

Plant 1 is typically used for the manufacturing of new engine SGV's as well as reworking of used SGV's. Additional exempt equipment are provided in the attached lists (current as of 12/2018). Note Asset numbers were redacted for proprietary reasons.

Equipment	Description	Permit Exemption	Compliance Status
Six coating booths	**All coating booths in this plant have tri-pack filters with a primary filter overlay. The primary overlay filters are replaced when the magnehelic gauge is reading outside of P&W's specified range, which is marked on the gauge. Each booth has its own magnehelic gauge with its own operating range. There is one coating booth in the phosphoric acid**	**Rule 287(2)(c)**	**Compliance**

One alkaline phosphate metal surface treatment (phosphoric acid anodizing or "PAA")	This process is used to clean, etch, and anodize aluminum parts. Process flow: degreaser →hot alkali (degreaser) → deionized (DI) water rinse → phosphoric acid (etching) → DI water rinse → phosphoric acid (anodizing) → Rinsing twice with DI water	Rule 285(2)(r) (i), (iv), (v)	compliance
PAA Oven	1 oven is used for drying parts that have gone through the PAA line, electrically heated	Rule 281(2)(e)	Compliance
10 Electric Curing Ovens	7 ovens, electrically heated, to cure 2-component epoxy adhesives which are manually applied to parts. All ovens are vented to atmosphere out stacks. Each oven is in-series with epoxy coating of parts and thus each is part of a surface coating line as defined in the Part 1 Rules. The ovens are exempt under Rule 287(2)(c).	Rule 287(2)(c)	Compliance
4 Electric Heat Treating Ovens	Electrically heated metal heat-treating ovens.	Rule 282(2)(a) (i)	Compliance
3 Testing/Inspection Ovens	1 oven is used for the testing of parts, the other 2 are specifically used to cure the test parts, prior to being tested	Rule 283(2)(d)	Compliance
Cleaning parts with spray and wipes	This process is simply handwashing of equipment using solvents and wipes located throughout the plant. This process is not an installed process and therefore a permit to install nor exemptions, are applicable. The use of solvents for this, however, are tracked for the purposes of FGFACILITY recordkeeping.	Not applicable	NA
One shotblasting booth	Plastic bead blasting with a cartridge baghouse inside the facility (primary control) and another baghouse outside the building (secondary control) before being exhausted outside to ambient air. A horizontal exhaust stack is present on the outdoor baghouse. I noted small amounts of blast media on the ground surrounding the drum used to collect the media from the baghouses. I pointed this out to M. Strickland, that all blast media should be cleaned up from the ground to prevent possible re-entrainment into ambient air. M. Strickland said the waste blast media is shipped as non-hazardous waste	Rule 285(2)(l) (vi)(C)	Compliance
Two internally-vented media	I verified that these 2 media blasters are vented only to the in-plant environment	Rule 285(2)(l) (vi)(B)	Compliance

blasters			
1 basin parts washer	**Lid is closed on the parts washer, with a surface area of 1.5'x 2.5'. (3.75 ft^2). Operating instructions present on inside of cold cleaner lid. MDEQ AQD orange operating sticker was posted in the area to ensure compliance with Part 7 Rules. Deodorized kerosene or petroleum distillates (CAS 64742-47-8) is the solvent used in this equipment (Safety Kleen Premium Solvent).**	**Rule 281(2)(h)**	**Compliance**
1 spray gun parts washer	**Lid is closed on the parts washer, with a surface area of 1 ft^2. Operating instructions are present. Utilizes acetone**	**Rule 281(2)(h)**	**Compliance**

Plant 2

Plant 2 is generally used for the manufacture and reworking of thrust reversers. Additional exempt equipment are provided in the attached lists (current as of 12/2018). Note Asset numbers were redacted for proprietary reasons.

Seven coating booths	There are 7 coating booths in this plant. The largest booth is used to coat parts with a hexavalent chromium coating. All booths use tri-pack fabric filters for particulate control, with primary filter overlay. The filters are replaced when the magnehelic gauge is reading outside of P&W's specified range, which is marked on each gauge. Each booth has its own magnehelic gauge with its own operating range. The hexavalent chromium emissions are reported in the facility-wide emissions for HAPs.	Rule 287(2)(c)	Compliance
One large natural gas-fired oven And 10 electric ovens	This oven is used to service the large hexavalent chrome paint booth. Remaining ovens are used for paint curing from other paint booths, and from hand-applied epoxy materials	Rule 287(2)(c)	Compliance
Heat Treating Oven	Used to heat treat metal parts	Rule 282(2)(a)(i)	Compliance
Power wash cleaning	Self-contained washer unit that uses alkaline soap. No VOC's used.	Rule 281(e)	Compliance
1 spray gun parts washer	Lid is closed on the parts washer, with a surface area of 1 ft^2. Operating instructions are present. utilizes acetone	Rule 281(2)(h)	Compliance
Machining operations (cutting, bending, milling)	There is a large machining area in this plant where saws, metal benders and milling take place. These pieces of equipment are vented to the in-plant environment.	Rules 285(l)(i) and 285(l)(vi)	Compliance
1 Media Blaster	Media blaster is vented in-plant to particulate control device which is not vented to atmosphere	Rule 285(2)(l)(vi)(B)	Compliance

