

National Aeronautics and Space Administration  
Kennedy Space Center  
**Facility ID No.:** 0090051

**DRAFT/PROPOSED Permit No.:** 0090051-018-AV  
**CONSTRUCTION Permit No.:** 0090051-017-AC

## **Section I. Facility Information.**

### **Subsection A. Facility Description.**

This facility is a spacecraft and payload processing and launch facility which contains the following four categories of permitted (significant) air emission units:

- a) Hot Water Generators / Boilers with an individual heat input rating of at least 10 MMBtu / hr (listed in Attachment 1-A)
- b) Surface Coating Operations (listed in Attachment 2-A)
- c) Internal Combustion Engines (listed in Attachments 3-A, 4-A, and 5-A)
- d) Hypergol Fueling and Servicing Activities (listed in Attachment 6-A)

Also included at this facility are miscellaneous insignificant (listed in Appendix I-1) and unregulated (listed in Appendix U-1) emission units and/or activities.

The facility is considered a Title V major source as the potential to emit (PTE) for the criteria pollutants carbon monoxide (CO) and oxides of nitrogen (NO<sub>x</sub>) exceed the 100 ton per year (tpy) Title V major source threshold. The facility is considered a minor source for volatile organic compounds (VOC) emissions as the VOC PTE is less than the 100 ton per year Title V major source threshold.

The facility is considered a minor source (i.e., non-major) for the Prevention of Significant Deterioration (PSD) permitting program as the PTE for PSD pollutants is less than the PSD major source threshold (e.g., 250 tpy for CO and NO<sub>x</sub>). The facility does not belong to one of the listed source categories that have a lesser PSD major source threshold.

The total combined heat input rating for fossil fuel fired boilers at the facility is approximately 200 million British Thermal Units per hour (MMBtu/hr). This total rating includes permitted (i.e., significant) and unpermitted (i.e., insignificant or exempt) units. This total rating is less than 250 MMBtu/hr, which is the threshold for one of the listed source categories that have a lesser PSD major source threshold (i.e., 100 tpy for criteria pollutants).

The facility is currently considered a minor source (i.e., non-major source) of Hazardous Air Pollutants (HAP). The facility previously was considered a major source of HAP; however, pollution prevention initiatives taken by the facility have allowed the facility to reduce HAP emissions to less than the major source thresholds of 10 tpy for individual HAP, and 25 tpy for combined HAP. The Title V permit renewal application received March 3, 2008 was a combined construction and operating permit application. The construction permit issued pursuant to this application (Permit Number 0090051-017-AC) includes emission limits that restrict the HAP emissions from the facility to less than the major source thresholds of 10 / 25 tpy.

The Title V facility does not include the retail gasoline storage and fueling operations performed on-site.

## **Subsection B. Summary of Emissions Unit ID No(s). and Brief Description(s)**

### **E.U. ID No./Brief Description**

- 001 Hot Water Generators / Boilers with an individual heat input rating of at least  
10 MMBtu / hr
- 091 Surface Coating Operations
- 086 Compression Ignition Stationary Internal Combustion Engines
- 087 Spark Ignition Stationary Internal Combustion Engines
- 088 Launch Complex 39 (LC-39) Compression Ignition Backup Power Plant
- 090 Hypergol Servicing Operations and Activities

Please reference the Permit No., Facility ID No., and appropriate Emissions Unit(s) ID No(s). on all correspondence, test report submittals, applications, etc.

### **Subsection C. Relevant Documents**

The documents listed below are not a part of this permit; however, are specifically related to this permitting action.

These documents are provided to the permittee for information purposes only:

Appendix A-1, Abbreviations, Acronyms, Citations, and Identification Numbers

Appendix H-1, Permit History/I.D. Number Changes

These documents are on file with permitting authority:

Renewal Title V Permit and Construction Permit Application received March 3, 2008.

Additional information requested February 25, 2004 and received March 8, 2004.

Revision Title V Permit Application submitted January 12, 2004 & received January 15, 2004

Renewal Title V Permit Application submitted February 21, 2003 & received February 24, 2003

Additional information received June 2, 1998.

Initial Title V Permit Application received June 7, 1996, revised May 21, 1998.

Additional information requested March 16, 1998.

Additional information received February 19, 1998.

Additional information requested December 8, 1997.

### **Subsection D. Miscellaneous.**

The use of "Permitting Notes" throughout this permit is for informational purposes only and permitting notes are not permit conditions.

## Section II. Facility-wide Conditions.

### The following conditions apply facility-wide:

1. APPENDIX TV-6, TITLE V CONDITIONS, is a part of this permit.

2. General Pollutant Emission Limiting Standards. Objectionable Odor Prohibited. The permittee shall not cause, suffer, allow, or permit the discharge of air pollutants which cause or contribute to an objectionable odor.

[Rule 62-296.320(2), F.A.C.]

3. General Particulate Emission Limiting Standards. General Visible Emissions Standard. Except for emissions units that are subject to a particulate matter or opacity limit set forth or established by rule and reflected by conditions in this permit, no person shall cause, let, permit, suffer or allow to be discharged into the atmosphere the emissions of air pollutants from any activity, the density of which is equal to or greater than that designated as Number 1 on the Ringelmann Chart (20 percent opacity). EPA Method 9 is the method of compliance pursuant to Rule 62-297, F.A.C.

[Rule 62-296.320(4)(b)1. & 4., F.A.C.]

