

**RECEIVED**

APR 22 2008

BUREAU OF AIR REGULATION

**AIR CONSTRUCTION PERMIT  
APPLICATION FOR USE OF BIODIESEL  
FOR  
COMBUSTION TURBINE UNITS 1, 2, AND 3  
AT THE STOCK ISLAND POWER PLANT  
*MONROE COUNTY, FLORIDA***

**Prepared For:**

**Keys Energy Services  
6900 Front Street Extended  
Stock Island, Florida 33041-6100**

**Prepared By:**

**Golder Associates Inc.  
6241 NW 23rd Street, Suite 500  
Gainesville, Florida 32653-1500**

**April 2008**

**0838-7547**

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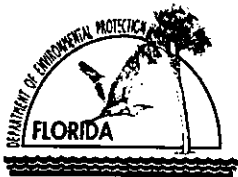
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**APPLICATION FOR AIR PERMIT**

**LONG FORM**



# Department of Environmental Protection RECEIVED

## Division of Air Resource Management APPLICATION FOR AIR PERMIT - LONG FORM

APR 22 2008

DEPARTMENT OF AIR REGULATION

### I. APPLICATION INFORMATION

**Air Construction Permit** – Use this form to apply for an air construction permit:

- For any required purpose at a facility operating under a federally enforceable state air operation permit (FESOP) or Title V air operation permit;
- For a proposed project subject to prevention of significant deterioration (PSD) review, nonattainment new source review, or maximum achievable control technology (MACT);
- To assume a restriction on the potential emissions of one or more pollutants to escape a requirement such as PSD review, nonattainment new source review, MACT, or Title V; or
- To establish, revise, or renew a plantwide applicability limit (PAL).

**Air Operation Permit** – Use this form to apply for:

- An initial federally enforceable state air operation permit (FESOP); or
- An initial, revised, or renewal Title V air operation permit.

To ensure accuracy, please see form instructions.

#### Identification of Facility

1. Facility Owner/Company Name: <b>Keys Energy Services</b>	
2. Site Name: <b>Stock Island Power Plant</b>	
3. Facility Identification Number: <b>0870003</b>	
4. Facility Location... Street Address or Other Locator: <b>6900 Front St. Extended</b> City: <b>Stock Island</b> County: <b>Monroe</b> Zip Code: <b>33041-6100</b>	
5. Relocatable Facility? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6. Existing Title V Permitted Facility? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

#### Application Contact

1. Application Contact Name: <b>Edward Garcia</b>	
2. Application Contact Mailing Address... Organization/Firm: <b>Keys Energy Services</b> Street Address: <b>1001 James Street</b> <b>PO Box 6100</b> City: <b>Key West</b> State: <b>FL</b> Zip Code: <b>33041-6100</b>	
3. Application Contact Telephone Numbers... Telephone: <b>( 305 ) 295-1134</b> ext. Fax: <b>( 305 ) 295-1145</b>	
4. Application Contact E-mail Address: <b>edward.garcia@keysenergy.com</b>	

#### Application Processing Information (DEP Use)

1. Date of Receipt of Application: <b>4/22/08</b>	3. PSD Number (if applicable):
2. Project Number(s): <b>0870003-010-A</b>	4. Siting Number (if applicable):

## APPLICATION INFORMATION

### Purpose of Application

This application for air permit is being submitted to obtain: (Check one)

#### **Air Construction Permit**

- Air construction permit.
- Air construction permit to establish, revise, or renew a plantwide applicability limit (PAL).
- Air construction permit to establish, revise, or renew a plantwide applicability limit (PAL), and separate air construction permit to authorize construction or modification of one or more emissions units covered by the PAL.

#### **Air Operation Permit**

- Initial Title V air operation permit.
- Title V air operation permit revision.
- Title V air operation permit renewal.
- Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is required.
- Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is not required.

#### **Air Construction Permit and Revised/Renewal Title V Air Operation Permit (Concurrent Processing)**

- Air construction permit and Title V permit revision, incorporating the proposed project.
- Air construction permit and Title V permit renewal, incorporating the proposed project.

**Note: By checking one of the above two boxes, you, the applicant, are requesting concurrent processing pursuant to Rule 62-213.405, F.A.C. In such case, you must also check the following box:**

- I hereby request that the department waive the processing time requirements of the air construction permit to accommodate the processing time frames of the Title V air operation permit.

### Application Comment


Keys Energy Services is seeking authorization to utilize biodiesel in addition to No. 2 fuel oil in Combustion Turbine Units 1, 2, and 3. The applicant proposes to conduct a test of up to 250,000 gallons of biodiesel in one turbine to demonstrate that an emission increase above PSD emission rates does not occur.



**APPLICATION INFORMATION**

**Owner/Authorized Representative Statement**

**Complete if applying for an air construction permit or an initial FESOP.**

1. Owner/Authorized Representative Name : <b>Edward Garcia</b>
2. Owner/Authorized Representative Mailing Address... Organization/Firm: <b>Keys Energy Services</b> Street Address: <b>1001 James Street, P.O. Box 6100</b> City: <b>Key West</b> State: <b>FL</b> Zip Code: <b>33041-6100</b>
3. Owner/Authorized Representative Telephone Numbers... Telephone: <b>(305) 295-1134</b> ext. Fax: <b>(305) 295-1145</b>
4. Owner/Authorized Representative E-mail Address: <b>edward.garcia@keysenergy.com</b>
5. Owner/Authorized Representative Statement: <i>I, the undersigned, am the owner or authorized representative of the corporation, partnership, or other legal entity submitting this air permit application. To the best of my knowledge, the statements made in this application are true, accurate and complete, and any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department.</i>   _____ Signature  _____ Date <b>4/16/08</b>

**APPLICATION INFORMATION**

**Application Responsible Official Certification**

**Complete if applying for an initial, revised, or renewal Title V air operation permit or concurrent processing of an air construction permit and revised or renewal Title V air operation permit. If there are multiple responsible officials, the "application responsible official" need not be the "primary responsible official."**

1. Application Responsible Official Name:
2. Application Responsible Official Qualification (Check one or more of the following options, as applicable): <input type="checkbox"/> For a corporation, the president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit under Chapter 62-213, F.A.C. <input type="checkbox"/> For a partnership or sole proprietorship, a general partner or the proprietor, respectively. <input type="checkbox"/> For a municipality, county, state, federal, or other public agency, either a principal executive officer or ranking elected official. <input type="checkbox"/> The designated representative at an Acid Rain source, CAIR source, or Hg Budget source.
3. Application Responsible Official Mailing Address... Organization/Firm: Street Address: City: State: Zip Code:
4. Application Responsible Official Telephone Numbers... Telephone: ( ) - ext. Fax: ( ) -
5. Application Responsible Official E-mail Address:
6. Application Responsible Official Certification: <i>I, the undersigned, am a responsible official of the Title V source addressed in this air permit application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof and all other applicable requirements identified in this application to which the Title V source is subject. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department, and I will promptly notify the department upon sale or legal transfer of the facility or any permitted emissions unit. Finally, I certify that the facility and each emissions unit are in compliance with all applicable requirements to which they are subject, except as identified in compliance plan(s) submitted with this application.</i>  _____ Signature  _____ Date

# APPLICATION INFORMATION

## Professional Engineer Certification

1. Professional Engineer Name: <b>Kennard F. Kosky</b> Registration Number: <b>14996</b>
2. Professional Engineer Mailing Address... Organization/Firm: <b>Golder Associates Inc.</b> Street Address: <b>6241 NW 23rd Street, Suite 500</b> City: <b>Gainesville</b> State: <b>FL</b> Zip Code: <b>32653</b>
3. Professional Engineer Telephone Numbers... Telephone: <b>(352) 336-5600</b> ext. <b>516</b> Fax: <b>(352) 336-6603</b>
4. Professional Engineer E-mail Address: <b>kkosky@golder.com</b>
5. Professional Engineer Statement: <i>I, the undersigned, hereby certify, except as particularly noted herein*, that:</i> <i>(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this application for air permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and</i> <i>(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.</i> <i>(3) If the purpose of this application is to obtain a Title V air operation permit (check here <input type="checkbox"/>, if so), I further certify that each emissions unit described in this application for air permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance plan and schedule is submitted with this application.</i> <i>(4) If the purpose of this application is to obtain an air construction permit (check here <input checked="" type="checkbox"/>, if so) or concurrently process and obtain an air construction permit and a Title V air operation permit revision or renewal for one or more proposed new or modified emissions units (check here <input type="checkbox"/>, if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.</i> <i>(5) If the purpose of this application is to obtain an initial air operation permit or operation permit revision or renewal for one or more newly constructed or modified emissions units (check here <input type="checkbox"/>, if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.</i>  Signature: <u><i>Kennard F. Kosky</i></u> Date: <u>4/9/08</u> (seal) <u>146</u>

\* Attach any exception to certification statement.

