



John R. Kasich, Governor
 Mary Taylor, Lt. Governor
 Scott J. Nally, Director

12/31/2012

Carl Trotter
 General Electric Aircraft Engines: Peebles Facility
 1200 Jaybird Road
 Peebles, OH 45660

RE: DRAFT AIR POLLUTION PERMIT-TO-INSTALL

Facility ID: 0701000001
 Permit Number: P0109999
 Permit Type: Initial Installation
 County: Adams

Dear Permit Holder:

A draft of the Ohio Administrative Code (OAC) Chapter 3745-31 Air Pollution Permit-to-Install for the referenced facility has been issued for the emissions unit(s) listed in the Authorization section of 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 permit. A public notice will appear in the Ohio Environmental Protection Agency (EPA) Weekly Review and the local newspaper, The Peoples Defender. A copy of the public notice and the draft permit are enclosed. This permit can be accessed electronically on the Division of Air Pollution Control (DAPC) Web page, www.epa.ohio.gov/dapc by clicking the "Search for Permits" link under the Permitting topic on the Programs tab. Comments will be accepted as a marked-up copy of the draft permit or in narrative format. Any comments must be sent to the following:

Andrew Hall
 Permit Review/Development Section
 Ohio EPA, DAPC
 50 West Town Street, Suite 700
 P.O. Box 1049
 Columbus, Ohio 43216-1049

and Portsmouth City Health Dept., Air Pollution Unit
 605 Washington Street
 3rd Floor
 Portsmouth, OH 45662

Comments and/or a request for a public hearing will be accepted within 30 days of the date the notice is published in the newspaper. You will be notified in writing if a public hearing is scheduled. A decision on issuing a final permit-to-install will be made after consideration of comments received and oral testimony if a public hearing is conducted. Any permit fee that will be due upon issuance of a final Permit-to-Install is indicated in the Authorization section. Please do not submit any payment now. If you have any questions, please contact Portsmouth City Health Dept., Air Pollution Unit at (740)353-5156.

Sincerely,

Michael W. Ahern
 Michael W. Ahern, Manager
 Permit Issuance and Data Management Section, DAPC

Cc: U.S. EPA Region 5 -Via E-Mail Notification
 Portsmouth; Kentucky; West Virginia

Certified Mail

No	TOXIC REVIEW
Yes	PSD
Yes	SYNTHETIC MINOR TO AVOID MAJOR NSR
No	CEMS
Yes	MACT/GACT
No	NSPS
Yes	NESHAPS
No	NETTING
No	MAJOR NON-ATTAINMENT
Yes	MODELING SUBMITTED
No	MAJOR GHG
No	SYNTHETIC MINOR TO AVOID MAJOR GHG



Permit Strategy Write-Up

1. Check all that apply:

Synthetic Minor Determination

Netting Determination

2. Source Description:

General Electric Aircraft Engines (GEAE) Peebles is proposing to install a new enclosed turbine engine test cell facility at its Peebles Test Operation in Peebles, Ohio. The new test cell, to be constructed and designated as new site 5D, source P002, will be principally designed and configured to conduct testing of the latest version of the GE-90 and GENx engines. Similar to the existing Site 5C at Peebles, the new Site 5D will be a completely enclosed structure, with engine exhaust emitted through a 42' by 42' vented stack structure from the roof and exhausted horizontally.

3. 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 a Title V facility classified as a major source under a Title V (Ohio Chapter 3745-77) Permit. The facility is a major source because potential emissions of nitrogen oxides (NO_x), carbon monoxide (CO), and Volatile Organic Compounds (VOC's) or Hydrocarbons (HC) exceed the major source threshold of 100 tons per year for each pollutant. The facility is also a major source under the prevention of significant deterioration (PSD) program because of potential emissions of NO_x and CO exceed the PSD major threshold of 250 tons per year for each pollutant. Emissions for other criteria pollutants, including SO₂, and PE/PM₁₀, are below applicable PSD thresholds. Greenhouse gas (GHG) emissions, which now must be evaluated under the GHG "Tailoring" rule issued by USEPA in 2010, are also below the applicable PSD threshold of 75,000 tons per year.

