Permit:
1/17/07

Adams, Patty

From: Harvey, Mary
Sent: Tuesday, April 03, 2007 10:52 AM
To: Adams, Patty
Subject: FW: SEMINOLE ENERGY, LLC - PERMIT #1170084-005-AC - FINAL

From: Scott Salisbury [mailto:Scott.salisbury@landfillenergy.com]
Sent: Tuesday, April 03, 2007 10:31 AM
To: undisclosed-recipients
Subject: Not read: SEMINOLE ENERGY, LLC - PERMIT #1170084-005-AC - FINAL

Your message

To: Scott.salisbury@landfillenergy.com
Subject:

was deleted without being read on 4/3/2007 10:31 AM.

Adams, Patty

From: Harvey, Mary
Sent: Wednesday, January 17, 2007 4:38 PM
To: Adams, Patty
Subject: FW: SEMINOLE ENERGY, LLC - PERMIT #1170084-005-AC - FINAL

-----Original Message-----
From: Dee_Morse@nps.gov [mailto:Dee_Morse@nps.gov]
Sent: Wednesday, January 17, 2007 4:29 PM
To: Harvey, Mary
Subject: SEMINOLE ENERGY, LLC - PERMIT #1170084-005-AC - FINAL

Return Receipt

Your document:	SEMINOLE ENERGY, LLC - PERMIT #1170084-005-AC - FINAL
was received by:	Dee Morse/DENVER/NPS
at:	01/17/2007 02:29:25 PM

Adams, Patty

From: Harvey, Mary
Sent: Wednesday, January 17, 2007 3:18 PM
To: Adams, Patty
Subject: FW: SEMINOLE ENERGY, LLC - PERMIT #1170084-005-AC - FINAL

From: Kozlov, Leonard
Sent: Wednesday, January 17, 2007 2:24 PM
To: Harvey, Mary
Subject: Read: SEMINOLE ENERGY, LLC - PERMIT #1170084-005-AC - FINAL

Your message

To:	'scott.salisbury@landfillenergy.com'; 'dgregory@seminolecountyfl.gov'; 'worley.gregg@epa.gov'; 'dee_morse@nps.gov'; Kozlov, Leonard; 'jeff.pope@us.bureauveritas.com'; 'dderenzo@derenzo.com'
Cc:	Arif, Syed; Adams, Patty; Gibson, Victoria
Subject:	SEMINOLE ENERGY, LLC - PERMIT #1170084-005-AC - FINAL
Sent:	1/17/2007 2:19 PM

was read on 1/17/2007 2:24 PM.

Adams, Patty

From: Harvey, Mary
Sent: Wednesday, January 17, 2007 3:17 PM
To: Adams, Patty
Subject: FW: SEMINOLE ENERGY, LLC - PERMIT #1170084-005-AC - FINAL

From: Gregory, David [mailto:dgregory@seminolecountyfl.gov]
Sent: Wednesday, January 17, 2007 2:55 PM
To: Harvey, Mary
Subject: Read: SEMINOLE ENERGY, LLC - PERMIT #1170084-005-AC - FINAL

Your message

To: dgregory@seminolecountyfl.gov
Subject:

was read on 1/17/2007 2:55 PM.

Adams, Patty

From: Harvey, Mary
Sent: Wednesday, January 17, 2007 2:48 PM
To: Adams, Patty
Subject: FW: SEMINOLE ENERGY, LLC - PERMIT #1170084-005-AC - FINAL
Attachments: 1170084.005.AC.F_pdf.zip

From: jeff.pope@us.bureauveritas.com [mailto:jeff.pope@us.bureauveritas.com]
Sent: Wednesday, January 17, 2007 2:37 PM
To: Harvey, Mary
Subject: Re: SEMINOLE ENERGY, LLC - PERMIT #1170084-005-AC - FINAL

Thanks,

Jeffery L. Pope, P.E.
Vice President - Director of Remediation Engineering

Clayton Group Services
A Bureau Veritas Company
3140 Finley Road
Downers Grove, IL 60515
Direct: 630-795-3211
Fax: 630-795-1102
Cell: 630-803-0274
jeff.pope@us.bureauveritas.com
www.us.bureauveritas.com

"Harvey, Mary" <Mary.Harvey@dep.state.fl.us>

01/17/2007 01:19 PM

To <scott.salisbury@landfillenergy.com>, <dgregory@seminolecountyfl.gov>, <worley.gregg@epa.gov>, <dee_morse@nps.gov>, "Kozlov, Leonard" <Leonard.Kozlov@dep.state.fl.us>, Jeff Pope/USA/VERITAS@VERITAS, <dderenzo@derenzo.com>

cc "Arif, Syed" <Syed.Arif@dep.state.fl.us>, "Adams, Patty" <Patty.Adams@dep.state.fl.us>, "Gibson, Victoria" <Victoria.Gibson@dep.state.fl.us>

Subject SEMINOLE ENERGY, LLC - PERMIT #1170084-005-AC - FINAL

Dear Sir/Madam:

Please send a "reply" message verifying receipt of the attached document(s); this may be done by selecting "Reply" on the menu bar of your e-mail software and then selecting "Send". We must receive verification of receipt and your reply will preclude subsequent e-mail transmissions to verify receipt of the document(s).

The document(s) may require immediate action within a specified time frame. Please open and review the document(s) as soon as possible.

The document is in Adobe Portable Document Format (pdf). Adobe Acrobat Reader can be downloaded for free at the following internet site: http://www.adobe.com/products/acrobat/readstep.html.

The Bureau of Air Regulation is issuing electronic documents for permits, notices and other correspondence in lieu of hard copies through the United States Postal System, to provide greater service to the applicant and the engineering community. Please advise this office of any changes to your e-mail address or that of the Engineer-of-Record.

Thank you,
DEP, Bureau of Air Regulation

Adams, Patty

From: Harvey, Mary
Sent: Wednesday, January 17, 2007 2:38 PM
To: Adams, Patty; Arif, Syed
Subject: FW: SEMINOLE ENERGY, LLC - PERMIT #1170084-005-AC - FINAL

From: David Derenzo [mailto:dderenzo@derenzo.com]
Sent: Wednesday, January 17, 2007 2:30 PM
To: Harvey, Mary
Subject: RE: SEMINOLE ENERGY, LLC - PERMIT #1170084-005-AC - FINAL

I have received the documents forwarded.

From: Harvey, Mary [mailto:Mary.Harvey@dep.state.fl.us]
Sent: Wednesday, January 17, 2007 2:19 PM
To: scott.salisbury@landfillenergy.com; dgregory@seminolecountyfl.gov; worley.gregg@epa.gov; dee_morse@nps.gov; Kozlov, Leonard; jeff.pope@us.bureauveritas.com; dderenzo@derenzo.com
Cc: Arif, Syed; Adams, Patty; Gibson, Victoria
Subject: SEMINOLE ENERGY, LLC - PERMIT #1170084-005-AC - FINAL

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Thank you,

DEP, Bureau of Air Regulation

Adams, Patty

From: Harvey, Mary

Sent: Wednesday, January 17, 2007 2:19 PM

To: 'scott.salisbury@landfillenergy.com'; 'dgregory@seminolecountyfl.gov'; 'worley.gregg@epa.gov'; 'dee_morse@nps.gov'; Kozlov, Leonard; 'jeff.pope@us.bureauveritas.com'; 'dderenzo@derenzo.com'

Cc: Arif, Syed; Adams, Patty; Gibson, Victoria

Subject: SEMINOLE ENERGY, LLC - PERMIT #1170084-005-AC - FINAL

Attachments: 1170084.005.AC.F_pdf.zip

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The document(s) may require immediate action within a specified time frame. Please open and review the document(s) as soon as possible.

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The Bureau of Air Regulation is issuing electronic documents for permits, notices and other correspondence in lieu of hard copies through the United States Postal System, to provide greater service to the applicant and the engineering community. Please advise this office of any changes to your e-mail address or that of the Engineer-of-Record.

Thank you,

DEP, Bureau of Air Regulation

Memorandum

Florida Department of
Environmental Protection

TO: Joseph Kahn

THRU: Trina Vielhauer
Jeff Koerner

FROM Syed Arif 1/11

DATE: January 11, 2007

SUBJECT: Seminole Energy, LLC
DEP File No. 1170084-005-AC; PSD-FL-376

Attached for your approval and signature is the final construction permit for Seminole Energy, LLC to install six (6) lean burn Caterpillar Model G3520C landfill gas fueled internal combustion engines at Osceola Road Solid Waste Management facility located in Geneva, Seminole County. A Best Available Control Technology (BACT) determination was required for nitrogen oxide (NOx), carbon monoxide (CO) and particulate matter less than or equal to 10 microns (PM_{10}) pursuant to Rule 62-212.400, F.A.C.

Seminole Energy, LLC applied on April 18, 2006 (complete on November 8, 2006) to install the six engines for generating electricity by combusting landfill gas that is currently being flared at the Osceola Road Solid Waste Management facility. Due to this modification potential emissions of CO will be greater than 250 tons per year (TPY) making the facility a Major Stationary Source for PSD review. The increases in emissions of NOx and PM_{10} will exceed the significant emission rates. The total annual increases due to the proposed project are approximately 356 TPY of CO, 78 TPY of NOx and 31 TPY of PM_{10}. CO and NOx emissions will be controlled through combustor design (lean burn engine) and good combustion practices (air to fuel ratio control). PM_{10} emissions will be minimized through the pretreatment of the landfill gas prior to combustion and proper equipment maintenance of the engines.

The Public Notice was published on December 6, 2006 in the Orlando Sentinel. Comments were submitted by the applicant resulting in minor changes as described in the final determination. No comments were received from the public, EPA Region IV or the National Park Service.

We recommend your approval and signature.

JK/sa

Attachments

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NOTICE OF FINAL PERMIT

In the Matter of an
Application for Permit

Mr. Scott Salisbury, Managing Member
Seminole Energy, LLC
29261 Wall Street
Wixom, Michigan 48393

DEP File No. 1170084-005-AC
PSD-FL-376

Enclosed is the FINAL Permit Number PSD-FL-376 for the installation of six (6) lean burn Caterpillar Model G3520C landfill gas fueled internal combustion engines at the Osceola Road Solid Waste Management facility in Geneva, Seminole County. This permit is issued pursuant to Chapter 403, Florida Statutes and in accordance with Rule 62-212.400., F.A.C. - Prevention of Significant Deterioration (PSD).

Any party to this order (permit) has the right to seek judicial review of the permit pursuant to Section 120.68, F.S., by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Legal Office; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 (thirty) days from the date this Notice is filed with the Clerk of the Department.

Executed in Tallahassee, Florida.

Trina L. Vielhauer, Chief
Bureau of Air Regulation

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF FINAL PERMIT (including the FINAL permit) and all copies were sent electronically (with Received Receipt) before the close of business on 1/17/07 to the person(s) listed:

Scott Salisbury, Trail Ridge Energy, LLC (scott.salisbury@landfillenergy.com)
David Gregory, Solid Waste Manager, ESD/SWMD (dgregory@seminolecountyfl.gov)
Gregg Worley, EPA (worley.gregg@epa.gov)
Dee Morse, NPS (dee_morse@nps.gov)
Len Kozlov, DEP-CD (leonard.kozlov@dep.state.fl.us)
Jeff Pope, P.E., Clayton Group Services, Inc. (jeff.pope@us.bureauveritas.com)
David Derenzo, Derenzo & Associates, Inc. (dderenzo@derenzo.com)

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to §120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

(Clerk) 1/17/07 (Date)

Florida Department of Environmental Protection

Bob Martinez Center
2600 Blairstone Road
Tallahassee, Florida 32399-2400

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary - Designee

PERMITTEE:

Seminole Energy, LLC
29261 Wall Street
Wixom, Michigan 48393

File No.	1170084-005-AC
Permit No.	PSD-FL-376
SIC No.	4953
Project:	Osceola Road Solid Waste Management Facility Modification – Landfill Gas Engines
Expires:	October 1, 2008

Secondary Responsible Official (Energy Section):

Mr. Scott Salisbury, Managing Member

Primary Responsible Official (Osceola Road Solid Waste Management Facility):

Mr. David Gregory, Solid Waste Manager
Environmental Services Department, Solid Waste Division
– Seminole County

PROJECT AND LOCATION:

This permit covers the installation and operation of six (6) Caterpillar, Model G3520C, 2,233 brake-horsepower landfill gas-fired engines for the generation of up to a total of 9.6 megawatts (nominal rating) of electricity. The project is located at the Osceola Road Solid Waste Management Facility at 1930 E. Osceola Road, Geneva, Seminole County. UTM coordinates are Zone 17; 492.00 km E; 3184.50 km N.

STATEMENT OF BASIS:

This construction permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.), and the Florida Administrative Code (F.A.C.) Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297. The above named permittee is authorized to modify the facility in accordance with the conditions of this permit and as described in the application, approved drawings, plans, and other documents on file with the Department of Environmental Protection (Department).

ATTACHMENTS MADE A PART OF THIS PERMIT:

Appendix BD	BACT Determination
Appendix GC	Construction Permit General Conditions

Joseph Kahn, Director
Division of Air Resource Management

FINAL DETERMINATION

Seminole Energy, LLC

Permit No. 1170084-005-AC; PSD-FL-376

Osceola Road Solid Waste Management Facility

An Intent to Issue air construction permit to Seminole Energy, LLC for the installation of six landfill gas-fired engines at Osceola Road Solid Waste Management Facility, Seminole County, was distributed on November 28, 2006. The Notice of Intent was published in the Orlando Sentinel on December 6, 2006. Copies of the draft construction permit were available for public inspection at the Department offices in Orlando and Tallahassee.

No comments were received from the public, EPA Region IV or the National Park Service. Comments were received from the applicant.

The applicant's comments were related to the inclusion of additional EPA test methods for volatile organic compound emissions compliance demonstration as well as indicating in the facility information that the facility is a Title V source due to its size. The Department will add the additional EPA test methods and clarify in the "Regulatory Classification" that the facility is a Title V source.

The final action of the Department is to issue the permit with the changes noted above.

SECTION I – FACILITY INFORMATION

FACILITY DESCRIPTION

Osceola Road Solid Waste Management Facility operates a municipal solid waste (MSW) landfill near Geneva, Seminole County which is allocated for Class I MSW. Methane-rich landfill gas produced from the decomposition of disposed waste materials is being collected by a gas recovery system. The collected gas is currently being diverted to the flaring system for control. Seminole Energy, LLC plans to construct and operate an electricity generation plant at the Osceola Road Solid Waste Management Facility. In order to reduce the amount of landfill gas (LFG) wasted by flaring, all available LFG from the landfill will be supplied to Seminole Energy for use as fuel to power the proposed internal combustion (IC) engine electricity generation plant. As a result of these changes, significant emission increases will occur for carbon monoxide (CO), particulate matter with an aerodynamic diameter of 10 microns or less (PM_{10}) and nitrogen oxides (NOx).

REGULATORY CLASSIFICATION

The Osceola Road Solid Waste Management Facility is classified as a Major or Title V Source of air pollution because emissions of at least one regulated air pollutant, such as particulate matter (PM/PM_{10}), sulfur dioxide (SO_2), nitrogen oxides (NOx), carbon monoxide (CO), or volatile organic compounds (VOC) exceed 100 tons per year (TPY). The landfill facility is also classified as a Title V source since the design capacity of the landfill is greater than 2.5 million cubic meters and megagrams.

The facility is subject to the following regulations:

- 40 CFR 60, Subpart A, General Provisions;
- Subpart WWW, Standards of Performance for Municipal Solid Waste Landfills;
- 40 CFR 63, Subpart A, General Provisions;
- 40 CFR 63, Subpart AAAA, National Emission Standards for Hazardous Air Pollutants (NESHAP) for Municipal Solid Waste Landfills; and
- 40 CFR 63, Subpart ZZZZ, NESHAP for Stationary Reciprocating Internal Combustion Engines.

The proposed landfill gas-fueled IC engine electricity generation plant will be subject to Prevention of Significant Deterioration (PSD) review with respect to Rule 62-210.200(164)(a)2, F.A.C. due to its potential CO emissions being greater than 250 TPY. Best Available Control Technology (BACT) determinations are required for each pollutant emitted in excess of the Significant Emission Rates listed in Rule 62-210.200(242), F.A.C. For this project, the permit specifies BACT emissions standards for CO, NOx and PM_{10} emissions.

