

**STAFF DETERMINATION FOR THE APPLICATION TO CONSTRUCT
UNDER THE PREVENTION OF SIGNIFICANT DETERIORATION REGULATIONS
FOR GE AIRCRAFT ENGINES - PEEBLES
ADAMS COUNTY, OHIO**

PTI NUMBER

07-00549

JULY 26 , 2005

Ohio Environmental Protection Agency
Division of Air Pollution Control
Lazarus Government Center
122 South Front Street
Columbus, Ohio 43215

The Clean Air Act and regulations promulgated thereunder require that major air pollution sources undergoing construction or modification comply with all applicable Prevention of Significant Deterioration (PSD) provisions and nonattainment area New Source Review requirements. The federal PSD rules govern emission increases in attainment areas for major stationary sources, which are facilities with the potential to emit 250 tons per year or more of any pollutant regulated under the Clean Air Act, or 100 tons per year or more if the source is included in one of 28 source categories. In nonattainment areas, the definition of major stationary source is one having at least 100 tons per year potential emissions. A major modification is one resulting in a contemporaneous net increase in emissions which exceeds the significance level of one or more pollutants. Any changes in actual emissions within this five-year period are considered to be contemporaneous. In addition, Ohio has incorporated the PSD and NSR requirements by rule under OAC 3745-31, and currently has a program that is fully approved by USEPA.

Both PSD and nonattainment rules require that certain analyses be performed before a facility can obtain a permit authorizing construction of a new source or major modification to a major source. The principal requirements of the PSD regulations are:

- 1) Best Available Control Technology (BACT) review - A detailed engineering review must be performed to ensure that BACT is being installed for the pollutants for which the new source is a major source.
- 2) Ambient Air Quality Review - An analysis must be completed to ensure the continued maintenance of the National Ambient Air Quality Standards (NAAQS) and that any increases in ambient air pollutant concentrations do not exceed the incremental values set pursuant to the Clean Air Act.

For nonattainment areas, the requirements are:

- 1) Lowest Achievable Emissions Rate (LAER) - New major sources must install controls that represent the lowest emission levels (highest control efficiency) that has been achieved in practice.
- 2) The emissions from the new major source must be offset by a reduction of existing emissions

of the same pollutant by at least the same amount, and a demonstration must be made that the resulting air quality shows a net air quality benefit. This is more completely described in the Emission Offset Interpretative Ruling as found in Appendix S of 40 CFR Part 51.

- 3) The facility must certify that all major sources owned or operated in the state by the same entity are either in compliance with the existing State Implementation Plan (SIP) or are on an approved schedule resulting in full compliance with the SIP.

For rural ozone nonattainment areas, the requirements are:

- 1) LAER - New major sources must install controls that represent the lowest emissions levels (highest control efficiency) that has been achieved in practice.
- 2) The facility must certify that all major sources owned or operated in the state by the same entity are either in compliance with the existing SIP or are on an approved schedule resulting in full compliance with the SIP.

Finally, New Source Performance Standards (NSPS), SIP emission standards and public participation requirements must be followed in all cases.

Site Description

The General Electric (GE) Aircraft Engines - Peebles test facility is located in far southern Ohio, near Peebles (Adams County). Under Section 107 of the Clean Air Act, the U.S. EPA has classified the Peebles area as attainment for all criteria pollutants: sulfur dioxide (SO₂), nitrogen oxides (NO_x), carbon monoxide (CO), ozone (O₃), lead (Pb), and Particulate Matter less than ten and less than 2.5 microns in diameter (PM₁₀ and PM_{2.5}). The surrounding counties are designated attainment for all criteria pollutants, except PM_{2.5}. Monroe and Sprigg Townships within Adams County are also designated nonattainment for PM_{2.5}.

Facility Description

The GE jet engine test facility is a major stationary source that has been in existence for a number of years. They operate several commercial turbine jet engine test stands located outside in the open air, for the purpose of product evaluations that simulate actual conditions. This is the first proposed new unit at the facility in a number of years, and it is planned for the testing of a new engine for military application in a jet fighter.

The methodology that was developed and utilized in the last PSD permit for determining source impacts is being used in this new application. In addition, the same type of operational and emissions tracking system described in the earlier test stand permits to restrict the source as a Synthetic Minor, has been utilized in this new permit to install.

New Source Review (NSR)/PSD Applicability

The operational restrictions and allowable emissions levels included in the permit effectively limit potential emissions. Therefore, PSD review is not applicable for SO₂, VOC or for particulates (PM₁₀ or PM_{2.5}), based upon the permit restricted allowable emissions level, and applying USEPA guidance that instructs states to use current new source review rules and PM₁₀ as the surrogate pollutant for PM_{2.5}.

Pollutants that trigger PSD review are NO_x and CO. The increase is above the 40 ton per year and

100 ton per year significance levels, respectively for modifications. Other pollutants are restricted to less than the significant levels for review.

Requirements of the MACT standard for jet engine test cells/stands, Subpart P, will not apply to this type of facility (exempt due to being a new or reconstructed affected source located at a major source).

TABLE 1

PRELIMINARY POLLUTANT EMISSION RATES
NEW GE-PEEBLES TEST STAND SITE 7

Pollutant	Ton/yr Allowable	Tons/yr Increase	Tons/yr PSD Threshold
PM ₁₀ /PM _{2.5} and TSP	2.76	2.76	15 and 25
Nitrogen Oxides	797.2	797.2	40
Carbon Monoxide	164.3	164.3	100
Sulfur Dioxide	23.2	23.2	40
Volatile Organic Compounds	13.0	13.0	40
Lead	NA	NA	0.6

Control Technology Review

The emissions units are composed of a stand to horizontally mount an engine and support facilities that include a control room, fuel supply, monitoring, sensory and recording devices for evaluating engine performance and calculating air emissions during an engine test. Other equipment is on site to simulate various conditions that aircraft engines encounter in an actual flight.