Plant 3

Plant 3 is generally used for the machining of military nose cones. Additional exempt equipment are provided in the attached lists (current as of 12/2018). Note Asset numbers were redacted for proprietary reasons.

Equipment	Description	Permit Exemption	Compliance Status
Two coating booths	Hexavalent chromium used in one of the two large booths. Both booths utilize tripack fabric filters for particulate control. The filters are replaced when the magnehelic gauge is reading outside of P&W's specified range, which is marked on the gauge. Each booth has its own magnehelic gauge with its own operating range.	Rule 287(2)(c)	Compliance
One large natural gas-fired oven	Oven is used to cure parts coating with paints or adhesives from the coating lines.	Rule 287(2)(c)	Compliance
Stations for Hand applied materials and 2 associated	Each is considering a coating line. Ovens are associated with each hand-application coating station	Rule 287(2)(c)	Compliance

	range, which is marked on the gauge. Each booth has its own magnehelic gauge with its own operating range.		
One natural gas-fired oven, 4 electric ovens for curing	Used to cure coatings from coating lines. The natural gas-fired oven is associated with the oven located in "Test" of Plant 4.	Rule 287(2)(c)	Compliance
13 Ovens used to cure hand-applied materials at multiple stations throughout Plant 4	Electrically heated, considered part of a coating line where A & B component materials are applied to parts to be cured.	Rule 287(2)(c)	Compliance
One small alkaline phosphate metal surface treatment (phosphoric acid anodizing or "PAA")	This process is used to clean, etch, and anodize aluminum parts. Process flow: degreaser → deionized (DI) water rinse → phosphoric acid (etching) → DI water rinse → phosphoric acid (anodizing) → Rinsing twice with DI water Also has 2 associated electrically operated ovens to dry the parts The PAA process is vented to the in-plant environment.	Rule 285(2)(r)(i) (surface treatment) Rule 281(2)(e) (drying equipment)	Compliance Compliance
Sanding/Grinding area for large engine parts	2 Booths designated for sanding and/or grinding of large aircraft engine parts. Torit dust collectors are utilized before venting the emissions to the ambient air. The large rooms in which they sand/grind are considered mechanical precleaners. Occurs on "Test" side of Plant 4	Rule 285(2)(l)(vi)(C)	Compliance
2 Shot Peening stations, 2 Media blast stations	All are exhausted to the general in-plant environment after the air stream is treated through in-plant dust collectors.	Rule 285(2)(l)(vi)(B)	Compliance
One mixing room	Services the paint coating lines	Rule 287(2)(k)	Compliance
One aqueous-based parts washer	M. Strickland provided me with the SDS (see attached) for the ArmaKleen washing fluid. The SDS indicates that the solution contains no VOC's and therefore can be considered aqueous (<5% VOC by defn)	Rule 281(2)(k)	Compliance
2 spray gun parts washers	Lid is closed on the parts washer, with a surface area of 1 ft2. Operating instructions are present. Utilize acetone.	Rule 281(2)(h)	Compliance

ovens			
Power wash cleaning	Surface cleaning using Synergy Multi-Surface Cleaner and Turco 5948 DPM Thick or Turco 5805. The service line for this unit is currently on hold (and has been since June 2015). Turco 5805 contains 1 HAP (diethanolamine) at a maximum of 1%, Turco 5948 DPM Thick contains no HAPs. Rule 281(e) applies because the materials being washed cannot themselves become an air contaminant and these two cleaners do not contain VOC's.	Rule 281(2)(e)	Compliance
1 basin parts washer	Lid is closed on the parts washer, with a surface area of 2'x 2'. (4.0 ft2). Operating instructions present on inside of cold cleaner lid. MDEQ AQD orange operating sticker was posted in the area to ensure compliance with Part 7 Rules. Safety Kleen Premium Solvent is used in this unit.	Rule 281(2)(h)	Compliance
1 spray gun parts washer	Lid is closed on the parts washer, with a surface area of 1 ft2. Operating instructions are present. Utilizes Safety Kleen Solvent.	Rule 281(2)(h)	Compliance
One large grinding booth	Employees use palm grinders in this booth. A Torit cartridge dust collector is used to capture particulate prior to the particulate being vented to ambient air. There are baffles within the room walls that are utilized as mechanical pre-cleaners. The area outside was well-maintained. I saw no signs of dust on the ground or opacity being emitted from the unit	Rule 285(2)(l)(vi)(C)	Compliance