{Permitting Note: Though the permittee is not required to perform a visible emissions compliance test to demonstrate compliance with the facility-wide limitation annually or before renewal, when the Department believes that the general visible emissions standard is being violated, the Department may require that the owner or operator perform a visible emissions compliance test per Chapter 62-297.310(7)(b), Special Compliance Tests, F.A.C.; or Department personnel who are certified to perform visible emissions test may determine compliance with the general visible emission standard.}

4. Prevention of Accidental Releases (Section 112(r) of CAA).

a. The permittee shall submit its Risk Management Plan (RMP) to the Chemical Emergency Preparedness and Prevention Office (CEPPO) RMP Reporting Center when, and if, such requirement becomes applicable. Any Risk Management Plans, original submittals, revisions or updates to submittals, should be sent to:

RMP Reporting Center  
Post Office Box 1515  
Lanham-Seabrook, Maryland 20703-1515  
Telephone: 301/429-5018

b. The permittee shall submit to the permitting authority Title V certification forms or a compliance schedule in accordance with Rule 62-213.440(2), F.A.C. [40 CFR 68]

5. Insignificant Emissions Units and/or Activities. Appendix I-1, List of Insignificant Emissions Units and/or Activities, is a part of this permit.

[Rules 62-213.440(1), 62-213.430(6), and 62-4.040(1)(b), F.A.C.]

6. Unregulated Emissions Units and/or Activities. Appendix U-1, List of Unregulated Emissions Units and/or Activities, is a part of this permit.

[Rule 62-213.440(1), F.A.C.]

7. General Pollutant Emission Limiting Standards. Volatile Organic Compounds (VOC) Emissions or Organic Solvents (OS) Emissions. The permittee shall allow no person to store, pump, handle, process, load, unload or use in any process or installation, volatile organic compounds (VOC) or organic solvents (OS) without applying known and existing vapor emission control devices or systems deemed necessary and

ordered by the Department. To comply, procedures to minimize pollutant emissions shall include the following:

- a) tightly cover or close all VOC containers when they are not in use,
- b) tightly cover, where possible, all open troughs, basins, baths, tanks, etc. when they are not in use,
- c) maintain all piping, valves, fittings, etc. in good operating condition,
- d) prevent excessive air turbulence across exposed VOC,
- e) immediately confine and clean up VOC spills and make sure certain wastes are placed in closed containers for reuse, recycling or proper disposal.

[Rule 62-296.320(1)(a), F.A.C.]

**8.** When appropriate, any recordings, monitoring, or reporting requirements that are time-specific shall be in accordance with the effective date of the permit, which defines day one.

[Rule 62-213.440, F.A.C.]

**9.** The permittee shall submit all compliance related notifications and reports required of this permit to the Department of Environmental Protection's Central District office:

Florida Department of Environmental Protection  
3319 Maguire Blvd., Suite 232  
Orlando, Florida 32803  
Telephone: 407/894-7555

**10.** Any reports, data, notifications, certifications, and requests required to be sent to the United States Environmental Protection Agency, Region 4, should be sent to:

United States Environmental Protection Agency  
Region 4  
Air, Pesticides & Toxics Management Division  
Air & EPRCA Enforcement Branch, Air Enforcement Section  
61 Forsyth Street  
Atlanta, Georgia 30303-8960  
Telephone: 404/562-9155; Fax: 404/562-9163

{Permitting Note: This condition implements the requirements of Rules 62-210.370(3) F.A.C. (see Condition 24. of APPENDIX TV-6, TITLE V CONDITIONS.)}

**11. Certification by Responsible Official (RO).** In addition to the professional engineering certification required for applications by Rule 62-4.050(3), F.A.C., any application form, report, compliance statement, compliance plan and compliance schedule submitted pursuant to Chapter 62-213, F.A.C., shall contain a certification signed by a responsible official that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete. Any responsible official who fails to submit any required information or who has submitted incorrect information shall, upon becoming aware of such failure or incorrect submittal, promptly submit such supplementary information or correct information.

[Rule 62-213.420(4), F.A.C.]

**12.** Reports of the required test report shall be filed with the air compliance section of this office as soon as practical but no later than 45 days after the last test is completed.

[Rules 62-297.310(8)(b), F.A.C.]

**13.** At least 180 days prior to the expiration date of this operation permit, the permittee shall submit to this office four copies of the air permit application, DEP Form No. 62-210.900(1).  
[Rule 62-4.090(1), F.A.C.]

**14.** The owner or operator shall complete DEP Form 62-210.900(5), F.A.C., “Annual Operating Report for Air Pollutant Emitting Facility” for each calendar year and submit it either electronically using the latest Department Electronic Annual Operating Report software or by hard copy to the air compliance of this office on or before March 1 of the following year or other date as provided by FDEP guidance, in accordance with Rule 62-210.370(3), F.A.C. The emissions shall be computed in accordance with the provisions of Rule 62-210.370(2), F.A.C., for purposes of the annual operating report.

{Permitting Note: This condition implements the requirements of Rules 62-210.370(3) F.A.C. (see Condition 24. of APPENDIX TV-6, TITLE V CONDITIONS.)}

**15. Annual Statement of Compliance.** The annual statement of compliance pursuant to Rule 62-213.440(3)(a)2., F.A.C., shall be submitted to the Department and EPA within 60 (sixty) days after the end of the calendar year using DEP Form No. 62-213.900(7), F.A.C. The required elements of the compliance certification are listed in 40 C.F.R. Part 70.6(c)(5)(iii) as indicated in Condition Number 51 of Appendix TV-6, Title V Conditions.

[Rules 62-213.440(3) and 62-213.900, F.A.C.]