RELEVANT DOCUMENTS:

The documents listed below are specifically related to this permitting action and form the basis of the permit. They are on file with the Department:

- Application received 04-18-2006
- Department letters dated 05-16-2006, 07-13-2006 and e-mail dated 10-13-2006
- Applicant's letters received 05-23-2006, 06-12-2006, 08-11-2006, 08-31-2006 and e-mail dated 11-08-2006
- Technical Evaluation and Preliminary Determination dated 11-16-2006
- Best Available Control Technology determination (issued concurrently with permit)

SECTION II – EMISSION UNIT(S) ADMINISTRATIVE REQUIREMENTS

1. Regulating Agencies: All documents related to applications for permits to operate, reports, tests, minor modifications and notifications shall be submitted to the Department's Central District Office, 3319 Maguire Boulevard, Suite 232, Orlando, Florida 32803-3767. All applications for permits to construct or modify emissions unit(s) subject to the Prevention of Significant Deterioration or Nonattainment (NA) review requirements should be submitted to the Bureau of Air Regulation (BAR), Florida Department of Environmental Protection (FDEP), 2600 Blair Stone Road, MS 5505, Tallahassee, Florida 32399-2400 (phone number 850/488-0114).
2. General Conditions: The owner and operator are subject to and shall operate under the attached General Permit Conditions G.1 through G.15 listed in Appendix GC of this permit. General Permit Conditions are binding and enforceable pursuant to Chapter 403 of the Florida Statutes. [Rule 62-4.160, F.A.C.]
3. Terminology: The terms used in this permit have specific meanings as defined in the corresponding chapters of the Florida Administrative Code.
4. Applicable Regulations, Forms and Application Procedures: Unless otherwise indicated in this permit, the construction and operation of the subject emissions unit shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of Chapter 403, F.S. and Florida Administrative Code Chapters 62-4, 62-204, 62-210, 62-212, 62-213, 62-296, 62-297 and the Code of Federal Regulations Title 40, Parts 60 and 63, adopted by reference in the Florida Administrative Code (F.A.C.) regulations. The permittee shall use the applicable forms listed in Rule 62-210.900, F.A.C. and follow the application procedures in Chapter 62-4, F.A.C. Issuance of this permit does not relieve the facility owner or operator from compliance with any applicable federal, state, or local permitting or regulations. [Rules 62-204.800, 62-210.300 and 62-210.900, F.A.C.]
5. Expiration: The permittee may, for good cause, request that this construction permit be extended. Such a request shall be submitted to the Bureau of Air Regulation prior to 60 days before the expiration of the permit. However, the permittee shall promptly notify the Department's Central District Office of any delays in completion of the project which would affect the startup day by more than 90 days. [Rule 62-4.090, F.A.C]
6. Application for Title V Permit: This permit authorizes construction of the permitted emissions units and initial operation to determine compliance with Department rules. A Title V operation permit is required for regular operation of the permitted emissions unit. The permittee shall apply for a Title V operation permit at least 90 days prior to expiration, but no later than 180 days after commencing operation. To apply for a Title V operation permit, the applicant shall submit the appropriate application form, compliance test results, and such additional information as the Department may by law require. The application shall be submitted to the appropriate Permitting Authority with copies to the Compliance Authority. [Rules 62-4.030, 62-4.050, 62-4.220, and Chapter 62-213.420, F.A.C.]
7. Source Obligation: Authorization to construct shall expire if construction is not commenced within 18 months after receipt of the permit, if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable time. This provision does not apply to the time period between constructions of the approved phases of a phased construction project except that each phase must commence construction within 18 months of the commencement date established by the Department in the permit. [Rule 62-212.400(12)(a), F.A.C.].
8. BACT Determination: For phased construction projects, the determination of best available control technology shall be reviewed and modified as appropriate at the latest reasonable time which occurs no later than 18 months prior to commencement of construction of each independent phase of the project. At such time, the owner or operator of the applicable stationary source may be required to demonstrate the adequacy of any previous determination of best available control technology for the source. [40 CFR 52.21(j)(4)]

SECTION II – EMISSION UNIT(S) ADMINISTRATIVE REQUIREMENTS

9. Annual Reports: Pursuant to Rule 62-210.370(2), F.A.C., Annual Operation Reports, the permittee is required to submit annual reports on the actual operating rates and emissions from this facility. Annual operating reports using DEP Form 62-210.900(4) shall be sent to the DEP's Central District office by March 1st of each year.

10. Stack Testing Facilities: Stack sampling facilities shall be installed in accordance with Rule 62-297.310(6), F.A.C.

11. New or Additional Conditions: For good cause shown and after notice and an administrative hearing, if requested, the Department may require the permittee to conform to new or additional conditions. The Department shall allow the permittee a reasonable time to conform to the new or additional conditions, and on application of the permittee, the Department may grant additional time. [Rule 62-4.080, F.A.C.]

SECTION III – EMISSION UNIT(S) SPECIFIC CONDITIONS

SUBSECTION A. SPECIFIC CONDITIONS

The Specific Conditions listed in this section apply to the following emission units:

EMISSION UNIT NO.	EMISSION UNIT DESCRIPTION
002 - 005	Four Caterpillar Model G3520C landfill gas-fueled internal combustion engines and electricity generators. Each engine has a power generation rating of 2,233 brake horsepower at 100 percent load. The generator has a power output rating of 1,600 kilowatt. The engines will be fueled exclusively with landfill gas (LFG) generated by and received from the Osceola Road Solid Waste Management Facility. The landfill gas will go through a gas treatment system prior to combustion in the engines.

PHASE I:

A. FUEL SPECIFICATIONS AND WORK PRACTICES

1. This permit authorizes the installation and operation of four (4) Caterpillar, Model G3520C, 2,233 brake-horsepower landfill gas-fired engines for the generation of up to a total of 6.4 megawatts (nominal rating) of electricity. The maximum power generation rating of each engine shall be 2,233 brake horsepower (bhp). Authorization to construct shall expire if construction is not commenced within 18 months after receipt of the permit, if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable time. This provision does not apply to the time period between constructions of the approved phases of a phased construction project except that each phase must commence construction within 18 months of the commencement date established by the Department in the permit. **[Rule 62-212.400, F.A.C.]**

   {Permitting Note: The power generation rating of 2,233 bhp is based on a minimum fuel heating value requirement of 467 BTU/scf and landfill gas usage of 580 scfm per engine.}

2. This permit authorizes the installation of a LFG Treatment System including gas compression (via blowers), liquids removal (via knock-out and chilling), and particulate removal (via 1 micron primary and polishing filters). The gas treatment system shall not be equipped with atmospheric vents. **[Rule 62-212.400, F.A.C., 40 CFR 60.752 and Appendix J of the application]**

3. Emissions Units Nos. 002-005 are subject to 40 CFR 60 Subpart WWW and certain sections of 40 CFR 63 Subparts AAAA and ZZZZ adopted by the Department at Rule 62-204.800(8)(b) and 62-204.800(11)(b), F.A.C. **[Rules 62-204.800 and 62-210.300, F.A.C.]**

4. Unless otherwise indicated, the modification/construction and operation of the Caterpillar internal combustion engines shall be in accordance with the capacities and specifications stated in the application. **[Rule 62-210.300, F.A.C.]**

5. No person shall cause, suffer, allow, or permit the discharge of air pollutants which cause or contribute to an objectionable odor. **[Rule 62-296.320, F.A.C.]**

6. No person shall circumvent any air pollution control device, or allow the emission of air pollutants without the applicable air pollution control device operating properly. **[Rule 62-210.650, F.A.C.]**

7. Fuel fired in the engines is limited to LFG. The use of any other fuel will require an amendment to this permit. **[Rule 62-212.400, F.A.C.]**

8. The permittee shall operate each engine at the air-to-fuel ratio that the tested engine demonstrated compliance during the performance test required by Specific Condition C.2 or the most recent performance test if a subsequent performance test is conducted. **[Rule 62-212.400, F.A.C.]**

9. The permittee shall operate each engine within 0.5% of the O_2 content in the exhaust gas at the air-to-fuel ratio that the tested engine demonstrated compliance during the performance test required by Specific Condition C.2 or the most recent performance test if a subsequent performance test is conducted. **[Rule 62-212.400, F.A.C. and Appendix F of the application]**

10. The permittee shall install and maintain an automatic fail-safe block valve on each engine. The fail-safe block valve must stop the flow of LFG in the event of an engine failure. **[Rule 62-4.070, F.A.C.]**

11. Excess LFG not used as fuel in an engine must be flared in accordance with the requirements of 40 CFR 60 Subpart WWW. **[Rule 62-4.070, F.A.C.]**

12. Each engine/generator set may operate up to 8,760 hours per year. **[Rule 62-210.200(232), F.A.C.]**

13. The emissions units shall be subject to the following:

    a. Excess emissions resulting from startup, shutdown or malfunction of any source shall be permitted providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period unless specifically authorized by the Department for longer duration. **[Rule 62-210.700, F.A.C.]**

    b. Excess emissions which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during startup, shutdown, or malfunction shall be prohibited. **[Rule 62-210.700, F.A.C.]**

    c. In case of excess emissions resulting from malfunctions, each source shall notify the Department in accordance with Rule 62-4.130, F.A.C. A full written report on the malfunctions shall be submitted in a quarterly report, if requested by the Department. **[Rule 62-210.700, F.A.C.]**

B. EMISSION AND PERFORMANCE REQUIREMENTS

1. ***Nitrogen oxides (NOx)***: The emission rate of NOx from each engine/generator set exhaust shall not exceed 0.60 gram per brake horsepower hour (g/bhp-hr) and a maximum of 2.95 pounds per hour (lb/hr) and 12.94 tons per year (TPY). **[Rule 62-212.400(12), F.A.C.]**

2. ***Carbon Monoxide (CO)***: The emission rate of CO from each engine/generator set exhaust shall not exceed 2.75 g/bhp-hr and a maximum of 13.54 lb/hr and 59.30 TPY. **[Rule 62-212.400(12), F.A.C.]**

3. ***Particulate Matter less than 10 microns (PM_{10})***: The emission rate of PM_{10} from each engine/generator set exhaust shall not exceed 0.24 g/bhp-hr and a maximum of 1.18 lb/hr and 5.17 TPY. **[Rule 62-212.400(12), F.A.C.]**

4. ***Volatile Organic Compounds (VOC)***: The emission rate of total VOC from each engine/generator set exhaust shall not exceed 0.28 g/bhp-hr and a maximum of 1.37 lb/hr and 5.99 TPY. **[Rule 62-212.400(12), F.A.C.]**

   {Permitting Note: Project avoids PSD review for VOC based on emission limits.}

5. ***Hydrogen Chloride (HCl)***: The emission rate of HCl from each engine/generator set shall not exceed 10.9 lb/MMscf and 1.66 TPY. **[Rule 62-210.200(184), F.A.C.]**

{Permitting Note: Facility remains a minor source of HAP emissions based on permit limits.}

6. ***Sulfur Dioxide (SO_2)***: The emission rate of SO_2 from each engine/generator set shall not exceed 27.5 lb/MMscf. **[Rule 62-212.400(12), F.A.C.]**

{Permitting Note: Project avoids PSD review based on permit limits.}

7. Visible emissions from each engine/generator set exhaust shall not exceed 10% opacity. **[Rule 62-212.400, F.A.C.]**

C. TEST METHODS AND PROCEDURES

1. Sampling Facilities

The permittee shall design the internal combustion engine stack to accommodate adequate testing and sampling locations in order to determine compliance with the applicable emission limits specified by this permit. **[Rule 62-297.310(6), F.A.C.]**

2. Performance Test Methods

Initial (I), Annual (A) and permit renewal (R) compliance tests shall be performed in accordance with the following reference methods as described in 40 CFR 60, Appendix A and 40 CFR 51 Appendix M, adopted by reference in Chapter 62-204.800, F.A.C. Initial, annual and renewal compliance tests shall be conducted on only one of the six engines. A different engine shall be tested each year such that all engines are tested during the six-year cycle.

(a) EPA Method 7 or 7E – Determination of NOx Emissions from Stationary Sources (I,A);

(b) EPA Method 9 – Visual Determination of the Opacity of Emissions from Stationary Sources (I,A);

(c) EPA Method 10 – Determination of CO Emissions from Stationary Sources (I,A);

(d) EPA Method 18, 25, 25A or 25C – Measurement of Gaseous Organic Compounds Emissions (I,R);

(e) EPA Method 26 or 26A – Determination of HCl Emissions from Stationary Sources (I,A);

(f) EPA Method 201 – Determinations of PM_{10} Emissions (I,A)

EPA Methods 1 through 4 shall be used as necessary to support other test methods. No other test methods may be used for compliance testing unless prior DEP approval is received, in writing, from the Department. **[Rule 62-297.310(7), F.A.C.]**

3. The permittee shall comply with the following requirements to monitor the sulfur and chlorine content of the landfill gas:

a. At least 180 days prior to commercial startup of the engines, the permittee shall sample and analyze the landfill gas for sulfur and chlorine content. The gas sample collected for the analyses shall be a composite sample and collected under normal operating conditions (i.e., with valves open for all operating cells). The gas sample collection and analyses for sulfur and chlorine content shall be done semi-annually. Based on the sampling results and Rule 62-297.310(7)(b), F.A.C., the Department may request additional gas sampling and analyses. Results shall be reported as SO_2 and HCl emission factors in terms of lb/MMscf of landfill gas.

b. During each required compliance test conducted for HCl, the permittee shall sample and analyze the landfill gas for the chlorine content. Results for the compliance test shall be reported in terms of HCl emissions in lb/hr and the sample analysis result shall be reported as HCl emission factor in terms of lb/MMscf of landfill gas.

c. Analysis of the chlorine content shall be used to track changes in the landfill gas. Based on the analysis, the Compliance Authority may require additional stack testing for HCl emissions to determine compliance with the emissions standard.

d. Compliance with the fuel sulfur specification shall be determined based on each analysis for the sulfur content of the landfill gas.

[Rules 62-210.200(184), 62-210.200(232) and 62-212.400(12), F.A.C.]

4. Within 60 days of achieving the permitted capacity, but no later than 180 days after initial startup, and annually, the subject emissions units as described in Specific Condition C.2 shall be tested for compliance with the applicable emission limits. For the duration of all tests the emission units shall be operating at permitted capacity. Permitted capacity is defined as 90-100 percent of the maximum operating rate allowed by the permit. If it is impracticable to test at permitted capacity, then the emission unit may be tested at less than permitted capacity (i.e., 90% of the maximum operating rate allowed by the permit); in this case, subsequent emission unit operation is limited to 110 percent of the test load until a new test is conducted. Once the emission unit is so limited, then operation at higher capacities is allowed for no more than 15 consecutive days for the purposes of additional compliance testing to regain the permitted capacity in the permit. **[Rule 62-297.310, F.A.C.]**

D. RECORDKEEPING, REPORTING AND MONITORING REQUIREMENTS

1. Total landfill gas flow to the engines shall be continuously measured and recorded. **[Rule 62-210.200 (232), F.A.C.]**
2. Gross electrical power generation (kw-hrs) shall be continuously measured and recorded for each engine individually and for the four engines combined. **[Rule 62-210.200(232), F.A.C.]**
3. Each engine/generator set shall be equipped with a non-resetable elapsed time meter to indicate, in cumulative hours, the elapsed engine operating time. **[Rule 62-210.200(232), F.A.C.]**
4. The permittee shall maintain the following records on a monthly basis:

   a. The hours of operation of each engine/generator set, including any start-up, shutdown or malfunction in the operations of the engine/generator set.

   b. The total landfill gas flow to each engine.

   c. Gross electrical power generation in kw-hr for each engine and the six engines combined.

   [Rule 62-210.200(232), F.A.C.]

5. The permittee shall submit the results and the corresponding data of the site-specific HCl emission factor and the SO_2 emission factor within 45 days of gas sampling to the Bureau of Air Regulation. The results shall also be submitted to the Central District Office. **[Rules 62-210.200(232) and 62-210.200(264), F.A.C.]**

SECTION III – EMISSION UNIT(S) SPECIFIC CONDITIONS

SUBSECTION B. PHASED CONSTRUCTION

The Specific Conditions listed in this section apply to the following emission units:

EMISSION UNIT NO.	EMISSION UNIT DESCRIPTION
006 - 007	Two Caterpillar Model G3520C landfill gas-fueled internal combustion engines and electricity generators. Each engine has a power generation rating of 2,233 brake horsepower at 100 percent load. The generator has a power output rating of 1,600 kilowatt. The engines will be fueled exclusively with landfill gas (LFG) generated by and received from the Osceola Road Solid Waste Management Facility. The landfill gas will go through a gas treatment system prior to combustion in the engines.

1. If construction of a new phase is to commence 18 months or more after completion of the latest phase, the permittee shall submit an application and obtain a modified PSD permit prior to commencing construction on the new phase. The application shall include an updated best available control technology analysis for CO, NOx and PM_{10}. **[Rules 62-4.070(3) and 62-212.400(12)(a), F.A.C.]**

PHASE II:

2. This permit authorizes the installation of Emission Unit No. 006 within five (5) years after the commencement of the initial electricity generation operations. Emission Unit No. 006 shall be a Caterpillar Model G3520C, 2,233 brake-horsepower landfill gas-fired engine for the generation of up to 1.6 megawatts (nominal rating) of electricity. At a minimum, all the requirements of Section III Subsection A that applies to Emissions Unit 002-005 shall apply to Emission Unit 006. **[Rule 62-212.400, F.A.C., and 40 CFR 52.21(j)(4)]**

PHASE III:

3. This permit authorizes the installation of Emission Unit 007 within ten (10) years after the commencement of the initial electricity generation operations. Emission Unit No. 007 shall be a Caterpillar Model G3520C, 2,233 brake-horsepower landfill gas-fired engine for the generation of up to 1.6 megawatts (nominal rating) of electricity. At a minimum, all the requirements of Section III Subsection A that applies to Emissions Unit 002-005 shall apply to Emission Unit 007. **[Rule 62-212.400, F.A.C., and 40 CFR 52.21(j)(4)]**

APPENDIX BD
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

Seminole Energy, LLC
Osceola Road Solid Waste Management Facility
PSD-FL-376/1170084-005-AC
Geneva, Seminole County

Seminole Energy, LLC has applied to modify Osceola Road Solid Waste Management Facility by installing six (6) lean-burn internal combustion (IC) Caterpillar (CAT) Model G3520C engines and electricity generators. The electricity generation plant will also consist of landfill gas (LFG) treatment equipment (gas dewatering, filtration and compression equipment and processes) and ancillary equipment that supports the electricity generation operations (e.g., engine oil storage tanks and LFG temperature and moisture conditioning equipment).

The six lean-burn IC engines will be connected to individual electricity generators. Each gas IC engine will be connected to a 1,600 kilowatt electricity generator. The plant will have the potential to generate 9.6 megawatts of electricity under base load operating conditions and will be interconnected to the Florida Power & Light distribution network through a nearby power line.

The LFG-fueled IC engines will be housed in a single building constructed near the existing LFG collection system header and control system flare. A gas transmission line will be connected to the header of the existing LFG collection system and a dedicated gas blower/compressor will be used to draw methane-rich gas (fuel) from the existing LFG collection system to the proposed electricity generation plant.

The Osceola Road Solid Waste Management Facility is a major source of air pollution or a Title V source based on Rule 62-210.200(184), Florida Administrative Code (F.A.C.). Additionally, based on this modification, potential emissions of carbon monoxide (CO) will be greater than 250 tons per year (TPY) making the facility a Major Stationary Source for Prevention of Significant Deterioration (PSD) review with respect to Rule 62-210.200(185)(a)2., F.A.C. The increases in emissions of CO, nitrogen oxide (NOx) and particulate matter less than or equal to 10 microns (PM_{10}) will exceed the significant emission rates listed in Rule 62-210.200(264), F.A.C. A Best Available Control Technology (BACT) determination is part of the review required for CO, NOx and PM_{10} by Rule 62-210.200(39), F.A.C.

Descriptions of the process, project, BACT determination, air quality effects, and rule applicability are given in the Technical Evaluation and Preliminary Determination, accompanying the Department's Intent to Issue.