4. Source Emissions:

Potential annual emissions of CO and NO_x from the proposed Site 5D test stand exceed the PSD thresholds of 100 tons per year and 40 tons per year respectively. GEAE proposes to restrict the potential annual emissions of the criteria pollutants SO₂, PE/PM₁₀, and HC/VOC to less than applicable 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).

See table in 7. below

5. Conclusion:

Best Available Technology (BAT) was selected using the December 10, 2009 guidance document due to the fact that the potential to emit (PTE) for the pollutants PE/PM₁₀, HC/VOC, and SO₂ were greater than 10 tons per year. The proposed new potential emissions, based upon federally enforceable operating restrictions, from the installation of the Site 5D test are less than PSD significant levels for SO₂, HC/VOC, and PE/PM₁₀ on a 12-month rolling summation. However emissions of NO_x and CO are over the PSD significant levels requiring PSD review.



6. Please provide additional notes or comments as necessary:

None

7. Total Permit Allowable Emissions Summary (for informational purposes only):

<u>Pollutant</u>	<u>Tons Per Year</u>
PE/PM ₁₀	0.9
HC/VOC	11.9
CO	152.6
SO ₂	3.0
NO _x	431.6

**STAFF DETERMINATION FOR THE APPLICATION TO CONSTRUCT
UNDER THE PREVENTION OF SIGNIFICANT DETERIORATION REGULATIONS
FOR GENERAL ELECTRIC AIRCRAFT ENGINES - PEEBLES FACILITY
ADAMS COUNTY, OHIO
PTI NUMBER
P0109999**

DECEMBER 31, 2012

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 a five-year period are considered to be contemporaneous. In addition, Ohio has incorporated the PSD and NSR requirements by rule under OAC chapter 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) Aviation - Peebles Test Operation 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 10 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}, although USEPA has proposed to redesignate these townships as attainment.

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 7 commercial turbine jet engine test stands located outside in the open air, for the purpose of product evaluations that simulate actual conditions. They also operate 3 partially or completely enclosed commercial turbine jet engine test stands. This new PTI application is for the installation of a new turbine engine completely enclosed test stand at Site 5D. It will be designed for the testing of a class of commercial turbine engines represented by the GE-90-115B and GENx 2B engines, as well as other turbine engines.

The methodology that was developed and utilized in the last 3 PSD permits 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.

Pollutants that trigger PSD review are NO_x and CO. The increases for NO_x and CO are above the 40 tons per year and 100 tons per year significance levels, respectively, for modifications. Other pollutants are restricted to less than the significant levels for review (see Table 1).

The requirements of the MACT standard for jet engine test cells/stands, 40 CFR Part 63, Subpart P, which is an applicable rule, will not apply in this case because the facility is a new or reconstructed affected source located at a major source and is used exclusively for testing combustion turbine engines [see 40 CFR 63.9290(d)(1)].

TABLE 1

PRELIMINARY POLLUTANT EMISSION RATES
NEW GE-PEEBLES TEST STAND SITE 5D

Pollutant	Ton/yr Allowable	Tons/yr Increase	Tons/yr PSD Threshold
PM ₁₀	0.9	0.9	15
Nitrogen Oxides	431.6	431.6	40
Carbon Monoxide	152.6	152.6	100
Sulfur Dioxide	3.0	3.0	40
Volatile Organic Compounds	11.9	11.9	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 GE-90-115B and GENx 2B engines, as well as other turbine engines. Engines are run through a test cycle in which they are operated at various power loads to test the performance (levels include take off, warm up, part power, approach idle and ground idle).

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 emission 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 applications in 1994, 2005 and 2007, GE evaluated many NO_x and CO control technologies in support of the application for four new open air test cells and one enclosed engine test cell. 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

Parsons has submitted air dispersion modeling for Nitrogen Oxides (NO_x) and Carbon Monoxide (CO) on behalf of General Electric Aviation, Peebles Test Operations (GE Peebles). GE Peebles is proposing to install a new completely enclosed turbine engine test cell at Site 5D at the Peebles Test Operation. Site 5D will be used to test the GE-90 and GENx engines. Exhaust emitted from the engines will be released through a single vertical stack. GE Peebles is a major source with respect to air emissions.