{Permitting Note: This condition implements the requirements of Rules 62-213.440(3)(a)2. & 3., F.A.C. (see Condition 51. of APPENDIX TV-6, TITLE V CONDITIONS.)}

**16. Facility-Wide HAP Emission Limits.** The following facility-wide HAP emission limits apply to emissions from permitted and unpermitted (e.g., insignificant and trivial units).

- a) Facility-wide combined HAP emissions are limited to less than 25.0 tons per any twelve consecutive months.
- b) Facility-wide individual HAP emissions are limited to less than 10.0 tons per any twelve consecutive months.

Practical compliance with these limits is achieved as provided in Condition Numbers 17 and 18. These emission limits are accepted by the Permittee to classify the facility as a synthetic minor source of HAP emissions.

**17. HAP Emission Limits – Practical Enforceable Emission Limits.** The following emission limits are imposed on Emission Unit 091 (Surface Coating Operations) to provide for practical enforceable limits for periodic demonstration of facility-wide HAP emission limits. The HAP emissions from Emission Unit 091 are:

- a) Combined HAP emissions are limited to less than 20.0 tons per any twelve consecutive months.
- b) Individual HAP emissions are limited to less than 8.0 tons per any twelve consecutive months.

The difference between the facility wide emission limits (i.e., 10.0 and 25.0 tpy) and the Emission Unit 091 limits (i.e., 8.0 and 20.0 tpy) are sufficient to provide for reasonably anticipated HAP emissions from the unpermitted activities.

*Permit note: The other permitted emission units address sources that are minimal contributors to HAP emissions, i.e., internal and external combustion operations using clean burning fuel, and the hypergol scrubbing operations.*

**18. HAP Emission Limits – Practical Enforceable Recordkeeping.** The permittee shall maintain records of total combined HAP and individual HAP emissions from surface coating operations.

### **Section III. Emissions Unit(s) and Conditions.**

#### **Subsection A. This section addresses the following emissions unit(s).**

##### **E.U. ID No./ Brief Description**

001 Hot Water Generators / Boilers with an individual heat input rating of at least 10 MMBtu / hr

This emission unit is comprised of fossil fuel fired hot water generators (HWGs) and boilers with an individual heat input rating of at least 10 MMBtu / hr. Attachment 1-A is a list of the existing fossil fuel fired boilers comprising this emission unit.

#### **The following conditions apply to the emissions unit(s) listed above:**

##### **Essential Potential to Emit (PTE) Parameters**

**A1. Methods of Operation - Fuels.** Each unit is allowed to fire no. 2 fuel oil, diesel fuel, natural gas, propane (including liquefied propane), biodiesel, jet fuel, and synthetically derived fuel (e.g., produced by the Fischer-Tropsch process). Synthetically derived fuels includes coal-to-liquids (CTL), gas-to-liquids (GTL), biomass-to-liquids (BTL), and syngas (e.g., mixture of carbon monoxide and hydrogen).  
[Rule 62-210.200, (PTE), F.A.C., and construction permit 0950051-017-AC]

**A2. Hours of Operation.** Each unit is allowed to operate continuously.  
[Rule 62-210.200, (PTE), F.A.C.]

##### **Emission Limitations and Standards**

**A3.** See facility-wide Condition No. 3 for the visible emission limitation.

##### **Test Methods and Procedures**

**A4.** Emissions of PM, SO<sub>2</sub>, NO<sub>x</sub>, and CO shall be estimated utilizing either:

- a) EPA's AP-42 emission factors, revision 1/95 or subsequent edition;
- b) Manufacturer supplied emission factors;
- c) Test data measured through the use of EPA Reference Test Methods (RTM); or,
- d) An alternate method using generally accepted engineering techniques that is submitted to the FDEP for review.

[Rule 62-4.070(1), F.A.C.]

**A5.** Each unit shall demonstrate compliance with its visible emission limit in accordance with DEP Method 9 prior to permit expiration date if:

- a) Burning gaseous fuel(s) in combination with any amount of liquid fuel(s) for 400 hours or more per year, or,
- b) Burning only liquid fuel(s) for 400 hours or more per year.

The test period shall be a minimum of 30 minutes or the length of the batch/cycle.

[Rules 62-297.401(9)(c), 62-297.310(4)(a)2., 62-297.310(7)(a)4.a., F.A.C.]

**A6.** At least 15 days prior to the date on which each formal compliance test is due to begin, the permittee shall provide written notification of the test to the air compliance section of this office. The notification must include the following information: the date, time and location of each test; the name and telephone number of the facility's contact person who will be responsible for coordinating the test; and the name, company, and telephone number of the person conducting the test.

[Rule 62-297.310(7)(a)9, F.A.C.]

**A7.** Testing of emissions shall be conducted with the emissions unit operation at permitted capacity. Permitted capacity is defined as 90 to 100 percent of the maximum operation rate allowed by the permit. If it is impractical to test at permitted capacity, an emissions unit may be tested at less than the minimum permitted capacity; in this case, subsequent emissions unit operation is limited to 110 percent of the test load until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days for the purpose of additional compliance testing to regain the authority to operate at the permitted capacity.

[Rule 62-297.310(2)& (2) (b), F.A.C.]

### **Monitoring of Operations**

**A8. Determination of Process Variables.**

(a) Required Equipment. The owner or operator of an emissions unit for which compliance tests are required shall install, operate, and maintain equipment or instruments necessary to determine process variables, such as process weight input or heat input, when such data are needed in conjunction with emissions data to determine the compliance of the emissions unit with applicable emission limiting standards.