The Department specifies the following as BACT for each engine:

POLLUTANT	EMISSION LIMIT	CONTROL TECHNOLOGY
CO	2.75 g/bhp-hr and 13.54 lb/hr and 59.30 TPY	Combustor design and good combustion practices
NOx	0.60 g/bhp-hr and 2.95 lb/hr and 12.94 TPY	Combustor design and good combustion practices
PM_{10}	0.24 g/bhp-hr and 1.18 lb/hr and 5.17 TPY	Pretreatment of landfill gas and proper engine maintenance

APPENDIX BD
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

Compliance with the emission limits shall be in accordance with the following EPA Reference Methods as contained in 40 CFR 60, Appendix A or as otherwise approved by the Department:

EMISSION UNIT	POLLUTANT	EPA REFERENCE METHOD
Six (6) Caterpillar Model G 3520C LFG-fueled Internal Combustion Engines	PM_{10}	201
	NOx	7 or 7E
	CO	10
	VE	9

G.1 The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.

G.2 This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings or exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

G.3 As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey and vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.

G.4 This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.

G.5 This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

G.6 The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

G.7 The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:

a) Have access to and copy and records that must be kept under the conditions of the permit;
b) Inspect the facility, equipment, practices, or operations regulated or required under this permit, and,
c) Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

G.8 If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:

a) A description of and cause of non-compliance; and
b) The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance. The permittee shall be responsible for any and all damages, which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

G.9 In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, Florida

Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

G.10 The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

G.11 This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 62-4.120 and 62-730.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

G.12 This permit or a copy thereof shall be kept at the work site of the permitted activity.

G.13 This permit also constitutes:

a) Determination of Best Available Control Technology (X)
b) Determination of Prevention of Significant Deterioration (X);
c) Compliance with New Source Performance Standards (X). Subpart WWW requirements and
d) Compliance with National Emission Standards for Hazardous Air Pollutants (X). Subpart AAAA and ZZZZ requirements

G.14 The permittee shall comply with the following:

a) Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.

b) The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application or this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

c) Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements;
2. The person responsible for performing the sampling or measurements;
3. The dates analyses were performed;
4. The person responsible for performing the analyses;
5. The analytical techniques or methods used; and
6. The results of such analyses.

G.15 When requested by the Department, the permittee shall within a reasonable time furnish any information required by law, which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

Orlando Sentinel

Published Daily

RECEIVED

DEC 19 2006

BUREAU OF AIR REGULATION

State of Florida } S.S.
COUNTY OF ORANGE }

Before the undersigned authority personally appeared RACHAEL WASHINGTON, who on oath says that he/she is the Legal Advertising Representative of Orlando Sentinel, a daily newspaper published at ORLANDO in ORANGE County, Florida; that the attached copy of advertisement, being a PUBLIC NOTICE OF INTENT in the matter of DEP #1170084-005-AC in the ORANGE Court, was published in said newspaper in the issue; of 12/06/06

Affiant further says that the said Orlando Sentinel is a newspaper published at ORLANDO ORANGE, in said ORANGE County, Florida, and that the said newspaper has heretofore been continuously published in said ORANGE County, Florida, each Week Day and has been entered as second-class mail matter at the post office in ORLANDO in said ORANGE County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that he/she has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

The foregoing instrument was acknowledged before me this 15 day of DEC., 20 06, by RACHAEL WASHINGTON, who is personally known to me and who did take an oath.

(SEAL)

DEBORAH M. TONEY
Comm# DD0482759
Expires 11/18/2009
Bonded thru (800)432-4254
Florida Notary Assn., Inc

PUBLIC NOTICE OF INTENT TO ISSUE PSD AIR CONSTRUCTION PERMIT

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DEP File No. 1170084-005-AC (PSD-FL-376)
Osceola Road Solid Waste Management Facility
Seminole Energy, LLC
Seminole County

The Department of Environmental Protection (Department) gives notice of its intent to issue a Prevention of Significant Deterioration (PSD) air construction permit to Seminole Energy, LLC for installation of six (6) lean-burn Caterpillar Model G3520C landfill gas fueled internal combustion engines at Osceola Road Solid Waste Management Facility located in Geneva. The facility is located at 1930 E. Osceola Road, Geneva, Seminole County, Florida. A Best Available Control Technology (BACT) determination was required for nitrogen oxide (NOx), carbon monoxide (CO) and particulate matter less than or equal to 10 microns (PM10) pursuant to Rule 62-212.400, F.A.C. The applicant's name and address are Seminole Energy, LLC, 29261 Wall Street, Wixom, Michigan 48393.

Seminole Energy, LLC applied on April 18, 2006 (complete on November 8, 2006) to install the six engines for generating electricity by combusting landfill gas that is currently being flared at the Osceola Road Solid Waste Management Facility. Initially four lean-burn engines will be connected to individual electricity generators. Each engine will be connected to a 1,600 kilowatt electricity generator. Two additional engines will be installed later, one in year 5 and another one in year 10 of the phased project. With all six engines installed the plant will have the potential to generate 9.6 megawatts of electricity under base load operating conditions and will be interconnected to the Florida Power & Light distribution network through a nearby power line.

The project results in potential CO emission of greater than 250 tons per year (TPY) making the facility a Major Stationary Source for PSD review. The increases in emissions of CO, NOx and PM10 will exceed the significant emission rates. The total annual increases due to the proposed project are approximately 356 TPY of CO, 78 TPY of NOx and 31 TPY of PM10. CO and NOx emissions will be controlled through combustor design (lean-burn engine) and good combustion practices (air-to-fuel ratio control). PM10 emissions will be minimized through the pretreatment of the landfill gas prior to combustion and proper equipment maintenance of the engines.

An air quality impact analysis was conducted. Emissions from the facility will not significantly contribute to or cause a violation of any state or federal ambient air quality standards. The maximum predicted PM10, and NO2 PSD Class II increments in the vicinity of the project consumed by all sources in the area, including this project, will be as indicated below:

Averaging Time	Allowable Increment (µg/m3)	Percent Consumed	Increment Consumed (µg/m3)
PM10			
24-hour	30	14.2	47
Annual	17	1.65	10
NO2			
Annual	25	6	24

No PSD Class I analysis was required due to the distance of the project from the Chassahowitzka National Wilderness Area and the level of emissions associated with the project. Based on the required increment analyses, the Department has reasonable assurance that the proposed project will not cause or significantly contribute to a violation of any PSD increment in the Class I or Class II areas.

The permitting authority has determined that a PSD Air Construction Permit is required. The Department will issue the Final PSD Air Construction Permit in accordance with the conditions of the Draft PSD Air Construction Permit unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments and requests for a public meeting concerning the proposed permit issuance action for a period of 30 (thirty) days from the date of publication of "PUBLIC NOTICE OF INTENT TO ISSUE PSD AIR CONSTRUCTION PERMIT." Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Mediation is not available in this proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #65, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of this notice or within fourteen days of receipt of the written notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends requires reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department have the right to petition to become a party to the proceeding. In accordance with the requirements set forth above.

A complete project file is available for public inspection during normal business hours 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Dept. of Environmental Protection
Bureau of Air Regulation
111 S. Magnolia Drive, Suite 4
Tallahassee, Florida, 32301
Telephone: 850/488-0114
Fax: 850/922-6979

Dept. of Environmental Protection
Central District
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767
Telephone: 407/894-7555
Fax: 407/897-5963

The complete project file includes the application, technical evaluations, Draft Permit, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Administrator of the Permitting North Section at 850/488-0114 for additional information.

12/6/06

CORI3430I

Adams, Patty

From: Harvey, Mary
Sent: Wednesday, November 29, 2006 8:59 AM
To: Adams, Patty
Subject: FW: DRAFT Permit #1170084-005-AC - Osceola Road Solid Waste Management Facility

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From: Scott Salisbury [mailto:Scott.salisbury@landfillenergy.com]
Sent: Tuesday, November 28, 2006 3:59 PM
Subject: Read: DRAFT Permit #1170084-005-AC - Osceola Road Solid Waste Management Facility

Your message

To: Scott.salisbury@landfillenergy.com
Subject:

was read on 11/28/2006 3:59 PM.

Adams, Patty

From: Harvey, Mary
Sent: Wednesday, November 29, 2006 9:38 AM
To: Adams, Patty; Arif, Syed
Subject: FW: DRAFT Permit #1170084-005-AC - Osceola Road Solid Waste Management Facility

-----Original Message-----
From: John_Bunyak@nps.gov [mailto:John_Bunyak@nps.gov]
Sent: Tuesday, November 28, 2006 11:04 AM
To: Harvey, Mary
Subject: DRAFT Permit #1170084-005-AC - Osceola Road Solid Waste Management Facility

Return Receipt

Your document:	DRAFT Permit #1170084-005-AC - Osceola Road Solid Waste Management Facility
was received by:	John Bunyak/DENVER/NPS
at:	11/28/2006 09:03:59 AM

Adams, Patty

From: Harvey, Mary
Sent: Wednesday, November 29, 2006 12:23 PM
To: Arif, Syed; Adams, Patty
Subject: FW: DRAFT Permit #1170084-005-AC - Osceola Road Solid Waste Management Facility

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From: Kozlov, Leonard
Sent: Wednesday, November 29, 2006 11:15 AM
To: Harvey, Mary
Subject: Read: DRAFT Permit #1170084-005-AC - Osceola Road Solid Waste Management Facility

Your message

To:	'Scott.Salisbury@landfillenergy.com'; 'dgregory@seminolecountyfl.gov'; 'worley.gregg@epa.gov'; 'john_bunyak@nps.gov'; Kozlov, Leonard; 'jeff.pope@us.bureauveritas.com'; 'dderenzo@derenzo.com'
Cc:	Arif, Syed; Adams, Patty; Gibson, Victoria
Subject:	DRAFT Permit #1170084-005-AC - Osceola Road Solid Waste Management Facility
Sent:	11/28/2006 10:53 AM

was read on 11/29/2006 11:15 AM.

Adams, Patty 11/28/06

From: Harvey, Mary
Sent: Tuesday, November 28, 2006 2:12 PM
To: Adams, Patty; Arif, Syed
Subject: FW: DRAFT Permit #1170084-005-AC - Osceola Road Solid Waste Management Facility

-----Original Message-----
From: jeff.pope@us.bureauveritas.com [mailto:jeff.pope@us.bureauveritas.com]
Sent: Tuesday, November 28, 2006 11:21 AM
To: Harvey, Mary
Subject: DRAFT Permit #1170084-005-AC - Osceola Road Solid Waste Management Facility

Return Receipt

Your document :	DRAFT Permit #1170084-005-AC - Osceola Road Solid Waste Management Facility
was received by:	Jeff Pope/USA/VERITAS
at:	11/28/2006 10:20:55 AM CST

Adams, Patty

From: Harvey, Mary
Sent: Tuesday, November 28, 2006 1:40 PM
To: Arif, Syed; Adams, Patty
Subject: FW: DRAFT Permit #1170084-005-AC - Osceola Road Solid Waste Management Facility

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From: David Derenzo [mailto:dderenzo@derenzo.com]
Sent: Tuesday, November 28, 2006 11:06 AM
To: Harvey, Mary
Subject: RE: DRAFT Permit #1170084-005-AC - Osceola Road Solid Waste Management Facility

Dear DEP, Bureau of Air Regulation

I acknowledge receipt of draft Permit #1170084-005-AC Osceola Road Solid Waste Management Facility

David Derenzo

From: Harvey, Mary [mailto:Mary.Harvey@dep.state.fl.us]
Sent: Tuesday, November 28, 2006 10:53 AM
To: Scott.Salisbury@landfillenergy.com; dgregory@seminolecountyfl.gov; worley.gregg@epa.gov; john_bunyak@nps.gov; Kozlov, Leonard; jeff.pope@us.bureauveritas.com; dderenzo@derenzo.com
Cc: Arif, Syed; Adams, Patty; Gibson, Victoria
Subject: DRAFT Permit #1170084-005-AC - Osceola Road Solid Waste Management Facility

Dear Sir/Madam:

Please send a "reply" message verifying receipt of the attached document(s); this may be done by selecting "Reply" on the menu bar of your e-mail software and then selecting "Send". We must receive verification of receipt and your reply will preclude subsequent e-mail transmissions to verify receipt of the document(s).

The document(s) may require immediate action within a specified time frame. Please open and review the document(s) as soon as possible.

The document is in Adobe Portable Document Format (pdf). Adobe Acrobat Reader can be downloaded for free at the following internet site: http://www.adobe.com/products/acrobat/readstep.html.

The Bureau of Air Regulation is issuing electronic documents for permits, notices and other correspondence in lieu of hard copies through the United States Postal System, to provide greater service to the applicant and the engineering community. Please advise this office of any changes to your e-mail address or that of the Engineer-of-Record.

Thank you,

DEP, Bureau of Air Regulation

Adams, Patty

From: Harvey, Mary

Sent: Tuesday, November 28, 2006 10:53 AM

To: 'Scott.Salisbury@landfillenergy.com'; 'dgregory@seminolecountyfl.gov'; 'worley.gregg@epa.gov'; 'john_bunyak@nps.gov'; Kozlov, Leonard; 'jeff.pope@us.bureauveritas.com'; 'dderenzo@derenzo.com'

Cc: Arif, Syed; Adams, Patty; Gibson, Victoria

Subject: DRAFT Permit #1170084-005-AC - Osceola Road Solid Waste Management Facility

Attachments: 1170084.005.AC.D_pdf.zip

Dear Sir/Madam:

Please send a "reply" message verifying receipt of the attached document(s); this may be done by selecting "Reply" on the menu bar of your e-mail software and then selecting "Send". We must receive verification of receipt and your reply will preclude subsequent e-mail transmissions to verify receipt of the document(s).

The document(s) may require immediate action within a specified time frame. Please open and review the document(s) as soon as possible.

The document is in Adobe Portable Document Format (pdf). Adobe Acrobat Reader can be downloaded for free at the following internet site: http://www.adobe.com/products/acrobat/readstep.html.

The Bureau of Air Regulation is issuing electronic documents for permits, notices and other correspondence in lieu of hard copies through the United States Postal System, to provide greater service to the applicant and the engineering community. Please advise this office of any changes to your e-mail address or that of the Engineer-of-Record.

Thank you,

DEP, Bureau of Air Regulation

Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Colleen M. Castille
Secretary

November 27, 2006

ELECTRONIC MAIL - RECEIVED RECEIPT REQUESTED

Mr. Scott Salisbury, Managing Member
Seminole Energy, LLC
29261 Wall Street
Wixom, Michigan 48393

Re: DRAFT Permit No. 1170084-005-AC (PSD-FL-376)
Osceola Road Solid Waste Management Facility

Dear Mr. Salisbury:

Enclosed is one copy of the Draft Air Construction Permit for modification of the Osceola Road Solid Waste Management Facility, located at 1930 E. Osceola Road, Geneva, Seminole County, Florida. The Technical Evaluation and Preliminary Determination, Best Available Control Technology Determination, the Department's Intent to Issue Air Construction Permit and the "PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT" are also included.

The "PUBLIC NOTICE" must be published one time only, as soon as possible, in the legal advertisement section of a newspaper of general circulation in the area affected, pursuant to the requirements of Chapter 50, Florida Statutes. Proof of publication, i.e., newspaper affidavit, must be provided to the Department's Bureau of Air Regulation office within seven days of publication. Failure to publish the notice and provide proof of publication may result in the denial of the permit.

Please submit any written comments you wish to have considered concerning the Department's proposed action to Jeff Koerner, P.E., Permitting Administrator, North Section, at the above letterhead address. If you have any other questions, please contact Syed Arif at 850/921-9528.

Sincerely,

Trina L. Vielhauer, Chief
Bureau of Air Regulation

TLV/sa

Enclosures

Executed in Tallahassee, Florida.

Trina L. Vielhauer, Chief
Bureau of Air Regulation

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this INTENT TO ISSUE PSD PERMIT (including the PUBLIC NOTICE, Technical Evaluation and Preliminary Determination, Draft BACT Determination, and the DRAFT permit) and all copies were sent electronically (with Received Receipt) before the close of business on 11/28/06 to the person(s) listed:

Scott Salisbury, Trail Ridge Energy, LLC* (scott.salisbury@landfillenergy.com)
David Gregory, Solid Waste Manager, ESD/SWMD (dgregory@seminolecountyfl.gov)
Gregg Worley, EPA (worley.gregg@epa.gov)
John Bunyak, NPS (john_bunyak@nps.gov)
Len Kozlov, DEP-CD (leonard.kozlov@dep.state.fl.us)
Jeff Pope, P.E., Clayton Group Services, Inc. (jeff.pope@us.bureauveritas.com)
David Derenzo, Derenzo & Associates, Inc. (dderenzo@derenzo.com)

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to §120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

(Clerk) 11/28/06 (Date)

Memorandum

Florida Department of
Environmental Protection

TO: Trina Vielhauer

THRU: Jeff Koerner JK

FROM Syed Arif SA

DATE: November 16, 2006

SUBJECT: Seminole Energy, LLC – Osceola Road Solid Waste Management Facility
DEP File No. 1170084-005-AC, PSD-FL-376

Attached is the Public Notice package for Seminole Energy, LLC to install six (6) lean burn Caterpillar Model G3520C landfill gas fueled internal combustion engines at Osceola Road Solid Waste Management Facility located in Geneva. A Best Available Control Technology (BACT) determination was required for nitrogen oxide (NOx), carbon monoxide (CO) and particulate matter less than or equal to 10 microns (PM_{10}) pursuant to Rule 62-212.400, F.A.C.

Seminole Energy, LLC applied on April 18, 2006 (complete on November 8, 2006) to install the six engines for generating electricity by combusting landfill gas that is currently being flared at the Osceola Road Solid Waste Management Facility. Due to this modification, the potential emission of CO will be greater than 250 tons per year (TPY) making the facility a Major Stationary Source for PSD review. The increases in emissions of CO, NOx and PM_{10} will exceed the significant emission rates. The total annual increases due to the proposed project are approximately 356 TPY of CO, 78 TPY of NOx and 31 TPY of PM_{10}. CO and NOx emissions will be controlled through combustor design (lean-burn engine) and good combustion practices (air-to-fuel ratio control). PM_{10} emissions will be minimized through the pretreatment of the landfill gas prior to combustion and proper equipment maintenance of the engines.

We recommend your approval and signature.

JFK/sa

Attachments

Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Colleen M. Castille
Secretary

P.E. Certification Statement

Permittee:
Seminole Energy, LLC
Osceola Road Solid Waste Management Facility

DEP File No. 1170084-005-AC
Permit No. PSD-FL-376

Project type: Seminole Energy, LLC will install six (6) lean-burn Caterpillar Model G3520C landfill gas fueled internal combustion engines at Osceola Road Solid Waste Management Facility located in Geneva. The facility is located at 1930 E. Osceola Road, Geneva, Seminole County, Florida. A Best Available Control Technology (BACT) determination was required for nitrogen oxide (NOx), carbon monoxide (CO) and particulate matter less than or equal to 10 microns (PM_{10}) pursuant to Rule 62-212.400, F.A.C. The applicant's name and address are Seminole Energy, LLC, 29261 Wall Street, Wixom, Michigan 48393.