## II. FACILITY INFORMATION

### A. GENERAL FACILITY INFORMATION

#### Facility Location and Type

1. Facility UTM Coordinates... Zone <b>17</b> East (km) <b>425.65</b> North (km) <b>2716.67</b>		2. Facility Latitude/Longitude... Latitude (DD/MM/SS) <b>24° 33' 49" N</b> Longitude (DD/MM/SS) <b>81° 44' 3" W</b>	
3. Governmental Facility Code: <b>4</b>	4. Facility Status Code: <b>A</b>	5. Facility Major Group SIC Code: <b>49</b>	6. Facility SIC(s): <b>4911</b>
7. Facility Comment : <b>Electric Power Plant</b>			

#### Facility Contact

1. Facility Contact Name: <b>Edward Garcia, Director of Generation</b>
2. Facility Contact Mailing Address... Organization/Firm: <b>Utility Board City of Key West</b> Street Address: <b>1001 James Street</b> <b>PO Box 6100</b> City: <b>Key West</b> State: <b>FL</b> Zip Code: <b>33041-6100</b>
3. Facility Contact Telephone Numbers: Telephone: <b>(305) 295-1134</b> ext.                      Fax: <b>(305) 295-1145</b>
4. Facility Contact E-mail Address: <b>edward.garcia@keysenergy.com</b>

#### Facility Primary Responsible Official

**Complete if an "application responsible official" is identified in Section I that is not the facility "primary responsible official."**

1. Facility Primary Responsible Official Name: <b>Edward Garcia, Director of Generation</b>
2. Facility Primary Responsible Official Mailing Address... Organization/Firm: <b>Keys Energy Services</b> Street Address: <b>1001 James Street</b> <b>PO Box 6100</b> City: <b>Key West</b> State: <b>FL</b> Zip Code: <b>33041-6100</b>
3. Facility Primary Responsible Official Telephone Numbers... Telephone: <b>(305) 295-1134</b> ext.                      Fax: <b>(305) 295-1145</b>
4. Facility Primary Responsible Official E-mail Address: <b>edward.garcia@keysenergy.com</b>

## FACILITY INFORMATION

### Facility Regulatory Classifications

Check all that would apply *following* completion of all projects and implementation of all other changes proposed in this application for air permit. Refer to instructions to distinguish between a "major source" and a "synthetic minor source."

1. <input type="checkbox"/> Small Business Stationary Source	<input type="checkbox"/> Unknown
2. <input type="checkbox"/> Synthetic Non-Title V Source	
3. <input checked="" type="checkbox"/> Title V Source	
4. <input checked="" type="checkbox"/> Major Source of Air Pollutants, Other than Hazardous Air Pollutants (HAPs)	
5. <input type="checkbox"/> Synthetic Minor Source of Air Pollutants, Other than HAPs	
6. <input type="checkbox"/> Major Source of Hazardous Air Pollutants (HAPs)	
7. <input type="checkbox"/> Synthetic Minor Source of HAPs	
8. <input checked="" type="checkbox"/> One or More Emissions Units Subject to NSPS (40 CFR Part 60)	
9. <input type="checkbox"/> One or More Emissions Units Subject to Emission Guidelines (40 CFR Part 60)	
10. <input type="checkbox"/> One or More Emissions Units Subject to NESHAP (40 CFR Part 61 or Part 63)	
11. <input type="checkbox"/> Title V Source Solely by EPA Designation (40 CFR 70.3(a)(5))	
12. Facility Regulatory Classifications Comment:  <b>NSPS applies to emission units at facility, but not those emission units for which this application is being submitted.</b>	

**FACILITY INFORMATION**

**List of Pollutants Emitted by Facility**

1. Pollutant Emitted	2. Pollutant Classification	3. Emissions Cap [Y or N]?
Nitrogen Oxides - NO <sub>x</sub>	A	N
Sulfur Dioxide - SO <sub>2</sub>	A	N
Carbon Monoxide - CO	A	N
Particulate Matter - PM	A	N
Particulate Matter - PM <sub>10</sub>	A	N
Volatile Organic Compounds - VOC	A	N



## FACILITY INFORMATION

### C. FACILITY ADDITIONAL INFORMATION

#### Additional Requirements for All Applications, Except as Otherwise Stated

1. Facility Plot Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date: <b>10/01/2004</b>
2. Process Flow Diagram(s): (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date: <b>10/01/2004</b>
3. Precautions to Prevent Emissions of Unconfined Particulate Matter: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date: <b>10/01/2004</b>

#### Additional Requirements for Air Construction Permit Applications

1. Area Map Showing Facility Location: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable (existing permitted facility)
2. Description of Proposed Construction, Modification, or Plantwide Applicability Limit (PAL): <input checked="" type="checkbox"/> Attached, Document ID: <b>See Part 2</b>
3. Rule Applicability Analysis: <input checked="" type="checkbox"/> Attached, Document ID: <b>See Part 2</b>
4. List of Exempt Emissions Units: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable (no exempt units at facility)
5. Fugitive Emissions Identification: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
6. Air Quality Analysis (Rule 62-212.400(7), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
7. Source Impact Analysis (Rule 62-212.400(5), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
8. Air Quality Impact since 1977 (Rule 62-212.400(4)(e), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
9. Additional Impact Analyses (Rules 62-212.400(8) and 62-212.500(4)(e), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
10. Alternative Analysis Requirement (Rule 62-212.500(4)(g), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable

## FACILITY INFORMATION

### C. FACILITY ADDITIONAL INFORMATION (CONTINUED)

#### Additional Requirements for FESOP Applications

- |                                                                                                                                                                   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. List of Exempt Emissions Units:<br><input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable (no exempt units at facility) |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|

#### Additional Requirements for Title V Air Operation Permit Applications

1. List of Insignificant Activities: (Required for initial/renewal applications only) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable (revision application)
2. Identification of Applicable Requirements: (Required for initial/renewal applications, and for revision applications if this information would be changed as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable (revision application with no change in applicable requirements)
3. Compliance Report and Plan: (Required for all initial/revision/renewal applications) <input type="checkbox"/> Attached, Document ID: _____ <p>Note: A compliance plan must be submitted for each emissions unit that is not in compliance with all applicable requirements at the time of application and/or at any time during application processing. The department must be notified of any changes in compliance status during application processing.</p>
4. List of Equipment/Activities Regulated under Title VI: (If applicable, required for initial/renewal applications only) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Equipment/Activities Onsite but Not Required to be Individually Listed <input type="checkbox"/> Not Applicable
5. Verification of Risk Management Plan Submission to EPA: (If applicable, required for initial/renewal applications only) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
6. Requested Changes to Current Title V Air Operation Permit: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable

**FACILITY INFORMATION**

**C. FACILITY ADDITIONAL INFORMATION (CONTINUED)**

**Additional Requirements for Facilities Subject to Acid Rain, CAIR, or Hg Budget Program**

1. Acid Rain Program Forms: Acid Rain Part Application (DEP Form No. 62-210.900(1)(a)): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date: <u>10/01/2004</u> <input type="checkbox"/> Not Applicable (not an Acid Rain source) Phase II NO <sub>x</sub> Averaging Plan (DEP Form No. 62-210.900(1)(a)1.): <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date: _____ <input checked="" type="checkbox"/> Not Applicable New Unit Exemption (DEP Form No. 62-210.900(1)(a)2.): <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date: _____ <input checked="" type="checkbox"/> Not Applicable
2. CAIR Part (DEP Form No. 62-210.900(1)(b)): <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date: _____ <input checked="" type="checkbox"/> Not Applicable (not a CAIR source)
3. Hg Budget Part (DEP Form No. 62-210.900(1)(c)): <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date: _____ <input checked="" type="checkbox"/> Not Applicable (not a Hg Budget unit)

**Additional Requirements Comment**

## EMISSIONS UNIT INFORMATION

Section [1] of [2]

23.5 MW Simple Cycle Combustion Turbine [CT-1]

### III. EMISSIONS UNIT INFORMATION

**Title V Air Operation Permit Application** - For Title V air operation permitting only, emissions units are classified as regulated, unregulated, or insignificant. If this is an application for an initial, revised or renewal Title V air operation permit, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each regulated and unregulated emissions unit addressed in this application. Some of the subsections comprising the Emissions Unit Information Section of the form are optional for unregulated emissions units. Each such subsection is appropriately marked. Insignificant emissions units are required to be listed at Section II, Subsection C.

**Air Construction Permit or FESOP Application** - For air construction permitting or federally enforceable state air operation permitting, emissions units are classified as either subject to air permitting or exempt from air permitting. The concept of an "unregulated emissions unit" does not apply. If this is an application for an air construction permit or FESOP, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air permitting are required to be listed at Section II, Subsection C.

**Air Construction Permit and Revised/Renewal Title V Air Operation Permit Application** - Where this application is used to apply for both an air construction permit and a revised or renewal Title V air operation permit, each emissions unit is classified as either subject to air permitting or exempt from air permitting for air construction permitting purposes, and as regulated, unregulated, or insignificant for Title V air operation permitting purposes. A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit addressed in this application that is subject to air construction permitting and for each such emissions unit that is a regulated or unregulated unit for purposes of Title V permitting. (An emissions unit may be exempt from air construction permitting but still be classified as an unregulated unit for Title V purposes.) Emissions units classified as insignificant for Title V purposes are required to be listed at Section II, Subsection C.

If submitting the application form in hard copy, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application must be indicated in the space provided at the top of each page.

