



STATE OF CONNECTICUT  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF AIR MANAGEMENT

NEW SOURCE REVIEW PERMIT  
TO CONSTRUCT AND OPERATE  
A STATIONARY SOURCE

Issued pursuant to Title 22a of the Connecticut General Statutes and Section 22a-174-3a of the Regulations of Connecticut State Agencies.

Owner/Operator: Hamilton Sundstrand Corporation  
Address: One Hamilton Road, Windsor Locks, CT 06096  
Equipment Location: One Hamilton Road, Windsor Locks, CT 06096  
Equipment Description: Test Cell E. Test Cell for the testing of propeller systems and controls on Allison T56A-427 and comparably sized turbo prop engines fueled by Jet A, JP-4, JP-5, JP-8 and comparably formulated aviation turbine fuels

Permit Number: 0047  
Town/Premises Numbers: 213/02  
Original Permit Issue Date: 07/9/1999  
Revision/Modification Issue Date: 10/03/03  
Expiration Date: NONE

Arthur J. Rocque, Jr.

10/03/03

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Arthur J. Rocque, Jr.  
Commissioner

\_\_\_\_\_  
Date

**PERMIT FOR FUEL BURNING EQUIPMENT**

**STATE OF CONNECTICUT, DEPARTMENT OF ENVIRONMENTAL PROTECTION  
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The conditions on all pages of this permit and attached appendices shall be verified at all times except those noted as design specifications. Design specifications need not be verified on a continuous basis; however, if requested by the Commissioner, demonstration of compliance shall be shown.

**PART I. OPERATIONAL CONDITIONS**

1. Fuel Type(s): Jet A, JP-4, JP-5, JP-8 and comparably formulated aviation turbine fuels
2. Maximum Fuel Consumption over any Consecutive Twelve (12) Month Period: 217,000 gallons combined
3. Maximum Fuel Sulfur Content (% by weight, dry basis): 0.3
4. Maximum Daily Fuel Consumption:
 

May 1 through September 30:	<u>7000 gallons</u>	;
All other days:	<u>7800 gallons</u>	.

*Design Specifications*

1. Maximum Fuel Firing Rate(s): 325 gallons per hour
2. Minimum Stack Height (ft): 47
3. Minimum Exhaust Gas Flow Rate (acfm): 26,700
4. Stack Exit Temperature (°F): 300
5. Minimum Distance from Stack to Property Line (ft): 602

**PART II. MONITORING, REPORTING AND RECORD KEEPING REQUIREMENTS**

1. The Permittee shall keep records of annual fuel consumption. Annual fuel consumption shall be based on any consecutive twelve (12) month time period and shall be determined by adding (for each fuel) the current month's fuel usage to that of the previous eleven (11) months. The Permittee shall make these calculations monthly.
2. The Permittee shall keep records of daily fuel consumption.
3. The Permittee shall use a fuel metering device to continuously monitor fuel feed to this permitted source.
4. Each oil fuel shipment for this equipment shall include a shipping receipt from the fuel supplier and a certification from the fuel supplier certifying the type of fuel in the shipment and the weight percent of sulfur in the fuel. The shipping receipt and/or certification shall include the name of the oil supplier, the sulfur content of the oil and the method used to determine the sulfur content of the oil. The Permittee shall maintain records of each shipping receipt and certification.

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EQUIPMENT LOCATION: One Hamilton Road, Windsor Locks, CT 06096  
EQUIPMENT DESCRIPTION (MODEL, I.D. #): Test Cell E

Town No: 213

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**PART II. MONITORING, REPORTING AND RECORD KEEPING REQUIREMENTS, cont.**

5. The Permittee shall keep records on premise indicating continual compliance with all above conditions at all times and shall make them available upon request by the Commissioner. Such records shall be maintained for a period of at least five (5) years from the making of such record.

**PART III. ALLOWABLE EMISSION LIMITS**

The Permittee shall not exceed the emission limits stated herein at any time.

<u>Criteria Pollutants</u>	<u>#/hr</u>	<u>#/MMBtu</u>	<u>TPY</u>
TSP	3.84	0.09	1.28
PM-10	3.84	0.09	1.28
SOx	13.70		4.57
NOx	12.57		4.20
VOC	14.95		5.00
CO	10.63		3.55
Pb	0.00254		0.0008

This source shall not exceed the Maximum Allowable Stack Concentrations for any pollutant listed in Section 22a-174-29 of the Regulations.

This source shall not emit visible air pollutants of a shade or density equal to or darker than twenty (20) percent opacity over any five consecutive minutes.