This new stand is being designed to accommodate the new JSF military engine, as well as the current large commercial GE aircraft engine. Engines are run through a test cycle in which they are operated at various power loads to test the performance (levels include take-off, 85% power, 30% power and ground idle, plus maximum afterburner for JSF).

The test stands do not operate continuously, as extensive time is required for set-up, evaluation of results and de-mobilization. Potential to emit levels are being based on the worst case engine for each pollutant. Permit allowable emissions are based upon the maximum expected operating hours at each test cycle level. Short-term, pounds per hour, rates for each level for NO_x, CO, and HC/VOC emissions are being supplied by the manufacturers. SO₂ and PM₁₀ were calculated from fuel flows and AP-42 factors.

The US Congress included, within the 1990 CAAA, a mandate to study the feasibility of controlling NO_x emissions from jet engine testing. The USEPA/FAA study, "Joint Report to Congress - Study of NO_x Emissions and Their Control from Uninstalled Aircraft Engines in Enclosed Test Cells (9/94)," concluded that no technically feasible controls are available for this type of source.

In developing the MACT standard, Subpart P, USEPA evaluated HAP control measures at existing engine test cells and stands. Some of these technologies are also CO control measures, and some of the factors effecting technical feasibility for HAPs would apply for NO_x and CO. USEPA found that no existing test stands at major sources are equipped with emission control technologies, and no control was determined to be the MACT floor.

The RBLC review also yielded no add-on control for the jet engine test stands and similar sources permitted in the Clearinghouse. For their PSD application in 1994, GE evaluated many NO_x and CO control technologies in support of the application for four new open air test cells. No control technologies for NO_x or CO were found to be technically feasible, and there have not been any real changes in the field since that time. Therefore, BACT has been determined to be no add-on control for NO_x and CO emissions.

Background Ambient Air Quality Monitoring

Ambient air quality monitoring data were employed to represent pollutant background concentrations due to regional and minor emission sources. A representative NO₂ annual background value of 16.0 ug/m³ was based on 1994 monitored data collected on-site as part of a previous PSD permit. Carbon monoxide values of 1,035 ug/m³ (1-hour) and 762 ug/m³ (8-hour) were based on 1994 monitored data collected on-site. More recent ambient data collected at sites throughout Ohio were evaluated for trends and a decreasing trend in ambient CO and NO₂ concentrations were shown. Therefore, these on-site concentrations are considered to be representative and conservative.

Modeling Analysis

AERMOD (version 04079) was used to evaluate ambient impacts from the proposed units and the other sources included in the modeling analyses. Emission rate profiles and source characterizations for these non traditional sources are consistent with the approach developed during the previous PSD permit.

Air quality analyses were performed for determining increment consumption and attainment of the ambient air quality standards. The site is situated in Peebles, Ohio. For modeling purposes the study area is considered rural.

The emissions of NO₂ and CO were modeled using the one year of available on-site meteorological data, which was collected as part of the previous PSD permit, to determine whether the project emissions will have a significant impact on air quality. The initial model runs indicated that the project would have significant impact for both CO and NO₂.

The PSD increment for NO₂ is 25 ug/m³. There are no PSD increments for CO. The results of modeling the increment consuming sources were compared to the PSD increment. The maximum impact due to Test site 7 was 10.7 ug/m³ (annual). The contribution of test site 7 to the peak overall increment consumption was 3.4 ug/m³. The current total increment consumed is 24.8 ug/m³.

As a policy, Ohio EPA allows PSD sources to consume up to half the available increment, with certain exceptions. The current project does consume just 50% of the remaining available increment. Based upon this analysis, the project would comply with the Ohio EPA increment policy and the U.S EPA PSD increment. The final increment concentration does, though, indicate that this facility has constrained future growth. Currently, the increment analyses have not incorporated any increment expanding changes that may have occurred at the facility.

NAAQS Demonstration

The one year of available on-site meteorological data (1994-1995) was modeled using AERMOD, (version 04079). The predicted maximum annual modeled concentration for NO₂ was 29.5 ug/m³. Adding a background concentration of 16.0 ug/m³, the total worst case impact was 46 ug/m³, which is below the NAAQS of 100 ug/m³.

The maximum predicted CO 8-hour concentration within the modeling domain was 5,702 ug/m³, including a background concentration of 762 ug/m³. The maximum predicted CO 1-hour concentration within the modeling domain was 19,338 ug/m³, including a background concentration of 1,035 ug/m³. These are below 8-hour and 1-hour NAAQS of 10,000 ug/m³ and 40,000 ug/m³, respectively.

PSD Ambient Monitoring

GE has previously collected on-site ambient CO and NO₂ data. Ambient monitoring was conducted at two sites adjacent to the Peebles facility for both NO₂ and CO. These data were accepted as adequate to represent existing ambient air quality and were also used as background values in the air quality modeling analyses.

Toxics Analysis

The primary pollutants from this source are CO and NO_x. HAPs emissions from jet engine test cells/stands have been evaluated in development of the MACT standard, Subpart P. This source is subject to this MACT, however no actual requirements will apply. Due to the applicability of MACT, no further air toxics evaluation is specified for the PTI.