**EMISSIONS UNIT INFORMATION**

Section [1] of [2]

23.5 MW Simple Cycle Combustion Turbine [CT-1]

**A. GENERAL EMISSIONS UNIT INFORMATION**

**Title V Air Operation Permit Emissions Unit Classification**

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)

The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

**Emissions Unit Description and Status**

1. Type of Emissions Unit Addressed in this Section: (Check one)

This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in this Section:

**Gas Turbine Electric Generator Unit 1**

3. Emissions Unit Identification Number: **007**

4. Emissions Unit Status Code:  
**A**

5. Commence Construction Date:

6. Initial Startup Date:  
**01/01/1996**

7. Emissions Unit Major Group SIC Code:  
**49**

8. Federal Program Applicability: (Check all that apply)

Acid Rain Unit

CAIR Unit

Hg Budget Unit

9. Package Unit:

Manufacturer: **General Electric**

Model Number: **PG5341 CT**

10. Generator Nameplate Rating: **23.5 MW**

11. Emissions Unit Comment:

**Keys Energy Services is seeking authorization to utilize biodiesel in addition to No. 2 fuel oil in Combustion Turbine Unit 1 and test up to 250,000 gallons of biodiesel in one turbine. The emissions from the use of biodiesel are expected to be lower than when firing 0.05-percent sulfur diesel fuel oil. See Part 2.**

**EMISSIONS UNIT INFORMATION**

Section [1] of [2]

23.5 MW Simple Cycle Combustion Turbine [CT-1]

**Emissions Unit Control Equipment/Method:** Control 1 of 1

1. Control Equipment/Method Description: Water Injection
2. Control Device or Method Code: 028

**Emissions Unit Control Equipment/Method:** Control \_\_\_ of \_\_\_

1. Control Equipment/Method Description:
2. Control Device or Method Code:

**Emissions Unit Control Equipment/Method:** Control \_\_\_ of \_\_\_

1. Control Equipment/Method Description:
2. Control Device or Method Code:

**Emissions Unit Control Equipment/Method:** Control \_\_\_ of \_\_\_

1. Control Equipment/Method Description:
2. Control Device or Method Code:

**EMISSIONS UNIT INFORMATION**

Section [1] of [2]

23.5 MW Simple Cycle Combustion Turbine [CT-1]

**B. EMISSIONS UNIT CAPACITY INFORMATION**

(Optional for unregulated emissions units.)

**Emissions Unit Operating Capacity and Schedule**

1. Maximum Process or Throughput Rate:	
2. Maximum Production Rate:	
3. Maximum Heat Input Rate: <b>312</b> million Btu/hr	
4. Maximum Incineration Rate: pounds/hr tons/day	
5. Requested Maximum Operating Schedule: 24 hours/day 52 weeks/year	7 days/week 2,888.5 hours/year
6. Operating Capacity/Schedule Comment:	

**EMISSIONS UNIT INFORMATION**

Section [1] of [2]

23.5 MW Simple Cycle Combustion Turbine [CT-1]

**C. EMISSION POINT (STACK/VENT) INFORMATION**

(Optional for unregulated emissions units.)

**Emission Point Description and Type**

1. Identification of Point on Plot Plan or Flow Diagram: <b>Gas Turbine Unit No. 1</b>		2. Emission Point Type Code: <b>1</b>	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking: <b>Gas Turbine Unit No. 1 Stack</b>			
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:			
5. Discharge Type Code: <b>V</b>	6. Stack Height: <b>35 feet</b>	7. Exit Diameter: <b>13 feet</b>	
8. Exit Temperature: <b>910 °F</b>	9. Actual Volumetric Flow Rate: <b>580,406 acfm</b>	10. Water Vapor: <b>%</b>	
11. Maximum Dry Standard Flow Rate: dscfm		12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates... Zone: East (km): North (km):		14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
15. Emission Point Comment: <b>The stack exit diameter of 13 feet (ft) is an equivalent diameter. The stack is actually rectangular with exit dimensions 10.4 ft x 12.9 ft.</b>			

**EMISSIONS UNIT INFORMATION**

Section {1}.of {2}

23.5 MW Simple Cycle Combustion Turbine [CT-1]

**D. SEGMENT (PROCESS/FUEL) INFORMATION**

**Segment Description and Rate: Segment 1 of 2**

1. Segment Description (Process/Fuel Type): Internal Combustion Engines; Electric Generation; Distillate Oil (Diesel); Turbine.		
2. Source Classification Code (SCC): 2-01-001-01		3. SCC Units: Thousand Gallons Burned
4. Maximum Hourly Rate: 2,458	5. Maximum Annual Rate: 7,100	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: 0.05	8. Maximum % Ash:	9. Million Btu per SCC Unit: 137
10. Segment Comment:		

**Segment Description and Rate: Segment 2 of 2**

1. Segment Description (Process/Fuel Type): Internal Combustion Engines; Electric Generation; Biodiesel; Turbine.		
2. Source Classification Code (SCC): 2-01-001-01		3. SCC Units: Thousand Gallons Burned
4. Maximum Hourly Rate: 2,704	5. Maximum Annual Rate: 8,000	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: 0.0015	8. Maximum % Ash:	9. Million Btu per SCC Unit: 122
10. Segment Comment: Segment refers to Biodiesel fuel.		



**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
 POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS**  
 (Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

**Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions**

1. Pollutant Emitted: <b>Sulfur Dioxide-SO<sub>2</sub></b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>0.49 lb/hour                      0.02 tons/year</b>		4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year			
6. Emission Factor: <b>0.0015% Sulfur</b>  Reference: <b>Mass Balance</b>		7. Emissions Method Code: <b>2</b>	
8.a. Baseline Actual Emissions (if required): tons/year		8.b. Baseline 24-month Period: From:                      To:	
9.a. Projected Actual Emissions (if required): tons/year		9.b. Projected Monitoring Period: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: <b>See Part 2 Table 2 for emission calculations.</b>			
11. Potential, Fugitive, and Actual Emissions Comment: <b>Hourly Potential Emissions based on 0.0015 percent sulfur. Annual Potential Emissions based on hours of biodiesel at maximum heat input burning 250,000 gallons.</b>			

**EMISSIONS UNIT INFORMATION**

**POLLUTANT DETAIL INFORMATION**

Section [1] of [2]

Page [1] of [1]

23.5 MW Simple Cycle Combustion Turbine [CT-1]

Sulfur Dioxide-SO<sub>2</sub>

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
ALLOWABLE EMISSIONS**

**Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.**

Allowable Emissions Allowable Emissions \_\_ of \_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions \_\_ of \_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions \_\_ of \_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**EMISSIONS UNIT INFORMATION**

Section [1] of [2]

23.5 MW Simple Cycle Combustion Turbine [CT-1]

**G. VISIBLE EMISSIONS INFORMATION**

Complete Subsection G if this emissions unit is or would be subject to a unit-specific visible emissions limitation.

**Visible Emissions Limitation:** Visible Emissions Limitation 1 of 1

1. Visible Emissions Subtype: <b>VE20</b>	2. Basis for Allowable Opacity: <input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions: <b>20 %</b> Exceptional Conditions:      % Maximum Period of Excess Opacity Allowed:      min/hour	
4. Method of Compliance: <b>EPA Method 9</b>	
5. Visible Emissions Comment: <b>62-296.310(2)(a), F.A.C.</b>	

**Visible Emissions Limitation:** Visible Emissions Limitation \_\_\_ of \_\_\_

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: <input type="checkbox"/> Rule <input type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions:      %      Exceptional Conditions:      % Maximum Period of Excess Opacity Allowed:      min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment:	

**EMISSIONS UNIT INFORMATION**

Section [1] of [2]

23.5 MW Simple Cycle Combustion Turbine [CT-1]

**H. CONTINUOUS MONITOR INFORMATION**

Complete Subsection H if this emissions unit is or would be subject to continuous monitoring.

**Continuous Monitoring System:** Continuous Monitor 1 of 1

1. Parameter Code: <b>WTF - Water-to-fuel ratio</b>	2. Pollutant(s):
3. CMS Requirement:	<input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: <b>Johnson Yokogawa</b> Model Number: <b>VR-204</b> Serial Number: <b>47CJ0045</b>	
5. Installation Date: <b>12/1/1996</b>	6. Performance Specification Test Date:
7. Continuous Monitor Comment: <b>40 CFR 60.334</b>	

**Continuous Monitoring System:** Continuous Monitor \_\_\_ of \_\_\_

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	<input type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

**EMISSIONS UNIT INFORMATION**

Section [1] of [2]

23.5 MW Simple Cycle Combustion Turbine [CT-1]

**I. EMISSIONS UNIT ADDITIONAL INFORMATION**

**Additional Requirements for All Applications, Except as Otherwise Stated**

1. Process Flow Diagram: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date <u>10/01/2004</u>
2. Fuel Analysis or Specification: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input checked="" type="checkbox"/> Attached, Document ID: <u>See Part 2</u> <input type="checkbox"/> Previously Submitted, Date _____
3. Detailed Description of Control Equipment: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date <u>10/01/2004</u>
4. Procedures for Startup and Shutdown: (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date <u>10/01/2004</u> <input type="checkbox"/> Not Applicable (construction application)
5. Operation and Maintenance Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date <u>10/01/2004</u> <input type="checkbox"/> Not Applicable
6. Compliance Demonstration Reports/Records: <input type="checkbox"/> Attached, Document ID: _____ Test Date(s)/Pollutant(s) Tested: _____ <input type="checkbox"/> Previously Submitted, Date: _____ Test Date(s)/Pollutant(s) Tested: _____ <input type="checkbox"/> To be Submitted, Date (if known): _____ Test Date(s)/Pollutant(s) Tested: _____ <input checked="" type="checkbox"/> Not Applicable Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.
7. Other Information Required by Rule or Statute: <input checked="" type="checkbox"/> Attached, Document ID: <u>See Part 2</u> <input type="checkbox"/> Not Applicable