Plant 4

Plant 4 is divided into two sides: "Test" and "Blades." The test cells are chambers where the engines are tested. Additional exempt equipment are provided in the attached lists (current as of 12/2018). Note Asset numbers were redacted for proprietary reasons.

Equipment	Description	Permit Exemption	Compliance Status
Seven coating booths	Seven booths are located in Plant 4: 2 larger booths in the "Test" side and 5 booths in the "Blades" side to coat aircraft blades. Four of the booths in the "Blades" side are manual coating booths: 2 for paint, 2 for powder coating. The remaining booth uses automatic, or robotic, application for primer and paint. Hexavalent chromium coatings are used in only one of the 5 booths in "Blades" operations. The two booths in "Test" use manual application coating for testing. All booths have tri-pack fabric filters for particulate control. The filters are replaced when the magnehelic gauge is reading out of P&W's specified	Rule 287(2)(c) (surface coating); Rule 287(2)(d) (powder coating)	Compliance

Rule 287(2)(c) Coating Booths
M. Strickland said that the quantity of coatings used for all equipment operating under Rule 287(2)(c) are determined via monthly measurements on bulk coating drum dipsticks. Each paint booth has a usage chart where the gallons used based on dipstick reading are recorded. I verified that all filters were installed properly. During the 2015 inspection, P&W did not keep records of coating use per each individual coating line. Instead, they recorded coating usage per coating used in order to keep records for meeting the opt-out permit FG-FACILITY limits. Since the 2015 inspection, this has been corrected. M. Strickland provided me with monthly coating use records per booth in each of the 4 plants from November 2017 – October 2018. Records indicate that all booths are maintaining usages under 200 gallons per month. The highest usage was in Plant 4, under their "Test" operations at 66 gallons for November and December 2017. See attached records.

FGFACILITY
Table 1 lists the 12-month rolling (Nov 2017 – Oct 2018) emissions for VOC, Individual HAP, and Aggregate HAP to determine compliance with the 90.0, <9.0, and <22.5 tpy limits, respectively. Attached are the records demonstrating compliance with these limits. Although I requested Nov 2017 – Oct 2018 records, the records also include 12-month rolling periods, starting in December 2016. P&W has demonstrated compliance with the emissions limits for all 12-month rolling periods between December 2016 and October 2018.

Table 1.

12-month Rolling Totals (tons)		
VOC	**Individual HAP**	**Aggregate HAP**
25.1	**All <5.0**	**7.3**

Records Discussion
During the 2015 inspection, P&W was not including their Bulk Solvent usage in the VOC and HAP calculations for FG-FACILITY. I reviewed the records provided for "Bulk Storage Usage and Emissions" in conjunction with snapshots from their July 2018 monthly VOC emission calculations and verified that Bulk Solvent Usage is now included in the emissions reporting under FG-FACILITY.

P&W is required to determine the VOC content, HAP content, water content and density of all coatings and materials using manufacturer's formulation data in lieu of Reference Test Method 24. This was approved by the AQD in 2013. To-date, P&W has only used SDS to determine VOC and HAP contents, because of a misunderstanding of the permit requirements. I explained to M. Strickland that HAP and VOC content determinations and associated emission calculations, must be based on manufacturer's formulation data. I requested that starting January 2019, P&W start calculating emissions using manufacturer's formulation data, and submit both the emissions calculations and manufacturer's formulation data sheets to me by March 1 for January 2019.

The gallons with water of each material/coating used; the VOC content (with and without water); the HAP content (lb/gal or lb/lb) of each coating; and the VOC, individual HAP and aggregate HAP emissions (monthly and 12-month rolling) are required to be kept. M. Strickland provided electronic records that meet all of these requirements. See attached documents for snapshots of each of these types of records.

Inspector's Safety and Health: Safety glasses.

Compliance statement: Pratt and Whitney AutoAir is in compliance with PTI 40-03 at this time.

NAME _____ DATE 1/15/19 SUPERVISOR _____