



DEPARTMENT ORDER

**Raytheon Technologies Corporation  
 Pratt & Whitney  
 York County  
 North Berwick, Maine  
 A-453-71-V-A**

**Departmental  
 Findings of Fact and Order  
 Air Emission License  
 Amendment #2**

**FINDINGS OF FACT**

After review of the air emission license amendment application, staff investigation reports, and other documents in the applicant’s file in the Bureau of Air Quality, pursuant to 38 Maine Revised Statutes (M.R.S.) § 344 and § 590, the Maine Department of Environmental Protection (Department) finds the following facts:

**I. REGISTRATION**

A. Introduction

Pratt & Whitney (P&W) was issued Air Emission License A-453-71-T-R/A on January 3, 2013, for the operation of emission sources associated with the manufacture and repair of aircraft engine parts. The license was subsequently amended on June 29, 2021 (A-453-71-U-A).

P&W has requested an amendment to their license in order to add two new natural gas-fired emergency generators, and to remove three existing emergency generators.

The equipment addressed in this license amendment is located at 113 Wells St, North Berwick, Maine.

B. Emission Equipment

The following equipment is addressed in this air emission license amendment:

**Stationary Engines**

<b>Equipment</b>	<b>Max. Input Capacity (MMBtu/hr)</b>	<b>Rated Output Capacity (HP)</b>	<b>Fuel Type, % sulfur</b>	<b>Firing Rate</b>	<b>Date of Manuf.</b>	<b>Date of Install.</b>
Emergency Generator #7	3.43	460	Natural gas, negligible	3,426 scf/hr	2018	2022
Emergency Generator #8	3.43	460	Natural gas, negligible	3,426 scf/hr	2022	2022
<i>Emergency Generator #2*</i>	<i>1.0</i>	<i>140</i>	<i>Distillate fuel, 0.0015%</i>	<i>7.04 gal/hr</i>	<i>1979</i>	<i>Unknown</i>

Equipment	Max. Input Capacity (MMBtu/hr)	Rated Output Capacity (HP)	Fuel Type, % sulfur	Firing Rate	Date of Manuf.	Date of Install.
<i>Emergency Generator #3*</i>	0.9	130	<i>Distillate fuel, 0.0015%</i>	6.5 gal/hr	1979	<i>Unknown</i>
<i>Emergency Generator #4*</i>	0.6	80	<i>Natural gas, negligible</i>	536 scf/hr	1963	<i>Unknown</i>

\*Unit removed from license.

C. Application Classification

All rules, regulations, or statutes referenced in this air emission license refer to the amended version in effect as of the date this license was issued.

The modification of a minor source is considered a major or minor modification based on whether or not expected emission increases exceed the “Significant Emission” levels as defined in the Department’s *Definitions Regulation*, 06-096 Code of Maine Rules (C.M.R.) ch. 100. The emission increases are determined by subtracting the current licensed annual emissions preceding the modification from the maximum future licensed annual emissions, as follows:

Pollutant	Current License (TPY)	Future License (TPY)	Net Change (TPY)	Significant Emission Levels
PM	1.9	1.9	0.0	100
PM <sub>10</sub>	1.9	1.9	0.0	100
SO <sub>2</sub>	1.6	1.6	0.0	100
NO <sub>x</sub>	23.5	23.1	-0.4	100
CO	16.2	16.1	-0.1	100
VOC	24.9	24.9	0.0	50*

\*P&W is located in an area of the state included in the Ozone Transport Region. Therefore, the significant emission level for VOC is 50 tpy.

This modification is determined to be a minor modification and has been processed as such.

D. Facility Classification

With the annual fuel limit on the boilers, the facility wide VOC limit, and the operating hours restriction on the emergency generators, the facility is licensed as follows:

- As a synthetic minor source of air emissions, because P&W is subject to license restrictions that keep facility emissions below major source thresholds for criteria pollutants; and

- As an area source of hazardous air pollutants (HAP), because the licensed emissions are below the major source thresholds for HAP.

## II. BEST PRACTICAL TREATMENT (BPT)

### A. Introduction

In order to receive a license, the applicant must control emissions from each unit to a level considered by the Department to represent Best Practical Treatment (BPT), as defined in *Definitions Regulation*, 06-096 C.M.R. ch. 100. Separate control requirement categories exist for new and existing equipment.

BPT for new sources and modifications requires a demonstration that emissions are receiving Best Available Control Technology (BACT), as defined in *Definitions Regulation*, 06-096 C.M.R. ch. 100. BACT is a top-down approach to selecting air emission controls considering economic, environmental, and energy impacts.