Seminole Energy, LLC applied on April 18, 2006 (complete on November 8, 2006) to install the six engines for generating electricity by combusting landfill gas that is currently being flared at the Osceola Road Solid Waste Management Facility. Due to this modification, the potential emission of CO will be greater than 250 tons per year (TPY) making the facility a Major Stationary Source for PSD review. The increases in emissions of CO, NOx and PM_{10} will exceed the significant emission rates. The total annual increases due to the proposed project are approximately 356 TPY of CO, 78 TPY of NOx and 31 TPY of PM_{10}. CO and NOx emissions will be controlled through combustor design (lean-burn engine) and good combustion practices (air-to-fuel ratio control). PM_{10} emissions will be minimized through the pretreatment of the landfill gas prior to combustion and proper equipment maintenance of the engines.

***I HEREBY CERTIFY** that the engineering features described in the above referenced application and subject to the proposed permit conditions provide reasonable assurance of compliance with applicable provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 62-4 and 62-204 through 62-297. However, I have not evaluated and I do not certify aspects of the proposal outside of my area of expertise (including but not limited to the electrical, mechanical, structural, hydrological, meteorological and geological features).*

Syed Arif, P.E. — Date: 11/16/06
Registration Number: 51861

Department of Environmental Protection
Bureau of Air Regulation
111 South Magnolia Drive, Suite 4
Tallahassee, Florida 32301
Phone (850) 488-0114
Fax (850) 922-6979

In the Matter of an
Application for Permit by:

Mr. Scott Salisbury, Managing Member
Seminole Energy, LLC
29261 Wall Street
Wixom, Michigan 48393

DEP File No. 1170084-005-AC
Draft Permit No. PSD-FL-376
Osceola Road Waste Management Facility
Seminole County

INTENT TO ISSUE PSD AIR CONSTRUCTION PERMIT

The Department of Environmental Protection (Department) gives notice of its intent to issue a Prevention of Significant Deterioration (PSD) air construction permit (copy of DRAFT Permit attached) for the proposed project, detailed in the application specified above and in the attached Technical Evaluation and Preliminary Determination, for the reasons stated below.

The applicant, Seminole Energy, LLC submitted an application on April 18, 2006 (complete on November 8, 2006) to the Department for a PSD permit to install six (6) lean burn Caterpillar Model G3520C landfill gas fueled internal combustion engines at Osceola Road Solid Waste Management Facility located in Geneva. The facility is located at 1930 E. Osceola Road, Geneva, Seminole County, Florida.

Seminole Energy will install the engines to generate electricity from the landfill gas that is currently being flared at the Osceola Road Solid Waste Management Facility. The Osceola Road Solid Waste Management Facility is a Title V source. Additionally, based on this modification potential emission of carbon monoxide (CO) will be greater than 250 tons per year making the facility a Major Stationary Source for PSD review. The increases in emissions of CO, nitrogen oxide (NOx) and particulate matter less than or equal to 10 microns (PM_{10}) will exceed the significant emission rates. CO and NOx emissions will be controlled through combustor design (lean-burn engine) and good combustion practices (air-to-fuel ratio control). PM_{10} emissions will be minimized through the pretreatment of the landfill gas prior to combustion and proper equipment maintenance of the engines.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes (F.S.), and Florida Administrative Code (F.A.C.) Chapters 62-4, 62-210, and 62-212. The above actions are not exempt from permitting procedures. As described in the attached Technical Evaluation and Preliminary Determination, the Department has determined that a review for Prevention of Significant Deterioration (PSD), a determination of Best Available Control Technology (BACT) and a PSD permit are required for the proposed work.

The Department intends to issue this Air Construction Permit based on the belief that reasonable assurances have been provided to indicate that operation of these emission units will not adversely impact air quality, and the emission units will comply with all appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297, F.A.C.

Pursuant to Section 403.815, F.S., and Rule 62-110.106(7)(a)1., F.A.C., you (the applicant) are required to publish at your own expense the enclosed "PUBLIC NOTICE OF INTENT TO ISSUE PSD PERMIT." The notice shall be published one time only in the legal advertisement section of a newspaper of general circulation in the area affected. Rule 62-110.106(7)(b), F.A.C., requires that the applicant cause the notice to be published as soon as possible after notification by the Department of its intended action. For the purpose of these rules, "publication in a newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. If you are uncertain that a newspaper meets these requirements, please contact the Department at the address or telephone number listed below. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400 (Telephone: 850/488-0114; Fax 850/ 922-6979). You must provide proof of publication within seven days of publication, pursuant to Rule 62-110.106(5), F.A.C. No permitting action for which published notice is required shall be granted until proof of publication of notice is made by furnishing a uniform affidavit in substantially the form prescribed in section 50.051, F.S. to the office of the Department issuing the permit. Failure to publish the notice and provide proof of publication may result in the denial of the permit pursuant to Rules 62-110.106(9) & (11), F.A.C.

The Department will issue the Final PSD Permit in accordance with the conditions of the attached Draft PSD permit unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments and requests for a public meeting concerning the proposed permit issuance action for a period of 30 (thirty) days from the date of publication of PUBLIC NOTICE OF INTENT TO ISSUE PSD PERMIT. Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the Draft PSD Permit, the permitting authority shall issue a Revised Draft PSD Permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above. Mediation is not available in this proceeding.

PUBLIC NOTICE OF INTENT TO ISSUE PSD AIR CONSTRUCTION PERMIT

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DEP File No. 1170084-005-AC (PSD-FL-376)
Osceola Road Solid Waste Management Facility
Seminole Energy, LLC
Seminole County

The Department of Environmental Protection (Department) gives notice of its intent to issue a Prevention of Significant Deterioration (PSD) air construction permit to Seminole Energy, LLC for installation of six (6) lean-burn Caterpillar Model G3520C landfill gas fueled internal combustion engines at Osceola Road Solid Waste Management Facility located in Geneva. The facility is located at 1930 E. Osceola Road, Geneva, Seminole County, Florida. A Best Available Control Technology (BACT) determination was required for nitrogen oxide (NOx), carbon monoxide (CO) and particulate matter less than or equal to 10 microns (PM_{10}) pursuant to Rule 62-212.400, F.A.C. The applicant's name and address are Seminole Energy, LLC, 29261 Wall Street, Wixom, Michigan 48393.

Seminole Energy, LLC applied on April 18, 2006 (complete on November 8, 2006) to install the six engines for generating electricity by combusting landfill gas that is currently being flared at the Osceola Road Solid Waste Management Facility. Initially four lean-burn engines will be connected to individual electricity generators. Each engine will be connected to a 1,600 kilowatt electricity generator. Two additional engines will be installed later, one in year 5 and another one in year 10 of the phased project. With all six engines installed the plant will have the potential to generate 9.6 megawatts of electricity under base load operating conditions and will be interconnected to the Florida Power & Light distribution network through a nearby power line.

The project results in potential CO emission of greater than 250 tons per year (TPY) making the facility a Major Stationary Source for PSD review. The increases in emissions of CO, NOx and PM_{10} will exceed the significant emission rates. The total annual increases due to the proposed project are approximately 356 TPY of CO, 78 TPY of NOx and 31 TPY of PM_{10}. CO and NOx emissions will be controlled through combustor design (lean-burn engine) and good combustion practices (air-to-fuel ratio control). PM_{10} emissions will be minimized through the pretreatment of the landfill gas prior to combustion and proper equipment maintenance of the engines.

An air quality impact analysis was conducted. Emissions from the facility will not significantly contribute to or cause a violation of any state or federal ambient air quality standards. The maximum predicted PM_{10}, and NO_2 PSD Class II increments in the vicinity of the project consumed by all sources in the area, including this project, will be as indicated below:

Averaging Time	Allowable Increment ($\mu g/m^3$)	Increment Consumed ($\mu g/m^3$)	Percent Consumed
PM_{10}			
24-hour	30	14.2	47
Annual	17	1.65	10
NO_2			
Annual	25	6	24

No PSD Class I analysis was required due to the distance of the project from the Chassahowitzka National Wilderness Area and the level of emissions associated with the project. Based on the required

increment analyses, the Department has reasonable assurance that the proposed project will not cause or significantly contribute to a violation of any PSD increment in the Class I or Class II areas.

The permitting authority has determined that a PSD Air Construction Permit is required. The Department will issue the Final PSD Air Construction Permit in accordance with the conditions of the Draft PSD Air Construction Permit unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments and requests for a public meeting concerning the proposed permit issuance action for a period of 30 (thirty) days from the date of publication of "PUBLIC NOTICE OF INTENT TO ISSUE PSD AIR CONSTRUCTION PERMIT." Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Mediation is not available in this proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

NOTICE TO BE PUBLISHED IN THE NEWSPAPER

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

A complete project file is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Dept. of Environmental Protection Bureau of Air Regulation 111 S. Magnolia Drive, Suite 4 Tallahassee, Florida, 32301 Telephone: 850/488-0114 Fax: 850/922-6979	Dept. of Environmental Protection Central District 3319 Maguire Boulevard, Suite 232 Orlando, Florida 32803-3767 Telephone: 407/894-7555 Fax: 407/897-5963

The complete project file includes the application, technical evaluations, Draft Permit, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Administrator of the Permitting North Section at 850/488-0114 for additional information.

NOTICE TO BE PUBLISHED IN THE NEWSPAPER

TECHNICAL EVALUATION

AND

PRELIMINARY DETERMINATION

SEMINOLE ENERGY, LLC

Osceola Road Solid Waste Management Facility
Seminole County, Florida

Facility Modification

DEP File No. 1170084-005-AC
PSD-FL-376

Florida Department of Environmental Protection
Division of Air Resources Management
Bureau of Air Regulation

November 16, 2006

I. APPLICATION INFORMATION

A. Applicant

Seminole Energy, LLC
29261 Wall Street
Wixom, Michigan 48393

Secondary Responsible Official: Mr. Scott Salisbury, Managing Member

B. Facility

Osceola Road Solid Waste Management Facility
1930 E. Osceola Road
Geneva, Florida 32732

Primary Responsible Official: Mr. David Gregory, Solid Waste Manager, Environmental Services Department – Solid Waste Management Division, Seminole County

C. Reviewing and Process Schedule

04-18-2006:	Date of receipt of Application
05-16-2006:	DEP's 1st Completeness Request
05-23-2006:	Date of receipt of additional information concerning the application
06-12-2006	Applicant's response to DEP's 1st Completeness Request
07-13-2006:	DEP's 2nd Completeness Request
08-11-2006:	Applicant's response to DEP's 2nd Completeness Request
08-31-2006:	Date of receipt of modeling information
10-13-2006:	DEP's 3rd Completeness Request (e-mail) concerning letter from Primary Responsible Official
11-08-2006:	Applicant's response to DEP's 3rd Completeness Request. Application Complete

D. Facility Location

This facility is located at 1930 E. Osceola Road, Geneva, Seminole County, Florida. Latitude and Longitude are 28/47/30 and 81/04/42 respectively. UTM coordinates of the site are: Zone 17, 492.00 km E and 3184.50 km N. This location is over 100 km from the nearest Class I area, the Chassahowitzka Wilderness Area.

Facility Identification Code (SIC):

Major Group No. 49, Industry Group No. 4953.

Figure 1- Location of Facility

Figure 2- Regional Location

E. Facility Description

Osceola Road Solid Waste Management (WM) Facility is a Municipal Solid Waste (MSW) Landfill which is allocated for Class I MSW. The Non-Methane Organic Compound (NMOC) control device (gas collection and control system) is installed in accordance with the requirements of 40 CFR 60, Subpart WWW. Methane-rich landfill gas (LFG) produced from the decomposition of disposed waste materials at both active and capped cells is being collected by a gas recovery system. A blower station connected to the gas recovery system moves the collected LFG to a central location. LFG is directed to an enclosed flare where methane, NMOC and HAPs contained in the gas are destroyed at high temperatures.

In order to reduce the amount of LFG wasted by flaring, all available LFG from the landfill will be supplied to Seminole Energy for use as fuel to power the proposed electricity generation plant. While the Seminole Energy electricity generation plant will be located on leased land at the Osceola Road Solid WM Facility, the electricity generation equipment and processes will be owned and operated by Seminole Energy and not directly under the control of the Osceola Road Solid WM Facility.

Nevertheless, the Department presumes one facility located within another facility establishes a "control" relationship. Since Seminole Energy will be fueled exclusively with methane-rich gas generated by the landfill and under contract with Osceola Road Solid WM Facility, the Department concludes that the landfill has control over the electricity generation operations of the proposed plant. Therefore, Seminole Energy is part of the Osceola Road Solid WM Facility, and its approved Air Construction Permit will be incorporated into the Osceola Road Solid WM Facility Title V Operating Permit. The Title V Operating Permit will have two different sections (one for the landfill operations and one for the electricity generation operations) with a secondary responsible official for each section. A primary responsible official will be designated for the entire facility that will be responsible for all appropriate reporting and compliance certifications of both sections of the facility. The primary responsible official will be the Solid Waste Manager of the Environmental Services Department, Solid Waste Management Division for Seminole County.

The facility is classified as a Major or Title V Source of air pollution because emissions of at least one regulated air pollutant, such as particulate matter (PM/PM_{10}), sulfur dioxide (SO_2), nitrogen oxides (NOx), carbon monoxide (CO), or volatile organic compounds (VOC) exceed 100 tons per year (TPY). The provisions of 40 CFR 60, Subpart A, General Provisions; Subpart WWW, Standards of Performance for Municipal Solid Waste Landfills; 40 CFR 63, Subpart A, General Provisions; and 40 CFR 63, Subpart AAAA, [National Emission Standards for Hazardous Air Pollutants] Municipal Solid Waste Landfills applies to the designated facility.

The proposed LFG-fueled electricity generation plant will be subject to Prevention of Significant Deterioration (PSD) review with respect to Rule 62-210.200(185)(a)3, F.A.C. because potential CO emissions are greater than 250 TPY. Best Available Control Technology (BACT) determinations are required for each pollutant emitted in excess of the Significant Emission Rates listed in Rule 62-210.200(264), F.A.C. These values are 40 TPY for NOx, 100 TPY for CO and 15 TPY for PM_{10}.

II. PROJECT DESCRIPTION

The proposed project will consist of Caterpillar (CAT) Model G3520C LFG-fueled internal combustion (IC) engines and electricity generators. The electricity generation plant will consist of:

1. LFG treatment equipment (gas dewatering, filtration and compression equipment and processes).
2. Six (6) lean-burn IC engines that will be connected to individual electricity generators. Each engine will be connected to a 1,600 kilowatt electricity generator. The plant will have the potential to generate 9.6 megawatts of electricity under base load operating conditions and will be interconnected to the Florida Power & Light distribution network through a nearby power line.
3. Ancillary equipment that supports the electricity generation operations (e.g., engine oil storage tanks and LFG temperature and moisture conditioning equipment).

The LFG-fueled engines will be housed in a single building constructed near the existing LFG collection system header and control system flare. A gas transmission line will be connected to the header of the existing LFG collection system and a dedicated gas blower/compressor will be used to draw methane-rich gas (fuel) from the existing LFG collection system to the proposed electricity generation plant.

A. Treatment of Landfill Gas

The equipment and processes used to treat (dewater, filter and compress) the LFG received from the Landfill (prior to its combustion as fuel in the proposed engines) will consist of:

1. Initial two-stage inlet gas dewatering/filter vessels (the bottom chambers are used for moisture knock-out, top chambers are equipped with coalescing filter media to remove gas particles having diameters of 1-micron and larger).
2. A gas compressor/blower.
3. Air-to-gas coolers (chillers), which will be used to reduce the elevated temperatures of LFG received from compressor to approximately 10°F above ambient temperatures.
4. Final two-stage gas dewatering/filter vessels (the bottom chambers are used for moisture knock-out, top chambers are equipped with coalescing filter media to remove gas particles having diameters of 1-micron or larger).

Components of the specified gas treatment system will not be equipped with atmospheric vents. Therefore, all of the LFG received by the system will be directed to the IC engines for use as a fuel.

B. Engine/Generator Specifications

Six identical lean-burn engines, CAT Model G3520C engines will be used to power electricity generators. These engines:

1. Are designed to fire low-pressure, lean fuel mixtures and produce low combustion by-product emissions. The engines are equipped with an air-to-fuel ratio controller that monitors engine performance parameters and automatically adjusts the air-to-fuel ratio and ignition timing to maintain efficient fuel combustion, which minimizes air pollutant emissions.
2. Will be fueled exclusively with LFG generated by and received from the Osceola Road Solid WM Facility (natural gas will not be used to fuel the engine operations under any conditions).
3. Have a power generation rating of 2,233 brake horsepower (bhp).
4. Will be connected to a 1,600 kW electricity generator.

The proposed facility will have a total electricity generation capacity of 9,600 kW (9.6 MW). Emissions produced by the combustion of LFG fuel in the six gas engines will be released into the ambient air through individual stacks connected to the engine exhaust manifolds. A noise muffler will be installed on each engine exhaust stack. The fuel combustion system exhausts and noise mufflers will be located on the roof of the single building that houses the engines.

C. LFG Fuel Requirement/Availability

The operation of the six gas IC engines under base load conditions (100% capacity) and with fuel that has a minimum lower heating value (LHV) of 420 Btu/scf (higher heating value (HHV) of 467 Btu/scf) will result in maximum LFG fuel utilization rates of approximately 3,480 scfm and 5.01 million standard cubic feet per day (MMscf/day).

Approximately 1,900 scfm of LFG is currently being generated by the Osceola Road Solid WM Facility. The specified gas generation rate is adequate to fuel and power four of the six (6) internal combustion (IC) engine generators proposed for installation at the facility. However, the landfill will generate additional amounts of gas over the next 10 year period that is anticipated to be sufficient to fuel two additional engine generator sets. Therefore, Seminole Energy wants to proceed with the construction permit approval based on a phased construction schedule that has:

1. Engine generator set nos. 1-4 installed as soon as possible after construction permit approval.
2. Engine generator set no. 5 installed approximately five (5) years after the commencement of the initial electricity generation operations.
3. Engine generator set no. 6 installed approximately 10 years after the commencement of the initial electricity generation operations.