(b) Accuracy of Equipment. Equipment or instruments used to directly or indirectly determine process variables, including devices such as belt scales, weight hoppers, flow meters, and tank scales, shall be calibrated and adjusted to indicate the true value of the parameter being measured with sufficient accuracy to allow the applicable process variable to be determined within 10% of its true value.

[Rule 62-297.310(5), F.A.C.]

### **Recordkeeping and Reporting Requirements**

**A9.** To demonstrate compliance with Specific Condition Number A1., the permittee shall maintain a monthly log at the facility for a period of at least five years from the date that the data are recorded. The monthly records shall contain for each external combustion unit comprising Emission Unit 001:

- a) Type of fuel(s) used; and,
- b) Total quantity of each fuel combusted during the month.

Monthly logs shall be completed by the end of the following month. The logs and supporting documents shall be maintained at the facility for at least 5 years and made available to the Department upon request.

Note: A consecutive 12 month total is equal to the total for the month in question plus the totals for the eleven months previous to the month in question. A consecutive 12-month total treats each month of the year as the end of a 12-month period. A 12-month total is not a year-to-date total. Facilities that have not been operating for 12 months should retain 12 month totals using whatever number of months of data are available until such a time as a consecutive 12 month total can be maintained each month.



**A10.** The permittee shall maintain a current copy of Attachment 1-A at facility. The facility shall review the inventory contained in Attachment 1-A annually in conjunction with the AOR preparation. This inventory shall be submitted to the FDEP for review at the specific request of FDEP. This updated copy shall include the following information for equipment meeting this heat input capacity criterion (i.e., at least 10 MMBtu / hr):

- a) The current inventory of operational HWGs and boilers;
- b) Listing of HWGs and boilers removed during the prior five years;
- c) For each HWG and boiler the;
  - 1. Unique identifier (e.g., number);
  - 2. Source location (e.g., building number);
  - 3. Source description (e.g., manufacturer and model number);
  - 4. Maximum heat input rating in units of MMBtu / hr;
  - 5. Fuels the boiler is capable of firing;
  - 6. Date of installation; and,
  - 7. Date of removal (if applicable).

#### **Permit Applications**

**A11.** If a new HWG or boiler is installed at the facility that meets the criteria of units comprising EU 001 (i.e., at least 10 MMBtu / hr heat input capacity), the Permittee shall submit to this office four copies of a construction permit application for the unit on the appropriate FDEP permit application forms (e.g., FDEP Form No. 62-210.900(1)). The permittee shall obtain a permit to construct the unit prior to the installation and operation of the unit.

**A12.** After completion of construction of a new unit that is part of EU 001, the Permittee shall update Attachment 1-A. The permittee shall submit a copy of the updated Attachment 1-A to this office within 60 days after completion of construction of the new unit. A Title V operating permit revision is not required upon completion of construction.

**A13.** The permittee shall submit a current copy of Attachment 1-A with Title V operating permit revision applications that address Emission Unit 001.

**A14.** The permitted shall submit a current copy of Attachment 1-A with each Title V operating permit renewal application.

**Subsection B. This section addresses the following emissions unit.**

**E.U. ID No./ Brief Description**

091 Surface Coating Operations

This emission unit is comprised of surface coating operations performed in paint booths or similar structures located at the facility.

**The following conditions apply to the emissions unit listed above:**

**Essential Potential to Emit (PTE) Parameters**

**B1.** Attachment 2-A is a list of the existing operations that comprise this unit. As required in Condition No. B9., the permittee shall maintain and update a copy of Attachment 2-A at the facility. This updated copy shall include the following information for equipment comprising this Emission Unit:

- a) The current inventory of operational paint booths and similar structures comprising this emission unit;
- b) Listing of paint booths and similar structures removed from this emission unit during the prior five years;
- c) For each paint booth or similar structure, the;
  1. Unique identifier (e.g., number);
  2. Source location (e.g., building number);
  3. Source description (e.g., Corrosion Control Booth Number 1);
  4. Manufacturer and model number (if applicable);
  5. Type of particulate matter control (e.g., filters or water wall);
  6. Date of installation (if installed after June 2008); and
  7. Date of removal (if applicable, and if removed after June 2008).

**B2.** Hours of Operation. Each unit is allowed to operate continuously.  
[Rule 62-210.200, (PTE), F.A.C.]

**B3.** No person shall circumvent any pollution control device or allow the emissions of air pollutants without the applicable air pollution control device operating properly.  
[Rule 62-210.200, (PTE), F.A.C. and Rule 62-210.650, F.A.C.]

**Emission Limitations and Standards**

**B4.** The permitted VOC emission rate from Emission Unit 091 is limited to less than 69.0 tons per consecutive twelve months, including the emissions from the air drying of empty cans and excess two-part epoxy paints prior to their disposal. Usage or purchasing records shall be maintained as provided in Specific Condition No. B7.  
[Construction Permit Number 0090051-017-AC]

**B5.** The permitted HAP emission rate from Emission Unit 091 are:

- a) Combined HAP emissions are limited to less than 20.0 tons per any twelve consecutive months.
- b) Individual HAP emissions are limited to less than 8.0 tons per any twelve consecutive months.

Usage or purchasing records shall be maintained as provided in Specific Condition No. B7.

