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

P077443641

FACILITY: Pratt & Whitney		**SRN / ID:** P0774
LOCATION: 1781 Holloway Drive, HOLT		**DISTRICT:** Lansing
CITY: HOLT		**COUNTY:** INGHAM
CONTACT: Michele Strickland , Consultant		**ACTIVITY DATE:** 03/14/2018
STAFF: Michelle Luplow	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** SM OPT OUT
SUBJECT: Scheduled, unannounced inspection to determine compliance with PTI 204-16A. This is the first time this facility has been inspected		
RESOLVED COMPLAINTS:		

Inspected by: Michelle Luplow
Personnel Present: Jim Herrmann, EHS Professional
Michele Strickland, Consultant, Partial EHS manager
Caroline Copeland, Consultant, Partial EHS manager

Purpose: Conduct an unannounced, scheduled, partial compliance evaluation (PCE) inspection by determining compliance with Pratt & Whitney's Permit No. 204-16A, including verification that Pratt & Whitney stayed within the permit's emission limits to remain an opt-out source. This is the first time that this facility, Plant 5 of Pratt & Whitney, has been inspected. This inspection was done as part of a full compliance evaluation (FCE).

Facility Background/Regulatory Overview: Pratt & Whitney (P&W) Plant 5 prepares and coats airplane engine blades. Blades are received and then modified via surface finishing processes which include smoothing, cleaning, priming coating and applying adhesives. This location serves as the "Plant 5" of Pratt & Whitney industry. Plants 1-4 are associated with the A1637 Lansing site.

P&W is an opt-out facility under PTI 204-16A, which was issued January 26, 2018. The entire opt-out permit consists of emission units and their associated flexible groups, in addition to FGFACILITY. See Table 1 for the list of emission units with associated flexible groups. Site-wide VOC's are limited to 89.9 tpy; individual HAP is limited to 8.9 tpy; and aggregate HAP is limited to 22.4 tpy on a 12-month rolling time period. VOCs are also limited to 30.0 tpy for all metal parts coating lines, except for EU-EROSIONCOAT, on a site-wide basis.

PTI 204-16 was issued January 13, 2017 for the entire facility and included all emission units in the current PTI 204-16A, except for EU-MANPRIME (no longer used) and EU-EROSIONCOAT, a new emission unit that is currently being constructed. PTI 204-16A was issued to include EU-EROSIONCOAT, but also to reflect changes to the processes permitted under 204-16: EU-PAA's capacity was increased from 1 cleaning tank, 1 phosphoric acid deoxidizing tank, and 1 rinse tank to 2 cleaning tanks, 2 phosphoric acid deoxidizing tanks, 2 phosphoric acid anodizing tanks, and 7 rinse tanks. The installation of additional tanks also caused the need to increase the air flow rate from this area. M. Strickland said the modification was used to increase the cfm. The updated portion process is currently not running, except for the rinse tanks, because the additional tanks have yet to be filled and the air handling systems need to be adjusted.

Efforts to identify sources of PFAS, PFOS and PFOA throughout the State of Michigan. Although this source is not a chrome plater or other industry that has regulated PFOS use, they do have a metal preparation process (phosphoric acid anodizing line, PAA). Metal preparation processes have been known to utilize fume suppressants, much like chrome platers, which can contain PFAS substances. Michele Strickland, P&W's consultant/partial EHS manager said that they do not use fume suppressants in the PAA line. Additionally, waste water from this unit is sent away to Safety Kleen to be treated, rather than sent to the wastewater treatment plant.

Inspection: At approximately 8:00 a.m. on March 14, 2018, I arrived at P&W. Because of the proprietary nature of P&W's business, visitors must sign in and show proof of citizenship (birth certificate or passport). I provided the receptions with a DEQ "Entry for Inspections" brochure and explained the AQD's legal authority to enter a facility to conduct an inspection. After the receptionist had conversations with Michele Strickland and P&W's EHS Professional, Jim Herrmann, I was allowed access to facility without providing this documentation. Attached is P&W's EHS Requirements for Visitors. I met with Caroline Copeland and J. Herrmann prior to receiving a tour of the facility. I provided them with a January 2017 Permit to Install Exemptions Handbook and we discussed the issues with PFAS-containing fume suppressants. During the tour of the facility, I also met with M. Strickland and briefly with General Manager, Conor Tracey.