Potential emissions from the proposed expansion are shown to be greater than 40 tons per year (tpy) for NO_x and 100 tpy for CO. This expansion is, therefore considered to be a PSD project by the Environmental Protection Agency. GE Peebles used the AERMOD version 11103 air dispersion model to show compliance for NO_x and CO, in accordance to the Ohio Modeling Standards and Significant Emission Rates. The worst case scenario was modeled to ensure the maximum concentration was determined.

Modeling Information

GE Peebles is located in Peebles, Adams County, Ohio. The approximate UTM coordinates for GE Peebles are 299,445.50 E, 4,309,059 N, in zone 17. This location corresponds to the Jaybird Quadrangle.

When modeling, all concentrations were computed in micrograms per cubic meter (µg/m³). No deposition or depletion was modeled for this case. The AERMOD regulatory default option was selected in the control parameter. Simple and complex terrain were considered in the modeling. Less than 50 percent of the land types consisted of heavy industrial, light-moderate industrial, commercial, single family compact residential, or multi-family compact residential, therefore, the surrounding area is considered rural, and modeled as so.

A single emission source has been identified with Site 5D. All emissions from the site will vent through the exhaust tunnel and then discharged through an enclosed vertical stack. Site 5D was modeled as a point source. The PSD analysis included the six NO_x increment consuming sources at the Peebles facility. A list of sources considered in the NAAQS analysis can be found in Table 7-2 in the Peebles Test Operation PSD Permit Application New Engine Test Site 5D prepared by Parsons.

A 24 km by 24 km receptor grid was placed around the facility for this modeling analysis. Receptors were placed 250m apart in an 11 km X 12 km area surrounding the facility, 500m apart out to 5 km and 1 km apart out to 9km. Receptors were also placed every 100m along the property line. The final receptor grid consisted of 3,278 receptors.

Five years of meteorological data must be used in accordance with the Engineering Guidelines: #69 Guideline on Air Quality Models. Surface data from Huntington, WV from 2006-2010 were used in this model. Upper Air data from Wilmington, Ohio from 2006-2010 was also used. The National Weather Service data was determined to be representative of the geographical surroundings of the Peebles facility. All meteorological data was provided by Ohio EPA and processed with the most recent version of AERMET.

A NO_x 1-hour background value of 5.0 µg/m³ (Athens County monitor) was used in the modeling.

Results

GE Peebles applied the USEPA approved tier 3 method when modeling NO_x. In stack ratios used by GE can be found in section 7.1.2.

PSD Increment

After reviewing the NO_x increment modeling for the proposed Site 5D expansion of the GE Peebles Test Operation in Peebles, Ohio, the Ohio EPA has found no violations of the Ohio Acceptable Increment Impact standards. The Ohio EPA is in agreement with the maximum concentrations found in Table 8-3 of the Peebles Test Operation PSD Permit Application New Engine Test Site 5D submitted by Parsons.

PSD Increment modeling was not performed for CO for the proposed Site 5D expansion of the GE Peebles Test Operation in Peebles, Ohio.

NAAQS

NO_x NAAQS modeling outputs indicate that no violations of the standards will occur with the addition of Site 5D. The Ohio EPA is in agreement with the maximum concentrations found in Table 8-3 of the Peebles Test Operation PSD Permit Application New Engine Test Site 5D submitted by Parsons.

The CO NAAQS analysis only included the GE Peebles sources. No nearby CO sources were found. The CO NAAQS modeling outputs indicate that no violations of the standards will occur with the addition of Site 5D. The Ohio EPA is in agreement with the maximum concentrations found in Table 8-2 of the Peebles Test Operation PSD Permit Application New Engine Test Site 5D submitted by Parsons.

Modeling shows compliance with all applicable air quality standards.

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 5D, in Adams County, Ohio.