**B6.** See facility-wide Condition No. 3 for the visible emission limitation for each emission unit.

### **Monitoring of Operations / Test Methods and Procedures**

**B7.** Emissions of VOC and HAP from this emissions unit shall be estimated monthly utilizing any one or combination of the following methods:

- a) Material balance approach based on either:
  1. Purchase data; or
  2. Usage data;
- b) VOC and HAP content as obtained from any of the following methods:
  1. MSDS;
  2. Manufacturer data (e.g., certified product data sheet);
  3. As analytically measured using generally accepted methods; or,
  4. Using default values (e.g., 7.38 lbs / gallon VOC) for low use materials.
- c) An alternate method using generally accepted engineering techniques that is submitted to the FDEP for review.

Monthly logs shall be completed by the end of the following month. The logs and supporting documents shall be maintained at the facility for at least 5 years and made available to the Department upon request.

[Rule 62-4.070(1), F.A.C.]

### **Recordkeeping and Reporting Requirements**

**B8.** To demonstrate compliance with specific Condition No. **B4.**, the permittee shall maintain a log at the facility for a period of at least 5 years from the date the data are recorded. The log, at a minimum, shall contain the following regarding Emission Unit 091:

#### **Monthly**

- a) Designation of the month and year of operation for which records are being tabulated;
- b) Consecutive 12-month total of VOC emissions;
- c) Consecutive 12-month total of total HAP emissions; and,
- d) Consecutive 12-month total of individual HAP emissions for each individual HAP with emissions of at least 0.5 ton during the current 12-month period.

[Rules 62-4.070(3), and 62-213.440(1)(b)2., F.A.C.]

Note: A consecutive 12 month total is equal to the total for the month in question plus the totals for the eleven months previous to the month in question. A consecutive 12-month total treats each month of the year as the end of a 12-month period. A 12-month total is not a year-to-date total. Facilities that have not been operating for 12 months should retain 12 month totals using whatever number of months of data are available until such a time as a consecutive 12 month total can be maintained each month.

Logs must document the method, calculations, and formulas used in determining the usage rate and the emission rate. This includes, but is not limited to, the product name, density, individual and total HAP contents, and individual and total VOC content. All calculations, including those used to derive emission credits for mass balance, must be clearly documented, and may be presented in the form of a template of sample calculations, which is filed with the logs required in this specific condition and available for review on site by regulatory inspectors.

[Rule 62-4.070(3), F.A.C.]

**B9.** The permittee shall maintain a current copy of Attachment 2-A at facility. The facility shall review the inventory contained in Attachment 2-A annually in conjunction with the AOR preparation. This inventory shall be submitted to the FDEP for review at the specific request of FDEP.

#### **Permit Applications**

**B10.** If a new paint booth or similar structure is installed at the facility that meets the criteria of units comprising EU 091, the Permittee shall submit to this office four copies of a construction permit application for the unit on the appropriate FDEP permit application forms (e.g., FDEP Form No. 62-210.900(1)). The permittee shall obtain a permit to construct the unit prior to the installation and operation of the unit.

**B11.** After completion of construction of a new unit that is part of EU 091, the Permittee shall update Attachment 2-A. The permittee shall submit a copy of the updated Attachment 2-A to this office within 60 days after completion of construction of the new unit. A Title V operating permit revision is not required upon completion of construction.

**B12.** The permittee shall submit a current copy of Attachment 2-A with Title V operating permit revision applications that address Emission Unit 091.

**B13.** The permitted shall submit a current copy of Attachment 2-A with each Title V operating permit renewal application.

**Subsection C. This section addresses the following emissions unit(s).**

**E.U. ID No./ Brief Description**

086	Compression Ignition Stationary Internal Combustion Engines
087	Spark Ignition Stationary Internal Combustion Engines Units
088	Launch Complex 39 (LC-39) Compression Ignition Backup Power Plant

**The following conditions apply to the emissions unit(s) listed above:**

**Essential Potential to Emit (PTE) Parameters**

**C1. Unit Description.** These emission units (i.e., EU 086, 087, and 088) are comprised of stationary source internal combustion engines at the facility that are used to provide electrical power (i.e., generators) and direct drive backup power for fire suppression pumps. These units are grouped into three separate emission units, two units based on the type of ignition (i.e., spark and compression ignition), and the third unit includes the compression ignition engines that comprise the LC-39 backup power plant.

**C2. Unit Description.** Emission Unit 086 is comprised of the compression ignition stationary internal combustion engines used throughout the site, with the exception of the compression ignition engines located at Launch Complex 39 which are permitted as Emission Unit 088.

Emissions from Emission Unit 086 are estimated based on the total fuel used by these units. The total fuel use is primary compliance assurance parameter for this EU for the operational limits contained in Condition C5.

For inventory tracking purposes, the compression ignition units are divided into two categories. The first category is for units that are required to be tracked as part of Emission Unit 086, as listed on Attachment 3-A to this permit. The power rating threshold for this inclusion is 480 kW. The second category includes units of less than 480 kW, which are not required to be tracked based on their individual maximum potential emissions being less than the construction permit requirement threshold.

Attachment 3-A is a list of the existing operations that comprise Emission Unit 086 and have an output power rating of at least 480 kW. As required in Condition No. C20., the permittee shall maintain and update a copy of Attachment 3-A at the facility. This updated copy shall include the following information:

- a) The current inventory of operational sources meeting this threshold;
- b) Listing of sources meeting this threshold removed from this emission unit during the prior five years (if removed after June 2008);
- c) For each compression ignition engine meeting this threshold, the;
  1. Unique identifier (e.g., number);
  2. Source location (e.g., building number);
  3. Manufacturer and model number (if applicable);
  4. Date of installation (if installed after April 1, 2006); and
  5. Date of removal (if applicable and removed after June 2008).

**C3. Unit Description.** Emission Unit 087 is comprised of the spark ignition stationary internal combustion engines used throughout the site.