The existing LFG flaring system will be periodically operated during periods of equipment downtime and maintenance, and continually operated when future LFG collection and extraction rates (from new waste placement) exceed the fuel supply requirement of the installed and operated engines.

D. Ancillary Equipment

Each of the proposed IC engines will be equipped with a stand-alone fan-cooled radiator. Engine coolant for the radiators will be stored on-site in drum quantities.

Engine lube oil (new and used) will be stored in separate above ground holding tanks positioned on the premises of the proposed LFG-fueled IC engine electricity generation plant. The new lube oil storage tank will have a capacity of approximately 2,000-gallons. The waste oil storage tank will have a capacity of approximately 1,000-gallons.

III. AIR POLLUTANT EMISSIONS

A. Criteria Air Pollutants

The CAT G3520C gas IC engines will have the following maximum NOx, CO, VOC and PM_{10} emission rates:

- 2.75 grams of CO per brake-horsepower hour (g/bhp-hr);
  13.54 lbs/hr and 59.30 TPY (one engine)
  355.8 TPY (six engines)
- 0.60 g/bhp-hr NOx;
  4.95 lb/hr and 12.94 TPY (one engine)
  77.6 TPY (six engines)
- 0.28 g/bhp-hr of total VOC;
  1.37 lb/hr and 5.99 TPY (one engine)
  36.0 TPY (six engines)
- 0.24 g/bhp-hr for PM_{10}.
  1.18 lb/hr and 5.17 TPY (one engine)
  31.0 TPY (six engines)

The 2.75 g/bhp-hr CO value is based on the results of Best Available Control Technology (BACT) analyses.

The 0.60 g/bhp-hr NOx value is based on the results of BACT analyses.

The 0.28 g/bhp-hr VOC value is based on a voluntary limitation that is 90% of the 40 TPY significant emission thresholds listed in Rule 62-210.200(264), F.A.C.

The 0.24 g/bhp-hr PM_{10} value is based on the results of BACT analyses.

Sulfur oxide (SOx) emissions have the potential to be produced during the combustion of LFG since it contains sulfur-bearing compounds that are oxidized at normal engine operating temperatures. Site-specific sulfur content analyses have not been performed on the LFG generated by the Landfill. Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition, Volume I, Section 2.4 data was used to estimate the total potential sulfur content of the LFG to be used as engine fuel. The AP-42 data specify a hydrogen sulfide (H_2S) default LFG concentration of 35.5 parts per million by volume (ppmv). However, based on their experience, the applicant determined that H_2S is typically observed at concentrations greater than 35.5 ppmv but less than 150 ppmv. Therefore, the AP-42 H_2S default LFG concentration of 35.5 ppmv was replaced with 150 ppmv value. The results of this analysis indicate that the total sulfur content of the LFG to be used as engine fuel is estimated to be less than 164.2 ppmv as H_2S. The additional sulfur content was due to other compounds like carbon disulfide, methyl mercaptan, etc., that is converted to SO_2. The operation of the six engines at this specified sulfur content will result in maximum

potential emissions of 25.32 TPY of SO_2. This is less than the significant emission rate for SO_2 of 40 TPY and doesn't trigger PSD/BACT review.

B. Hazardous Air Pollutants

Hazardous Air Pollutants (HAP) as specified in Rule 62-210.200(133), F.A.C are produced during the combustion of LFG to be used as fuel by the IC engines since:

1. HAP compounds are present in the gas generated by the Osceola Road Solid WM Facility and the fuel combustion process is not 100% complete (i.e., a small portion of the HAPs pass through the fuel combustion system).
2. Chlorinated compounds that are present in LFG have the potential to form hydrogen chloride (HCl, a regulated HAP) when they are combusted.

Site-specific HAP content analyses have not been performed on the LFG generated by the Landfill. Therefore, data developed by EPA in AP-42, Section 2.4 were used to estimate the total potential HAP content of the LFG to be used as engine fuel.

Table 2.4-3 of AP-42 provides control efficiencies for LFG constituents and specifies engines typically reduce (control) halogenated species by 93 percent and non-halogenated species by 86.1 percent. These LFG constituent control efficiencies were considered in the HAP potential emission determinations.

The contribution of HCL to the HAP potential emissions of the engines was estimated based on a conversion of the individual chlorinated compound measurements presented in the AP-42 default list of LFG constituents to HCl as a result of the high temperature combustion environment and exhaust processes. The results of this analysis indicate that the HCl exhaust rate of the proposed engines is equivalent to an annual potential emission of 10.9 TPY under base load conditions. The major source threshold for any single HAP is 10 TPY. The applicant will restrict the allowable HCl emissions from the proposed engine operations to less than 10 TPY through appropriate permit limits.

The operation of six engines under base load conditions will result in maximum potential total HAP emissions that are less than 12.6 TPY and is well under the 25 TPY thresholds.

The reciprocating IC engine National Emission Standards for Hazardous Air Pollutants (RICE NESHAP, 40 CFR Part 63 Subpart ZZZZ) applies to major sources of HAPs that operate RICE rated for 500 bhp or greater. Major is defined as a facility that has the potential to emit in excess of 25 TPY of any combination of HAP compounds or 10 TPY of any single HAP.

The proposed electricity generation facility individual RICE will have power ratings that exceed 500 bhp. However, the maximum HAP emissions will be limited to less than the major facility thresholds. Therefore, the proposed facility is not subject to the emission limitations and operating limitations but will be subject to the initial notification, reporting and recordkeeping requirement of the subpart.

IV. RULE APPLICABILITY

A. Prevention of Significant Deterioration

The proposed project was reviewed under Rule 62-210.200(185)(a)3, F.A.C., New Source Review (NSR) for Prevention of Significant Deterioration (PSD), because it will be a major modification to a minor stationary source resulting in a significant increase in NOx, PM/PM_{10}, and CO emissions. This review consisted of a determination of Best Available Control Technology (BACT) and an analysis of the air quality impact of the increased emissions. The review also includes an analysis of the project's impacts on soils, vegetation and visibility, along with air quality impacts resulting from associated commercial, residential and industrial growth.

The emission units affected by this PSD permit shall comply with all applicable provisions of the Florida Administrative Code; specifically, the following Chapters and Rules:

Chapter 62-4	Permits
Rule 62-204.220	Ambient Air Quality Protection
Rule 62-204.240	Ambient Air Quality Standards
Rule 62-204.260	Prevention of Significant Deterioration Increments
Rule 62-204.360	Designation of Prevention of Significant Deterioration Areas
Rule 62-204.800	Federal Regulations Adopted By Reference
Rule 62-210.200	Definitions
Rule 62-210.300	Permits Required
Rule 62-210.350	Public Notice and Comments
Rule 62-210.370	Reports
Rule 62-210.550	Stack Height Policy
Rule 62-210.650	Circumvention
Rule 62-210.700	Excess Emissions
Rule 62-210.900	Forms and Instructions
Rule 62-212.300	General Preconstruction Review Requirements
Rule 62-212.400	Prevention of Significant Deterioration
Chapter 62-213	Operation Permits for Major Sources of Air Pollution
Rule 62-296.320	General Pollutant Emission Limiting Standards
Rule 62-296.403	Phosphate Processing
Rule 62-297.310	General Compliance Test Requirements
Rule 62-297.401	Compliance Test Methods

B. Federal and State Emission Standards

The proposed project is subject to the applicable provisions of Chapter 403, Florida Statutes, Chapters 62-212, Chapters 62-210 and 62-4, Florida Administrative Code (F.A.C.), and 40 CFR 60. The facility is located in an area designated attainment or maintenance for all criteria pollutants in accordance with Rule 62-204.340, F.A.C.

The facility is classified as a Major or Title V Source of air pollution because emissions of at least one regulated air pollutant, such as PM/PM_{10}, SO_2, NOx, CO or VOC exceed 100 TPY. The provisions of 40 CFR 60, Subpart A, General Provisions; Subpart WWW, Standards of Performance for Municipal Solid Waste Landfills; 40 CFR 63, Subpart A, General Provisions; 40 CFR 63, Subpart AAAA, NESHAP for Municipal Solid Waste Landfills; and 40 CFR 63, Subpart ZZZZ, NESHAP for Stationary Reciprocating Internal Combustion Engines applies to the six internal combustion engines.

V. BEST AVAILABLE CONTROL TECHNOLGY DETERMINATION

A. BACT Determination Procedure:

In accordance with Chapter 62-210.200(38), F.A.C., a BACT determination is based on the maximum degree of reduction of each pollutant emitted which the Department of Environmental Protection (Department), on a case by case basis, taking into account energy, environmental and economic impacts, and other costs, determines is achievable through application of production processes and available methods, systems, and techniques. In addition, the regulations state that, in making the BACT determination, the Department shall give consideration to:

- Any Environmental Protection Agency determination of BACT pursuant to Section 169, and any emission limitation contained in 40 CFR Part 60 - Standards of Performance for New Stationary Sources or 40 CFR Part 61 - National Emission Standards for Hazardous Air Pollutants.
- All scientific, engineering, and technical material and other information available to the Department.
- The emission limiting standards or BACT determination of any other state.
- The social and economic impact of the application of such technology.

The EPA currently stresses that BACT should be determined using the "top-down" approach. The first step in this approach is to determine, for the emission unit in question, the most stringent control available for a similar or identical emission unit or emission unit category. If it is shown that this level of control is technically or economically unfeasible for the emission unit in question, then the next most stringent level of control is determined and similarly evaluated. This process continues until the BACT level under consideration cannot be eliminated by any substantial or unique technical, environmental, or economic objections.

The air pollutant emissions from this facility for which a BACT determination is required can be grouped into categories based upon the control equipment and techniques that are available to control emissions from these emission units. Using this approach, the emissions can be classified as indicated below:

- ***Particulate Matter less than or equal to 10 microns*** (PM_{10}/***Visible Emissions*** (VE)). Controlled generally by wet scrubbing or filtration.
- ***Combustion Products*** (CO and NOx). CO and NOx controlled generally by good combustion of clean fuels.

Grouping the pollutants in this manner facilitates the BACT analysis because it enables the pollutant control equipment and the corresponding energy, economic, and environmental impacts to be examined on a common basis. Although all of the pollutants addressed in the BACT analysis may be subject to a specific emission limiting standard as a result of PSD review, the control of "non-regulated" air pollutants is considered in imposing a more stringent BACT limit on a "regulated" pollutant (i.e., PM_{10}, CO, NOx, etc.), if a reduction in "non-regulated" air pollutants can be directly attributed to the control device selected as BACT for the abatement of the "regulated" pollutants.

In the case of the proposed project at Osceola Road Solid WM Facility, annual emissions of CO, NOx and PM_{10} are above significant emission rates triggering review for these pollutants. Therefore, since the proposed project involves physical modification of the facility, the BACT analysis will address emissions of CO, NOx and PM_{10}.

B. BACT Analysis

Add-on Emission Controls (General)

EPA in the preamble to the Standards of Performance for Stationary Spark Ignition IC Engines and National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines dated June 12, 2006 states that chemicals in landfill and digester gas fuels called siloxanes (organic compounds composed of silicon, oxygen and methyl groups) poison the catalyst in add-on control technologies such as Selective Catalytic Reduction (SCR), Non-Selective Catalytic Reduction (NSCR), and oxidation catalysts, rendering them ineffective in very short periods of time.

NSCR uses a three-way catalyst to remove NOx and CO from IC engine exhausts.

SCR uses the injection of a solution (urea or ammonia) into the engine exhaust to react with its NOx content. The combustion exhaust gases produced by the engines are subsequently passed through a catalyst in order to achieve NOx reductions.

Oxidation catalysts use energy in the presence of an appropriately selected metal catalyst to transform CO into carbon dioxide (i.e., the combustion exhaust gases produced by the engine are passed through a catalyst in order to complete the oxidation of CO to carbon dioxide).

The California Air Resource Board (CARB) has developed and published Guidance for the Permitting of Electrical Generation Technologies in July 2002, to assist companies and organizations in the permitting of electrical generating equipment. This CARB guidance document:

- Recognizes the benefits of generating electricity from waste gases (landfill and digester gas) and provides BACT determinations from reciprocating IC engines fueled with these materials.
- Indicates that waste gases "contain impurities that, if combusted will likely poison catalyst-based post combustion control systems."
- Determines that additional fuel treatment and post combustion controls have limited success and/or have not been proven to be cost effective in reducing air pollutant emissions from waste combustion applications.

Other state regulatory agencies (FL, TX, RI, and NJ) have made similar determinations with the issuance of permits that specify BACT for LFG-fueled IC engines that do not include the use of add-on emission controls.

Emission standards requiring aftertreatment controls from such engines have typically not been required due to poisoning of the catalyst leading to poor reduction efficiencies and eventually destroying the add-on control device. For this reason, EPA did not consider add-on control for landfill and digester gas applications. The technology that is the basis for the proposed standards for landfill and digester gas engines is the level achieved by new lean-burn engines. EPA has been told that lean-burn engines are the preferred choice for landfill and digester gas applications because these engines have the lowest NOx emissions without add-on control. Information EPA gathered during the proposal also shows that the majority of landfill applications use lean-burn engines.

Documented BACT/LAER Determinations

The USEPA Office of Air Quality Planning and Standards RACT/BACT/LEAR Clearinghouse (RBLC) emission and control technology data indicate that no add-on emission controls have been established as BACT or LAER for LFG-fueled IC engines.

The Department has issued a draft PSD permit (PSD-FL-374) to Trail Ridge Energy, LLC on October 26, 2006 for the installation of six (6) LFG-fueled IC engines. No add-on emission controls were required for this project. The same Caterpillar engines as those proposed for Seminole Energy will be installed at Trail Ridge Energy.

The State of Texas issued PSD permit (PSD-TX-1034) to Bio Energy Texas, LLC on July 23, 2004 for the installation of eight (8) LFG-fueled IC engines. No add-on emission controls were required for this project. The same Caterpillar engines as those proposed for Seminole Energy were installed at Bio Energy Texas.

The State of New Jersey has completed its review of an ozone (NOx) non-attainment area new source review and PSD permit (CO) which will be issued to Ocean Energy Corporation, Inc. (a Landfill Energy Systems Company) in 2006 for the installation of six (6) LFG-fueled IC engines as the ones proposed for Trail Ridge Landfill. No add-on emission controls were required for this project.

CAT G3520C IC engines (the same engines as those proposed for use by Seminole Energy):

1. Will be installed at Trail Ridge Energy (draft permit issued last month);
2. Have been installed and are operating at Ridgewood Power Management (final permit issued in approximately early 2005);
3. Have been installed and are operating at New England Waste Services (final permit issued in approximately late 2004);
4. Have been installed and are operating at Bio Energy Texas (final air permit issued in July 2004); and
5. Are planned for installation at Ocean Energy Corp. with final permit issuance in 2006.

All the above projects did not require any add-on emission controls. The maximum allowable emissions that were permitted for these sources are as follows:

FACILITY (STATE)	ENGINE SIZE (kW)	ENGINE SIZE (hp)	CO (g/bhp-hr)	NOx (g/bhp-hr)	PM_{10} (g/bhp-hr)
Ridgewood Power Management (RI)		2229	2.75	0.50	0.1
New England Waste Services (VT)	1600	2221	2.75	0.50	–
Bio Energy Texas, LLC (TX)		2172	2.8	0.60	0.148
Ocean Energy Corp. (NJ)	1600	2233	2.75	0.60	0.24

BACT Emission Limits Proposed By Applicant

POLLUTANT	EMISSION LIMIT	CONTROL TECHNOLOGY
CO	2.75 g/bhp-hr and 13.54 lb/hr	Lean-burn engine with air-to-fuel ratio control
NOx	0.60 g/bhp-hr and 2.95 lb/hr	Lean-burn engine with air-to-fuel ratio control
PM_{10}	0.24 g/bhp-hr and 1.18 lb/hr	Treatment of LFG fuel

C. Pollutant Analysis

Carbon Monoxide (CO)

It is the Department's position that there is no practicably feasible and cost effective post combustion treatment technology for reducing CO emissions from LFG-fueled IC engines. LFG fuel contains impurities (such as siloxanes and other chemicals) that, when combusted, have been shown to poison catalyst based post-combustion treatment technologies such as an oxidation catalyst and NSCR.

Technical data issued by Caterpillar, Inc. for the CAT 3520C IC engine specifies that CO emissions for the first 100 hours of operations will be equal to or less than 2.5 g/bhp-hr and maximum CO emissions will not exceed 4.2 g/bhp-hr. Operational experience obtained by users of the equipment indicates that CO emissions for LFG-fueled IC engines tend to increase with time. Increasing CO emissions occur as a result of the combustion of siloxanes that exist in the LFG used to fuel the engines. The combustion of LFG siloxanes produces particulate silica that acts as an abrasive material and increases normal wear on the moving components of the engine. With increasing engine operating hours, increasing amount of silica deposits are typically found on the fixed and moving parts in the engine combustion cylinder and in the lubricating oil reservoir. The specified increased engine wear affects the combustion process resulting in a gradual increase in CO emissions over the number of operating hours.