Demonstration of compliance with the above emission limits shall be met by calculating the emission rates using emission factors from the following sources:

1. TSP, VOC, CO: AIRS dated March 1990 for SCC Code 20400102 Aircraft Engine Testing (turboshaft). Factor for TSP is given as 11.8 pounds per 1000 gallons burned. VOC factor is 46.0 lbs/1000 gallons burned. CO factor is 32.7 lbs/1000 gallons burned.
2. SOx: EPA FIRE version 6.2 and maximum sulfur content of 0.3% for an emission factor of 42 pounds per 1000 gallons burned.

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**PART III. ALLOWABLE EMISSION LIMITS, continued:**

3. NOx: EPA and DOT "Joint Report to Congress on the EPA-DOT Study of Nitrogen Oxide Emissions and their Control from Uninstalled Aircraft Engines in Enclosed Test Cells", dated September 1994, Table 3-4 "Predicted Emission Characteristics for a Turboprop/Turboshaft Model Test Cell", maximum factor of 5.5 lbs/thousand pounds of fuel, density of 845 kg/m<sup>3</sup>. Note that 1 gallon= 3.785 dm<sup>3</sup> and 1000 dm<sup>3</sup> =1 m<sup>3</sup>.
4. Pb: AP-42 section 3.1 "Stationary Gas Turbines for Electricity Generation", dated 10/96, Table 3.1-4, Trace Element Emission Factors for Distillate Oil-Fired Turbines (SCC 2-01-001-01). Factor is given as 5.8e-5 pounds per MMBtu. Assume 0.135 MMBtu/gallon unless otherwise documented.

The above statements shall not preclude the Commissioner from requiring other means (e.g. stack testing) to demonstrate compliance with the above emission limits, as allowed by state or federal statute, law or regulation.

**PART IV. SPECIAL REQUIREMENTS**

1. The Permittee shall operate and maintain this equipment in accordance with the manufacturer's specifications and written recommendations.
2. *Noise*

The Permittee shall operate this facility at all times in a manner so as not to violate or contribute significantly to the violation of any applicable state noise control regulations, as set forth in Sections 22a-69-1 through 22a-69-7.4 of the Regulations of Connecticut State Agencies.

**PART V. ADDITIONAL TERMS AND CONDITIONS**

- A. This permit does not relieve the Permittee of the responsibility to conduct, maintain and operate the regulated activity in compliance with all applicable requirements of any federal, municipal or other state agency. Nothing in this permit shall relieve the Permittee of other obligations under applicable federal, state and local law.

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**PART V. ADDITIONAL TERMS AND CONDITIONS, continued:**

- B.** Any representative of the DEP may enter the Permittee's site in accordance with constitutional limitations at all reasonable times without prior notice, for the purposes of inspecting, monitoring and enforcing the terms and conditions of this permit and applicable state law.
- C.** This permit may be revoked, suspended, modified or transferred in accordance with applicable law.
- D.** This permit is subject to and in no way derogates from any present or future property rights or other rights or powers of the State of Connecticut and conveys no property rights in real estate or material, nor any exclusive privileges, and is further subject to any and all public and private rights and to any federal, state or local laws or regulations pertinent to the facility or regulated activity affected thereby. This permit shall neither create nor affect any rights of persons or municipalities who are not parties to this permit.
- E.** Any document, including any notice, which is required to be submitted to the Commissioner under this permit shall be signed by a duly authorized representative of the Permittee and by the person who is responsible for actually preparing such document, each of whom shall certify in writing as follows: "I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that any false statement made in the submitted information may be punishable as a criminal offense under section 22a-175 of the Connecticut General Statutes, under section 53a-157b of the Connecticut General Statutes, and in accordance with any applicable statute."
- F.** Nothing in this permit shall affect the Commissioner's authority to institute any proceeding or take any other action to prevent or abate violations of law, prevent or abate pollution, recover costs and natural resource damages, and to impose penalties for violations of law, including but not limited to violations of this or any other permit issued to the Permittee by the Commissioner.
- G.** Within fifteen days of the date the Permittee becomes aware of a change in any information submitted to the Commissioner under this permit, or that any such information was inaccurate or misleading or that any relevant information was omitted, the Permittee shall submit the correct or omitted information to the Commissioner.

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- H.** The date of submission to the Commissioner of any document required by this permit shall be the date such document is received by the Commissioner. The date of any notice by the Commissioner under this permit, including but not limited to notice of approval or disapproval of any document or other action, shall be the date such notice is personally delivered or the date three days after it is mailed by the Commissioner, whichever is earlier. Except as otherwise specified in this permit, the word "day" means calendar day. Any document or action which is required by this permit to be submitted or performed by a date which falls on a Saturday, Sunday or legal holiday shall be submitted or performed by the next business day thereafter.
- I.** Any document required to be submitted to the Commissioner under this permit shall, unless otherwise specified in writing by the Commissioner, be directed to: Office of Director; Compliance & Field Operations Division; Bureau of Air Management; Department of Environmental Protection; 79 Elm Street, 5th Floor; Hartford, Connecticut 06106-5127.

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