Emissions from Emission Unit 087 are estimated based on the total fuel used by these units. The total fuel use is primary compliance assurance parameter for this EU for the operational limits contained in Condition C5.

For inventory tracking purposes, the spark ignition units are divided into two categories. The first category is for units that are required to be tracked as part of Emission Unit 087, as listed on Attachment 4-A to this permit. The power rating threshold for this inclusion is 34 kW. The second category includes units of less than 34 kW, which are not required to be tracked based on their individual maximum potential emissions being less than the construction permit requirement threshold.

Attachment 4-A is a list of the existing operations that comprise Emission Unit 087 and have an output power rating of at least 34 kW. As required in Condition No. C20., the permittee shall maintain and update a copy of Attachment 4-A at the facility. This updated copy shall include the following information:

- a) The current inventory of operational sources meeting this threshold;
- b) Listing of sources meeting this threshold removed from this emission unit during the prior five years (if removed after June 2008);
- c) For each spark ignition engine meeting this threshold, the;
  1. Unique identifier (e.g., number);
  2. Source location (e.g., building number);
  3. Manufacturer and model number (if applicable);
  4. Date of installation (if installed after June 2008); and
  5. Date of removal (if applicable and removed after June 2008).

**C4. Unit Description.** Emission Unit 088 is comprised of the compression ignition stationary internal combustion engines located at Launch Complex 39.

Emissions from Emission Unit 088 are estimated based on the total fuel used by these units. The total fuel use is primary compliance assurance parameter for this EU for the operational limits contained in Condition C5. Hours of operation are the primary compliance assurance parameter for this EU for the operational limits contained in Condition C6.

Attachment 5-A is a list of the existing operations that comprise Emission Unit 088. As required in Condition No. C20., the permittee shall maintain and update a copy of Attachment 5-A at the facility. This updated copy shall include the following information:

- a) The current inventory of operational sources meeting this threshold;
- b) Listing of sources meeting this threshold removed from this emission unit during the prior five years;
- c) For each compression ignition engine meeting this threshold, the;
  1. Unique identifier (e.g., number);
  2. Source location (e.g., building number);
  3. Manufacturer and model number (if applicable);
  4. Date of installation (if installed after April 1, 2006); and
  5. Date of removal (if applicable and removed after June 2008).

**C5. Capacity.** The annual (consecutive twelve months) fuel usage rates shall not exceed:

- a) E. U. 086 - 305,000 gallons (based on diesel fuel)

- b) E. U. 087 - 38,000 gallons (based on gasoline)
- c) E. U. 088 - 170,000 gallons (based on diesel fuel)

Should alternate fuels be used in these units that are not the listed fuels in this condition, the total annual usage rates shall be based on a pro-rated basis that is based on the relative fuel heat content value of the alternate fuel.

[Rule 62-210.200, (PTE), F.A.C., exemption letter, permit number 0090051-010-AC, Title V application received 6/7/96, and FDEP Approval Letter, dated 3/31/00]

**C6. Hours of Operation.**

- a) E.U. 086 and 087 - Each unit is allowed to operate continuously.
- b) E.U. 088 - Total combined generator units operations shall not exceed 1,250 hours per consecutive twelve months.

[Rule 62-210.200, (PTE), F.A.C., permit 0090051-010-AC, and Title V application received 6/7/96]

**C7. Emissions Unit Operating Rate Limitation After Testing.** See specific Condition No. **C14.**

[Rule 62-297.310(2), F.A.C.]

**C8. Methods of Operation - Fuels.** Each unit is allowed to fire no. 2 fuel oil, diesel fuel, biodiesel, jet fuel, gasoline, gasoline and ethanol blends, ethanol, and synthetically derived fuel (e.g., produced by the Fischer-Tropsch process). Synthetically derived fuels includes coal-to-liquids (CTL), gas-to-liquids (GTL), biomass-to-liquids (BTL), and syngas (e.g., mixture of carbon monoxide and hydrogen).

**Emission Limitations and Standards**

**C9.** See facility-wide Condition No. 3 for the visible emission limitation. This emission limit applies to Emission Units 086, 087, and 088.

**C10.** For compression ignition internal combustion engines manufactured after April 1, 2006 (July 1, 2006 for fire pumps), or modified or reconstructed after July 11, 2005, the individual engines are subject to the requirements of the New Source Performance Standard (NSPS) contained at 40 CFR Part 60, Subpart IIII - *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines* and the Area Source Requirements of the National Emission Standard for Hazardous Air Pollutants (NESHAP) contained at 40 CFR Part 63, Subpart ZZZZ. The following requirements apply to these units:

- a) Each engine shall meet the emissions criteria as stated in this regulation. Compliance with this requirement can be through any one of the following methods. Any of these three methods are presumed effective for the life of the engine (i.e., one-time requirements).
  - i) Be certified by the engine manufacturer as meeting the standards;
  - ii) Based on manufacturer supplied emission test results or emission factors; or,
  - iii) Based on emission testing performed by the permittee.
- b) Prior to October 1, 2010, subject engines using diesel fuel shall use fuel meeting the requirements of 40 CFR §80.510(a), summarized as follows:
  - i) Maximum sulfur content of 500 ppm
  - ii) Cetane index or aromatic content of
    - i) A minimum cetane index of 40; or
    - ii) A maximum aromatic content of 35 volume percent.