PUBLIC NOTICE
Issuance of Draft Air Pollution Permit-To-Install
General Electric Aircraft Engines: Peebles Facility

Issue Date: 12/31/2012

Permit Number: P0109999

Permit Type: Initial Installation

Permit Description: GEAE new test engine stand site 5D

Facility ID: 0701000001

Facility Location: General Electric Aircraft Engines: Peebles Facility
1200 Jaybird Road,
Peebles, OH 45660

Facility Description: Research and Development in the Physical, Engineering, and Life Sciences (except Biotechnology)

The Director of the Ohio Environmental Protection Agency issued the draft permit above. The permit and complete instructions for requesting information or submitting comments may be obtained at: <http://epa.ohio.gov/dapc/permitonline.aspx> by entering the permit # or: Matt Freeman, Portsmouth City Health Dept., Air Pollution Unit, 605 Washington Street 3rd Floor, Portsmouth, OH 45662. Ph: (740)353-5156



DRAFT

Division of Air Pollution Control
Permit-to-Install
for
General Electric Aircraft Engines: Peebles Facility

Facility ID:	0701000001
Permit Number:	P0109999
Permit Type:	Initial Installation
Issued:	12/31/2012
Effective:	To be entered upon final issuance



Division of Air Pollution Control
Permit-to-Install
for
General Electric Aircraft Engines: Peebles Facility

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Draft Permit-to-Install
General Electric Aircraft Engines: Peebles Facility
Permit Number: P0109999
Facility ID: 0701000001
Effective Date: To be entered upon final issuance

Authorization

Facility ID: 0701000001
Facility Description: The GEAE Peebles site performs certification testing for aircraft engines.
Application Number(s): A0044458, A0046178
Permit Number: P0109999
Permit Description: GEAE new test engine stand site 5D
Permit Type: Initial Installation
Permit Fee: \$1,000.00 *DO NOT send payment at this time, subject to change before final issuance*
Issue Date: 12/31/2012
Effective Date: To be entered upon final issuance

This document constitutes issuance to:

General Electric Aircraft Engines: Peebles Facility
1200 Jaybird Road
Peebles, OH 45660

of a Permit-to-Install for the emissions unit(s) identified on the following page.

Ohio Environmental Protection Agency (EPA) District Office or local air agency responsible for processing and administering your permit:

Portsmouth City Health Dept., Air Pollution Unit
605 Washington Street
3rd Floor
Portsmouth, OH 45662
(740)353-5156

The above named entity is hereby granted a Permit-to-Install for the emissions unit(s) listed in this section 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 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

Scott J. Nally
Director



Draft Permit-to-Install
General Electric Aircraft Engines: Peebles Facility
Permit Number: P0109999
Facility ID: 0701000001
Effective Date: To be entered upon final issuance

Authorization (continued)

Permit Number: P0109999
Permit Description: GEAE new test engine stand site 5D

Permits for the following Emissions Unit(s) or groups of Emissions Units are in this document as indicated below:

Emissions Unit ID:	P002
Company Equipment ID:	Engine Test Site 5D
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable



Draft Permit-to-Install
General Electric Aircraft Engines: Peebles Facility
Permit Number: P0109999
Facility ID: 0701000001
Effective Date: To be entered upon final issuance

A. Standard Terms and Conditions



1. Federally Enforceable Standard Terms and Conditions

- a) All Standard Terms and Conditions are federally enforceable, with the exception of those listed below which are enforceable under State law only:
 - (1) Standard Term and Condition A.2.a), Severability Clause
 - (2) Standard Term and Condition A.3.c) through A. 3.e) General Requirements
 - (3) Standard Term and Condition A.6.c) and A. 6.d), Compliance Requirements
 - (4) Standard Term and Condition A.9., Reporting Requirements
 - (5) Standard Term and Condition A.10., Applicability
 - (6) Standard Term and Condition A.11.b) through A.11.e), Construction of New Source(s) and Authorization to Install
 - (7) Standard Term and Condition A.14., Public Disclosure
 - (8) Standard Term and Condition A.15., Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations
 - (9) Standard Term and Condition A.16., Fees
 - (10) Standard Term and Condition A.17., Permit Transfers

2. Severability Clause

- a) 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.
- b) All terms and conditions designated in parts B and C of this permit are federally enforceable as a practical matter, if they are required under the Act, or any of 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. Terms and conditions in parts B and C of this permit shall not be federally enforceable and shall be enforceable under State law only, only if specifically identified in this permit as such.

3. 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.