### B. Emergency Generators #7 and #8

P&W has proposed the installation of two new emergency generators designated Emergency Generator #7 and Emergency Generator #8. The emergency generators are generator sets with each gen set consisting of an engine and an electrical generator. The emergency generators each have an engine rated at 3.43 MMBtu/hr which fires natural gas. The emergency generators were manufactured in 2018 and 2022, respectively. Both Emergency Generator #7 and Emergency Generator #8 are equipped with a three-way catalyst for the control of NO<sub>x</sub>, CO, and VOC emissions.

#### 1. BACT Findings

The BACT emission limits for the generators are based on the following:

PM/PM <sub>10</sub>	- 0.0095 lb/MMBtu from AP-42 table 3.2-3 dated 7/00
SO <sub>2</sub>	- 0.000588 lb/MMBtu from AP-42 table 3.2-3 dated 7/00
NO <sub>x</sub>	- 0.044 g/hp-hr from manufacturer
CO	- 0.263 g/hp-hr from manufacturer
VOC	- 0.043 g/hp-hr from manufacturer
Visible Emissions	- 06-096 C.M.R. ch. 101

The BACT emission limits for the generators are the following:

Unit	PM (lb/hr)	PM <sub>10</sub> (lb/hr)	SO <sub>2</sub> (lb/hr)	NO <sub>x</sub> (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Emergency Generator #7	0.03	0.03	0.002	0.04	0.27	0.04
Emergency Generator #8	0.03	0.03	0.002	0.04	0.27	0.04

Visible emissions from each of the emergency generators shall not exceed 10% opacity on a six-minute block average basis.

## 2. Chapter 169

*Stationary Generators*, 06-096 C.M.R. ch. 169 (Chapter 169), is applicable to Emergency Generators #7 and #8. They are both emergency generators powered by engines with a rated output of less than 1,000 brake horsepower (747 kW). Chapter 169 identifies emission standards for generator engines subject to this chapter and stack height requirements for certain generator engines subject to this chapter.

For Emergency Generators #7 and #8, P&W shall comply with Chapter 169 emission standards for emergency generators by complying with the applicable standards contained in 40 C.F.R. Part 60, Subpart JJJJ. [06-096 C.M.R. ch. 169, § 4(B)(1)]

Chapter 169 stack height requirements apply to any stack used to exhaust any generator engine or combination of generator engines with a combined rated output equal to or greater than 1,000 brake horsepower (747 kilowatts). Emergency Generator #7 and Emergency Generator #8 are each below this threshold level and will exhaust through separate stacks.

## 3. New Source Performance Standards

*Standards of Performance for Spark Ignition Internal Combustion Engines*, 40 C.F.R. Part 60, Subpart JJJJ is applicable to the emergency engines listed above since the units were ordered after June 12, 2006, and manufactured after January 1, 2009. [40 C.F.R. § 60.4230] By meeting the requirements of 40 C.F.R. Part 60, Subpart JJJJ, the units also meet the requirements found in the *National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*, 40 C.F.R. Part 63, Subpart ZZZZ. [40 C.F.R. § 63.6590(c)]

A summary of the currently applicable federal 40 C.F.R. Part 60, Subpart JJJJ requirements is listed below.

a. Emergency Engine Designation and Operating Criteria

Under 40 C.F.R. Part 60, Subpart JJJJ, a stationary reciprocating internal combustion engine (ICE) is considered an emergency stationary ICE (emergency engine) as long as the engine is operated in accordance with the following criteria. Operation of an engine outside of the criteria specified below may cause the engine to no longer be considered an emergency engine under 40 C.F.R. Part 60, Subpart JJJJ, resulting in the engine being subject to requirements applicable to non-emergency engines.

(1) Emergency Situation Operation (On-Site)

**There is no operating time limit on the use of an emergency engine to provide electrical power or mechanical work during an emergency situation.** Examples of use of an emergency engine during emergency situations include the following:

- Use of an engine to produce power for critical networks or equipment (including power supplied to portions of a facility) because of failure or interruption of electric power from the local utility (or the normal power source, if the facility runs on its own power production);
- Use of an engine to mitigate an on-site disaster;
- Use of an engine to pump water in the case of fire, flood, natural disaster, or severe weather conditions; and
- Similar instances.

(2) Non-Emergency Situation Operation

An emergency engine may be operated up to a maximum of 100 hours per calendar year for maintenance checks, readiness testing, and other non-emergency situations as described below.