Additional/Secondary Impact Analysis

Any increase in current facility operations due to installation of this new test stand are expected to have minimal or no impact on local population growth, and no new ancillary operations in the area surrounding the Peebles test facility are anticipated.

NO_x and CO do not have additional secondary ambient air quality standards. Since predicted concentrations are below the NAAQS, no significant adverse impacts to soil or vegetation are expected. No impact on visibility in the nearest Class 1 area is expected due to its large distance away, which is beyond the normal evaluation range.

Conclusions

Based upon the analysis of the application and its supporting documentation provided by GE, the Ohio EPA staff has determined that the increase in emissions will comply with all applicable State and Federal environmental regulations and that the requirements for BACT are satisfied. The ambient air quality dispersion modeling indicates that the primary and secondary standards will be met. Therefore, Ohio EPA staff recommends that a permit to install be issued for the new jet engine test stand, Site 7, in Adams County, Ohio.

Synthetic Minor Determination and/or Netting Determination
Permit To Install 07-00549

A. Source Description

General Electric Aircraft Engines (GEAE) is proposing to install a new turbine engine test stand (Site 7) which will be designed and configured to conduct testing of the new Joint Strike Fighter (JSF) F136 military aircraft engine. Site 7 will also be capable of testing large commercial aircraft turbine engines.

B. Facility Emissions and Attainment Status

GEAE is located in Adams County near Peebles, which is an attainment area for all criteria pollutants (two townships in Adams County, Monroe and Sprigg, are classified as nonattainment for Particulate Matter less than 2.5 microns). This facility is an existing major stationary source with potential emissions greater than 250 tons per year for Nitrogen Oxides (NOx) and Carbon Monoxide (CO). The facility is also classified as a major source under the Title V program, due to NAAQS pollutant emissions over 100 tons/yr, and over 10 tons/yr single and 25 tons/yr combined HAPs.

C. Source Emissions

Potential annual emissions of Carbon Monoxide (CO) and Nitrogen Oxides (NOx) from the proposed Site 7 test stand exceed the PSD significant emissions increase thresholds of 100 tons/yr and 40 tons/yr, for the criteria pollutants CO and NOx, respectively. GEAE proposes to restrict the potential annual emissions of the criteria pollutants SO2, PM10, and VOC to less than applicable PSD thresholds through use of the emissions tracking procedure outlined in their "Emissions Protocol Document" (reviewed and approved by the Portsmouth Local Air Agency May 19, 2005).

D. Conclusion

The proposed new potential emissions, based upon federally enforceable operating restrictions, from the installation of Site 7 test stand are less than PSD significant levels for SO2, VOC, Lead, and PM10. However, emissions of NOx and CO are over the PSD significant levels requiring PSD review.



State of Ohio Environmental Protection Agency

**RE: DRAFT PERMIT TO INSTALL
ADAMS COUNTY**

CERTIFIED MAIL

Street Address:

Lazarus Gov. Center TELE: (614) 644-3020 FAX: (614) 644-2329

Mailing Address:

Lazarus Gov.
Center

Application No: 07-00549

Fac ID: 0701000001

DATE: 7/26/2005

G.E. Aircraft Engines-Peebles Test
Sam Young
1200 Jaybird Road
Peebles, OH 45660

You are hereby notified that the Ohio Environmental Protection Agency has made a draft action recommending that the Director issue a Permit to Install for the air contaminant source(s) [emissions unit(s)] shown on the enclosed draft permit. This draft action is not an authorization to begin construction or modification of your emissions unit(s). The purpose of this draft is to solicit public comments on the proposed installation. A public notice concerning the draft permit will appear in the Ohio EPA Weekly Review and the newspaper in the county where the facility will be located. Public comments will be accepted by the field office within 30 days of the date of publication in the newspaper. Any comments you have on the draft permit should be directed to the appropriate field office within the comment period. A copy of your comments should also be mailed to Robert Hodanbosi, Division of Air Pollution Control, Ohio EPA, P.O. Box 1049, Columbus, OH, 43266-0149.

A Permit to Install may be issued in proposed or final form based on the draft action, any written public comments received within 30 days of the public notice, or record of a public meeting if one is held. You will be notified in writing of a scheduled public meeting. Upon issuance of a final Permit to Install a fee of **\$1250** will be due. Please do not submit any payment now.

The Ohio EPA is urging companies to investigate pollution prevention and energy conservation. Not only will this reduce pollution and energy consumption, but it can also save you money. If you would like to learn ways you can save money while protecting the environment, please contact our Office of Pollution Prevention at (614) 644-3469. If you have any questions about this draft permit, please contact the field office where you submitted your application, or Mike Ahern, Field Operations & Permit Section at (614) 644-3631.

Sincerely,

Michael W. Ahern, Manager
Permit Issuance and Data Management Section
Division of Air Pollution Control

CC: USEPA

PCHD

KY

WV

ADAMS COUNTY

PUBLIC NOTICE
OHIO ENVIRONMENTAL PROTECTION AGENCY
ISSUANCE OF DRAFT PERMIT TO INSTALL
SUBJECT TO PREVENTION OF SIGNIFICANT DETERIORATION REVIEW
TO GENERAL ELECTRIC AIRCRAFT ENGINES

Public notice is hereby given that the Ohio Environmental Protection Agency (EPA) has issued, on July 26, 2005, a draft action of Permit to Install (PTI) application number 07-00549 to General Electric Aircraft Engines, Peebles, Ohio. This draft permit proposes to allow the installation of one new jet engine test stand at the facility located at 1200 Jaybird Road, Peebles, Ohio 45660.