4. Monitoring and Related Record Keeping 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:
 - (1) The date, place (as defined in the permit), and time of sampling or measurements.
 - (2) The date(s) analyses were performed.
 - (3) The company or entity that performed the analyses.
 - (4) The analytical techniques or methods used.
 - (5) The results of such analyses.
 - (6) 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:
 - (1) Reports of any required monitoring and/or recordkeeping of federally enforceable information shall be submitted to the Portsmouth City Health Dept., Air Pollution Unit.



- (2) 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 Portsmouth City Health Dept., Air Pollution Unit. The written 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 A.15. below if no deviations occurred during the quarter.
 - (3) 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 Portsmouth City Health Dept., Air Pollution Unit 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.
 - (4) This permit is for an emissions unit located at a Title V facility. 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.

5. 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 Portsmouth City Health Dept., Air Pollution Unit 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).

6. Compliance Requirements

- a) 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.
- b) 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.



- c) 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:
 - (1) 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.
 - (2) 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.
 - (3) Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit.
 - (4) 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.
- d) The permittee shall submit progress reports to the Portsmouth City Health Dept., Air Pollution Unit concerning any schedule of compliance for meeting an applicable requirement. Progress reports shall be submitted semiannually or more frequently if specified in the applicable requirement or by the Director of the Ohio EPA. Progress reports shall contain the following:
 - (1) Dates for achieving the activities, milestones, or compliance required in any schedule of compliance, and dates when such activities, milestones, or compliance were achieved.
 - (2) 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.

7. Best Available Technology

As specified in OAC Rule 3745-31-05, new sources that must employ Best Available Technology (BAT) shall comply with the Applicable Emission Limitations/Control Measures identified as BAT for each subject emissions unit.

8. 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.

9. 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 Portsmouth City Health Dept., Air Pollution Unit.
- 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 Portsmouth City Health Dept., Air Pollution Unit. 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.)

10. 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).

11. Construction of New Sources(s) and Authorization to Install

- a) 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.
- b) If applicable, authorization to install any new emissions unit included in this permit shall terminate within eighteen months of the effective date of the permit if the owner or operator has not undertaken a continuing program of installation or has not entered into a binding contractual obligation to undertake and complete within a reasonable time a continuing program of installation. 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.
- c) The permittee may notify Ohio EPA of any emissions unit that is permanently shut down (i.e., the emissions unit has been physically removed from service or has been altered in such a way that it can no longer operate without a subsequent "modification" or "installation" as defined in OAC Chapter 3745-31) by submitting a certification from the authorized official that identifies the date on which the emissions unit was permanently shut down. Authorization to operate the affected emissions unit shall cease upon the date certified by the authorized official that the emissions unit was permanently shut down. At a minimum, notification of permanent shut down shall be made or confirmed by marking the affected emissions unit(s) as "permanently shut down" in Ohio EPA's "Air Services" along with the date the emissions unit(s) was permanently removed and/or disabled. Submitting the facility profile update will constitute notifying of the permanent shutdown of the affected emissions unit(s).



- d) The provisions of this permit shall cease to be enforceable for each affected emissions unit after the date on which an emissions unit is permanently shut down (i.e., emissions unit has been physically removed from service or has been altered in such a way that it can no longer operate without a subsequent "modification" or "installation" as defined in OAC Chapter 3745-31). All records relating to any permanently shutdown emissions unit, generated while the emissions unit was in operation, must be maintained in accordance with law. All reports required by this permit must be submitted for any period an affected emissions unit operated prior to permanent shut down. At a minimum, the permit requirements must be evaluated as part of the reporting requirements identified in this permit covering the last period the emissions unit operated.

No emissions unit certified by the authorized official as being permanently shut down may resume operation without first applying for and obtaining a permit pursuant to OAC Chapter 3745-31.

- e) The permittee shall comply with any residual requirements related to this permit, such as the requirement to submit a deviation report, air fee emission report, or other any reporting required by this permit for the period the operating provisions of this permit were enforceable, or as required by regulation or law. All reports shall be submitted in a form and manner prescribed by the Director. All records relating to this permit must be maintained in accordance with law.

12. Permit-To-Operate Application

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).