**EMISSIONS UNIT INFORMATION**

Section [1] of [2]

23.5 MW Simple Cycle Combustion Turbine [CT-1]

**I. EMISSIONS UNIT ADDITIONAL INFORMATION (CONTINUED)**

**Additional Requirements for Air Construction Permit Applications**

1. Control Technology Review and Analysis (Rules 62-212.400(10) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e)): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
2. Good Engineering Practice Stack Height Analysis (Rules 62-212.400(4)(d) and 62-212.500(4)(f), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
3. Description of Stack Sampling Facilities: (Required for proposed new stack sampling facilities only) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable

**Additional Requirements for Title V Air Operation Permit Applications**

1. Identification of Applicable Requirements: <input type="checkbox"/> Attached, Document ID: _____
2. Compliance Assurance Monitoring: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
3. Alternative Methods of Operation: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
4. Alternative Modes of Operation (Emissions Trading): <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable

**Additional Requirements Comment**

See Attachment Part 2.
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## EMISSIONS UNIT INFORMATION

Section [2] of [2]

19.77 MW Simple Cycle Combustion Turbine [CT-2, CT-3]

### III. EMISSIONS UNIT INFORMATION

**Title V Air Operation Permit Application** - For Title V air operation permitting only, emissions units are classified as regulated, unregulated, or insignificant. If this is an application for an initial, revised or renewal Title V air operation permit, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each regulated and unregulated emissions unit addressed in this application. Some of the subsections comprising the Emissions Unit Information Section of the form are optional for unregulated emissions units. Each such subsection is appropriately marked. Insignificant emissions units are required to be listed at Section II, Subsection C.

**Air Construction Permit or FESOP Application** - For air construction permitting or federally enforceable state air operation permitting, emissions units are classified as either subject to air permitting or exempt from air permitting. The concept of an "unregulated emissions unit" does not apply. If this is an application for an air construction permit or FESOP, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air permitting are required to be listed at Section II, Subsection C.

**Air Construction Permit and Revised/Renewal Title V Air Operation Permit Application** - Where this application is used to apply for both an air construction permit and a revised or renewal Title V air operation permit, each emissions unit is classified as either subject to air permitting or exempt from air permitting for air construction permitting purposes, and as regulated, unregulated, or insignificant for Title V air operation permitting purposes. A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit addressed in this application that is subject to air construction permitting and for each such emissions unit that is a regulated or unregulated unit for purposes of Title V permitting. (An emissions unit may be exempt from air construction permitting but still be classified as an unregulated unit for Title V purposes.) Emissions units classified as insignificant for Title V purposes are required to be listed at Section II, Subsection C.

If submitting the application form in hard copy, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application must be indicated in the space provided at the top of each page.



**EMISSIONS UNIT INFORMATION**

Section [2] of [2]

19.77 MW Simple Cycle Combustion Turbine [CT-2, CT-3]

**Emissions Unit Control Equipment/Method:** Control 1 of 1

1. Control Equipment/Method Description:  
Water Injection

2. Control Device or Method Code: 028

**Emissions Unit Control Equipment/Method:** Control \_\_\_ of \_\_\_

1. Control Equipment/Method Description:

2. Control Device or Method Code:

**Emissions Unit Control Equipment/Method:** Control \_\_\_ of \_\_\_

1. Control Equipment/Method Description:

2. Control Device or Method Code:

**Emissions Unit Control Equipment/Method:** Control \_\_\_ of \_\_\_

1. Control Equipment/Method Description:

2. Control Device or Method Code:



**EMISSIONS UNIT INFORMATION**

Section [2] of [2]

19.77 MW Simple Cycle Combustion Turbine [CT-2, CT-3]

**C. EMISSION POINT (STACK/VENT) INFORMATION**

(Optional for unregulated emissions units.)

**Emission Point Description and Type**

1. Identification of Point on Plot Plan or Flow Diagram: <b>Gas Turbine Unit Nos. 2, 3</b>		2. Emission Point Type Code: <b>1</b>	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking: <b>Gas Turbine Unit Nos. 2 and 3 stacks.</b>			
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:			
5. Discharge Type Code: <b>V</b>	6. Stack Height: <b>43 feet</b>		7. Exit Diameter: <b>12.6 feet</b>
8. Exit Temperature: <b>982 °F</b>	9. Actual Volumetric Flow Rate: <b>607,567 acfm</b>		10. Water Vapor: <b>%</b>
11. Maximum Dry Standard Flow Rate: dscfm		12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates... Zone: East (km): North (km):		14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
15. Emission Point Comment: <b>Exit Diameter of 12.6 ft is an equivalent diameter. The actual stack dimensions are 10 ft x 12.5 ft.</b>			

**EMISSIONS UNIT INFORMATION**

Section [2] of [2]

19.77 MW Simple Cycle Combustion Turbine [CT-2, CT-3]

**D. SEGMENT (PROCESS/FUEL) INFORMATION**

**Segment Description and Rate: Segment 1 of 2**

1. Segment Description (Process/Fuel Type): Internal Combustion Engines; Electric Generation; Distillate Oil (Diesel); Turbine.		
2. Source Classification Code (SCC): 2-01-001-01		3. SCC Units: Thousand Gallons Burned
4. Maximum Hourly Rate: 2.23	5. Maximum Annual Rate: 8,840	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: 0.05	8. Maximum % Ash:	9. Million Btu per SCC Unit: 137
10. Segment Comment: CT-2 and CT-3 have an aggregate limit of 8,840,000 gal/yr.		

**Segment Description and Rate: Segment 2 of 2**

1. Segment Description (Process/Fuel Type): Internal Combustion Engines; Electric Generation; Biodiesel; Turbine.		
2. Source Classification Code (SCC): 2-01-001-01		3. SCC Units: Thousand Gallons Burned
4. Maximum Hourly Rate: 2.5	5. Maximum Annual Rate: 9,930	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: 0.0015	8. Maximum % Ash:	9. Million Btu per SCC Unit: 122
10. Segment Comment: Segment refers to Biodiesel fuel.		



**EMISSIONS UNIT INFORMATION**

**POLLUTANT DETAIL INFORMATION**

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19.77 MW Simple Cycle Combustion Turbine [CT-2, CT-3]

Sulfur Dioxide-SO<sub>2</sub>

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS**

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

**Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions**

1. Pollutant Emitted: <b>Sulfur Dioxide-SO<sub>2</sub></b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>0.48 lb/hour                      0.02 tons/year</b>		4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year			
6. Emission Factor: <b>0.0015% Sulfur</b>  Reference: <b>Mass Balance</b>		7. Emissions Method Code: <b>2</b>	
8.a. Baseline Actual Emissions (if required): tons/year		8.b. Baseline 24-month Period: From:                      To:	
9.a. Projected Actual Emissions (if required): tons/year		9.b. Projected Monitoring Period: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: <b>See Attachment Table 2 for emission calculations.</b>			
11. Potential, Fugitive, and Actual Emissions Comment: <b>Potential emissions above reported on a per unit basis. Hourly potential emissions based on 0.0015% sulfur. Annual potential emissions based on hours of biodiesel at maximum heat input burning 250,000 gallons.</b>			

**EMISSIONS UNIT INFORMATION**

**POLLUTANT DETAIL INFORMATION**

Section [2] of [2]

Page [1] of [1]

19.77 MW Simple Cycle Combustion Turbine [CT-2, CT-3]

Sulfur Dioxide-SO<sub>2</sub>

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
ALLOWABLE EMISSIONS**

**Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.**

Allowable Emissions Allowable Emissions \_\_ of \_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions \_\_ of \_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions \_\_ of \_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**EMISSIONS UNIT INFORMATION**

Section [2] of [2]

19.77 MW Simple Cycle Combustion Turbine [CT-2, CT-3]

**G. VISIBLE EMISSIONS INFORMATION**

Complete Subsection G if this emissions unit is or would be subject to a unit-specific visible emissions limitation.

**Visible Emissions Limitation:** Visible Emissions Limitation 1 of 1

1. Visible Emissions Subtype: <b>VE20</b>	2. Basis for Allowable Opacity: <input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions: <b>20</b> %      Exceptional Conditions:    % Maximum Period of Excess Opacity Allowed:      min/hour	
4. Method of Compliance: <b>EPA Method 9</b>	
5. Visible Emissions Comment: <b>62-296.310(2)(a), F.A.C.</b>	

**Visible Emissions Limitation:** Visible Emissions Limitation    of   

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: <input type="checkbox"/> Rule <input type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions:            %      Exceptional Conditions:      % Maximum Period of Excess Opacity Allowed:      min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment:	

**EMISSIONS UNIT INFORMATION**

Section [2] of [2]

19.77 MW Simple Cycle Combustion Turbine [CT-2, CT-3]

**H. CONTINUOUS MONITOR INFORMATION**

Complete Subsection H if this emissions unit is or would be subject to continuous monitoring.