Air emissions of several pollutants will result. The proposed allowable criteria pollutant air emission rates for the new source are listed below, in tons per year.

<u>Pollutant</u>	<u>Tons/yr</u>
PM	2.76
NOx	797.2
CO	164.3
SO2	23.2
VOC	13.0

This facility is subject to the applicable provisions of the federal Prevention of Significant Deterioration (PSD) regulations (40 CFR 52.21) and the Ohio Administrative Code (OAC) rules 3745-31-10 through 31-27.

The U.S. EPA allows sources to consume no more than the maximum available ambient PSD increment(s) for each PSD pollutant. Proposed new sources also can not cause or significantly contribute to violations of the national ambient air quality standard (NAAQS). The Ohio EPA allows PSD sources to consume not more than one half of the remaining available increment, with some exceptions. In this case, the impact of this source does not exceed 50 percent of the remaining available NOx increment. There is no PSD increment for CO, but Ohio EPA limits individual project impacts to one quarter of the NAAQS. This facility has also met that requirement. This facility has demonstrated that the NO₂ and CO impacts from the new source are protective of the PSD increments and do not cause or significantly contribute to violations of the NAAQS. Based on this analysis, the project complies with both the federal and state modeling requirements.

Within 30 days from the date of this notice, any interested party may submit comments or request a public hearing. Comments are to be sent to Cindy Charles, Portsmouth City Health Department, 605 Washington Street, Portsmouth, Ohio, 45662.

Further information concerning this application, which is available for public inspection, may be secured from Cindy Charles, Portsmouth City Health Department at the above address, telephone number 740-353-5156, during normal business hours.



**Permit To Install
Terms and Conditions**

**Issue Date: To be entered upon final issuance
Effective Date: To be entered upon final issuance**

DRAFT PERMIT TO INSTALL 07-00549

Application Number: 07-00549
Facility ID: 0701000001
Permit Fee: **To be entered upon final issuance**
Name of Facility: G.E. Aircraft Engines-Peebles Test
Person to Contact: Sam Young
Address: 1200 Jaybird Road
Peebles, OH 45660

Location of proposed air contaminant source(s) [emissions unit(s)]:
**1200 Jaybird Road
Peebles, Ohio**

Description of proposed emissions unit(s):
G.E. will install a new test stand to test aircraft engines.

The above named entity is hereby granted a Permit to Install for the above described emissions unit(s) pursuant to Chapter 3745-31 of the Ohio Administrative Code. Issuance of this permit does not constitute expressed or implied approval or agreement that, if constructed or modified in accordance with the plans included in the application, the above described emissions unit(s) of environmental pollutants will operate in compliance with applicable State and Federal laws and regulations, and does not constitute expressed or implied assurance that if constructed or modified in accordance with those plans and specifications, the above described emissions unit(s) of pollutants will be granted the necessary permits to operate (air) or NPDES permits as applicable.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency

Director

A. State and Federally Enforceable Permit-To-Install General Terms and Conditions

1. Monitoring and Related Recordkeeping and Reporting Requirements

- a. Except as may otherwise be provided in the terms and conditions for a specific emissions unit, the permittee shall maintain records that include the following, where applicable, for any required monitoring under this permit:
 - i. The date, place (as defined in the permit), and time of sampling or measurements.
 - ii. The date(s) analyses were performed.
 - iii. The company or entity that performed the analyses.
 - iv. The analytical techniques or methods used.
 - v. The results of such analyses.
 - vi. The operating conditions existing at the time of sampling or measurement.
- b. Each record of any monitoring data, testing data, and support information required pursuant to this permit shall be retained for a period of five years from the date the record was created. Support information shall include, but not be limited to, all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. Such records may be maintained in computerized form.
- c. Except as may otherwise be provided in the terms and conditions for a specific emissions unit, the permittee shall submit required reports in the following manner:
 - i. Reports of any required monitoring and/or recordkeeping of federally enforceable information shall be submitted to the appropriate Ohio EPA District Office or local air agency.
 - ii. Quarterly written reports of (i) any deviations from federally enforceable emission limitations, operational restrictions, and control device operating parameter limitations, excluding deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06, that have been detected by the testing, monitoring and recordkeeping requirements specified in this permit, (ii) the probable cause of such deviations, and (iii) any corrective actions or preventive measures taken, shall be made to the appropriate Ohio EPA District Office or local air agency. The written

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reports shall be submitted (i.e., postmarked) quarterly, by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. See B.8 below if no deviations occurred during the quarter.

- iii. Written reports, which identify any deviations from the federally enforceable monitoring, recordkeeping, and reporting requirements contained in this permit shall be submitted (i.e., postmarked) to the appropriate Ohio EPA District Office or local air agency every six months, by January 31 and July 31 of each year for the previous six calendar months. If no deviations occurred during a six-month period, the permittee shall submit a semi-annual report, which states that no deviations occurred during that period.
 - iv. If this permit is for an emissions unit located at a Title V facility, then each written report shall be signed by a responsible official certifying that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete.
- d. The permittee shall report actual emissions pursuant to OAC Chapter 3745-78 for the purpose of collecting Air Pollution Control Fees.

2. Scheduled Maintenance/Malfunction Reporting

Any scheduled maintenance of air pollution control equipment shall be performed in accordance with paragraph (A) of OAC rule 3745-15-06. The malfunction, i.e., upset, of any emissions units or any associated air pollution control system(s) shall be reported to the appropriate Ohio EPA District Office or local air agency in accordance with paragraph (B) of OAC rule 3745-15-06. (The definition of an upset condition shall be the same as that used in OAC rule 3745-15-06(B)(1) for a malfunction.) The verbal and written reports shall be submitted pursuant to OAC rule 3745-15-06.