13. Construction Compliance Certification

The applicant shall identify the following dates in the online facility profile for each new emissions unit identified in this permit.

- a) Completion of initial installation date shall be entered upon completion of construction and prior to start-up.
- b) Commence operation after installation or latest modification date shall be entered within 90 days after commencing operation of the applicable emissions unit.

14. 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.



15. Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations

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.

16. 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.

17. Permit Transfers

Any transferee of this permit shall assume the responsibilities of the prior permit holder. The new owner must update and submit the ownership information via the "Owner/Contact Change" functionality in Air Services once the transfer is legally completed. The change must be submitted through Air Services within thirty days of the ownership transfer date.

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

19. 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.



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B. Facility-Wide Terms and Conditions



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1. All the following facility-wide terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only:
 - a) None.



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C. Emissions Unit Terms and Conditions



1. P002, Engine Test Site 5D

Operations, Property and/or Equipment Description:

Jet Engine Test Stand 5D (stack emissions only)

- a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.
 - (1) None.
- b) Applicable Emissions Limitations and/or Control Requirements
 - (1) The specific operation(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures are identified below. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	ORC 3704.03(T)	Particulate emissions (PE)/particulate emissions less than ten microns in diameter (PM ₁₀) shall not exceed 5.2 pounds per hour. Sulfur dioxide (SO ₂) emissions shall not exceed 10.9 pounds per hour. Hydrocarbon (HC) / volatile organic compounds (VOC) emissions shall not exceed 135.6 pounds per hour. See b)(2)c and b)(2)f. Visible PE from the site 5D stack shall not exceed 10% opacity as a 6-minute average during any 60-minute observation period. Compliance with this rule also includes compliance with OAC rules 3745-31-(10) through (20) and OAC rule 3745-31-05(D).
b.	OAC rule 3745-31-05(D)	PE/PM ₁₀ shall not exceed 0.9 ton per year as a rolling, 12-month summation.



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		SO ₂ emissions shall not exceed 3.0 tons per year as a rolling, 12-month summation. HC/VOC emissions shall not exceed 11.9 tons per year as a rolling, 12-month summation. See b)(2)c.
c.	OAC rules 3745-31-(10) through (20)	Nitrogen oxides (NO _x) emissions shall not exceed 2255.9 pounds per hour and 431.6 tons per year as a rolling, 12-month summation. Carbon monoxide (CO) emissions shall not exceed 504.1 pounds per hour and 152.6 tons per year as a rolling, 12-month summation. See b)(2)a.
d.	OAC rule 3745-18-06(E)(2)	The SO ₂ emission limitation required by this applicable rule is less stringent than the SO ₂ emission limitation established pursuant to ORC 3704.03(T).
e.	OAC rule 3745-17-07(A)	See b)(2)e.
f.	OAC rule 3745-17-11(A)(1)(m)	See b)(2)d.
g.	40 CFR Part 63, Subpart P	See b)(2)b.

(2) Additional Terms and Conditions

- a. The Best Available Control Technology (BACT) for NO_x and CO is based upon design emissions levels, and has been determined to be no control.
- b. In accordance with 40 CFR Part 63.9290(d), any new or reconstructed engine test cell/stand located at a major source that is used exclusively for testing combustion turbine engines, does not have to meet the requirements of 40 CFR Part 63, Subpart P and of 40 CFR Part 63, Subpart A.
- c. Hydrocarbons for the purpose of this permit are defined as any compounds which contain only hydrogen and carbon.
- d. Pursuant to OAC rule 3745-17-11(A)(1)(m), this emissions unit is exempt from restrictions on particulate emissions.