**Continuous Monitoring System:** Continuous Monitor 1 of 1

1. Parameter Code: <b>WTF – Water-to-fuel ratio</b>	2. Pollutant(s):
3. CMS Requirement:	<input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: <b>Johnson Yokogawa</b> Model Number: <b>VR-204</b> Serial Number: <b>12VC32408</b>	
5. Installation Date: <b>06/01/1998</b>	6. Performance Specification Test Date:
7. Continuous Monitor Comment: <b>40 CFR 60.334</b>	

**Continuous Monitoring System:** Continuous Monitor \_\_\_ of \_\_\_

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	<input type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

**EMISSIONS UNIT INFORMATION**

Section [2] of [2]

19.77 MW Simple Cycle Combustion Turbine [CT-2, CT-3]

**I. EMISSIONS UNIT ADDITIONAL INFORMATION**

**Additional Requirements for All Applications, Except as Otherwise Stated**

1. Process Flow Diagram: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date <u>10/01/2004</u>
2. Fuel Analysis or Specification: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input checked="" type="checkbox"/> Attached, Document ID: <u>See Part 2</u> <input type="checkbox"/> Previously Submitted, Date _____
3. Detailed Description of Control Equipment: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date <u>10/01/2004</u>
4. Procedures for Startup and Shutdown: (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date <u>10/01/2004</u> <input type="checkbox"/> Not Applicable (construction application)
5. Operation and Maintenance Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date <u>10/01/2004</u> <input type="checkbox"/> Not Applicable
6. Compliance Demonstration Reports/Records: <input type="checkbox"/> Attached, Document ID: _____ Test Date(s)/Pollutant(s) Tested: _____ <input type="checkbox"/> Previously Submitted, Date: _____ Test Date(s)/Pollutant(s) Tested: _____ <input type="checkbox"/> To be Submitted, Date (if known): _____ Test Date(s)/Pollutant(s) Tested: _____ <input checked="" type="checkbox"/> Not Applicable  Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.
7. Other Information Required by Rule or Statute: <input checked="" type="checkbox"/> Attached, Document ID: <u>See Part 2</u> <input type="checkbox"/> Not Applicable



PART 2

**APPLICATION FOR MINOR SOURCE AIR CONSTRUCTION PERMIT  
FOR THE TESTING AND USE OF BIODIESEL FUEL  
IN COMBUSTION TURBINES 1, 2, AND 3 (EU IDS 007, 008, AND 009)**

## **1.0 INTRODUCTION**

Keys Energy Services is seeking authorization from the Florida Department of Environmental Protection (FDEP) to test and utilize biodiesel in combustion turbines (CTs) Units 1, 2, and 3 [Emission Units (EUs) 007, 008, and 009] located at the Stock Island Power Plant. Currently, CTs 1, 2, and 3 are authorized to utilize 0.05 percent sulfur distillate oil. The addition of biodiesel as an alternate fuel will result in equivalent nitrogen oxide (NO<sub>x</sub>) emissions, and lower carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), volatile organic compound (VOC), and particulate matter/particulate matter smaller than 10 microns (PM/PM<sub>10</sub>) emissions than distillate oil. There are no other changes in CTs 1, 2, or 3 as a result of this project.

The Keys Energy Services Stock Island Plant is located at 6900 Front Street, Stock Island, Monroe County, Florida. The Stock Island Plant is covered under Final Title V Permit No. 0870003-008-AV that authorized the operation of seven identified emission units including CTs 1, 2, and 3. CTs 1, 2, and 3 are General Electric (GE) Frame 5 combustion turbines that utilize No. 2 distillate fuel oil and use water injection to control emissions of NO<sub>x</sub>. Table 1 presents the performance, operation, and emissions data for CTs 1, 2, and 3.

Golder Associates Inc. (Golder) was contracted to prepare the necessary air permit application seeking authorization to test and utilize biodiesel in CTs 1, 2, and 3. The air permit application consists of the appropriate applications form [Part I; DEP Form 62-210.900(1)], a technical description of the project, and rule applicability for the project.

## **2.0 DESCRIPTION OF BIODIESEL FUEL**

Biodiesel is a renewable, clean burning, oxygenated fuel made from vegetable oil or animal fats. Standard forms of "bio" include feedstocks such as soybeans, rapeseed, palm, and animal fats. Biodiesel is produced by reacting alcohol with these natural fats, oils, or greases through a conventional chemical process known as transesterification. The resultant product from this process is biodiesel, which consists of mono alkyl esters of long-chain fatty acids. The American Society of Testing and Materials (ASTM) specifications for 100-percent biodiesel (ASTM D6751-07b) are

shown in Attachment 1 as illustrative examples of available biodiesel. An example of an MSDS sheets are presented in Attachment 2. The 100-percent biodiesel is referred to as B100 and can be blended with diesel. For example, a 20 percent biodiesel blend is B20. A typical specific specification for biodiesel that is available for testing and use in CTs 1, 2, and 3 is presented below:

- Carbon residue maximum = 0.05 percent; typically <0.01 percent.
- Water and sediment maximum = 0.05 percent; typically 0.005 percent.
- Sulfated Ash 0.02 percent max; <0.001 percent.
- Sodium, Potassium/Calcium, and Magnesium; each <1 part per million (ppm) combined.
- Sulfur I = 15 ppm maximum; typically runs <1 ppm.
- Low- heating value (LHV) = typically 115,000 to 117,000 British thermal unit per gallon (Btu/gal).
- High heating value (HHV) = typically 122,000 to 126,000 Btu/gal.

### 3.0 DESCRIPTION OF PROJECT

The purpose of this minor source permit application is to test up to 250,000 gallons of biodiesel (B100 or blends) to determine performance and emissions information. Biodiesel is lower in sulfur than 0.05 percent sulfur diesel currently permitted for use in CTs 1, 2, and 3. As a result, the emissions of SO<sub>2</sub> would be lower. Tests conducted by the U.S. Environmental Protection Agency (EPA) in diesel engines indicate lower emissions of PM, CO, and VOC. Emissions of NO<sub>x</sub> were higher in diesel engines. Tests conducted on biodiesel as heating oil indicated lower emissions for all major pollutants. Biodiesel was tested in a GE LM6000 at the Brookfield Power Carr Street Generating Plant in Syracuse, NY. The results reported by GE indicated lower NO<sub>x</sub> and PM emissions.

The emissions of biodiesel use in CTs 1, 2, and 3 are expected to be lower than or equivalent to the emissions when firing 0.05 percent diesel fuel oil. As a result, the use of biodiesel in CTs 1, 2, and 3 would not increase either short-term or annual emissions. However, since testing on GE Frame 5 turbines has not been performed for biodiesel, Table 2 provides operation and estimated emissions for using 250,000 gallons in either CT 1, CT 2, or CT3 and assuming that the short-term maximum emission rates were the same for biodiesel as for 0.05 percent diesel fuel oil. The only exception is the sulfur content of biodiesel, which is clearly lower than diesel fuel oil; 0.0015 percent (15 ppm) sulfur in the biodiesel was assumed.

#### 4.0 RULE APPLICABILITY

Under Federal and State of Florida prevention of significant deterioration (PSD) review requirements, all major new or modified sources of air pollutants regulated under the Clean Air Act (CAA) must be reviewed and a pre-construction permit issued. EPA has approved Florida's State Implementation Plan (SIP), which contains PSD regulations. Therefore, PSD approval authority has been granted to FDEP.

A "major facility" is defined as any of 28 named source categories that have the potential to emit 100 tons per year (TPY) or more, or any other stationary facility that has the potential to emit 250 TPY or more, of any pollutant regulated under the CAA. "Potential to emit" means the capability, at maximum design capacity, to emit a pollutant after the application of control equipment. Once a new source is determined to be a "major facility" for a particular pollutant, any pollutant emitted in amounts greater than the PSD significant emission rates is subject to PSD review. For an existing source for which a modification is proposed, the modification is subject to PSD review if the net increase in emissions due to the modification is greater than the PSD significant emission rates.

PSD review is used to determine whether significant air quality deterioration will result from the new or modified facility. Federal PSD requirements are contained in Title 40, Code of Federal Regulations (CFR) Part 52.21 (40 CFR 52.21), *Prevention of Significant Deterioration of Air Quality*. The State of Florida has adopted the federal PSD regulations by reference [Rule 62-212.400, Federal Administrative Code (F.A.C.)]. Major facilities and major modifications are required to undergo the following analysis related to PSD for each pollutant emitted in significant amounts:

- Control technology review;
- Source impact analysis;
- Air quality analysis (monitoring);
- Source information; and
- Additional impact analyses.

Stock Island Power Plant is a major facility under FDEP Rules. Because there is an operational change with the use of biodiesel and biodiesel is currently not an authorized fuel, the project is a potential modification as defined in the FDEP Rules in 62-210.200 and under the PSD rules in

62-212.400, F.A.C. PSD review would be required for the project if there were a significant net increase in emissions.

Since biodiesel will be used as an alternate fuel, the comparison is made based on the projected future actual emissions with biodiesel firing and the baseline actual emissions due to distillate oil firing. The baseline actual emissions for distillate oil firing are the emissions over a consecutive 24-month period, 5 years immediately preceding the date that a complete application is submitted. The use of different consecutive 24-month periods for each pollutant is allowed. For an existing facility for which a modification is proposed, the modification is subject to PSD review if the net increase in emissions due to the modification is greater than the PSD significant emission rates for any applicable pollutant. The net emissions increase is determined using the baseline-to-projected actual test. In this comparison, if the projected actual emissions minus the baseline actual emissions equal or exceed the PSD significant emission rates, then PSD review would apply.