Except as provided in that rule, any scheduled maintenance or malfunction necessitating the shutdown or bypassing of any air pollution control system(s) shall be accompanied by the shutdown of the emission unit(s) that is (are) served by such control system(s).

3. Risk Management Plans

If the permittee is required to develop and register a risk management plan pursuant to section 112(r) of the Clean Air Act, as amended, 42 U.S.C. 7401 et seq. ("Act"), the

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permittee shall comply with the requirement to register such a plan.

4. Title IV Provisions

If the permittee is subject to the requirements of 40 CFR Part 72 concerning acid rain, the permittee shall ensure that any affected emissions unit complies with those requirements. Emissions exceeding any allowances that are lawfully held under Title IV of the Act, or any regulations adopted thereunder, are prohibited.

5. Severability Clause

A determination that any term or condition of this permit is invalid shall not invalidate the force or effect of any other term or condition thereof, except to the extent that any other term or condition depends in whole or in part for its operation or implementation upon the term or condition declared invalid.

6. General Requirements

- a. The permittee must comply with all terms and conditions of this permit. Any noncompliance with the federally enforceable terms and conditions of this permit constitutes a violation of the Act, and is grounds for enforcement action or for permit revocation, revocation and re-issuance, or modification
- b. It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the federally enforceable terms and conditions of this permit.
- c. This permit may be modified, revoked, or revoked and reissued, for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or revocation, or of a notification of planned changes or anticipated noncompliance does not stay any term and condition of this permit.
- d. This permit does not convey any property rights of any sort, or any exclusive privilege.
- e. The permittee shall furnish to the Director of the Ohio EPA, or an authorized representative of the Director, upon receipt of a written request and within a reasonable time, any information that may be requested to determine whether cause exists for modifying or revoking this permit or to determine compliance with this permit. Upon request, the permittee shall also furnish to the Director or an authorized representative of the Director, copies of records required to be kept by this permit. For information claimed to be confidential in the submittal to the Director, if the Administrator of the U.S. EPA requests such information, the permittee may furnish such records directly to the Administrator along with a claim of confidentiality.

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7. Fees

The permittee shall pay fees to the Director of the Ohio EPA in accordance with ORC section 3745.11 and OAC Chapter 3745-78. The permittee shall pay all applicable permit-to-install fees within 30 days after the issuance of any permit-to-install. The permittee shall pay all applicable permit-to-operate fees within thirty days of the issuance of the invoice.

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8. Federal and State Enforceability

Only those terms and conditions designated in this permit as federally enforceable, that are required under the Act, or any its applicable requirements, including relevant provisions designed to limit the potential to emit of a source, are enforceable by the Administrator of the U.S. EPA and the State and by citizens (to the extent allowed by section 304 of the Act) under the Act. All other terms and conditions of this permit shall not be federally enforceable and shall be enforceable under State law only.

9. Compliance Requirements

- a. Any document (including reports) required to be submitted and required by a federally applicable requirement in this permit shall include a certification by a responsible official that, based on information and belief formed after reasonable inquiry, the statements in the document are true, accurate, and complete.
- b. Upon presentation of credentials and other documents as may be required by law, the permittee shall allow the Director of the Ohio EPA or an authorized representative of the Director to:
 - i. At reasonable times, enter upon the permittee's premises where a source is located or the emissions-related activity is conducted, or where records must be kept under the conditions of this permit.
 - ii. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit, subject to the protection from disclosure to the public of confidential information consistent with ORC section 3704.08.
 - iii. Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit.
 - iv. As authorized by the Act, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit and applicable requirements.
- c. The permittee shall submit progress reports to the appropriate Ohio EPA District Office or local air agency concerning any schedule of compliance for meeting an applicable requirement. Progress reports shall be submitted semiannually, or

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more frequently if specified in the applicable requirement or by the Director of the Ohio EPA. Progress reports shall contain the following:

- i. Dates for achieving the activities, milestones, or compliance required in any schedule of compliance, and dates when such activities, milestones, or compliance were achieved.
- ii. An explanation of why any dates in any schedule of compliance were not or will not be met, and any preventive or corrective measures adopted.

10. Permit-To-Operate Application

- a. If the permittee is required to apply for a Title V permit pursuant to OAC Chapter 3745-77, the permittee shall submit a complete Title V permit application or a complete Title V permit modification application within twelve (12) months after commencing operation of the emissions units covered by this permit. However, if the proposed new or modified source(s) would be prohibited by the terms and conditions of an existing Title V permit, a Title V permit modification must be obtained before the operation of such new or modified source(s) pursuant to OAC rule 3745-77-04(D) and OAC rule 3745-77-08(C)(3)(d).
- b. If the permittee is required to apply for permit(s) pursuant to OAC Chapter 3745-35, the source(s) identified in this permit is (are) permitted to operate for a period of up to one year from the date the source(s) commenced operation. Permission to operate is granted only if the facility complies with all requirements contained in this permit and all applicable air pollution laws, regulations, and policies. Pursuant to OAC Chapter 3745-35, the permittee shall submit a complete operating permit application within ninety (90) days after commencing operation of the source(s) covered by this permit.

11. Best Available Technology

As specified in OAC Rule 3745-31-05, all new sources must employ Best Available Technology (BAT). Compliance with the terms and conditions of this permit will fulfill this requirement.