Photos are allowed to be taken, but must be turned over to National Security to review them for proprietary reasons before they can be approved for use.

Required Safety Equipment: Safety glasses, hard hat (in construction zones), steel toed footwear, cut-resistant gloves

Table: Emission Units located in Plant 3

Equipment	Description	Install/Modify	Flexible Group
EU-PAA	Phosphoric Acid Anodizing Line to clean and treat metal surfaces 13 tanks: 2 cleaning 2 phosphoric acid deox tanks 2 phosphoric acid anodizing tanks 7 rinse tanks	5-9-17 /TBD	FG-CLEANUP, FG-FACILITY
EU-AUTOPRIME	Metal coating line (robots) 1 booth: 1st primer 1 curing oven 1 booth 2nd primer 1 curing oven Parts coated here after cleaning process	Under construction ETA: late March	FG-CLEANUP, FG-COATING FGFACILITY
EU-FOAMAPP	Polyurethane adhesive applied to bond foam (on blade) Cured in vacuum-sealed bag Located in room with EU-COVERBOND	3-20-17	FG-CLEANUP, FG-BONDANDFINISH, FGFACILITY
EU-COVERBOND	Bonding between blade and body Polyurethane adhesive Cured in vacuum-sealed bag	2/27/17	FG-CLEANUP, FG-BONDANDFINISH FG-FACILITY
EU-LEADEDGEBOND	Adhesive application to bond titanium sheath to the lead edge of the blade Cured in heated/pressurized autoclave	3/20/17	FG-CLEANUP, FG-BONDANDFINISH FG-FACILITY
EU-SHEATHBOND	Adhesive application to bond sheath with blade Cured in heated, pressurized autoclave	2/28/17	FG-CLEANUP, FG-BONDANDFINISH FG-FACILITY
EU-MEDIABLAST	3 manual blast booths 3 robot blast booths Plastic blast media Fabric filter system – vented to in-plant environment	3-2-17; 8-25-17; 10-20-17 / Not Modified	FG-CLEANUP, FG-MEDIA, FG-FACILITY
EU-GAPFILL	Epoxy to fill in gaps from EUCOVERBOND.	3-2-17	FG-CLEANUP, FG-BONDANDFINISH

EU-TAI	Quality Inspection Coating booth for application of films Thermal Acoustic Imaging for inspection of loose bonds/ manually cleaned	3-20-17	FG-CLEANUP FG-COATING FG-FACILITY
EU-LPB	Low Plasticity Burnishing Haas Mills Compression of parts with coolant, parts washed in 2 deionized water washing machines	6-9-17	FG-CLEANUP, FG-BONDANDFINISH FG-FACILITY
EU-SHOTPEEN	2 ceramic blast stations Fabric filters, general in-plant environment ventilation	3-22-17	FG-CLEANUP, FG-MEDIA, FG-FACILITY
EU-SOLGEL	Manual application of bonding promoter to blade root Open-air curing	3-27-17	FG-CLEANUP, FG-BONDANDFINISH FG-FACILITY
EU-PRIMEBOOTH	Manual coating application of metal surfaces 2 natural gas curing ovens	3-27-17	FG-COATING FG-FACILITY
EU-GTWP	Manual application of corrosion protection, adhesives, wax and ground tab. 2 electric cure ovens All activities for this EU conducted in 1 booth	2-20-17	FG-CLEANUP, FG-BONDANDFINISH FG-FACILITY
EU-TEFLON	Manual brush application of Teflon top-coat. Open-air cure Electric oven cure	2-20-17	FG-CLEANUP, FG-BONDANDFINISH FG-FACILITY
EU-BONDPLATSEALS	Application of rubber seal Open-air cure Vented to outside environment	3-27-17	FG-CLEANUP, FG-BONDANDFINISH FG-FACILITY
EU-BLUELIGHT	Quality Inspection & Coating process	3-10-17	FG-CLEANUP,

	Apply developer film to the blade for quality inspections Similar to EUTAI process		FG-COATING FG-FACILITY
EU-PARTMARK	Final inspection/ink-marking of blades	3-10-17	FG-CLEANUP, FG-BONDANDFINISH FG-FACILITY
EU-EMGRICE1	97 hp natural gas-fired emergency engine manufactured in 2013	2-6-14	FG-FACILITY
EU-EROSIONCOAT	Erosion coating line: 6 coating booths – robot HVLP (primer, chemlok, chemglaze) 1Electric IR curing zone, 2 natural gas-fired curing zones 1 electric convection curing zone Cleanup operations RTO control	TBD Plans to completion installation by June 2018 RTO concrete pad has been poured	FG-FACILITY

EU-PAA
Phosphoric Acid Anodizing Line: cleaning, deoxidizing, anodizing and rinsing tanks for treatment of metal surfaces. Flexible Groups include FG-FACILITY and FG-CLEANUP. P&W has not completed the modification that was permitted under PTI 204-16A. The process was not operating during the inspection.