Presented in Table 3 is the fuel usage of diesel and emissions reported in the Annual Operating Report (AOR) for the period 2003 through 2007 for CTs 1, 2, and 3. The use of calendar year data from the AOR is representative of historic normal operation.

Table 4 summarizes the emissions of using 250,000 gallons of biodiesel in either CT 1, 2, or 3 with the PSD significant emission rates. As shown in Table 4, the maximum emissions when using 250,000 gallons of biodiesel to determine performance and emissions in any CT will be much less than the PSD significant emission rates. As a result, PSD review is not required.

The available information suggests that the use of biodiesel will not result in an increase in emissions compared to 0.05 percent diesel fuel oil. The emissions testing program will determine emissions on one CT as being representative for all the GE Frame 5 turbines. At this time it is anticipated that the emissions tests would be performed on CT 3. However, as demonstrated, any of the GE Frame 5 CTs could be used with the same expected emission result. When the testing is complete, the emissions will be evaluated to determine if there is any difference in the fuels. The proposed conditions for biodiesel usage in CTs 1, 2, and 3 are presented below. Because biodiesel has a lower heating value than diesel fuel oil (i.e., 122,000 Btu/gal for biodiesel versus 137,000 Btu/gal for diesel fuel oil), the annual limits are requested to be increased. **(Note: The suggested changes to the existing conditions are in bold.)**

**Testing Condition:** The applicant is authorized to test up to 250,000 gallons of biodiesel in Emission Units 007, 008, and 009 [combustion turbines (CTs) 1, 2, and 3]. One combustion turbine selected by the permittee shall be tested to determine emissions of particulate matter, nitrogen oxides, and carbon monoxide. The emission tests shall be conducted using the approved methods in the Title V permit. At least one complete 3-run test, within 90 percent of full-load for the turbine being tested, shall be performed. The emissions of sulfur dioxide shall be determined through an analysis of the biodiesel fuel or certification from the supplier. The results of the testing shall be submitted in an application to revise the Title V permit. The permittee may continue to use biodiesel fuel in Emission Units 007, 008, and 009 up to the maximum of 250,000 gallons through the term of the air construction permit or the revised Title V permit allowing biodiesel is issued, whichever comes first.

#### **Combustion Turbine 1 (EU 007):**

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

- B.1. Permitted Capacity.** The maximum heat input to the GE CT at an ambient temperature of 59 degrees Fahrenheit (°F) shall not exceed 312 million British thermal units per hour (MMBtu/hr) while firing fuel oil **or biodiesel**. Heat input may vary depending on ambient conditions and the CT's characteristics. The approved manufacturer's curves shall be used to establish heat input rates over a range of temperatures for the purpose of compliance determination. [Rule 62-210.200, F.A.C., AC44-245399/PSD-FL-210]
- B.2. Methods of Operation - Fuels.** The only fuel to be burned in this unit is new No. 2 fuel oil **or biodiesel**. The sulfur content shall not exceed 0.050 percent by weight. [Rules 62-4.160(2), 62-210.200, and 62-213.440(1), F.A.C., AC44-245399/PSD-FL-210]
- B.3. Hours of Operation/Fuel Consumption.** The maximum No. 2 fuel oil **or biodiesel** consumption allowed to be burned in the CT is 7.1 million gallons per year (MG/yr) **or 8.0 MG/yr, respectively**, which is equivalent to 2,888.5 hours per year (hr/yr) at full-load; the CT may operate for more than this if operating at part-load. **If biodiesel and diesel fuel oil are burned during an annual period the consumption shall be prorated.** [Rule 62-212.500(56), F.A.C., AC44-245399, PSD-FL-210]

#### **Combustion Turbines 2 and 3 (EU 008 and 009):**

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

- C.4. Hours of Operation.** Each emission unit is allowed to operate 4,000 hr/yr. The combined operation of both units shall also be limited to 4,000 hr/yr. The facility is required to keep daily records of the operating hours. [AC-870003-003]
- C.5. Method of Operation - Fuels.** Only No. 2 fuel oil **or biodiesel** can be fired in the combustion turbines. The maximum sulfur content of the No. 2 fuel oil shall not exceed 0.05 percent, by weight. [AC-870003-003]
- C.6. Permitted Capacity.** The maximum heat input rate to each combustion turbine shall not exceed 305 MMBtu/hr. [AC-870003-003]

- C.7. Fuel Consumption. The maximum No. 2 fuel oil **or biodiesel** consumption allowed to be burned in either emission unit No. 008 or emission unit No. 009 is 8,840,000 gallons per year (gal/yr) **or 9,930,000 gpy, respectively**, which is equivalent to 4,000 hr/yr of operation at full load. The combined fuel oil **or biodiesel** consumption for both units shall be limited to 8,840,000 gpy **or 9,930,000 gpy, respectively**. **If biodiesel and diesel fuel oil are burned during an annual period the consumption shall be prorated.** [AC-870003-003]

**TABLE 1  
PERFORMANCE, OPERATION, AND EMISSIONS FOR CTs 1, 2, AND 3  
KEYS ENERGY SERVICES, STOCK ISLAND POWER PLANT**

Parameter	Units	CT-1	CT-2	CT-3	Comments
Capacity	MW	23.5	19.8	19.8	Permit Description
Heat Input	MMBtu/hr	312.0	305.0	305.0	CT-1 59°F
Annual Fuel Usage	1,000 gallons	7,100.0	4,420.0	4,420.0	CT-2 and CT-3 aggregate limit of 8,840,000 gal/yr
	lb/hr	16,397.1	16,029.2	16,029.2	
Operation	Hours	2,888.5	2,000.0	2,000.0	CT-2 and CT-3 aggregate limit of 4,000 hr/yr
Emissions PM <sub>10</sub>	lb/hour	18.0	16.6	16.6	Permit 0870003-008-AV
	tons/yr	43.0	22.5	22.5	CT-2 and CT-3 aggregate limit of 45 tons/yr
SO <sub>2</sub>	lb/hour	16.4	16.0	16.0	0.05% S fuel; Calculated
	tons/yr	23.7	16.0	16.0	Based on maximum hours of operation
NO <sub>x</sub>	lb/hour	96.0	93.8	93.8	Permit 0870003-008-AV
	tons/yr	138.0	86.0	86.0	CT-2 and CT-3 aggregate limit of 172 tons/yr
CO	lb/hour	64.0	25.2	25.2	Permit 0870003-008-AV
	tons/yr	152.0	50.5	50.5	CT-2 and CT-3 aggregate limit of 101 tons/yr
VOC	lb/hour	6.0	5.6	5.6	From Title V Application
	tons/yr	15.0	5.6	5.6	CT-2 and CT-3 aggregate limit of 11.1 tons/yr

From Title V App.                      7.2 lb/gallon  
                                                  137 MMBtu/1000 gallons  
                                                  19,028 Btu/lb (HHV)

**TABLE 2  
BIODIESEL TEST OPERATION AND EMISSIONS FOR CTs 1, 2, AND 3  
KEYS ENERGY SERVICES, STOCK ISLAND POWER PLANT**

Parameter	Units	CT-1	CT-2	CT-3	Comments
Heat Input	MMBtu/hr	312.00	305.00	305.00	CT-1 59°F
Test Heat Input	MMBtu	30500.00	30500.00	30500.00	Equivalent of 250,000 gallons
	hours	97.76	100.00	100.00	Equivalent hours for 250,000 gallons
<b>Emissions</b>					
PM <sub>10</sub>	lb/hour	18.00	16.60	16.60	Permit 0870003-008-AV
	tons/yr	0.88	0.83	0.83	Based on hours of biodiesel at maximum heat input
SO <sub>2</sub>	lb/hour	0.49	0.48	0.48	Based on 0.0015%S
	tons/yr	0.02	0.02	0.02	Based on hours of biodiesel at maximum heat input
NO <sub>x</sub>	lb/hour	96.00	93.80	93.80	Permit 0870003-008-AV
	tons/yr	4.69	4.69	4.69	Based on hours of biodiesel at maximum heat input
CO	lb/hour	64.00	25.20	25.20	Permit 0870003-008-AV
	tons/yr	3.13	1.26	1.26	Based on hours of biodiesel at maximum heat input
VOC	lb/hour	6.00	5.55	5.55	Permit 0870003-008-AV
	tons/yr	0.29	0.28	0.28	Based on hours of biodiesel at maximum heat input

Biodiesel Calculations    122,000 Btu/gal (low HHV value)  
                                          250,000 gallons  
                                          30500 MMBtu

**TABLE 3  
ANNUAL EMISSIONS FOR COMBUSTION TURBINES 1, 2, AND 3 (EMISSION UNITS 007, 008, AND 009)  
KEYS ENERGY SERVICES - STOCK ISLAND POWER PLANT**

Reporting Year	Emission Unit	Fuel Use (10 <sup>3</sup> gal)	Emissions (TPY)					
			PM	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>x</sub>	CO	VOC
2003	CT 1	426.14	1.75	1.45	0.93	9.02	5.64	0.52
	CT 2	123.99	0.51	0.42	0.27	2.62	0.68	0.15
	CT 3	1154.09	4.73	3.94	2.53	24.43	6.3	1.43
2004	CT 1	395.63	1.61	1.34	0.83	8.33	5.2	0.48
	CT 2	291.76	1.19	0.99	0.61	6.14	1.58	0.36
	CT 3	320.24	1.3	1.09	0.67	6.74	1.74	0.4
2005	CT 1	385.92	1.57	1.31	0.54	8.12	5.08	0.47
	CT 2	497.68	2.03	1.69	0.7	10.47	2.7	0.61
	CT 3	432.9	1.76	1.47	6.06	9.11	2.35	0.53
2006	CT 1	530.39	2.16	1.8	0.75	11.18	6.99	0.65
	CT 2	70.63	0.29	0.24	0.1	1.49	0.38	0.09
	CT 3	108.91	0.44	0.37	1.53	2.3	0.59	0.13
2007	CT 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	CT 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	CT 3	8.75	0.04	0.03	0	0.18	0.05	0.01

Source: Annual Operating Reports 2003-2007  
N/A : Data not available.