12. Air Pollution Nuisance

The air contaminants emitted by the emissions units covered by this permit shall not cause a public nuisance, in violation of OAC rule 3745-15-07.

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13. Permit-To-Install

A permit-to-install must be obtained pursuant to OAC Chapter 3745-31 prior to "installation" of "any air contaminant source" as defined in OAC rule 3745-31-01, or "modification", as defined in OAC rule 3745-31-01, of any emissions unit included in this permit.

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B. State Only Enforceable Permit-To-Install General Terms and Conditions

1. Compliance Requirements

The emissions unit(s) identified in this Permit shall remain in full compliance with all applicable State laws and regulations and the terms and conditions of this permit.

2. Reporting Requirements

The permittee shall submit required reports in the following manner:

- a. Reports of any required monitoring and/or recordkeeping of state-only enforceable information shall be submitted to the appropriate Ohio EPA District Office or local air agency.
- b. Except as otherwise may be provided in the terms and conditions for a specific emissions unit, quarterly written reports of (a) any deviations (excursions) from state-only required emission limitations, operational restrictions, and control device operating parameter limitations that have been detected by the testing, monitoring, and recordkeeping requirements specified in this permit, (b) the probable cause of such deviations, and (c) any corrective actions or preventive measures which have been or will be taken, shall be submitted to the appropriate Ohio EPA District Office or local air agency. If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted (i.e., postmarked) quarterly, by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. (These quarterly reports shall exclude deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06.)

3. Permit Transfers

Any transferee of this permit shall assume the responsibilities of the prior permit holder. The appropriate Ohio EPA District Office or local air agency must be notified in writing of any transfer of this permit.

4. Authorization To Install or Modify

If applicable, authorization to install or modify any new or existing emissions unit included in this permit shall terminate within eighteen months of the effective date of

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the permit if the owner or operator has not undertaken a continuing program of installation or modification or has not entered into a binding contractual obligation to undertake and complete within a reasonable time a continuing program of installation or modification. This deadline may be extended by up to 12 months if application is made to the Director within a reasonable time before the termination date and the party shows good cause for any such extension.

5. Construction of New Sources(s)

This permit does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. This permit does not constitute expressed or implied assurance that the proposed facility has been constructed in accordance with the application and terms and conditions of this permit. The action of beginning and/or completing construction prior to obtaining the Director's approval constitutes a violation of OAC rule 3745-31-02. Furthermore, issuance of this permit does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. Issuance of this permit is not to be construed as a waiver of any rights that the Ohio Environmental Protection Agency (or other persons) may have against the applicant for starting construction prior to the effective date of the permit. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed facilities cannot meet the requirements of this permit or cannot meet applicable standards.

6. Public Disclosure

The facility is hereby notified that this permit, and all agency records concerning the operation of this permitted source, are subject to public disclosure in accordance with OAC rule 3745-49-03.

7. Applicability

This Permit to Install is applicable only to the emissions unit(s) identified in the Permit To Install. Separate application must be made to the Director for the installation or modification of any other emissions unit(s).

8. Construction Compliance Certification

If applicable, the applicant shall provide Ohio EPA with a written certification (see enclosed form if applicable) that the facility has been constructed in accordance with the permit-to-install application and the terms and conditions of the permit-to-install.

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The certification shall be provided to Ohio EPA upon completion of construction but prior to startup of the source.

9. Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations (See Section A of This Permit)

If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted quarterly (i.e., postmarked), by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters.

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C. Permit-To-Install Summary of Allowable Emissions

The following information summarizes the total allowable emissions, by pollutant, based on the individual allowable emissions of each air contaminant source identified in this permit.

SUMMARY (for informational purposes only)
TOTAL PERMIT TO INSTALL ALLOWABLE EMISSIONS

<u>Pollutant</u>	<u>Tons Per Year</u>
NOx	797.2
CO	164.3
SO2	23.2
PE/PM 10	2.76
HC/VOC	13.0

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Part II - FACILITY SPECIFIC TERMS AND CONDITIONS

A. State and Federally Enforceable Permit To Install Facility Specific Terms and Conditions

I. PSD REQUIREMENTS

The source described in this Permit to Install is subject to the applicable provisions of the Prevention of Significant Deterioration (PSD) regulations as promulgated by the United States Environmental Protection Agency 40 CFR 52.21 and as set forth in Part III of this permit. The authority to apply and enforce the federal PSD regulations are now incorporated into Ohio's State Implementation Plan for New Source Review and is part of the Ohio Administrative Code Chapter 31 regulations.

B. State Only Enforceable Permit To Install Facility Specific Terms and Conditions

None

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Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

- 1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>
F014 - Jet engine test stand 7 for testing the JSF engine and/or the GE-90 115B aircraft engine (fugitive emissions only source)	OAC rule 3745-31-05(A)(3)
	OAC rule 3745-31-05(C)
	OAC rule 3745-21-08(B)
	OAC 3745-23-06(B)
	OAC rules 3745-31-(10) through (20)
	OAC rule 3745-18-06(E)(2)