- (i) An emergency engine may be operated for a maximum of 100 hours per calendar year for maintenance checks and readiness testing, provided that the tests are recommended by federal, state, or local government; the manufacturer; the vendor; the regional transmission organization or equivalent balancing authority and transmission operator; or the insurance company associated with the engine. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or

local standards require maintenance and testing of emergency ICE more than 100 hours per calendar year.

- (ii) An emergency engine may be operated for up to 50 hours per calendar year for other non-emergency situations. **However, these operating hours are counted as part of the 100 hours per calendar year operating limit described in paragraph (2) and (2) (i) above.**

The 50 hours per calendar year operating limit for other non-emergency situations cannot be used for peak shaving, demand response, or to generate income for a facility by providing power to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

[40 C.F.R. §§ 60.4243(d) and 60.4248]

b. 40 C.F.R. Part 60, Subpart JJJJ Requirements

(1) Manufacturer Certification Requirement

The engines shall be certified by the manufacturer as meeting the emission standards for new nonroad spark ignition engines found in 40 C.F.R. Part 60, Subpart JJJJ, Table 1. [40 C.F.R. § 60.4233] P&W has provided copies of the manufacturer certification to the Department.

(2) Non-Resettable Hour Meter Requirement

A non-resettable hour meter shall be installed and operated on each engine. [40 C.F.R. § 60.4237]

(3) Operation and Maintenance Requirement

The engines shall be operated and maintained according to the manufacturer's written instructions or procedures developed by P&W that are approved by the engine manufacturer. P&W may only change those settings that are permitted by the manufacturer. [40 C.F.R. § 60.4243]

(4) Annual Time Limit for Maintenance and Testing

As emergency engines, the units shall each be limited to 100 hours/year for maintenance and testing. The emergency engines may operate up to 50 hours per year in non-emergency situations, but those 50 hours are included in the 100 hours total allowed for maintenance and testing. The 50 hours for non-emergency use cannot be used for peak shaving or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity. [40 C.F.R. § 60.4243(d)]

(5) Recordkeeping

P&W shall keep records that include maintenance conducted on the engines and the hours of operation of each engine recorded through the non-resettable hour meter. Documentation shall include the number of hours each unit operated for emergency purposes, the number of hours each unit operated for non-emergency purposes, and the reason each engine was in operation during each time. [40 C.F.R. § 60.4245(b)]

C. Annual Emissions

The table below provides an estimate of facility-wide annual emissions for the purposes of calculating the facility's annual air license fee and establishing the facility's potential to emit (PTE). Only licensed equipment is included, i.e., emissions from insignificant activities are excluded. Similarly, unquantifiable fugitive particulate matter emissions are not included except when required by state or federal regulations. Maximum potential emissions were calculated based on the following assumptions:

- Firing 230,000,000 scf/yr natural gas in the boilers;
- Operating each Generator and Fire Pump for 100 hrs/yr;
- Operating the Pyrolysis Ovens for 8,760 hr/yr.

This information does not represent a comprehensive list of license restrictions or permissions. That information is provided in the Order section of this license.

**Total Licensed Annual Emissions for the Facility**

**Tons/year**

(used to calculate the annual license fee)

	PM	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>x</sub>	CO	VOC
Boilers	1.0	1.0	0.1	11.6	9.8	0.7
Emergency Generators and Fire Pumps (excluding Emergency Generators #6, #7, and #8)	0.1	0.1	0.1	0.7	0.2	0.1
Emergency Generator #6	0.1	0.1	0.1	0.1	0.1	0.1
Emergency Generator #7	--	--	--	--	--	--
Emergency Generator #8	--	--	--	--	--	--
Emissions from process equipment including nitric acid, ceramic coating areas, & adhesive bonding stations	0.5	0.5	1.1	7.4	4.5	23.7
Pyrolysis Ovens #1-#3	0.1	0.1	0.1	2.0	0.4	0.1
Pyrolysis Oven #4	0.1	0.1	0.1	1.3	1.1	0.2
<b>Total TPY</b>	<b>1.9</b>	<b>1.9</b>	<b>1.6</b>	<b>23.1</b>	<b>16.1</b>	<b>24.9</b>

Pollutant	Tons/year
Single HAP	9.9
Total HAP	24.9

### III. AMBIENT AIR QUALITY ANALYSIS

The level of ambient air quality impact modeling required for a minor source is determined by the Department on a case-by case basis. In accordance with 06-096 C.M.R. ch. 115, an ambient air quality impact analysis is not required for a minor source if the total licensed annual emissions of any pollutant released do not exceed the following levels and there are no extenuating circumstances:

Pollutant	Tons/Year
PM <sub>10</sub>	25
SO <sub>2</sub>	50
NO <sub>x</sub>	50
CO	250

The total licensed annual emissions for the facility are below the emission levels contained in the table above and there are no extenuating circumstances; therefore, an ambient air quality impact analysis is not required as part of this license amendment.