Data in the USEPA RBLC were reviewed to identify control technology determinations for the operation of IC engines on LFG fuel. The results indicate that BACT for CO emissions from IC engines with power ratings greater 2,000 and less than 4,000 bhp range from 2.75 to 3.0 g/bhp-hr (CAT G3520C gas IC engine has a power rating of 2,233 bhp). The corresponding NOx LAER values range from approximately 0.5 to 0.6 g/bhp-hr. The database presents CO BACT values as low as 2.3 g/bhp-hr. However, these CO BACT determinations generally correspond to NOx emission rates that exceed 1.0 g/bhp-hr. The specified NOx LAER and CO BACT determinations are applicable to the operation of lean-burn engines with air-to-fuel ratio control or simply specified as 'clean-burn engine'. The following table summarizes the Departments findings:

TABLE 1

FACILITY	ENGINE SIZE	DATE	TYPE	CO g/bhp-hr	NOx g/bhp-hr
Trail Ridge Energy, LLC	2233 HP	10/2006	BACT	2.75	0.6
Ocean Energy Corp. (NJ)	2233 HP	2006	BACT/LAER	2.75	0.6
New England Waste Svcs. (VT)	2221 HP	12/21/2005	BACT/LAER	2.75	0.5
Ridgewood Power Mgmt. (RI)	2229 HP	06/24/2005	BACT/LAER	2.75	0.5
Bio Energy Texas, LLC (TX)	2172 HP	07/23/2004	BACT/LAER	2.8	0.6
Northwest Regional Landfill (AZ)	1410 HP	10/27/2003	BACT	2.5	0.6
Bio-Energy, LLC (OH) (Loraine County Landfill)	1877 HP	04/22/2003	BACT	2.4	1.4

FACILITY	ENGINE SIZE	DATE	TYPE	CO g/bhp-hr	NOx g/bhp-hr
Bio-Energy, LLC (OH) (Carbon Limestone LFG)	1877 HP	04/10/2003	BACT	2.3	1.2
MM San Bernardino Energy (CA)	1850 HP	05/16/2002	BACT	2.5	0.6
Northern Tier Landfill (PA)	815 kW	01/29/2002	BACT	3.0	2.0
Reliant Associates (TX)	2343 HP	01/24/2002	BACT	3.0	0.6
Sumpter Energy Associates (MI)	1138 HP	12/20/2001	BACT	2.9	2.0
Bio-Energy (Azusa) LLC (CA)	1850 HP	02/22/2000	LAER	2.0	0.6
Kiefer Landfill (CA)	4230 HP	01/18/2000	LAER	2.7	0.55
MM Hackensack Energy (NJ)	1340 HP	04/09/1998	LAER	2.0	1.0

Based on vendor guarantees the applicant has proposed that the emission limitation that represents BACT for CO is 2.75 g/bhp-hr. The proposed CO emission limitation appears consistent with the reported data as the first five entries in Table 1 represents the same manufacturer, model and size of the engines to be used at Seminole Energy.

BACT for CO is therefore represented by combustor design (lean-burn engine) and good combustion practices (air-to-fuel ratio control) to minimize CO emissions. The emission limit chosen to represent BACT for CO is:

2.75 g/bhp-hr

Nitrogen Oxides (NO_X)

Data in the USEPA RBLC (and that specified for Bio Energy Texas and Ocean Energy Corp.) were reviewed to identify control technology determinations issued for the operation of IC engines on LFG fuel. The results of this review indicate that LAER for NOx emissions from IC engines with power ratings greater than 2,000 and less than 4,000 bhp range from 0.5 to 0.6 g/bhp-hr (the CAT G3520C gas IC engine has a power rating of 2,233 hp). The specified USEPA RBLC NOx LAER determinations are applicable to the operation of lean-burn engines with air-to-fuel ratio control or simply specified as 'clean-burn engine'.

Table 1 provides USEPA RBLC NOx LAER/BACT determination data and supporting information for LFG-fueled IC engine operations.

Due to the presence of siloxanes (and other chemicals) in the LFG fuel, the utilization of NSCR and SCR equipment to control NOx in the exhausts of LFG-fueled IC engines is not feasible.

NOx emissions from the LFG-fueled CAT 3520C engines are expected to be relatively constant with respect to the number of operating hours and can be maintained at the proposed levels throughout the operating life of the equipment.

Table 1 indicates that most of the NOx emissions limits that were less than 0.6 g/bhp-hr were all LAER determinations. The lowest BACT emission limit proposed for NOx has been 0.6 g/bhp-hr.

Based on vendor guarantees the applicant has proposed that the emission limitation that represents BACT for NOx is 0.6 g/bhp-hr. This will be achieved through the use of air-to-fuel ratio control technology which minimizes the amount of NOx emissions produced during the LFG combustion process and results in the maximum emissions of 0.60 g/bhp-hr.

BACT for NOx is therefore represented by combustor design (lean-burn engine) and good combustion practices (air-to-fuel ratio control) to minimize NOx emissions. The emission limit chosen to represent BACT for NOx is:

0.60 g/bhp-hr

Particulate Matter less than or equal to 10 microns (PM_{10})

Operational experience obtained by Caterpillar, Inc. and users of its LFG-fueled engines indicates that PM_{10} emissions for LFG-fueled IC engines are dependent on engine operating hours. While PM_{10} emissions from the operation of new LFG-fueled IC engines have been initially tested to be very low (i.e., <0.1 g/bhp-hr) subsequent measurements on the same equipment that are representative of increased engine operating hours indicate the presence of higher emission levels. The increased PM_{10} emissions (from new engine operating conditions) has been attributed to particulate contributions from crankcase lubrication oil aerosols, which is the result of normal wear on piston rings and seals (i.e., not additional particulate contributions from the source of the LFG fuel).

Data presented in the USEPA RBLC for IC engines operated on LFG fuel indicate that:

- Permits issued LFG-fueled IC engines have limited their PM_{10} emissions to rates that range from 0.04 to 0.34 g/bhp-hr.
- LFG (fuel) pretreatment to remove condensate and particulate matter without the use of add-on control equipment has been specified as BACT.

The Department has required the applicant to use 1 micron primary and polishing filters to remove particulate matter from the LFG fuel pretreatment process. EPA in the New Source Performance Standards for Landfill (40 CFR 60, Subpart WWW) requires removal of particulate matter down to only 10 microns. This additional requirement by the Department to remove particulate matter down to 1 micron will enable the applicant to meet the PM_{10} BACT limit of 0.24 g/bhp-hr.

Catch and burn technologies are typically used for post combustion particulate control. It uses structured catalysts (a monolithic catalyst with bored chambers) that oxidate unburned hydrocarbons and aerosols (condensable particulates) as the exhaust gas diffuses through the wall of the catalyst chambers. Other post combustion particulate control technologies will not be cost-effective for this project. Due to the presence of siloxanes (and other chemicals) in the LFG, the utilization of catch and burn equipment to control particulates in the exhaust of LFG-fueled IC engines is not feasible.

Based on the preceding information, BACT for the control of PM_{10} emissions from the proposed IC engine operations is treatment of the LFG fuel down to 1 micron and proper equipment maintenance that minimizes the amount of particulate emissions produced during the LFG combustion process and results in maximum PM_{10} emissions of

0.24 g/bhp-hr.

In addition, an opacity standard of 10% will be established as BACT.

D. Compliance Procedures

Compliance with the emission limits shall be in accordance with the following EPA Reference Methods as contained in 40 CFR 60, Appendix A or as otherwise approved by the Department:

EMISSION UNIT	POLLUTANT	EPA REFERENCE METHOD
Six (6) Caterpillar Model G 3520C Landfill gas fueled Internal Combustion Engines	PM_{10}	201
	NOx	7 or 7E
	CO	10
	VE	9

VI. Air Quality Impact Analysis

A. Introduction

The proposed project will increase PM_{10}, NOx and CO emissions at levels in excess of PSD significant amounts. For modeling purposes the project also includes the predicted impact of the replacement flare. PM_{10} and NOx are criteria pollutants and have national and state ambient air quality standards (AAQS), PSD increments, significant impact levels, and significant monitoring concentrations (de minimis concentrations) defined for them. CO is a criteria pollutant and has only AAQS, significant impact levels and a de minimis concentration defined for it.

The air quality impact analyses required by the Department regulations for this project include:

- An analysis of existing air quality for PM_{10}, NOx and CO;
- A significant impact analysis for PM_{10}, NOx and CO;
- A PSD increment analysis for PM_{10} and NO_x, if necessary;
- An Ambient Air Quality Standards (AAQS) analysis for PM_{10} and NO_x, if necessary;
- An analysis of impacts on soils, vegetation, and visibility and growth-related impacts to air quality.

The analysis of existing air quality generally relies on preconstruction monitoring data collected with EPA-approved methods. The significant impact, PSD increment, and AAQS analyses depend on air quality dispersion modeling carried out in accordance with EPA and department guidelines.

Based on the required analyses, the Department has reasonable assurance that the proposed project, as described in this report and subject to the conditions of approval proposed herein, will not cause or significantly contribute to a violation of any AAQS or PSD increment.

B. Analysis of Existing Air Quality

Preconstruction ambient air quality monitoring is required for all pollutants subject to PSD review unless otherwise exempted or satisfied. This monitoring requirement may be satisfied by using previously existing representative monitoring data, if available. An exemption to the monitoring requirement shall be granted by rule if either of the following conditions is met: the maximum predicted air quality impact resulting from the projected emissions increase, as determined by air quality modeling, is less than a pollutant-specific de minimis ambient concentration; or the existing ambient concentrations are less than a pollutant-specific de minimis ambient concentration.

If preconstruction ambient monitoring is exempted, determination of background concentrations for PSD significant pollutants with established AAQS may still be necessary for use in any required AAQS analysis. These concentrations may be established from the required preconstruction ambient air quality monitoring analysis or from existing representative monitoring data. These background ambient air quality concentrations are added to pollutant impacts predicted by modeling and represent the air quality impacts of sources not included

in the modeling. The table below shows maximum predicted project air quality impacts for comparison to these de minimis levels. As shown in the table, predicted maximum PM_{10} impacts from the project are above the applicable de minimis concentration. Preconstruction ambient air quality monitoring is therefore required for PM_{10}. Background levels of 19 and 60 ug/m^3 for the annual and 24-hour averaging times, respectively, were established from previously existing data collected at a monitor in Seminole county during 2003-2005. In addition as will be shown in the significant impact analysis section, an AAQS analysis for NO_2 is required; therefore a background concentration of 21 ug/m^3 for NO_2 was established from data collected at a monitor in northern Orange county during 2003-2005. Maximum predicted CO impacts were less than the de minimis concentration; therefore, no further monitoring was required for CO.

MAXIMUM PREDICTED PROJECT AIR QUALITY IMPACTS FOR COMPARISON TO THE DE MINIMIS CONCENTRATIONS

Pollutant	Averaging Time	Maximum Predicted Impact ($\mu g/m^3$)	Impact Greater than De Minimis? (Yes/No)	De Minimis Concentration ($\mu g/m^3$)
PM_{10}	24-hr	17	YES	10
CO	8-hr	281	NO	575
NO_2	Annual	3	NO	14

C. Models and Meteorological Data Used in Significant Impact, PSD Increment and AAQS Analyses

PSD Class II Area Model

The EPA-approved American Meteorological Society and EPA Regulatory Model (AERMOD) dispersion model was used to evaluate the pollutant emissions from the proposed project and other existing major facilities. In November, 2005, the EPA promulgated AERMOD as the preferred regulatory model for predicting pollutant concentrations within 50 km from a source. AERMOD is a replacement for the Industrial Source Complex Short-Term Model (ISCST3).

The AERMOD model calculates hourly concentrations based on hourly meteorological data. For evaluating plume behavior within the building wake of structures, the AERMOD model incorporates the Plume Rise Enhancement (PRIME) downwash algorithm developed by the Electric Power Research Institute (EPRI). AERMOD can predict pollutant concentrations for annual, 24, 8, 3 and 1-hour. A series of specific model features, recommended by the EPA, are referred to as the regulatory options. The applicant used the EPA recommended regulatory options in each modeling scenario, and building downwash effects were evaluated for stacks below the good engineering practice (GEP) stack heights. The stack associated with this project satisfied the good engineering practice (GEP) stack height criteria.

Meteorological data used in the AERMOD model consisted of a concurrent 5-year period of hourly surface weather observations and twice-daily upper air soundings from the Orlando and Tampa International Airports, respectively. The 5-year period of meteorological data was from 1999 through 2003. These stations were selected for use in the evaluation because they are the closest primary weather stations to the project area and are most representative of the project site.

Because five years of data are used in AERMOD, the highest-second-high (HSH) short-term predicted concentrations were compared with the appropriate AAQS or PSD increments. For the annual averages, the highest predicted yearly average was compared with the standards. For determining the project's significant impact area in the vicinity of the facility, and for determining if there are significant impacts occur from the

project on any PSD Class I area, both the highest short-term predicted concentrations and the highest predicted yearly averages were compared to their respective significant impact levels.

In reviewing this permit application, the Department has determined that the application complies with the applicable provisions of the stack height regulations as revised by EPA on July 8, 1985 (50 FR 27892). Portions of the regulations have been remanded by a panel of the U.S. Court of Appeals for the D.C. Circuit in NRDC v. Thomas, 838 F. 2d 1224 (D.C. Cir. 1988). Consequently, this permit may be subject to modification if and when EPA revises the regulation in response to the court decision. This may result in revised emission limitations or may affect other actions taken by the source owners or operators.

PSD Class I Area Model

The proposed project will be located 150 km from the closest portion of the nearest PSD Class I area, the Chassahowitzka NWA. Based on the department's consultation with the federal land manager and the applicant, no long range transport modeling was required for determining PSD Class I increment or regional haze impacts because of the distance to the nearest Class I area and the level of emissions.

D. Significant Impact Analysis

Preliminary modeling is conducted using only the proposed project's worst-case emission scenario for each pollutant and applicable averaging time. Over 600 receptors were placed along the facility's restricted property line and out to 1.6 km from the facility, which is located in a PSD Class II area.

For each pollutant subject to PSD and also subject to PSD increment and/or AAQS analyses, this modeling compares maximum predicted impacts due to the project with PSD significant impact levels to determine whether significant impacts due to the project were predicted in a PSD Class II area in the vicinity of the facility or in any PSD Class I area. In the event that the maximum predicted impact of a proposed project is less than the appropriate significant impact level, a full impact analysis for that pollutant is not required.

Full impact modeling is modeling that considers not only the impact of the project but also other major sources, including background concentrations, located within the vicinity of the project to determine whether all applicable AAQS or PSD increments are predicted to be met for that pollutant. Consequently, a preliminary modeling analysis, which shows an insignificant impact, is accepted as the required air quality analysis (AAQS and PSD increments) for that pollutant and no further modeling for comparison to the AAQS and PSD increments is required for that pollutant. The tables below show the results of this modeling.

MAXIMUM PREDICTED PROJECT AIR QUALITY IMPACTS FOR COMPARISON TO THE PSD CLASS II SIGNIFICANT IMPACT LEVELS IN THE VICINITY OF THE FACILITY

Pollutant	Averaging Time	Maximum Predicted Impact ($\mu g/m^3$)	Significant Impact Level ($\mu g/m^3$)	Significant Impact?
PM_{10}	Annual	1.5	1	YES
	24-hr	17	5	YES
CO	8-hr	281	500	NO
	1-hr	421	2,000	NO
NO_2	Annual	3	1	YES

Significant impacts were predicted in the Class II area of the project for PM_{10} and NO_2. Therefore, further PM_{10} and NO_2 AAQS and PSD increment analyses, within the radius of predicted significant impact area were required for this project. Less than significant impacts were predicted for CO, therefore, no further dispersion modeling was required to be performed for this pollutant.

F. AAQS Analysis

For pollutants subject to an AAQS review, the total impact on ambient air quality is obtained by adding "background" concentrations to the maximum modeled concentrations for each pollutant and averaging time. The maximum modeled concentrations are based on the maximum allowable emissions from facility sources and all other sources in the vicinity of the facility. The "background" concentrations take into account all sources of a particular pollutant that are not explicitly modeled. The results of the AAQS analysis for PM_{10} and NO_2 are summarized in the table below. As shown in this table, emissions from the proposed project are not expected to cause or contribute to a violation of any AAQS.

Ambient Air Quality Impacts

Pollutant	Averaging Time	Modeled Sources Impact ($\mu g/m^3$)	Background Conc. ($\mu g/m^3$)	Total Impact ($\mu g/m^3$)	Florida AAQS ($\mu g/m^3$)	Total Impact Greater Than AAQS
PM_{10}	Annual	2	19	21	50	No
	24-hour	13	60	73	150	No
NO_2	Annual	6	21	27	100	No

G. PSD Class II Analysis

The PSD increment represents the amount that new sources in an area may increase ambient ground level concentrations of a pollutant from a baseline concentration which was established in 1977 for PM_{10} (the baseline year was 1975 for existing major sources of PM_{10}), and 1988 for NO_2 (the baseline year was 1988 for existing major sources of NO_2). The emission values that are input into the model for predicting increment consumption are based on maximum potential emissions from increment-consuming facility sources and all other increment-consuming sources in the vicinity of the facility. The maximum predicted PSD Class II area PM_{10} and NO_2 increments consumed by this project and all other increment-consuming sources in the vicinity of the facility are shown below:

PSD Class II Increment Analysis

Pollutant	Averaging Time	Maximum Predicted Impact ($\mu g/m^3$)	Allowable Increment ($\mu g/m^3$)	Impact Greater Than Allowable Increment
PM_{10}	Annual	1.65	17	No
	24-hour	14.2	30	No
NO_2	Annual	6	25	No

E. Additional Impacts Analysis

Impacts on Soils, Vegetation, Wildlife, and Visibility

According to the modeling results, the maximum air quality impacts due to the Seminole facility emitting at its maximum rate are predicted to be below Class II increments and AAQS for PM_{10} and NO_2 and below the significant impact level for CO, and in turn the AAQS for CO. The AAQS are designed to protect both the public health and welfare. As such, it is reasonable to assume the impacts on soils, vegetation, and wildlife will be minimal or insignificant.

Growth-Related Air Quality Impacts

The proposed modification will not significantly change employment, population, housing or commercial/industrial development in the area to the extent that a significant air quality impact will result.

VII. CONCLUSION

Based on the foregoing technical evaluation of the application and additional information submitted by Seminole Energy, LLC the Department has made a preliminary determination that the proposed project will comply with all applicable state air pollution regulations provided that the Department's Best Available Control Technology Determination is implemented and certain conditions are met. The General and Specific Conditions are listed in the attached draft conditions of approval.

Permit Engineer: Syed Arif, P.E.
Meteorologist: Cleve Holladay

PERMITTEE:

Seminole Energy, LLC
29261 Wall Street
Wixom, Michigan 48393

File No.	1170084-005-AC
Permit No.	PSD-FL-376
SIC No.	4953
Project:	Osceola Road Solid Waste Management Facility Modification – Landfill Gas Engines
Expires:	October 1, 2008

Secondary Responsible Official (Energy Section):

Mr. Scott Salisbury, Managing Member

Primary Responsible Official (Osceola Road Solid Waste Management Facility):

Mr. David Gregory, Solid Waste Manager
Environmental Services Department, Solid Waste Division
– Seminole County

PROJECT AND LOCATION:

This permit covers the installation and operation of six (6) Caterpillar, Model G3520C, 2,233 brake-horsepower landfill gas-fired engines for the generation of up to a total of 9.6 megawatts (nominal rating) of electricity. The project is located at the Osceola Road Solid Waste Management Facility at 1930 E. Osceola Road, Geneva, Seminole County. UTM coordinates are Zone 17; 492.00 km E; 3184.50 km N.