**TABLE 4  
 MAXIMUM TESTING EMISSIONS FOR CTs 1, 2, AND 3 (EMISSION UNITS 007, 008 AND 009)  
 KEYS ENERGY SERVICES - STOCK ISLAND POWER PLANT**

Emission Unit	Biodiesel (gallons)	Equivalent Hours	Emissions (tons/year)				
			PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>x</sub>	CO	VOC
CT-1	250,000	97.8	0.88	0.02	4.69	3.13	0.29
CT-2	250,000	100	0.83	0.02	4.69	1.26	0.28
CT-3	250,000	100	0.83	0.02	4.69	1.26	0.28
PSD Significant Emission Rates			15.00	40.00	40.00	100.00	40.00

**ATTACHMENT 1**



## SPECIFICATION FOR BIODIESEL (B100) – ASTM D6751-07b

March 2007

Biodiesel is defined as the mono alkyl esters of long chain fatty acids derived from vegetable oils or animal fats, for use in compression-ignition (diesel) engines. This specification is for pure (100%) biodiesel prior to use or blending with diesel fuel. #

Property	ASTM Method	Limits	Units
Calcium & Magnesium, combined	EN 14538	5 max	ppm (ug/g)
Flash Point (closed cup)	D 93	93 min.	Degrees C
Alcohol Control (One of the following must be met)			
1. Methanol Content	EN14110	0.2 Max	% volume
2. Flash Point	D93	130 Min	Degrees C
Water & Sediment	D 2709	0.05 max.	% vol.
Kinematic Viscosity, 40 C	D 445	1.9 - 6.0	mm <sup>2</sup> /sec.
Sulfated Ash	D 874	0.02 max.	% mass
Sulfur			
S 15 Grade	D 5453	0.0015 max. (15)	% mass (ppm)
S 500 Grade	D 5453	0.05 max. (500)	% mass (ppm)
Copper Strip Corrosion	D 130	No. 3 max.	
Cetane	D 613	47 min.	
Cloud Point	D 2500	Report	Degrees C
Carbon Residue 100% sample	D 4530*	0.05 max.	% mass
Acid Number	D 664	0.50 max.	mg KOH/g
Free Glycerin	D 6584	0.020 max.	% mass
Total Glycerin	D 6584	0.240 max.	% mass
Phosphorus Content	D 4951	0.001 max.	% mass
Distillation, T90 AET	D 1160	360 max.	Degrees C
Sodium/Potassium, combined	EN 14538	5 max	ppm
Oxidation Stability	EN 14112	3 min	hours
<b>Workmanship</b>	<b>Free of undissolved water, sediment, &amp; suspended matter</b>		
<b>BOLD = BQ-9000 Critical Specification Testing Once Production Process Under Control</b>			

\* The carbon residue shall be run on the 100% sample.



**SPECIFICATION FOR**  
**BIODIESEL (B100) – ASTM D6751-07b**

- # A considerable amount of experience exists in the US with a 20% blend of biodiesel with 80% diesel fuel (B20). Although biodiesel (B100) can be used, blends of over 20% biodiesel with diesel fuel should be evaluated on a case-by-case basis until further experience is available.



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## NEXSOL BD-0100 BIODIESEL ASTM-D 6751 (B100)

Biodiesel is defined as the mono alkyl esters of long chain fatty acids derived from vegetable oils or animal fats, for use in compression ignition (diesel) engines. This specification is for pure (100%) biodiesel prior to use or blending with diesel fuel.

PROPERTY	ASTM METHOD	LIMITS	UNITS
Flash Point	D93	130.0 min.	Degrees C
Water & Sediment	D2709	0.050 max.	% vol.
Kinematic Viscosity, 40 C	D445	1.9 - 6.0	mm <sup>2</sup> /sec.
Sulfated Ash	D874	0.020 max.	% mass
Total Sulfur	D5453	15 max.	ppm
Copper Strip Corrosion	D130	No. 3 max.	—
Cetane	D613	47 min.	—
Cloud point	D2500	Report to Customer	Degrees C
Carbon Residue 100% sample	D4530**	0.050 max.	% mass
Acid Number	D664	0.50 max.	mg KOH/gm
Free Glycerin	D6584	0.020 max.	% mass
Total Glycerin	D6584	0.240 max.	% mass
Phosphorous Content	D4951	0.001 max.	% mass
Distillation temperature, Atmospheric equivalent Temperature, 90% recovere	D1160	360 max.	Degrees C
Calcium and Magnesium	UOP 389	5ppm max. combined	ppm
Oxidative Stability, 110°	D2274	3 min.	hours
Sodium & Potassium Metals	UOP391-91	5ppm max. combined	ppm

\*To meet special operating conditions, modifications of individual limiting requirements may be agreed upon between purchaser, seller and manufacturers.

\*\*The carbon residue shall run on the 100% sample. A considerable amount of experience exists in the US with a 20% blend of biodiesel with 80% diesel fuel (B20). Although biodiesel (B100) can be used, blends of over 20% biodiesel with diesel fuel should be evaluated on a case by case basis until further experience is available.

**ATTACHMENT 2**



## SAMPLE MATERIAL SAFETY DATA SHEET



### 1. CHEMICAL PRODUCT

General Product Name: **Biodiesel (B100)**  
Synonyms: Methyl Soyate, Rapeseed Methyl Ester (RME)  
Product Description: Methyl esters from lipid sources  
CAS Number: Methyl Soyate: 67784-80-9; RME: 73891-99-3;

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

This product contains no hazardous materials.

### 3. HAZARDS IDENTIFICATION

#### Potential Health Effects:

##### INHALATION:

Negligible unless heated to produce vapors. Vapors or finely misted materials may irritate the mucous membranes and cause irritation, dizziness, and nausea. Remove to fresh air.

##### EYE CONTACT:

May cause irritation. Irrigate eye with water for at least 15 to 20 minutes. Seek medical attention if symptoms persist.

##### SKIN CONTACT:

Prolonged or repeated contact is not likely to cause significant skin irritation. Material is sometimes encountered at elevated temperatures. Thermal burns are possible.

##### INGESTION:

No hazards anticipated from ingestion incidental to industrial exposure.

### 4. FIRST AID MEASURES

##### EYES:

Irrigate eyes with a heavy stream of water for at least 15 to 20 minutes.

##### SKIN:

Wash exposed areas of the body with soap and water.

##### INHALATION:

Remove from area of exposure; seek medical attention if symptoms persist.

##### INGESTION:

Give one or two glasses of water to drink. If gastro-intestinal symptoms develop, consult medical personnel. (Never give anything by mouth to an unconscious person.)

### 5. FIRE FIGHTING MEASURES

Flash Point (Method Used): 130.0 C or 266.0 F min (ASTM 93)

Flammability Limits: None known

##### EXTINGUISHING MEDIA:

Dry chemical, foam, halon (may not be permissible in some countries), CO<sub>2</sub>, water spray (fog). Water stream may splash the burning liquid and spread fire.

##### SPECIAL FIRE FIGHTING PROCEDURES:

Use water spray to cool drums exposed to fire.

##### UNUSUAL FIRE AND EXPLOSION HAZARDS:

Biodiesel soaked rags or spill absorbents (i.e. oil dry, polypropylene socks, sand, etc.) can cause spontaneous combustion if stored near combustibles and not handled properly. Store biodiesel soaked rags or spill absorbents in approved safety containers and dispose of properly. Oil soaked rags may be washed with soap and water and allowed to dry in

well ventilated area. Firefighters should use self-contained breathing apparatus to avoid exposure to smoke and vapor.

---

## 6. ACCIDENTAL RELEASE MEASURES SPILL CLEAN-UP PROCEDURES

Remove sources of ignition, contain spill to smallest area possible. Stop leak if possible. Pick up small spills with absorbent materials and dispose of properly to avoid spontaneous combustion (see unusual fire and explosion hazards above).

Recover large spills for salvage or disposal. Wash hard surfaces with safety solvent or detergent to remove remaining oil film. Greasy nature will result in a slippery surface.

---

## 7. HANDLING AND STORAGE

Store in closed containers between 50°F and 120°F.  
Keep away from oxidizing agents, excessive heat, and ignition sources.  
Store and use in well ventilated areas.  
Do not store or use near heat, spark, or flame, store out of sun.  
Do not puncture, drag, or slide this container.  
Drum is not a pressure vessel; never use pressure to empty.