There are currently no Emission Limits, Material Limits, Process/Operational Restrictions, Design/Equipment Parameters, or Testing/Sampling requirements for EU-PAA.

Monitoring/Recordkeeping
P&W is required to maintain a current listing from the manufacturer of the chemical composition of each material including wt% of each component used in EU-PAA. Two chemicals are used in this line: 85% phosphoric acid and a detergent. The detergent does not contain any HAPs or VOCs. The phosphoric acid SDS is attached.

Reporting
Once the modified EU-PAA process has been completely installed, P&W had 30 days from installation completion date to notify AQD. I reminded C. Copeland and J. Herrmann to submit the notification of installation within 30 days of completion.

EU-EMGRICE1
This is a 97 hp natural gas-fired emergency engines used to power emergency lighting and IT equipment in the event of a power outage. Model number is DGNXB06.82NN, manufacture date of 11/6/13. This unit was present onsite prior to P&W obtaining ownership of the site.

Emissions Limits & Process/Operational Restrictions & Monitoring/Recordkeeping
The emission limits for this unit only apply if the engine is non-certified, or if the certified engine is operating in a non-certified manner. NOx + HC emissions are limited to 10 g/hp-hr and CO emissions are limited to 387 g/hp-hr for uncertified engines.

Operating the engine in a certified manner includes operating and maintaining the engine according to manufacturer's emission-related instructions, and only changing the engine settings that are permitted by the manufacturer. P&W is required to keep a copy of the manufacturer's emission-related instructions, in addition to maintenance activities that demonstrate the engine was maintained according to those instructions. M. Strickland provided a photograph of the certification which is on the unit (see attached photo), stating that the engine conforms to US EPA Regulations for 2013 and is certified from the factory to operate on natural gas. She also provided the manufacturer's manual (attached, in part), and 7/17/17 and 2/8/18 maintenance records. Maintenance is conducted by W.W. Williams.

The manufacturer requires that oil and oil filter changes and coolant thermal protection level checks be conducted on an annual basis. Gearbox oil changes; flushing and refill of coolant; coolant, fuel, oil, and air cooling hoses, etc, changes; accessory drive belts; and magnetic pickup cleaning all be conducted every 2 years.

On 7/17/17 the oil and oil filters were changed, the next oil/oil filter changes will be required on or before 7/17/18. The coolant thermal protection level was checked during the 7/17/17 and 2/8/18 maintenance inspections. The next coolant thermal protection level check is required by 2/8/19.

Material Limits
Natural gas is the only fuel permitted to be burned in this engine. Staff have verified that this is a natural gas-fired engine.

Process/Operational Restrictions, Design/Equipment Parameters & Monitoring/Recordkeeping
The engine is limited to 500 operating hours per year (12-month rolling basis) in order to maintain its status as an emergency engine. The "Plant 5 Emergency Generator Hours Tracking Spreadsheet," attached, shows that for the 12-month rolling period from January 2017 – December 2017 there was a total of 31.5 operating hours, meeting the 500-hour limit.

P&W is also restricted to 100 hours per calendar year for maintenance checks and readiness testing and non-emergency operation. The January – December 2017 calendar year maintenance check and readiness testing operating hours was 18.3 hours, and total hours (maintenance checks, readiness testing, non-emergency) was 31.4 hours, within the 100-hour limit. Non-emergency hours are limited to 50 hours per calendar year. For the 2017 calendar year, 13.1 hours were associated with non-emergency operation, within the 50-hour limit.

A nonresettable hours meter is required to be installed. The hours recorded on the 7/17/17 maintenance record was 423.3, and hours recorded on the 2/8/18 maintenance record was 109.1. I contacted P&W who explained that W.W. Williams had entered the wrong client hours onto the PM sheet for 7/17/17, which explains the discrepancy. Attached are both the corrected and uncorrected PM sheets. 7/17/17 operating hours on the engine were 94. Total hours recorded from the nonresettable hours meter on the engine during the inspection was 113.