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	Applicable Emissions Limitations/Control Measures	
	Particulate Emissions	shall not exceed 3113.4 lbs/hr; 0.56 lb/gal and 797.2 tons/yr as a rolling, 12-month summation.
40 CFR Part 63, Subpart P	(PE)/Particulate Emissions less than ten microns (PM 10) shall not exceed 18.2 lbs/hr.	Carbon Monoxide (CO) emissions shall not exceed 850 lbs/hr; 0.056 lb/gal and 164.3 tons/yr as a rolling, 12-month summation.
PPPPP	Sulfur dioxide (SO ₂) emissions shall not exceed 153.2 lbs/hr.	See section A.I.2.a below.
	Hydrocarbon (HC)/ Volatile Organic Compounds (VOC) emissions shall not exceed 33.8 lbs/hr. (See A.I.2.e below).	See section A.I.2.b below. See section A.I.2.c below.
	Visible fugitive particulate emissions shall not exceed 10% opacity as a 6-minute average in any 60-minute observation period.	The SO ₂ emission limitation specified by this rule is less stringent than the SO ₂ emission limitations established pursuant to OAC rule 3745-31-05(A)(3).
	Compliance with this rule also includes compliance with OAC rule 3745-31-(10) through (20) and OAC rule 3745-31-05(C).	See section A.I.2.d below.
	PE/ PM 10 shall not exceed 2.76 tons/yr as a rolling, 12-month summation.	
	SO ₂ emissions shall not exceed 23.2 tons/yr as a rolling , 12-month summation.	
	HC/VOC emissions shall not exceed 13.0 tons/yr as a rolling, 12-month summation (See A.I.2.e below).	
	Nitrogen oxides (NO _x) emissions	

2. Additional Terms and Conditions

2.a The Best Available Control Technology (BACT) for NO_x and CO is based upon design emissions levels, and no additional controls are technically feasible for jet engine test stands.

2.b The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established pursuant to this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the State regulations. However, that rule revision has not yet been submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP). Therefore, until the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" still exists as part of the federally-approved SIP for Ohio.

2.c The permittee has satisfied the "best available control techniques and operating practices" and "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06 by committing to comply with the best available technology requirements established pursuant to this Permit to Install.

2.d In accordance with 40 CFR Part 63.9290(d), new or reconstructed engine test cells/stands located at a major source which is used exclusively for testing combustion turbine engines, do not have to meet the requirements of 40 CFR Part 63, Subpart P and of 40 CFR Part 63, Subpart A.

2.e Hydrocarbons for the purpose of this permit are defined as any compounds which contain only hydrogen and carbon.

II. Operational Restrictions

1. The data capture rate for the operating parameters in section A.III.1.a shall be no less than 95%.
2. The maximum annual source operation and emissions rates (based upon fuel flow and emissions factors) for PE/PM₁₀, HC/VOC, and SO₂ from this emissions unit shall not exceed 2.76, 13.00, and 23.20 tons per year respectively, based upon a rolling, 12-month summation of the operating data and emission rates.

To ensure enforceability during the first 12 calendar months of operation or the first 12 calendar months following the issuance of this permit, the permittee shall not exceed the emission levels specified in the following table:

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<u>Month(s)</u>	<u>Maximum Allowable Allowable Cumulative Emissions Emissions of PE/PM10 (Tons)</u>	<u>Maximum Allowable Cumulative Emissions of HC/VOC(Tons)</u>	<u>Maximum Cumulative of SO2 (Tons)</u>
1	0.23	1.08	1.93
1-2	0.46	2.17	3.86
1-3	0.69	3.25	5.79
1-4	0.92	4.33	7.73
1-5	1.15	5.41	9.65
1-6	1.38	6.50	11.58
1-7	1.61	7.58	13.51
1-8	1.84	8.66	15.44
1-9	2.07	9.75	17.37
1-10	2.30	10.83	19.30
1-11	2.53	11.91	21.23
1-12	2.76	13.00	23.20

After the first 12 calendar months of operation, compliance with the annual source operation and emission rate limitations for PE/PM10, HC/VOC, and SO2 shall be based upon a rolling, 12- month summation of the operating data and emission rates.

III. Monitoring and/or Recordkeeping Requirements

1. The permittee shall maintain monthly records summarizing the following information for this emissions unit:
 - a. The total hours of engine testing for each type of engine;
 - b. The amount of Jet-A aviation fuel used, and the type and amount of any other fuels used, for each type of engine, as determined by the instantaneous fuel flow tracker;
 - c. The data capture rate specified in section A.II..1 above.
 - d. The PE/PM10, SO2, NOx, HC/VOC, and CO emission rates, as determined in accordance with the method required in section A.V.1, in lbs/hr, tons/month, and beginning after the first 12 calendar months of operation, tons/yr as a rolling, 12-month summation. Also, during the first

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12 calendar months of operation, the permittee shall record the cumulative PE/PM10, SO₂, NO_x, HC/VOC, and CO emission rates for each calendar month.

2. Fuel flow meters shall meet the requirements of 40 CFR Part 75, Appendix D and shall be calibrated annually.
3. When this emissions unit is in operation and burns fuels other than Jet-A fuel, the permittee shall perform daily checks, when the weather conditions allow, for any visible fugitive particulate emissions from this emissions unit. The presence or absence of any visible particulate emissions shall be noted in an operations log. If visible fugitive emissions are observed, the permittee shall also note in the operations log:
 - a. The color of the emissions;
 - b. The total duration of any visible emission incident; and
 - c. Any corrective actions taken to minimize or eliminate the visible fugitive particulate emissions.

If visible fugitive particulate emissions are present, a visible emissions incident has occurred. The observer does not have to document the exact start and end times for visible emission under item (b) above or continue the daily check until the incident has ended. The observer may indicate that the visible emission incident was continuous during the observation period (or, if known, continuous during the operation of the emissions unit). With respect to the documentation of corrective actions, the observer may indicate that no corrective actions were taken if the visible fugitive particulate emissions were believed to be less than the allowable emission limitation, or specify the corrective actions that were taken to minimize or eliminate the visible fugitive particulate emissions.