This determination is based on information provided by the applicant regarding the expected construction and operation of the proposed emission units. If the Department determines that any parameter (e.g., stack size, configuration, flow rate, emission rates, nearby structures, etc.) deviates from what was included in the application, the Department may require P&W to submit additional information and may require an ambient air quality impact analysis at that time.

### ORDER

Based on the above Findings and subject to conditions listed below, the Department concludes that the emissions from this source:

- will receive Best Practical Treatment,
- will not violate applicable emission standards, and
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants Air Emission License Amendment A-453-71-V-A subject to the conditions found in Air Emission License A-453-71-T-R/A, in amendment A-453-71-U-A, and the following conditions.



Severability. The invalidity or unenforceability of any provision of this License Amendment or part thereof shall not affect the remainder of the provision or any other provisions. This License Amendment shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.

**SPECIFIC CONDITIONS**

**The following shall replace Specific Condition (22) of Air emission License A-453-71-T-R/A (January 3, 2013):**

**(22) Emergency Generators #1 and #5**

- A. Each of Emergency Generators #1 and #5 shall be limited to 100 hours of operation per calendar year, excluding operating hours during emergency situations. [06-096 C.M.R. ch. 115, BPT]
- B. The fuel sulfur content for Emergency Generators #1 and #5 shall be limited to 0.0015% sulfur by weight. Compliance shall be demonstrated by fuel delivery receipts from the supplier, fuel supplier certification, certificate of analysis, or testing of the tank containing the fuel to be fired. [06-096 C.M.R. ch. 115, BPT]
- C. Emissions shall not exceed the following, based on the largest generator operating at 1.0 MMBtu/hr [06-096 C.M.R. ch. 115, BPT]:

Unit	PM (lb/hr)	PM <sub>10</sub> (lb/hr)	SO <sub>2</sub> (lb/hr)	NO <sub>x</sub> (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Generator	0.12	0.12	0.1	4.4	1.0	0.4

**D. Visible Emissions**

Visible emissions from each of the emergency generators shall not exceed 20% opacity on a six-minute block average basis except for periods of startup during which time P&W may comply with the following work practice standards in lieu of the numerical visible emissions standard. [06-096 C.M.R. ch. 101, § 3(A)(4)]

- 1. Maintain a log (written or electronic) of the date, time, and duration of all generator startups.
- 2. Operate the generators in accordance with the manufacturer's emission-related operating instructions.
- 3. Minimize the engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not

to exceed 30 minutes, after which time the non-startup emission limitations shall apply.

4. Operate the generators, including any associated air pollution control equipment, at all times in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Department that may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the unit.
- E. Emergency Generators #1 and #5 shall each meet the applicable requirements of 40 C.F.R. Part 63, Subpart ZZZZ, including the following:  
[incorporated under 06-096 C.M.R. chs. 115, BPT]
1. P&W shall meet the following operational limitations for each of the compression ignition emergency engines:
    - a. Change the oil and filter every 500 hours of operation or annually, whichever comes first;
    - b. Inspect the air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; and
    - b. Inspect the hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.

Records shall be maintained documenting compliance with the operational limitations.

[40 C.F.R. § 63.6603(a) and Table 2(d); and 06-096 C.M.R. ch. 115]

2. Oil Analysis Program Option  
P&W has the option of utilizing an oil analysis program which complies with the requirements of § 63.6625(i) in order to extend the specified oil change requirement. If this option is used, P&W must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for each engine. The analysis program must be part of the maintenance plan for each engine. [40 C.F.R. § 63.6625(i)]
3. Non-Resettable Hour Meter  
A non-resettable hour meter shall be installed and operated on each engine. [40 C.F.R. § 63.6625(f)]