STATEMENT OF BASIS:

This construction permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.), and the Florida Administrative Code (F.A.C.) Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297. The above named permittee is authorized to modify the facility in accordance with the conditions of this permit and as described in the application, approved drawings, plans, and other documents on file with the Department of Environmental Protection (Department).

ATTACHMENTS MADE A PART OF THIS PERMIT:

Appendix BD	BACT Determination
Appendix GC	Construction Permit General Conditions

Joseph Kahn, Director
Division of Air Resource Management

SECTION I – FACILITY INFORMATION

FACILITY DESCRIPTION

Osceola Road Solid Waste Management Facility operates a municipal solid waste (MSW) landfill near Geneva, Seminole County which is allocated for Class I MSW. Methane-rich landfill gas produced from the decomposition of disposed waste materials is being collected by a gas recovery system. The collected gas is currently being diverted to the flaring system for control. Seminole Energy, LLC plans to construct and operate an electricity generation plant at the Osceola Road Solid Waste Management Facility. In order to reduce the amount of landfill gas (LFG) wasted by flaring, all available LFG from the landfill will be supplied to Seminole Energy for use as fuel to power the proposed internal combustion (IC) engine electricity generation plant. As a result of these changes, significant emission increases will occur for carbon monoxide (CO), particulate matter with an aerodynamic diameter of 10 microns or less (PM_{10}) and nitrogen oxides (NOx).

REGULATORY CLASSIFICATION

The Osceola Road Solid Waste Management Facility is classified as a Major or Title V Source of air pollution because emissions of at least one regulated air pollutant, such as particulate matter (PM/PM_{10}), sulfur dioxide (SO_2), nitrogen oxides (NOx), carbon monoxide (CO), or volatile organic compounds (VOC) exceed 100 tons per year (TPY).

The facility is subject to the following regulations:

- 40 CFR 60, Subpart A, General Provisions;
- Subpart WWW, Standards of Performance for Municipal Solid Waste Landfills;
- 40 CFR 63, Subpart A, General Provisions;
- 40 CFR 63, Subpart AAAA, National Emission Standards for Hazardous Air Pollutants (NESHAP) for Municipal Solid Waste Landfills; and
- 40 CFR 63, Subpart ZZZZ, NESHAP for Stationary Reciprocating Internal Combustion Engines.

The proposed landfill gas-fueled IC engine electricity generation plant will be subject to Prevention of Significant Deterioration (PSD) review with respect to Rule 62-210.200(164)(a)2, F.A.C. due to its potential CO emissions being greater than 250 TPY. Best Available Control Technology (BACT) determinations are required for each pollutant emitted in excess of the Significant Emission Rates listed in Rule 62-210.200(242), F.A.C. For this project, the permit specifies BACT emissions standards for CO, NOx and PM_{10} emissions.

RELEVANT DOCUMENTS:

The documents listed below are specifically related to this permitting action and form the basis of the permit. They are on file with the Department:

- Application received 04-18-2006
- Department letters dated 05-16-2006, 07-13-2006 and e-mail dated 10-13-2006
- Applicant's letters received 05-23-2006, 06-12-2006, 08-11-2006, 08-31-2006 and e-mail dated 11-08-2006
- Technical Evaluation and Preliminary Determination dated 11-16-2006
- Best Available Control Technology determination (issued concurrently with permit)

SECTION II – EMISSION UNIT(S) ADMINISTRATIVE REQUIREMENTS

1. Regulating Agencies: All documents related to applications for permits to operate, reports, tests, minor modifications and notifications shall be submitted to the Department's Central District Office, 3319 Maguire Boulevard, Suite 232, Orlando, Florida 32803-3767. All applications for permits to construct or modify emissions unit(s) subject to the Prevention of Significant Deterioration or Nonattainment (NA) review requirements should be submitted to the Bureau of Air Regulation (BAR), Florida Department of Environmental Protection (FDEP), 2600 Blair Stone Road, MS 5505, Tallahassee, Florida 32399-2400 (phone number 850/488-0114).
2. General Conditions: The owner and operator are subject to and shall operate under the attached General Permit Conditions G.1 through G.15 listed in Appendix GC of this permit. General Permit Conditions are binding and enforceable pursuant to Chapter 403 of the Florida Statutes. [Rule 62-4.160, F.A.C.]
3. Terminology: The terms used in this permit have specific meanings as defined in the corresponding chapters of the Florida Administrative Code.
4. Applicable Regulations, Forms and Application Procedures: Unless otherwise indicated in this permit, the construction and operation of the subject emissions unit shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of Chapter 403, F.S. and Florida Administrative Code Chapters 62-4, 62-204, 62-210, 62-212, 62-213, 62-296, 62-297 and the Code of Federal Regulations Title 40, Parts 60 and 63, adopted by reference in the Florida Administrative Code (F.A.C.) regulations. The permittee shall use the applicable forms listed in Rule 62-210.900, F.A.C. and follow the application procedures in Chapter 62-4, F.A.C. Issuance of this permit does not relieve the facility owner or operator from compliance with any applicable federal, state, or local permitting or regulations. [Rules 62-204.800, 62-210.300 and 62-210.900, F.A.C.]
5. Expiration: The permittee may, for good cause, request that this construction permit be extended. Such a request shall be submitted to the Bureau of Air Regulation prior to 60 days before the expiration of the permit. However, the permittee shall promptly notify the Department's Central District Office of any delays in completion of the project which would affect the startup day by more than 90 days. [Rule 62-4.090, F.A.C]
6. Application for Title V Permit: This permit authorizes construction of the permitted emissions units and initial operation to determine compliance with Department rules. A Title V operation permit is required for regular operation of the permitted emissions unit. The permittee shall apply for a Title V operation permit at least 90 days prior to expiration, but no later than 180 days after commencing operation. To apply for a Title V operation permit, the applicant shall submit the appropriate application form, compliance test results, and such additional information as the Department may by law require. The application shall be submitted to the appropriate Permitting Authority with copies to the Compliance Authority. [Rules 62-4.030, 62-4.050, 62-4.220, and Chapter 62-213.420, F.A.C.]
7. Source Obligation: Authorization to construct shall expire if construction is not commenced within 18 months after receipt of the permit, if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable time. This provision does not apply to the time period between constructions of the approved phases of a phased construction project except that each phase must commence construction within 18 months of the commencement date established by the Department in the permit. [Rule 62-212.400(12)(a), F.A.C.].
8. BACT Determination: For phased construction projects, the determination of best available control technology shall be reviewed and modified as appropriate at the latest reasonable time which occurs no later than 18 months prior to commencement of construction of each independent phase of the project. At such time, the owner or operator of the applicable stationary source may be required to demonstrate the adequacy of any previous determination of best available control technology for the source. [40 CFR 52.21(j)(4)]

SECTION II – EMISSION UNIT(S) ADMINISTRATIVE REQUIREMENTS

9. Annual Reports: Pursuant to Rule 62-210.370(2), F.A.C., Annual Operation Reports, the permittee is required to submit annual reports on the actual operating rates and emissions from this facility. Annual operating reports using DEP Form 62-210.900(4) shall be sent to the DEP's Central District office by March 1st of each year.

10. Stack Testing Facilities: Stack sampling facilities shall be installed in accordance with Rule 62-297.310(6), F.A.C.

11. New or Additional Conditions: For good cause shown and after notice and an administrative hearing, if requested, the Department may require the permittee to conform to new or additional conditions. The Department shall allow the permittee a reasonable time to conform to the new or additional conditions, and on application of the permittee, the Department may grant additional time. [Rule 62-4.080, F.A.C.]

SECTION III – EMISSION UNIT(S) SPECIFIC CONDITIONS

SUBSECTION A. SPECIFIC CONDITIONS

The Specific Conditions listed in this section apply to the following emission units:

EMISSION UNIT NO.	EMISSION UNIT DESCRIPTION
002 - 005	Four Caterpillar Model G3520C landfill gas-fueled internal combustion engines and electricity generators. Each engine has a power generation rating of 2,233 brake horsepower at 100 percent load. The generator has a power output rating of 1,600 kilowatt. The engines will be fueled exclusively with landfill gas (LFG) generated by and received from the Osceola Road Solid Waste Management Facility. The landfill gas will go through a gas treatment system prior to combustion in the engines.

PHASE I:

A. FUEL SPECIFICATIONS AND WORK PRACTICES

1. This permit authorizes the installation and operation of four (4) Caterpillar, Model G3520C, 2,233 brake-horsepower landfill gas-fired engines for the generation of up to a total of 6.4 megawatts (nominal rating) of electricity. The maximum power generation rating of each engine shall be 2,233 brake horsepower (bhp). Authorization to construct shall expire if construction is not commenced within 18 months after receipt of the permit, if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable time. This provision does not apply to the time period between constructions of the approved phases of a phased construction project except that each phase must commence construction within 18 months of the commencement date established by the Department in the permit. **[Rule 62-212.400, F.A.C.]**

   {Permitting Note: The power generation rating of 2,233 bhp is based on a minimum fuel heating value requirement of 467 BTU/scf and landfill gas usage of 580 scfm per engine.}

2. This permit authorizes the installation of a LFG Treatment System including gas compression (via blowers), liquids removal (via knock-out and chilling), and particulate removal (via 1 micron primary and polishing filters). The gas treatment system shall not be equipped with atmospheric vents. **[Rule 62-212.400, F.A.C., 40 CFR 60.752 and Appendix J of the application]**

3. Emissions Units Nos. 002-005 are subject to 40 CFR 60 Subpart WWW and certain sections of 40 CFR 63 Subparts AAAA and ZZZZ adopted by the Department at Rule 62-204.800(8)(b) and 62-204.800(11)(b), F.A.C. **[Rules 62-204.800 and 62-210.300, F.A.C.]**

4. Unless otherwise indicated, the modification/construction and operation of the Caterpillar internal combustion engines shall be in accordance with the capacities and specifications stated in the application. **[Rule 62-210.300, F.A.C.]**

5. No person shall cause, suffer, allow, or permit the discharge of air pollutants which cause or contribute to an objectionable odor. **[Rule 62-296.320, F.A.C.]**

6. No person shall circumvent any air pollution control device, or allow the emission of air pollutants without the applicable air pollution control device operating properly. **[Rule 62-210.650, F.A.C.]**

7. Fuel fired in the engines is limited to LFG. The use of any other fuel will require an amendment to this permit. **[Rule 62-212.400, F.A.C.]**

SECTION III – EMISSION UNIT(S) SPECIFIC CONDITIONS

8. The permittee shall operate each engine at the air-to-fuel ratio that the tested engine demonstrated compliance during the performance test required by Specific Condition C.2 or the most recent performance test if a subsequent performance test is conducted. **[Rule 62-212.400, F.A.C.]**

9. The permittee shall operate each engine within 0.5% of the O_2 content in the exhaust gas at the air-to-fuel ratio that the tested engine demonstrated compliance during the performance test required by Specific Condition C.2 or the most recent performance test if a subsequent performance test is conducted. **[Rule 62-212.400, F.A.C. and Appendix F of the application]**

10. The permittee shall install and maintain an automatic fail-safe block valve on each engine. The fail-safe block valve must stop the flow of LFG in the event of an engine failure. **[Rule 62-4.070, F.A.C.]**

11. Excess LFG not used as fuel in an engine must be flared in accordance with the requirements of 40 CFR 60 Subpart WWW. **[Rule 62-4.070, F.A.C.]**

12. Each engine/generator set may operate up to 8,760 hours per year. **[Rule 62-210.200(232), F.A.C.]**

13. The emissions units shall be subject to the following:

    a. Excess emissions resulting from startup, shutdown or malfunction of any source shall be permitted providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period unless specifically authorized by the Department for longer duration. **[Rule 62-210.700, F.A.C.]**

    b. Excess emissions which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during startup, shutdown, or malfunction shall be prohibited. **[Rule 62-210.700, F.A.C.]**

    c. In case of excess emissions resulting from malfunctions, each source shall notify the Department in accordance with Rule 62-4.130, F.A.C. A full written report on the malfunctions shall be submitted in a quarterly report, if requested by the Department. **[Rule 62-210.700, F.A.C.]**

B. EMISSION AND PERFORMANCE REQUIREMENTS

1. ***Nitrogen oxides (NOx)***: The emission rate of NOx from each engine/generator set exhaust shall not exceed 0.60 gram per brake horsepower hour (g/bhp-hr) and a maximum of 2.95 pounds per hour (lb/hr) and 12.94 tons per year (TPY). **[Rule 62-212.400(12), F.A.C.]**

2. ***Carbon Monoxide (CO)***: The emission rate of CO from each engine/generator set exhaust shall not exceed 2.75 g/bhp-hr and a maximum of 13.54 lb/hr and 59.30 TPY. **[Rule 62-212.400(12), F.A.C.]**

3. ***Particulate Matter less than 10 microns (PM_{10})***: The emission rate of PM_{10} from each engine/generator set exhaust shall not exceed 0.24 g/bhp-hr and a maximum of 1.18 lb/hr and 5.17 TPY. **[Rule 62-212.400(12), F.A.C.]**

4. ***Volatile Organic Compounds (VOC)***: The emission rate of total VOC from each engine/generator set exhaust shall not exceed 0.28 g/bhp-hr and a maximum of 1.37 lb/hr and 5.99 TPY. **[Rule 62-212.400(12), F.A.C.]**

   {Permitting Note: Project avoids PSD review for VOC based on emission limits.}

5. ***Hydrogen Chloride (HCl)***: The emission rate of HCl from each engine/generator set shall not exceed 10.9 lb/MMscf and 1.66 TPY. **[Rule 62-210.200(184), F.A.C.]**

{Permitting Note: Facility remains a minor source of HAP emissions based on permit limits.}

6. ***Sulfur Dioxide (SO_2)***: The emission rate of SO_2 from each engine/generator set shall not exceed 27.5 lb/MMscf. **[Rule 62-212.400(12), F.A.C.]**

{Permitting Note: Project avoids PSD review based on permit limits.}

7. Visible emissions from each engine/generator set exhaust shall not exceed 10% opacity. **[Rule 62-212.400, F.A.C.]**

C. TEST METHODS AND PROCEDURES

1. Sampling Facilities

The permittee shall design the internal combustion engine stack to accommodate adequate testing and sampling locations in order to determine compliance with the applicable emission limits specified by this permit. **[Rule 62-297.310(6), F.A.C.]**

2. Performance Test Methods

Initial (I), Annual (A) and permit renewal (R) compliance tests shall be performed in accordance with the following reference methods as described in 40 CFR 60, Appendix A and 40 CFR 51 Appendix M, adopted by reference in Chapter 62-204.800, F.A.C. Initial, annual and renewal compliance tests shall be conducted on only one of the six engines. A different engine shall be tested each year such that all engines are tested during the six-year cycle.

(a) EPA Method 7 or 7E – Determination of NOx Emissions from Stationary Sources (I,A);

(b) EPA Method 9 – Visual Determination of the Opacity of Emissions from Stationary Sources (I,A);

(c) EPA Method 10 – Determination of CO Emissions from Stationary Sources (I,A);

(d) EPA Method 18, 25 or 25C – Measurement of Gaseous Organic Compounds Emissions (I,R);

(e) EPA Method 26 or 26A – Determination of HCl Emissions from Stationary Sources (I,A);

(f) EPA Method 201 – Determinations of PM_{10} Emissions (I,A)

EPA Methods 1 through 4 shall be used as necessary to support other test methods. No other test methods may be used for compliance testing unless prior DEP approval is received, in writing, from the Department. **[Rule 62-297.310(7), F.A.C.]**

3. The permittee shall comply with the following requirements to monitor the sulfur and chlorine content of the landfill gas:

a. At least 180 days prior to commercial startup of the engines, the permittee shall sample and analyze the landfill gas for sulfur and chlorine content. The gas sample collected for the analyses shall be a composite sample and collected under normal operating conditions (i.e., with valves open for all operating cells). The gas sample collection and analyses for sulfur and chlorine content shall be done semi-annually. Based on the sampling results and Rule 62-297.310(7)(b), F.A.C., the Department may request additional gas sampling and analyses. Results shall be reported as SO_2 and HCl emission factors in terms of lb/MMscf of landfill gas.

b. During each required compliance test conducted for HCl, the permittee shall sample and analyze the landfill gas for the chlorine content. Results for the compliance test shall be reported in terms of HCl emissions in lb/hr and the sample analysis result shall be reported as HCl emission factor in terms of lb/MMscf of landfill gas.

c. Analysis of the chlorine content shall be used to track changes in the landfill gas. Based on the analysis, the Compliance Authority may require additional stack testing for HCl emissions to determine compliance with the emissions standard.

d. Compliance with the fuel sulfur specification shall be determined based on each analysis for the sulfur content of the landfill gas.

[Rules 62-210.200(184), 62-210.200(232) and 62-212.400(12), F.A.C.]

4. Within 60 days of achieving the permitted capacity, but no later than 180 days after initial startup, and annually, the subject emissions units as described in Specific Condition C.2 shall be tested for compliance with the applicable emission limits. For the duration of all tests the emission units shall be operating at permitted capacity. Permitted capacity is defined as 90-100 percent of the maximum operating rate allowed by the permit. If it is impracticable to test at permitted capacity, then the emission unit may be tested at less than permitted capacity (i.e., 90% of the maximum operating rate allowed by the permit); in this case, subsequent emission unit operation is limited to 110 percent of the test load until a new test is conducted. Once the emission unit is so limited, then operation at higher capacities is allowed for no more than 15 consecutive days for the purposes of additional compliance testing to regain the permitted capacity in the permit. **[Rule 62-297.310, F.A.C.]**

D. RECORDKEEPING, REPORTING AND MONITORING REQUIREMENTS

1. Total landfill gas flow to the engines shall be continuously measured and recorded. **[Rule 62-210.200 (232), F.A.C.]**
2. Gross electrical power generation (kw-hrs) shall be continuously measured and recorded for each engine individually and for the four engines combined. **[Rule 62-210.200(232), F.A.C.]**
3. Each engine/generator set shall be equipped with a non-resetable elapsed time meter to indicate, in cumulative hours, the elapsed engine operating time. **[Rule 62-210.200(232), F.A.C.]**
4. The permittee shall maintain the following records on a monthly basis:
   a. The hours of operation of each engine/generator set, including any start-up, shutdown or malfunction in the operations of the engine/generator set.
   b. The total landfill gas flow to each engine.
   c. Gross electrical power generation in kw-hr for each engine and the six engines combined.