- c) Beginning October 1, 2010, subject engines using diesel fuel shall use fuel meeting the requirements of 40 CFR §80.510(b), summarized as follows:
  - i) Maximum sulfur content of 15 ppm
  - ii) Cetane index or aromatic content of
    - i) A minimum cetane index of 40; or
    - ii) A maximum aromatic content of 35 volume percent.
- d) For subject engines classified as emergency stationary engines, the permittee shall install and operate a non-resettable engine hour meter.
- e) For engines equipped with a diesel particulate filter, the permittee shall install and operate a backpressure monitor that notifies the owner or operator when the high backpressure limit of the engine is approached.

**C11.** For stationary spark ignition internal combustion engines manufactured after 1 July 2008 for engines rated at less than or equal to 25 hp and after 1 January 2009 for engines rated at greater than 25 hp, or engines modified or reconstructed after July 12, 2006, the individual engines are subject to the requirements of the New Source Performance Standard (NSPS) contained at 40 CFR Part 60, Subpart JJJJ - *Standards of Performance for Stationary Spark Ignition Internal Combustion Engines* and the Area Source Requirements of the National Emission Standard for Hazardous Air Pollutants (NESHAP) contained at 40 CFR Part 63, Subpart ZZZZ. The following requirements apply to these units:

- a) Each engine shall meet the emissions criteria as stated in this regulation. Compliance with this requirement can be through any one of the following methods. Any of these three methods are presumed effective for the life of the engine (i.e., one-time requirements).
  - i) Be certified by the engine manufacturer as meeting the standards;
  - ii) Based on manufacturer supplied emission test results or emission factors; or,
  - iii) Based on emission testing performed by the permittee.
- b) Subject engines using gasoline fuel shall use fuel meeting the fuel sulfur limit contained in 40 CFR §80.195(a), which is summarized as a maximum of 80 ppm.
- c) For the following subject engines that are used for emergency use only and do not meet the emission standards applicable to non-emergency engines; the permittee shall install a non-resettable hour meter.
  - i) Greater than 500 hp and built on or after July 1, 2010;
  - ii) Greater than or equal to 130 hp and less than 500 hp, and built on or after January 1, 2011; and
  - iii) Less than 130 hp and built on or after July 1, 2008.
- d) Engines used for emergency use are limited to 100 hours per year for operation for the purposes of maintenance checks and readiness testing. This 100 hour per year limit does not include the use of the engine in emergency situations. The permittee may request from the department an additional 100 hours for a specific engine for other operation. This request will be made in accordance with the provisions of the NSPS.
- e) The permittee shall maintain records of maintenance performed on subject engines.

#### **Test Methods and Procedures**

**C12.** Emissions of PM, SO<sub>2</sub>, NO<sub>x</sub>, and CO shall be estimated utilizing either:

- a) EPA's AP-42 emission factors, revision 1/95 or subsequent edition;
- b) Manufacturer supplied emission factors;



- c) Test data measured through the use of EPA Reference Test Methods (RTM); or,
- d) An alternate method using generally accepted engineering techniques that is submitted to the FDEP for review.

[Rule 62-4.070(1), F.A.C.]

**C13.** Each unit shall demonstrate compliance with its visible emission limit in accordance with DEP Method 9 prior to permit expiration date by using the largest engine as a representative unit if burning gaseous fuel(s) in combination with any amount of liquid fuel(s) for 400 hours or more per year or burning only liquid fuel(s) for 400 hours or more per year. The test period shall be a minimum of 30 minutes or the length of the batch/cycle.

[Rules 62-297.401(9)(c), 62-297.310(4)(a)2., 62-297.310(7)(a)4.a., F.A.C.]

**C14.** Testing of emissions shall be conducted with the emissions unit operation at permitted capacity. Permitted capacity is defined as 90 to 100 percent of the maximum operation rate allowed by the permit. If it is impractical to test at permitted capacity, an emissions unit may be tested at less than the minimum permitted capacity; in this case, subsequent emissions unit operation is limited to 110 percent of the test load until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days for the purpose of additional compliance testing to regain the authority to operate at the permitted capacity.

[Rule 62-297.310(2)& (2) (b), F.A.C.]

**C15.** By this permit, annual emissions compliance testing for visible emissions is not required for these emissions units while burning:

- a. only gaseous fuel(s); or
- b. gaseous fuel(s) in combination with any amount of liquid fuel(s) for less than 400 hours per year; or
- c. only liquid fuel(s) for less than 400 hours per year.

[Rule 62-297.310(7)(a)4., F.A.C.]

### **Monitoring of Operations**

#### **C16. Determination of Process Variables.**

(a) Required Equipment. The owner or operator of an emissions unit for which compliance tests are required shall install, operate, and maintain equipment or instruments necessary to determine process variables, such as process weight input or heat input, when such data are needed in conjunction with emissions data to determine the compliance of the emissions unit with applicable emission limiting standards.

(b) Accuracy of Equipment. Equipment or instruments used to directly or indirectly determine process variables, including devices such as belt scales, weight hoppers, flow meters, and tank scales, shall be calibrated and adjusted to indicate the true value of the parameter being measured with sufficient accuracy to allow the applicable process variable to be determined within 10% of its true value.

[Rule 62-297.310(5), F.A.C.]

### **Recordkeeping and Reporting Requirements**

**C17.** To demonstrate compliance with specific Condition No. **C5.**, the permittee shall maintain a log at the facility for a period of at least 5 years from the date the data are recorded. The log at a minimum shall contain the following for each of Emission Units 086, 087, and 088:

Monthly

- a) Designation of the month and year of operation for which records are being tabulated; and,
- b) Consecutive 12-month total of fuel consumption by fuel type.

[Rules 62-4.070(3) and 62-213.440(1)(b)2., F.A.C.]