4. Maintenance, Testing, and Non-Emergency Operating Situations

- a. As emergency engines, the units shall each be limited to 100 hours/year for maintenance checks and readiness testing. Up to 50 hours/year of the 100 hours/year may be used in non-emergency situations (this does not include peak shaving, demand response, or to generate income for a facility by providing power to an electric grid or otherwise to supply power as part of a financial arrangement with another entity). These limits are based on a calendar year. Compliance shall be demonstrated by records (electronic or written logs) of all engine operating hours. [40 C.F.R. § 63.6640(f) and 06-096 C.M.R. ch. 115]
- b. P&W shall keep records that include maintenance conducted on the engines and the hours of operation of each engine recorded through the non-resettable hour meter. Documentation shall include the number of hours each unit operated for emergency purposes, the number of hours each unit operated for non-emergency purposes, and the reason each engine was in operation during each time. [40 C.F.R. §§ 63.6655(e) and (f)]

5. Operation and Maintenance

The engines shall be operated and maintained according to the manufacturer's emission-related written instructions, or P&W shall develop a maintenance plan which provides to the extent practicable for the maintenance and operation of each engine in a manner consistent with good air pollution control practice for minimizing emissions. [40 C.F.R. § 63.6625(e)]

6. Startup Idle and Startup Time Minimization

During periods of startup, the facility must minimize each engine's time spent at idle and minimize each engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes. [40 C.F.R. § 63.6625(h) & 40 C.F.R. Part 63, Subpart ZZZZ Table 2d]

**The following is a new condition to Air Emission License A-453-71-T-R/A (January 3, 2013):**

**(33) Emergency Generators #7 and #8**

- A. Each of the emergency generators shall be limited to 100 hours of operation per calendar year, excluding operating hours during emergency situations.  
[06-096 C.M.R. ch. 115, BACT]

B. Emissions shall not exceed the following:

Unit	Pollutant	lb/MMBtu	Origin and Authority
Emergency Generator #7	PM	0.0095	06-096 C.M.R. ch. 115, BACT
Emergency Generator #8	PM	0.0095	06-096 C.M.R. ch. 115, BACT

C. Emissions shall not exceed the following [06-096 C.M.R. ch. 115, BACT]:

Unit	PM (lb/hr)	PM <sub>10</sub> (lb/hr)	SO <sub>2</sub> (lb/hr)	NO <sub>x</sub> (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Emergency Generator #7	0.03	0.03	0.002	0.04	0.27	0.04
Emergency Generator #8	0.03	0.03	0.002	0.04	0.27	0.04

D. Visible Emissions

Visible emissions from each of the emergency generators shall not exceed 10% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 115, BACT]

E. The Emergency Generators shall meet the applicable requirements of 40 C.F.R. Part 60, Subpart JJJJ, including the following:  
 [incorporated under 06-096 C.M.R. ch. 115, BACT]

1. Manufacturer Certification

The engines shall be certified by the manufacturer as meeting the emission standards for new nonroad spark ignition engines found in 40 C.F.R. Part 60, Subpart JJJJ, Table 1.

2. Non-Resettable Hour Meter

A non-resettable hour meter shall be installed and operated on each engine. [40 C.F.R. § 60.4237 and 06-096 C.M.R. ch. 115, BACT]

3. Annual Time Limit for Maintenance and Testing

a. As emergency engines, the units shall each be limited to 100 hours/year for maintenance checks and readiness testing. Up to 50 hours/year of the 100 hours/year may be used in non-emergency situations (this does not include peak shaving, demand response, or to generate income for a facility by providing

power to an electric grid or otherwise supply power as part of a financial arrangement with another entity). The limits are based on a calendar year. Compliance shall be demonstrated by records (electronic or written log) of all engine operating hours. [40 C.F.R. § 60.4243(d) and 06-096 C.M.R. ch. 115, BACT]

- b. P&W shall keep records that include maintenance conducted on the engines and the hours of operation of each engine recorded through the non-resettable hour meter. Documentation shall include the number of hours each unit operated for emergency purposes, the number of hours each unit operated for non-emergency purposes, and the reason each engine was in operation during each time. [40 C.F.R. § 60.4245(b)]

4. Operation and Maintenance

Each engine shall be operated and maintained according to the manufacturer's written instructions or procedures developed by P&W that are approved by the engine manufacturer. P&W may only change those settings that are permitted by the manufacturer. [40 C.F.R. § 60.4243]

DONE AND DATED IN AUGUSTA, MAINE THIS 10<sup>th</sup> DAY OF NOVEMBER, 2022.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY:  for  
MELANIE LOYZIM, COMMISSIONER

**The term of this amendment shall be concurrent with the term of Air Emission License A-453-71-T-R/A.**

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: June 9, 2022

Date of application acceptance: June 17, 2022

Date filed with the Board of Environmental Protection:

This Order prepared by Benjamin Goundie, Bureau of Air Quality.