Testing/Sampling
Testing is only required if the certified engine has been maintained and/or operated in a non-certified manner. At this time it appears that the engines are being operated and maintained according to manufacturer's recommendations, pending the maintenance activities discussed above that are no included on the W. W. Williams maintenance check forms.

Reporting
Reporting is required if the engine has not been certified by the manufacturer, or if the engine is being switched from certified operation to uncertified operation. At this time it appears the engine is being operated and maintained in a certified manner, pending the maintenance activities described above. Therefore at this time, reporting is not necessary.

Stack/Vent Restrictions
The stack height should be at least 4.25 feet from ground level. I verified that the exhaust point, which is not a stack, on the engine is greater than 4.25 feet from ground level, meeting this requirement.

EU-EROSIONCOAT
EU-EROSIONCOAT consists of 6 paint booths (primer & chemlok booths, 4 chemglaze booths) and 3 associated curing ovens (1 electric, 2 natural gas-fired). Emissions from this unit are controlled by an RTO.

At the time of the inspection the emission unit was still under construction. The concrete pad for the RTO has been poured and metal structures are in place.

Compliance with the conditions will be determined at a future inspection.

FG-COATING
EU-PRIMEBOOTH, EU-TAI, EU-AUTOPRIME and EU-BLUELIGHT, under FG-COATING, are used to apply primer to the parts or used for quality control purposes. Because EU-AUTOPRIME installation is not complete, compliance with those requirements associated with EU-AUTOPRIME will not be evaluated at this time.

Emission Limits, Testing/Sampling & Monitoring/Recordkeeping
EU-PRIMEBOOTH, EU-TAI, EUAUTOPRIME and EU-BLUELIGHT are each limited to 2,000 lb VOC/month and 10 tons of VOC per 12-month rolling period. VOC content, water content, and density of each coating used in these emission units are required to be determined using manufacturer's technical data sheets (rather than SDS's); P&W submitted a letter to the AQD January 31, 2017 requesting that manufacturer's technical data sheets be used to determine these contents rather than conduct Method 24 testing. The letter is attached. AQD sent an approval letter in February 2017 clearly stating that formulation data is the only data approved for determining VOC content, water content, and density

Gallons or pounds of each coating used, the VOC content of each material, and VOC mass emission calculations on a

monthly and 12-month rolling basis are required to be recorded. All have been tracked for each emission unit, except for EU-AUTOPRIME, which has not yet been constructed.

I verified density and VOC contents of each coating with respect to how it was reported in P&W's "Chemical Information" spreadsheets for each emission unit, in addition to verifying monthly and 12-month rolling VOC emissions for each coating within each emission unit.

, to ensure that records are kept within compliance to avoid a potential recordkeeping violation in the future

VOC emissions for EU-TAI were underestimated: there is a difference of 0.02 tons for the 12-month rolling period. I will work with P&W to resolve the underestimation.

Acetone emissions from EU-TAI were also underestimated: there is a difference of 0.04 tons for the 12-month rolling period. I will work with P&W to resolve this underestimation.6

Table 1 contains P&W reported emissions, except for those emissions that were underreported. VOC lb/month lists the highest VOC lbs emitted from the 12-month rolling period, with the month of the highest reported VOC's included in parentheses. Corrected values are provided in Table 1.

Table 1. Emissions from FG-COATING per EU for January 2017 – December 2017 Comparison with Limits

Emission Unit	VOC lb/month	VOC Limit (lb/month)	VOC ton 12-month rolling	VOC Limit (ton) 12-month rolling	Acetone (lb) 12-month rolling	Acetone Limit (ton) 12-month rolling
EU-TAI	21.65 (December)	2000	0.07	10	0.04	5.0
EU-PRIMEBOOTH	82.76 (December)		0.27		NA	NA
EU-BLUELIGHT	39.05 (September)		0.06		NA	NA

There are currently no Material Limits for FG-COATING.

Process/Operational Restrictions
All acetone, VOC and HAP-containing waste materials should be stored in closed containers and disposed of in an acceptable manner. During the inspection I did not observe any uncovered waste containers.

Spent filters are required to be disposed of in a manner which minimizes introduction of air contaminants to the outer air. M. Strickland said spent filters with coating particulate are shipped offsite as hazardous waste. They are transferred to waste bins within the facility.