**C18** To demonstrate compliance with specific Condition No. **C6.**, the permittee shall maintain a log at the facility for a period of at least 5 years from the date the data are recorded. The log at a minimum shall contain the following for Emission Unit 088:

Monthly

- a) Consecutive 12-month total of hours of operation.

Permit Note: A consecutive 12 month total is equal to the total for the month in question plus the totals for the eleven months previous to the month in question. A consecutive 12-month total treats each month of the year as the end of a 12-month period. A 12-month total is not a year-to-date total. Facilities that have not been operating for 12 months should retain 12 month totals using whatever number of months of data are available until such a time as a consecutive 12 month total can be maintained each month.

**Recordkeeping and Reporting Requirements**

**C19.** The permittee shall maintain current copies of Attachment 3-A, Attachment 4-A, and Attachment 5-A at the facility. The facility shall review the inventory contained in Attachment 3-A, Attachment 4-A, and Attachment 5-A annually in conjunction with the AOR preparation. This inventory shall be submitted to the FDEP for review at the specific request of FDEP.

**Permit Applications**

**C20.** The permittee is authorized to replace equipment listed in Attachment 3-A, Attachment 4-A, and Attachment 5-A with new or rebuilt unit if the replacement units are rated at the same or less power rating (e.g., horsepower or kilowatt output rating) than the equipment being replaced. A construction permit application is not required for this authorize like kind replacement. For any such like kind replacement, the permittee shall update the affected equipment listing in Attachment 3-A (EU 086), Attachment 4-A (EU 087), or Attachment 5-A (EU 088) within 30 days of the startup (i.e., normal operation) of the replacement equipment. The updated equipment listing is not required to be submitted to this Office.

**C21.** This condition applies to the installation of new stationary internal combustion engines that are not considered a like kind replacement as addressed in Condition No. C22. For new internal combustion engines installed at the facility that meet the criteria of units required to be listed in Attachment 3-A, Attachment 4-A, and Attachment 5-A (i.e., exceeds the rating thresholds listed in Specific Condition Nos. C2 and C3), the Permittee shall submit to this Office four copies of a construction permit application for the unit on the appropriate FDEP permit application forms (e.g., FDEP Form No. 62-210.900(1)). The permittee shall obtain a permit to construct the unit prior to the installation and operation of the unit.

**C22.** The permittee shall submit a current copy of Attachment 3-A with Title V operating permit revision applications that address Emission Unit 086.

**C23.** The permittee shall submit a current copy of Attachment 4-A with Title V operating permit revision applications that address Emission Unit 087.

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**C24.** The permittee shall submit a current copy of Attachment 5-A with Title V operating permit revision applications that address Emission Unit 088.

**C25.** The permitted shall submit current copies of Attachment 3-A, Attachment 4-A, and Attachment 5-A with each Title V operating permit renewal application.

**Subsection D. This section addresses the following emissions unit(s).**

**E.U. ID No./ Brief Description**

090     Hypergol Servicing Operations and Activities

This emission unit is comprised of hypergol servicing operations and activities. These operations include fueling operations, purging, fume hoods, and scrubbers.

**The following conditions apply to the emissions unit(s) listed above:**

**Essential Potential to Emit (PTE) Parameters**

**D1. Unit Description.** Attachment 6-A is a list of the operations and activities comprising this emission unit. As required in Condition No. D4., the permittee shall maintain and update a copy of Attachment 6-A at the facility. This updated copy shall include the following information for equipment that comprises this Emission Unit:

- a) The current inventory of operations and activities comprising this emission unit;
- b) Listing of operations and activities removed during the prior five years (after June 2008);
- c) For each operation or activity the;
  - 1. Unique identifier (e.g., number);
  - 2. Source location (e.g., building number); and
  - 3. Source description (e.g., manufacturer and model number);

**D2. Hours of Operation.** Each unit is allowed to operate continuously.

**Emission Limitations and Standards**

**D3.** The visible emission limitation for hypergol servicing operations and activities shall be one hundred (100) percent opacity.

{Permitting Note: Given the 100 percent VE limit for this emission unit, compliance is inherent. Hence periodic VE testing is not required.}

**Recordkeeping and Reporting Requirements**

**D4.** The permittee shall maintain a current copy of Attachment 6-A at facility. The facility shall review the inventory contained in Attachment 6-A annually in conjunction with the AOR preparation. This inventory shall be submitted to the FDEP for review at the specific request of FDEP.

**Permit Applications**

**D5.** Construction permits are not required for the installation and operation of hypergol servicing operations and activities such as fueling operations, purging, and fume hoods. See Condition Numbers **D4., D8., and D9.** for recordkeeping requirements associated with the installation and operation of new hypergol servicing operations and activities.

**D6.** For the installation and operation of a new hypergol scrubbing system, the Permittee shall submit to this Office four copies of a construction permit application for the unit on the appropriate FDEP permit application forms (e.g., FDEP Form No. 62-210.900(1)). The permittee shall obtain a permit to construct the unit prior to the installation and operation of the unit.

**D7.** After completion of construction of a new scrubber that is part of EU 090, the Permittee shall update Attachment 6-A. The permittee shall submit a copy of the updated Attachment 6-A to this office within 60 days after completion of construction of the new unit. A Title V operating permit revision is not required upon completion of construction.

**D8.** The permittee shall submit a current copy of Attachment 6-A with Title V operating permit revision applications that address Emission Unit 090.

**D9.** The permittee shall submit a current copy of Attachment 6-A with each Title V operating permit renewal application.