- e. This emissions unit is exempt from the visible particulate emission limitations specified in OAC rule 3745-17-07(A) pursuant to OAC rule 3745-17-07(A)(3)(h) because the emissions unit is not subject to the requirements of OAC rule 3745-17-11.
- f. Compliance with ORC 3704.03(T) shall be demonstrated by the emission limitations and compliance with applicable BACT requirements, record keeping, reporting and emissions testing required by this permit that are associated with the above ORC 3704.03(T) limitations and requirements.

c) Operational Restrictions

- (1) The data capture rate for the operating parameters in d)(1)a shall be no less than 95%.
- (2) The maximum annual source operation and emission rates (based upon fuel flow and emissions factors) for PE/PM₁₀, HC/VOC and SO₂ from this emissions unit shall not exceed 0.90, 11.90 and 3.00 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, the permittee shall not exceed the emission levels specified in the following table:

Month(s)	Maximum Allowable Cumulative Emissions of PE/PM ₁₀ (tons)	Maximum Allowable Cumulative Emissions of HC/VOC (tons)	Maximum Allowable Cumulative Emissions of SO ₂ (tons)
1	0.23	2.98	0.75
1-2	0.29	3.79	0.95
1-3	0.35	4.60	1.16
1-4	0.41	5.41	1.36
1-5	0.47	6.22	1.57
1-6	0.53	7.03	1.77
1-7	0.59	7.84	1.98
1-8	0.65	8.65	2.18
1-9	0.72	9.47	2.39
1-10	0.78	10.28	2.59
1-11	0.84	11.09	2.80
1-12	0.90	11.90	3.00



d) 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 and the type and total amount of each fuel used, as determined by the automated instantaneous fuel flow tracker;
 - b. the PE/PM₁₀, SO₂, NO_x, HC/VOC and CO emission rates, as determined in accordance with the method required in section f)(1), in pounds per hour, tons per month and tons per year as a rolling, 12-month summation. Also, during the first 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; and
 - c. the data capture rate specified in c)(1) above.

The permittee shall also maintain records that can be used to establish the total hours of engine testing for each type of engine, and the amount and type of fuel used (naptha, kerosene-based distillate fuel, natural gas or other) for each type of engine.

- (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 naptha and kerosene-based distillate fuel or natural gas, the permittee shall perform daily checks, when the weather conditions allow, for any visible particulate emissions from the stack serving this emissions unit. The presence or absence of any visible particulate emissions shall be noted in an operations log. If visible 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 particulate emissions.

If visible 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 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 particulate emissions.



- (4) Notwithstanding the frequency of reporting requirements specified in section e)(2), the permittee may reduce the frequency of visual observations for this emissions unit from daily to weekly if the following conditions are met:
- a. for 1 full quarter this emissions unit's visual observations indicate no visible emissions; and
 - b. 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.

e) Reporting Requirements

- (1) The permittee shall submit quarterly deviation (excursion) reports that identify the following:
- a. all exceedances of the rolling, 12-month emission limitations for PE/PM₁₀, SO₂, NO_x, HC/VOC and CO; and
 - b. all periods of time during which the data capture rate specified in section c)(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 Standard Term and Condition A.2.c)(2) of this permit.

- (2) The permittee shall submit semiannual written reports that (a) identify all days during which any visible particulate emissions were observed from the stack serving 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 Director (Portsmouth Local Air Agency) by January 31 and July 31 of each year and shall cover the previous 6-month period.

f) Testing Requirements

- (1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:
- a. Emission Limitations:

PE/PM₁₀ emissions shall not exceed 5.2 pounds per hour and 0.9 ton per year as a rolling, 12-month summation.

SO₂ emissions shall not exceed 10.9 pounds per hour and 3.0 tons per year as a rolling, 12-month summation.



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NO_x emissions shall not exceed 2255.9 pounds per hour and 431.6 tons per year as a rolling, 12-month summation.

HC/VOC emissions shall not exceed 135.6 pounds per hour and 11.9 tons per year as a rolling, 12-month summation.

CO emissions shall not exceed 504.1 pounds per hour and 152.6 tons per year 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 GE Aviation in the "Emissions Protocol Document" (reviewed and approved by the Portsmouth Local Air Agency on 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 judgment 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 d)(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 Agency to execute the same audit procedure at any time during normal business hours.

b. Emission Limitation:

Visible particulate emissions from the site 5D stack shall not exceed 10% opacity as a 6-minute average during any 60-minute observation period.

Applicable Compliance Method:

If required, compliance with this emission limitation shall be demonstrated through visible particulate emission observations performed in accordance with 40 CFR Part 60, Appendix A, Method 9.



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- g) Miscellaneous Requirements
 - (1) None.