Notwithstanding the frequency of reporting requirements specified in section A.IV, the permittee may reduce the frequency of visual observations for this emissions unit from daily to weekly if the following conditions are met:

- d. For 1 full quarter this emissions unit's visual observations indicate no visible emissions; and
- e. The permittee continues to comply with all the record keeping and monitoring requirements specified above.

The permittee shall revert to daily readings for this emissions unit if visible emissions are observed. The permittee may again reduce the frequency of visible emissions observations from daily to weekly after obtaining 1 full quarter of observations with no visible emissions for this emissions unit.

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1. The permittee shall submit quarterly deviation (excursion) reports that identify all periods of time during which the data capture rate specified in section A.II.1 was not attained and the cause and any corrective action(s) taken to reattain the specified capture rate. The quarterly deviation reports shall be submitted in accordance with the requirements specified in Part I - General Terms and Conditions Section A of this permit.
2. The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the rolling, 12-month emission rate limitations for PE/PM10, SO2, NOx, HC/VOC, and CO; and for the first 12 calendar months of operation, all exceedances of the maximum allowable cumulative emission rate levels. These reports shall be submitted in accordance with the reporting requirements specified in Part 1 - General Terms and Conditions, Section A of this permit.
3. The permittee shall submit semiannual written reports that (a) identify all days during which any visible fugitive particulate emissions were observed from this emissions unit and (b) describe any corrective actions taken to minimize or eliminate the visible particulate emissions. These reports shall be submitted to the Portsmouth Local Air Agency by January 31 and July 31 of each year and shall cover the previous 6-month period.

V. Testing Requirements

1. Compliance with the emission limitations in section A.1 of these terms and conditions shall be determined in accordance with the following methods:

2. Emission Limitations:

PE/PM 10 emissions shall not exceed 18.2 lbs/hr and 2.76 tons/yr as a rolling, 12-month summation.

SO₂ emissions shall not exceed 153.2 lbs/hr and 23.2 tons/yr as a rolling, 12-month summation.

NO_x emissions shall not exceed 3113.4 lbs/hr and 797.2 tons/yr as a rolling, 12-month summation.

HC/VOC emissions shall not exceed 33.8 lbs/hr and 13.0 tons/yr as a rolling, 12-month summation.

CO emissions shall not exceed 850 lbs/hr and 164.3 tons/yr as a rolling, 12-month summation.

Applicable Compliance Method:

Compliance shall be determined in accordance with the most recent version of the emission tracking procedure to calculate emissions from engine testing. The procedure has been defined by General Electric Aircraft Engines in the "Emissions Protocol Document" (reviewed and approved by the Portsmouth Local Air Agency May 19, 2005) and shall be retained on site. The emissions tracking procedure contains procedures for (a) developing emission factors; (b) calculating emission rates; and (c) conducting periodic audits of the procedure, as described below.

The permittee has developed emission factors pursuant to protocols referenced in 40 CFR Part 87, FAR 34, and ICAO Annex 16 for use in the emissions tracking procedures for engines tested at this facility. Emission factors shall be developed for PE/PM₁₀, SO₂, NO_x, HC/VOC, and CO for each new engine family to be tested at this facility.

In the event that measured factors are not available, engineering judgement shall be used to develop estimated emission factors for each new engine family. These factors and supporting information (i.e., date and location measured) shall be retained in the protocol document.

The permittee shall calculate the emission rates using the emission factors and the automated instantaneous fuel flow tracking required in section A.III.1.a.

The permittee shall conduct periodic audits to ensure continued operation of the emission tracking system. The permittee shall retain records to document the results of the periodic audits.

The permittee shall make provisions for the Ohio EPA and/or the Portsmouth Local Air

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Agency to execute the same audit procedure at any time during normal business hours.

3. Emission Limitation:

Visible fugitive particulate emissions shall not exceed 10% opacity as a 6-minute average in any 60-minute observation period..

Applicable Compliance Method:

Compliance with this emission limitation shall be demonstrated through visible emissions observations performed in accordance with 40 CFR Part 60, Appendix A, Method 9.

4. The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

The emission testing shall be conducted to demonstrate compliance with the visible particulate emission limitation.

The following test method shall be employed to demonstrate compliance with the allowable visible particulate emission limitation: 40 CFR Part 60, Appendix A, Method 9.

The test(s) shall be conducted while the emissions unit is operating at or near its maximum capacity and burning jet fuel, unless otherwise specified or approved by the Portsmouth Local Air Agency.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Portsmouth Local Air Agency. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Portsmouth Local Air Agency's refusal to accept the results of the emission test(s)

Personnel from the Ohio EPA and/or Portsmouth Local Air Agency shall be permitted to witness the test(s), examine the testing equipment, and acquired data and information necessary to ensure that the operation of the emissions unit and testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of any control equipment.

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A comprehensive written report on the results of the emission test(s) shall be signed by the person or persons responsible for the tests and submitted to the Portsmouth Local Air Agency within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Portsmouth Local Air Agency.

VI. Miscellaneous Requirements

None

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B. State Only Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

- 1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
F014 - Jet engine test stand 7 for testing the JSF engine and/or the GE-90 115B aircraft engine (fugitive emissions only source)		

2. Additional Terms and Conditions

2.a None

II. Operational Restrictions

None

III. Monitoring and/or Recordkeeping Requirements

None

IV. Reporting Requirements

None

V. Testing Requirements

None

VI. Miscellaneous Requirements

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None