Design/Equipment Parameters
All filters for each emission unit (EU-PRIMEBOOTH, EU-TAI, EU-BLUELIGHT) are required to be installed, maintained and operated in a satisfactory manner. EU-TAI filters were installed, operated and maintained in a satisfactory manner.

EUPRIMEBOOTH's filters are arranged where large flat filters are placed over pocket filters, essentially a double-filter system. Although the flat filters were not covering 100% of the pocket filters, the pocket filters appeared to be installed properly (no gaps between the ventilation ducts and the filters) and therefore are properly installed.

EU-BLUELIGHT has filters at the booth exhaust point, and a HEPA filter further up in the line. The fabric filters inside the booth were not installed properly: there was a gap that the filters did not cover along the top portion of the exhaust, where particulate could easily escape. I made J. Herrmann aware of this who said they would get it fixed. The booth was not in operation at the time that this was observed.

Reporting
Within 30 days after completion of installation of EU-AUTOPRIME, P&W is required to notify the AQD District Supervisor, in writing, of the completion of this activity. I reminded C. Copeland, M. Strickland, and J. Herrmann of this requirement during the inspection.

FG-MEDIA
FG-MEDIA includes the emission units EU-MEDIABLAST and EU-SHOTPEEN. EU-MEDIABLAST consists of 3 manual blast booths and 3 robotic blast booths that all use plastic blast media. EU-SHOTPEEN consists of 2 ceramic blast media stations.

There are currently no Emission Limits, Material Limits, Process/Operational Restrictions, Testing/Sampling Requirements, or Monitoring/Recordkeeping requirements for FG-MEDIA at this time.

Design/Equipment Parameters & Stack/Vent Restrictions
Fabric filter systems are required to be installed, maintained, and operated in a satisfactory manner, and all exhaust from FG-MEDIA are required to be vented only to the general in-plant environment. All exhaust gases from EU-MEDIABLAST and EU-SHOTPEEN are vented to the in-plant environment and captured in a cyclone before being collected in 55-gallon drums and shipped off as non-hazardous waste. I saw no signs of the equipment being operated in an unsatisfactory manner.

FG-CLEANUP
FG-CLEANUP consists of IPA and Acetone clean-up emissions associated with all emission units covered in this permit, except for EU-EMGRICE1 and EU-EROSIONCOAT.

Emission Limits, Testing/Sampling, and Monitoring/Recordkeeping Requirements
On a 12-month rolling basis, VOCs are limited to 40.0 tpy and Acetone is limited to 30.0 tpy for all emission units under FG-CLEANUP combined. VOC content, water content, and density of each clean up material used in these emission units are required to be determined using manufacturer's technical data sheets (rather than SDS's); P&W submitted a letter to the AQD January 31, 2017 requesting that manufacturer's technical data sheets and SDS be used to determine these contents rather than conduct Method 24 testing. The letter is attached. AQD sent an approval letter in February 2017 clearly stating that formulation data is the only data approved for determining VOC content, water content, and density.

Pounds or gallons of acetone and IPA; acetone and IPA content of each material; acetone and VOC monthly emissions per calendar month; and acetone and VOC 12-month rolling tons are required to be recorded. P&W supplied daily usage of each acetone and IPA-containing clean up material used, in addition to monthly and 12-month rolling totals. I verified that dailies totaled up to the monthly and 12-month rolling totals. Table 2 encompasses these emissions. Emissions for both VOC and Acetone are within the permitted limits for FG-CLEANUP.

Table 2. Emissions from FG-CLEANUP for January 2017 – December 2017, Comparison with Limits

Pollutant	VOC 12-month (tpy)	VOC Limit (tpy 12-month)	Acetone 12-month (tpy)	Acetone Limit (tpy 12-month)
VOCs	0.72	40.0	NA	NA
Acetone	NA	NA	0.83	30.0

There are currently no Materials Limits for FG-CLEANUP.

Process/Operational Restrictions
All acetone, VOC and HAP-containing waste materials should be stored in closed containers and disposed of in an acceptable manner. During the inspection I did not observe any uncovered waste containers.

There are currently no Design/Equipment Parameters for FG-CLEANUP.