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## 8. EXPOSURE CONTROL /PERSONAL PROTECTION

### RESPIRATORY PROTECTION:

If vapors or mists are generated, wear a NIOSH approved organic vapor/mist respirator.

### PROTECTIVE CLOTHING:

Safety glasses, goggles, or face shield recommended to protect eyes from mists or splashing. PVC coated gloves recommended to prevent skin contact.

### OTHER PROTECTIVE MEASURES:

Employees must practice good personal hygiene, washing exposed areas of skin several times daily and laundering contaminated clothing before re-use.

---

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point, 760 mm Hg:>200°C	Volatiles, % by Volume: <2
Specific Gravity (H <sub>2</sub> O=1): 0.88	Solubility in H <sub>2</sub> O, % by Volume: insoluble
Vapor Pressure, mm Hg: <2	Evaporation Rate, Butyl Acetate=1: <1
Vapor Density, Air=1:>1	
Appearance and Odor: pale yellow liquid, mild odor	

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## 10. STABILITY AND REACTIVITY

### GENERAL:

This product is stable and hazardous polymerization will not occur.

### INCOMPATIBLE MATERIALS AND CONDITIONS TO AVOID:

Strong oxidizing agents

### HAZARDOUS DECOMPOSITION PRODUCTS:

Combustion produces carbon monoxide, carbon dioxide along with thick smoke.

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## 11. DISPOSAL CONSIDERATIONS

### WASTE DISPOSAL:

Waste may be disposed of by a licensed waste disposal company. Contaminated absorbent material may be disposed of in an approved landfill. Follow local, state and federal disposal regulations.

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## 12. TRANSPORT INFORMATION

UN HAZARD CLASS: N/A

NMFC (National Motor Freight Classification):

PROPER SHIPPING NAME: Fatty acid ester

IDENTIFICATION NUMBER: 144920

SHIPPING CLASSIFICATION: 65

---

## 13. REGULATORY INFORMATION:

### OSHA STATUS:

This product is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200. However, thermal processing and decomposition fumes from this product may be hazardous as noted in Sections 2 and 3.

### TSCA STATUS:

This product is listed on TSCA.

CERCLA (Comprehensive Response Compensation and Liability Act):

NOT reportable.

SARA TITLE III (Superfund Amendments and Reauthorization Act):

Section 312 Extremely Hazardous Substances:

None

Section 311/312 Hazard Categories:

Non-hazardous under Section 311/312

Section 313 Toxic Chemicals:

None

### RCRA STATUS:

If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste, (40 CFR 261.20-24)

### CALIFORNIA PROPOSITION 65:

The following statement is made in order to comply with the California Safe Drinking Water and Toxic Enforcement Act of 1986. This product contains no chemicals known to the state of California to cause cancer.

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## 14. OTHER INFORMATION:

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any other process. Such information is to the best of the company's knowledge and believed accurate and reliable as of the date indicated. However, no representation, warranty or guarantee of any kind, express or implied, is made as to its accuracy, reliability or completeness and we assume no responsibility for any loss, damage or expense, direct or consequential, arising out of use. It is the user's responsibility to satisfy himself as to the suitability and completeness of such information for his own particular use.



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## MATERIAL SAFETY DATA SHEET - NEXSOL BD-100 BIODIESEL 1 of 2

### 1. CHEMICAL PRODUCT

Product Name: NEXSOL BD-0100 BIODIESEL

Synonyms: Methyl Soyate, Rapeseed Methyl Ester (RME),

Methyl Tallowate, Palm Ester

Product Description: Methyl esters from lipid sources

CAS Number: 67784-80-9

ASTM specification number: D 6751

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

This product contains no hazardous materials.

### 3. HAZARDS IDENTIFICATION

Potential Health Effects:

**INHALATION:**

Negligible unless heated to produce vapors. Vapors or finely misted materials may irritate the mucous membranes and cause irritation, dizziness, and nausea. Remove to fresh air.

**EYE CONTACT:**

May cause irritation. Irrigate eye with water for at least 15 to 20 minutes. Seek medical attention if symptoms persist.

**SKIN CONTACT:**

Prolonged or repeated contact is not likely to cause significant skin irritation. Material is sometimes encountered at elevated temperatures. Thermal burns are possible.

**INGESTION:**

No hazards anticipated from ingestion incidental to industrial exposure.

### 4. FIRST AID MEASURES

**EYES:**

Irrigate eyes with a heavy stream of water for at least 15 to 20 minutes.

**SKIN:**

Wash exposed areas of the body with soap and water.

**INHALATION:**

Remove from area of exposure, seek medical attention if symptoms persist.

**INGESTION:**

Give one or two glasses of water to drink. If gastro-intestinal symptoms develop, consult medical personnel. (Never give anything by mouth to an unconscious person.)

### 5. FIRE FIGHTING MEASURES

Flash Point (Method Used): over 300° F min (ASTM 93)

Flammability Limits: None known

**EXTINGUISHING MEDIA:**

Dry chemical, foam, halon, CO<sub>2</sub>, water spray (fog). Water stream may splash the burning liquid and spread fire.

**SPECIAL FIRE FIGHTING PROCEDURES:**

Use water spray to cool drums exposed to fire.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:**

Oil soaked rags can cause spontaneous combustion if not handled properly. Before disposal, wash rags with soap and water and dry in well ventilated area. Firefighters should use self-contained breathing apparatus to avoid exposure to smoke and vapor.

### 6. ACCIDENTAL RELEASE MEASURES SPILL CLEAN-UP PROCEDURES

Remove sources of ignition, contain spill to smallest area possible. Stop leak if possible. Pick up small spills with absorbent materials such as paper towels, "Oil Dry", sand or dirt. Recover large spills for salvage or disposal. Wash hard surfaces with safety solvent or detergent to remove remaining oil film. Greasy nature will result in a slippery surface.

### 7. HANDLING AND STORAGE

Store in closed containers between 50° F and 120° F.

Keep away from oxidizing agents, excessive heat, and ignition sources. Store and use in well ventilated areas.

Do not store or use near heat, spark, or flame, store out of sun.

Do not puncture, drag, or slide this container.

Drum is not a pressure vessel, never use pressure to empty.

### 8. EXPOSURE CONTROL /PERSONAL PROTECTION

**RESPIRATORY PROTECTION:**

If vapors or mists are generated, wear a NIOSH approved organic vapor/mist respirator.

**PROTECTIVE CLOTHING:**

Safety glasses, goggles, or face shield recommended to protect eyes from mists or splashing. PVC coated gloves recommended to prevent skin contact.

**OTHER PROTECTIVE MEASURES:**

Employees must practice good personal hygiene, washing exposed areas of skin several times daily and laundering contaminated clothing before re-use.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point, 760 mm Hg: >200°C Volatiles, % by Volume: <2

Specific Gravity (H<sub>2</sub>O=1): 0.88 Solubility in H<sub>2</sub>O, % by Volume: insoluble

Vapor Pressure, mm Hg: <2 Evaporation Rate, Butyl Acetate=1: <1

Vapor Density, Air=1: >1

Appearance and Odor: pale yellow liquid, mild odor

### 10. STABILITY AND REACTIVITY

**GENERAL:**

This product is stable and hazardous polymerization will not occur.

**INCOMPATIBLE MATERIALS AND CONDITIONS TO AVOID:**

Strong oxidizing agents

**HAZARDOUS DECOMPOSITION PRODUCTS:**

Combustion produces carbon monoxide, carbon dioxide along with thick smoke.

### 11. DISPOSAL CONSIDERATIONS

**WASTE DISPOSAL:**

Waste may be disposed of by a licensed waste disposal company.

Contaminated absorbent material may be disposed of in an approved landfill. Follow local, state and federal disposal regulations.

### 12. TRANSPORT INFORMATION

UN HAZARD CLASS: N/A

NMFC (National Motor Freight Classification):

PROPER SHIPPING NAME: Fatty acid ester

IDENTIFICATION NUMBER: 144920

SHIPPING CLASSIFICATION: 65



# PETER CREMER

NORTH AMERICA

NORTH AMERICA, LP



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## MATERIAL SAFETY DATA SHEET - NEXSOL BD-100 BIODIESEL 2 of 2

### 13. REGULATORY INFORMATION

#### OSHA STATUS:

This product is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200. However, thermal processing and decomposition fumes from this product may be hazardous as noted in Sections 2 and 3.

#### TSCA STATUS:

This product is listed on TSCA.

CERCLA (Comprehensive Response Compensation and Liability Act):

NOT reportable.

SARA TITLE III (Superfund Amendments and Reauthorization Act):

Section 312 Extremely Hazardous Substances:

None

Section 311/312 Hazard Categories:

Non-hazardous under Section 311/312

Section 313 Toxic Chemicals:

None

#### RCRA STATUS:

If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste, (40 CFR 261.20-24)

#### CALIFORNIA PROPOSITION 65:

The following statement is made in order to comply with the California Safe Drinking Water and Toxic Enforcement Act of 1986. This product contains no chemicals known to the state of California to cause cancer.

### 14. OTHER INFORMATION

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any other process. Such information is to the best of the company's knowledge and believed accurate and reliable as of the date indicated. However, no representation, warranty or guarantee of any kind, express or implied, is made as to its accuracy, reliability or completeness and we assume no responsibility for any loss, damage or expense, direct or consequential, arising out of use. It is the user's responsibility to satisfy himself as to the suitability and completeness of such information for his own particular use.