FG-BONDANDFINISH
FG-BONDANDFINISH includes adhesive processes, and quality control processes. Emission units included in this flexible group are EU-FOAMAPP, EU-COVERBOND, EU-LEADEDGEBOND, EU-SHEATHBOND, EU-GAPFILL, EU-LPB, EU-SOLGEL, EU-GTWP, EU-TEFLON, EU-BONDPLATSEALS, and EU-PARTMARK. This flexible group addresses VOCs from all non-cleanup activities.

Emissions Limits, Testing/Sampling Requirements, & Monitoring/Recordkeeping Requirements
On a 12-month rolling basis, VOC's from non-cleanup operations are limited to 4.5 tpy. VOC content, water content, and density of each clean up material used in these emission units are required to be determined using manufacturer's technical data sheets (rather than SDS's); P&W submitted a letter to the AQD January 31, 2017 requesting that manufacturer's technical data sheets and SDS be used to determine these contents rather than conduct Method 24 testing. The letter is attached. AQD sent an approval letter in February 2017 clearly stating that formulation data is the only data approved for determining VOC content, water content, and density.

Pounds or gallons of each material used; VOC content of each material; VOC monthly emissions per calendar month; and VOC 12-month rolling tons are required to be recorded. P&W supplied daily usage of each VOC-containing material used, in addition to monthly and 12-month rolling VOC emission totals. The 12-month rolling VOC totals for January 2017 – December 2017 was 0.03 tons, much less than the 4.5 ton limit.

There are currently no Material Limits for FG-BONDANDFINISH.

Process/Operational Restrictions
All VOC and HAP-containing waste materials should be stored in closed containers and disposed of in an acceptable manner. During the inspection I did not observe any uncovered waste containers.

There are currently no Design/Equipment Parameters for FG-BONDANDFINISH.

FG-FACILITY
FG-FACILITY covers all process equipment source-wide.

Emission Limits, Testing/Sampling & Monitoring/Recordkeeping
There are VOC and HAP emission limits under FG-FACILITY. Table 3 provides P&W's emissions and the associated limit for each VOC limit. VOC content, water content, and density of each clean up material used in these emission units are required to be determined using manufacturer's technical data sheets (rather than SDS's); P&W submitted a letter to the AQD January 31, 2017 requesting that manufacturer's technical data sheets and SDS be used to determine these contents rather than conduct Method 24 testing. The letter is attached. Per the permit, HAP content is required to be determined from manufacturer's formulation data only. AQD sent an approval letter in February 2017 clearly stating that formulation data is the only data approved for determining VOC content, water content, and density. Table 4 provides P&W's emissions and associated limit for each individual HAP and aggregate HAP.

VOCs that are associated with metal parts coating lines source-wide which are exempted by R 336.1621(10)(b) are strictly all VOC's associated with the coating lines under FGCOATING. Table 3 provides a total of VOCs over all FGCOATING lines. The permit requires records be kept per each coating line and total over all lines, which is how P&W have been keeping their records. If P&W were to install additional paint booths exempt under Rule 287(2)(c) in the future, the VOC contents of the coatings used in each booth would need to be evaluated under Rule 621(1) to ensure that the VOC contents meet what is stipulated in Rule 621(1)(a)-(g). If the VOC contents do not meet Rule 621(1), then the VOC emissions from these booths must be accounted for under the 30.0 tpy limit established under Rule 621(10)(b).

Table 3. VOC Emissions from FG-FACILITY for January 2017 – December 2017, Comparison with Limits

Pollutant	VOC 12-month (tpy)	VOC Limit (tpy 12-month)
VOCs: from FGFACILITY	1.35	89.9
VOCs: All metal parts coating lines source-wide, including metal parts coating lines covered by other permits, which are exempted by R 336.1621(10)(b). This excludes EU-EROSIONCOAT	0.4	30.0

Table 4. Individual and Aggregate HAP Emissions from FG-FACILITY for January 2017 – December 2017, Comparison with Limits

Pollutant	HAP 12-month (tpy)	HAP Limit (tpy 12-month)
4,4-methylene diphenusl diisocyanate (CAS 101-68-8)	0.0017	8.9
Xylene (CAS 1330-20-7)	0.0004	8.9
Ethyl benzene (CAS 100-41-4)	0.004	8.9
Methyl alcohol (CAS 67-56-1)	0.0008	8.9
4-methylpentan-2-one (CAS 108-10-1)	0.0034	8.9
Toluene (CAS 108-88-3)	0.0003	8.9
Chromium compounds	0.032	8.9
Aggregate HAP TOTAL	0.043	22.4

Material Limits & Monitoring/Recordkeeping
P&W has limits on coating usage (excluding coatings used in EU-EROSIONCOAT), IPA usage (excluding IPA used in EU-EROSIONCOAT), and usage in Groups 1-3 of the Bonding/Finishing Materials.

The Material Limits are divided up into those aforementioned 3 categories to demonstrate how each portion of P&W's operations will contribute to the 89.9 tons of VOC. "Coatings" encompasses all coatings used under FG-COATING, and the Bonding/Finishing Materials Groups encompass all adhesives, etc, that are used under FG-BONDANDFINISH.

Coatings (excluding coatings used in EU-EROSIONCOAT) are limited to 9,000 gallons per year. Gallons with water of all coatings used per 12-month rolling time period, as determined at the end of each calendar month are required to be recorded. Total gallons used from January 2017 – December 2017 was 176, within the 9,000-gallon limit.

IPA (excluding that used in EU-EROSIONCOAT and IPA covered under the "Coatings" Material Limit of this flexible group, is limited to 40.0 tpy on a 12-month rolling basis, as determined at the end of each calendar month. IPA content and gallons or pounds of IPA used is required to be recorded.

According to P&W's FG-FACILITY records, the 12-month rolling IPA usage from January – December 2017 is 0.7 tons, within the 40.0 ton limit.

Bonding/Finishing Materials in Groups 1-3 are defined as follows, from the Permit Section Evalform for PTI 204-16 by Permit Engineer Dave Thompson:

> "There are thee groupings of bonding / finishing materials that will be grouped together into operational limits. One group with VOC contents from 0.0 – 0.01 lb/lb; one group with VOC contents from 0.02-0.3 lb/lb, and 0.31 – 1.0 lb/lb. Each of these groups has a maximum VOC content and usage limit that, when combined with the IPA and coating 205 limits, equals slightly less than 89.9 tpy."

Furthermore, P&W has provided me a list of coatings that fall within each group. Table 5 encompasses these materials, including the P&W name for the material (actual material names are proprietary) and the Group number.

Table 5. Materials and Associated Groups

Chemical Name used in Air Permit	Group
Coating	0
epoxy/blue adhesive	0
semi conductive grey bonding adhesive	0
epoxy/blue adhesive	0
chemglaze	1
Johnson Paste Release Wax	1
ink jet marking ink	1
ink jet marking solvent	1
Sol Gel	2
Sol Gel	2
Sol Gel	2
chemglaze	2
teflon	2
teflon	2
RTV Silicone	2
polyurethane	2

polyurethane	2
polyurethane	2
polyurethane	2
polyurethane	2
teflon	2
teflon	2
polyurethane	2
polyurethane	2
polyurethane	2
PMC Adhesive Mixed	3
PMC Part A	3
PMC Part B	3
PMC Adhesive Mixed Parts A & B	3
PMC Part A	3
PMC Part B	3
Adhesive (Parts A & B)	3
Purple Adhesive	3
Adhesive	3
Adhesive Test Panel	3
Precut Adhesive	3
Adhesive Test Panel	3
Adhesive	3
epoxy/blue adhesive Mixed	3
epoxy/blue adhesive Part A	3
epoxy/blue adhesive Part B	3
Teflon Part B	3

Group 1 materials are limited to 4,750 lb/year. Group 2 materials are limited to 10,000 lbs. Group 3 materials are limited to 100,000 lbs/year. Gallons of each coating used in each category are required to be kept per month and 12-month rolling period. According to P&W records, there has been no Group 1 material usage. For January 2017 – December 2017, Group 2 and 3 usages were 243 lbs, and 29 lbs, respectively.

There are currently no Process/Operational Restrictions, Design/Equipment Parameters, Stack/Vent Restrictions or Reporting requirements for FG-FACILITY.

Inspector's Safety and Health: Safety glasses, hard hat, high-vis vest, steel-toed boots. P&W will provide gloves for hand protection.

Compliance statement: Pratt and Whitney AutoAir is in compliance at this time. I will follow-up with them on maintenance activities for the emergency engine; VOC content determinations using manufacturer's formulation data rather than SDS; ensuring that gallon usage is totaled on a monthly basis; and request performance testing on the destruction and capture efficiency for the control of EU-EROSIONCOAT.

NAME Nicholas Lyons DATE 4/19/18 SUPERVISOR