   [Rule 62-210.200(232), F.A.C.]
5. The permittee shall submit the results and the corresponding data of the site-specific HCl emission factor and the SO_2 emission factor within 45 days of gas sampling to the Bureau of Air Regulation. The results shall also be submitted to the Central District Office. **[Rules 62-210.200(232) and 62-210.200(264), F.A.C.]**

SECTION III – EMISSION UNIT(S) SPECIFIC CONDITIONS

SUBSECTION B. PHASED CONSTRUCTION

The Specific Conditions listed in this section apply to the following emission units:

EMISSION UNIT NO.	EMISSION UNIT DESCRIPTION
006 - 007	Two Caterpillar Model G3520C landfill gas-fueled internal combustion engines and electricity generators. Each engine has a power generation rating of 2,233 brake horsepower at 100 percent load. The generator has a power output rating of 1,600 kilowatt. The engines will be fueled exclusively with landfill gas (LFG) generated by and received from the Osceola Road Solid Waste Management Facility. The landfill gas will go through a gas treatment system prior to combustion in the engines.

1. If construction of a new phase is to commence 18 months or more after completion of the latest phase, the permittee shall submit an application and obtain a modified PSD permit prior to commencing construction on the new phase. The application shall include an updated best available control technology analysis for CO, NOx and PM_{10}. **[Rules 62-4.070(3) and 62-212.400(12)(a), F.A.C.]**

PHASE II:

2. This permit authorizes the installation of Emission Unit No. 006 within five (5) years after the commencement of the initial electricity generation operations. Emission Unit No. 006 shall be a Caterpillar Model G3520C, 2,233 brake-horsepower landfill gas-fired engine for the generation of up to 1.6 megawatts (nominal rating) of electricity. At a minimum, all the requirements of Section III Subsection A that applies to Emissions Unit 002-005 shall apply to Emission Unit 006. **[Rule 62-212.400, F.A.C., and 40 CFR 52.21(j)(4)]**

PHASE III:

3. This permit authorizes the installation of Emission Unit 007 within ten (10) years after the commencement of the initial electricity generation operations. Emission Unit No. 007 shall be a Caterpillar Model G3520C, 2,233 brake-horsepower landfill gas-fired engine for the generation of up to 1.6 megawatts (nominal rating) of electricity. At a minimum, all the requirements of Section III Subsection A that applies to Emissions Unit 002-005 shall apply to Emission Unit 007. **[Rule 62-212.400, F.A.C., and 40 CFR 52.21(j)(4)]**

APPENDIX BD
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

Seminole Energy, LLC
Osceola Road Solid Waste Management Facility
PSD-FL-376/1170084-005-AC
Geneva, Seminole County

Seminole Energy, LLC has applied to modify Osceola Road Solid Waste Management Facility by installing six (6) lean-burn internal combustion (IC) Caterpillar (CAT) Model G3520C engines and electricity generators. The electricity generation plant will also consist of landfill gas (LFG) treatment equipment (gas dewatering, filtration and compression equipment and processes) and ancillary equipment that supports the electricity generation operations (e.g., engine oil storage tanks and LFG temperature and moisture conditioning equipment).

The six lean-burn IC engines will be connected to individual electricity generators. Each gas IC engine will be connected to a 1,600 kilowatt electricity generator. The plant will have the potential to generate 9.6 megawatts of electricity under base load operating conditions and will be interconnected to the Florida Power & Light distribution network through a nearby power line.

The LFG-fueled IC engines will be housed in a single building constructed near the existing LFG collection system header and control system flare. A gas transmission line will be connected to the header of the existing LFG collection system and a dedicated gas blower/compressor will be used to draw methane-rich gas (fuel) from the existing LFG collection system to the proposed electricity generation plant.

The Osceola Road Solid Waste Management Facility is a major source of air pollution or a Title V source based on Rule 62-210.200(184), Florida Administrative Code (F.A.C.). Additionally, based on this modification, potential emissions of carbon monoxide (CO) will be greater than 250 tons per year (TPY) making the facility a Major Stationary Source for Prevention of Significant Deterioration (PSD) review with respect to Rule 62-210.200(185)(a)2., F.A.C. The increases in emissions of CO, nitrogen oxide (NOx) and particulate matter less than or equal to 10 microns (PM_{10}) will exceed the significant emission rates listed in Rule 62-210.200(264), F.A.C. A Best Available Control Technology (BACT) determination is part of the review required for CO, NOx and PM_{10} by Rule 62-210.200(39), F.A.C.

Descriptions of the process, project, BACT determination, air quality effects, and rule applicability are given in the Technical Evaluation and Preliminary Determination, accompanying the Department's Intent to Issue.

The Department specifies the following as BACT for each engine:

POLLUTANT	EMISSION LIMIT	CONTROL TECHNOLOGY
CO	2.75 g/bhp-hr and 13.54 lb/hr and 59.30 TPY	Combustor design and good combustion practices
NOx	0.60 g/bhp-hr and 2.95 lb/hr and 12.94 TPY	Combustor design and good combustion practices
PM_{10}	0.24 g/bhp-hr and 1.18 lb/hr and 5.17 TPY	Pretreatment of landfill gas and proper engine maintenance

APPENDIX BD
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

Compliance with the emission limits shall be in accordance with the following EPA Reference Methods as contained in 40 CFR 60, Appendix A or as otherwise approved by the Department:

EMISSION UNIT	POLLUTANT	EPA REFERENCE METHOD
Six (6) Caterpillar Model G 3520C LFG-fueled Internal Combustion Engines	PM_{10}	201
	NOx	7 or 7E
	CO	10
	VE	9

G.1 The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.

G.2 This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings or exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

G.3 As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey and vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.

G.4 This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.

G.5 This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

G.6 The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

G.7 The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:

a) Have access to and copy and records that must be kept under the conditions of the permit;
b) Inspect the facility, equipment, practices, or operations regulated or required under this permit, and,
c) Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

G.8 If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:

a) A description of and cause of non-compliance; and
b) The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

The permittee shall be responsible for any and all damages, which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

G.9 In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

G.10 The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

G.11 This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 62-4.120 and 62-730.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

G.12 This permit or a copy thereof shall be kept at the work site of the permitted activity.

G.13 This permit also constitutes:

a) Determination of Best Available Control Technology (X)
b) Determination of Prevention of Significant Deterioration (X);
c) Compliance with New Source Performance Standards (X). Subpart WWW requirements and
d) Compliance with National Emission Standards for Hazardous Air Pollutants (X). Subpart AAAA and ZZZZ requirements

G.14 The permittee shall comply with the following:

a) Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.

b) The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application or this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

c) Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements;
2. The person responsible for performing the sampling or measurements;
3. The dates analyses were performed;
4. The person responsible for performing the analyses;
5. The analytical techniques or methods used; and
6. The results of such analyses.

G.15 When requested by the Department, the permittee shall within a reasonable time furnish any information required by law, which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

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SENDER'S RECEIPT
Waybill #: 17924450552

To(Company):
U.S. EPA Region 4
Air Permits Section
61 Forsyth Street

Atlanta, GA 30303
UNITED STATES

Attention To: Mr. Gregg M. Worley
Phone#: 404-562-9141

Sent By: P. Adams
Phone#: 850-921-9505

Rate Estimate: 6.62
Protection: Not Required
Description: PSD-FL-376 correspondence

Weight (lbs.): 1
Dimensions: 0 x 0 x 0

Ship Ref: 37550201000 A7 AP255
Service Level: Next Day 10:30 (Next business day by 10:30 A.M.)

Special Svc:

Date Printed: 9/19/2006
Bill Shipment To: Sender
Bill To Acct: 778941286

DHL Signature (optional) _____ Route _____ Date _____ Time _____

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SENDER'S RECEIPT
Waybill #: 17924370450

To(Company):
National Park Service
Air Division
12795 W. Alameda Parkway

Lakewood, CO 80228
UNITED STATES

Attention To: Mr. John Bunyak
Phone#: 303-966-2818

Sent By: P. Adams
Phone#: 850-921-9505

Rate Estimate: 13.79
Protection: Not Required
Description: PSD-FL-376 correspondence

Weight (lbs.): 1
Dimensions: 0 x 0 x 0

Ship Ref: 37550201000 A7 AP255
Service Level: Next Day 10:30 (Next business day by 10:30 A.M.)

Special Svc:

Date Printed: 9/19/2006
Bill Shipment To: Sender
Bill To Acct: 778941286

DHL Signature (optional) _____ Route _____ Date _____ Time _____

For Tracking, please go to www.dhl-usa.com or call 1-800-225-5345

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DHL EXPRESS

Derenzo and Associates, Inc.
Environmental Consultants

September 8, 2006

Mr. Doug Neeley
Chief Air Toxics and Monitoring Branch, Region 4
U.S. ENVIRONMENTAL PROTECTION AGENCY
Atlanta Federal Center
61 Forsyth Street, SW
Atlanta, GA 30303-3104

Subject: Seminole Energy, L.L.C.
Geneva, Florida
Gas Treatment System Monitoring and SSM Plan

Dear Mr. Neeley:

Derenzo and Associates, Inc. is submitting to USEPA Region 4 on behalf of Seminole Energy, L.L.C. (Seminole Energy) a Gas Treatment System Monitoring and SSM Plan for its landfill gas (treated gas) electricity generation facility that will be located in Geneva, Seminole County, Florida.

The FDEP is reviewing a PSD permit application for the construction of a landfill gas fueled electricity generation facility (Seminole Energy at the Osceola Road Solid Waste Management Facility) and requested that the Gas Treatment System Monitoring and SSM Plan for the Seminole Energy operations be submitted to USEPA Region 4 for its review and approval.

40 CFR §60.765(d) of the MSW Landfill NSPS specifies that if a device other than an open flare or an enclosed combustor is used as the control system for landfill gas emissions, then information is to be prepared describing the operation of the control device, the operating parameters that indicate proper performance and appropriate monitoring procedures. The MSW Landfill NESHAP requires owners of affected facilities to document standard procedures for equipment startup and shutdown and develop procedures for responding to equipment malfunctions.

Please contact me if you have questions of require additional details.

Sincerely,

DERENZO AND ASSOCIATES, INC.

David R. Derenzo
Services Director

c: Bill Owen, Seminole Energy
Syed Arif, FDEP

39395 Schoolcraft Road • Livonia, MI 48150 • (734) 464-3880 • FAX (734) 464-4368
4970 Northwind Drive, Suite 213 • East Lansing, MI 48823 • (517) 324-1880 • FAX (517) 324-5409

Municipal Solid Waste Landfill Gas Collection and Control System

Gas Treatment System Monitoring And Startup, Shutdown, and Malfunction Plan

Prepared in accordance with the:

National Emission Standards for Hazardous Air Pollutants
40 C.F.R. §63.6(e)(3)

Prepared for:

Facility: Seminole Energy, L.L.C.

Address: Seminole Energy, L.L.C.
1930 E. Osceola Road
Geneva, Florida 32732

Date: September 7, 2006

This document identifies the procedures for conducting startups, shutdowns or addressing malfunctions of the landfill gas treatment system associated with the Seminole Energy, L.L.C. landfill gas to energy facility subject to this plan in a timely and safe manner.

Revision: 0
Revision Date: _____
Issuance Date: _____
Revised By: _____

1.0 Purpose

The purpose of the Gas Treatment System Monitoring and Startup, Shutdown and Malfunction (SSM) Plan that is presented in this document is to establish appropriate monitoring, operating and malfunction response procedures for the landfill gas treatment system that is operated at Seminole Energy, L.L.C. (Seminole Energy), which is located at the Osceola Road Solid Waste Management Facility in Geneva, Seminole County, Florida.

This plan has been developed in accordance with provisions of the Municipal Solid Waste (MSW) Landfill New Source Performance Standards (NSPS, 40 CFR Part 60, Subpart WWW) and the MSW Landfill National Emissions Standards for Hazardous Air Pollutants (NESHAP, 40 CFR Part 63, Subpart AAAA).

40 CFR §60.765(d) of the MSW Landfill NSPS specifies that if a device other than an open flare or an enclosed combustor is used as the control system for landfill gas emissions, then information is to be prepared describing the operation of the control device, the operating parameters that indicate proper performance and appropriate monitoring procedures. The MSW Landfill NESHAP requires owners of affected facilities to document standard procedures for equipment startup and shutdown and develop procedures for responding to equipment malfunctions.

A copy of the up-to-date Gas Treatment System Monitoring and Startup, SSM Plan (original and subsequent revisions/addendums) will be kept on file at Seminole Energy for the entire length of time the facility is in operation.

2.0 Facility and General Process Information

Landfill gas generated at the Osceola Road Solid Waste Management Facility (which is the source of the fuel used by Seminole Energy) is collected using a system of wells, gas headers and blowers, which have been installed and are operated by the landfill owner Seminole County (Facility Identification Number (I.D. No.) 1170084. The Osceola Road Solid Waste Management Facility has been issued Title V Air Operation Permit Renewal No. 1170084-003-AV by the Florida Department of Environmental Protection, Department of Air Resource Management (FDEP-DARM), which has an expiration date of August 30, 2007.

Seminole Energy has a contract with Seminole County (Osceola Road Solid Waste Management Facility) to use the collected landfill gas for use as fuel to power six identical reciprocating internal combustion (IC) engine and electricity generator sets. The electricity that is generated by Seminole Energy is sold to Florida Power & Light under a power purchase agreement for distribution to the local grid.

The landfill gas produced by the Osceola Road Solid Waste Management Facility is

treated prior to being used as fuel in the Seminole Energy electricity generation processes. The United States Environmental Protection Agency (USEPA) has issued regulatory clarifications that define treated landfill gas as "landfill gas processed in a treatment system that filters, de-waters, and compresses the gas."

The gas received from the Osceola Road Solid Waste Management Facility is initially de-watered in knockout tanks that are located upstream of the Seminole Energy landfill gas treatment system where portions of the condensate in the landfill gas are removed.

After the initial knockout tank de-watering, the landfill gas is treated in equipment and processes operated by Seminole Energy that consists of:

1. A primary filter vessel that contains a coalescing filter, which is designed to remove particles in the gas stream that are 1.0 micron (μm) and larger. Condensate collected by this coalescing filter falls to the bottom of the vessel where it is immediately transferred by gravity feed to a sump that transfers the liquid back to the landfill for processing.

2. Gas blowers (up to four separate blowers) for compression of the de-watered landfill gas.

3. An air-to-gas cooler to reduce the temperature of the gas (which is heated by the blower during gas compression).

4. A polishing filter vessel that contains a coalescing filter, which is designed to remove particles that are 1.0 μm and larger. Condensate collected by this coalescing filter falls to the bottom of the vessel where it is immediately transferred by gravity feed to the sump that transfers the liquid back to the landfill for processing.

3.0 Gas Treatment System Monitoring

Based on the design of the Seminole Energy landfill gas treatment system, the following equipment and process components will be continuously monitored and manually recorded daily to verify that the system is operating properly:

- **Primary filter vessel differential pressure**: The pressure drop across the primary coalescing filter (inlet and outlet of the gas flow through the vessel) is continuously monitored with a pressure differential switch. The existence of large differential pressures (dP) indicates that the filter is wet, loaded with particulate matter or significant accumulation of condensate is present in the vessel. The dP at the primary coalescing filter (vacuum side of blower) should be equal to or less than 2 pounds per square inch differential (psid).

The primary filter typically operates without any noticeable condensate accumulation (no water is typically present in the vessel).

If the pressure drop across the primary coalescing filter is observed to be greater than 2 psid, the filter will be replaced and/or investigations will be performed to evaluate potential malfunctions of upstream landfill gas de-watering equipment.

- **Polishing filter vessel differential pressure**: The pressure drop across the polishing coalescing filter (inlet and outlet of the gas flow through the vessel) is continuously monitored with a pressure differential switch. Large differential pressures (dP) indicate that the filter is wet or loaded with particulate matter and should be replaced. The dP at the polishing filter (pressure side of blowers and downstream of the gas cooler) should be equal to or less than 3 psid.

  If the pressure drop across the polishing coalescing filter is greater than 3 psid, the filter will be replaced.

  Replacement coalescing filter specifications

  The replacement filters will be of comparable designed for critical air or gas service applications where high-efficiency removal of oil or water droplets and particulate solids is required. Seminole Energy uses LG Liquid and Gas Coalescing Cartridges that are rated for 50 psid and 30 inches in length and 3.25 inches in diameter. The filters are rated for particulate matter removal to 1.0 μm and the nominal filter area is approximately 9.6 ft^2.

- **Blower discharge pressure (gas compression)**: The pressure of the gas in the treatment system is continuously monitored with a pressure switch that is located after (downstream) of the polishing filter vessel. The landfill gas treatment system (blowers) should be operated so that the minimum pressure observed at the specified monitoring location is at least 0.5 pounds per square inch gauge (0.5 psig). Pressures measured after the polishing filter vessel that are less than 0.5 psig are an indication of problems with the gas compression system.

  If the pressure of the gas in the treatment system monitored after the polishing filter vessel is less than 0.5 psig, an investigation of the equipment will be performed and corrective actions implemented.

- **Air-to-gas cooler outlet temperature**: The temperature of the gas in the treatment system is continuously monitored with a temperature switch that is located after (downstream) of the polishing filter vessel. The landfill gas treatment system (air-to-gas cooler) should be operated so that the maximum temperature observed at the specified monitoring location is equal to or less than 130°F. Gas temperatures

measured after the polishing filter vessel that are greater than 130°F are an indication of problems with the operation of the air-to-gas cooler.

If the temperature of the gas in the treatment system monitored after the polishing filter vessel is greater than 130°F, an investigation of the air-to-gas cooler will be performed and corrective actions implemented.

- **Gas Treatment System monitoring and recordkeeping:**

  Monitoring

  The pressure drop across the primary and polishing coalescing filters are each continuously monitored with separate pressure differential switches.

  The pressure of the gas in the treatment system is continuously monitored with a pressure switch located after the polishing filter vessel.

  The temperature of the gas in the treatment system is continuously monitored with a temperature switch located after the polishing filter vessel.

  If the set points (as specified in the previous text) of any of the pressure drop, pressure or temperature switches are reached, an automated system sounds an in-plant alarm (to notify on-site plant operators) and initiates a phone system that calls the on-duty operator (the plant has 24 hours per day, seven day per week coverage) during periods when an operator is not on-site.

  Recordkeeping

  The in-charge plant operator is required to maintain daily records of appropriate system operations and will manually record the times that any of the specified alarms are observed or phone call notifications of alarms are received and all appropriate gas treatment system corrective actions.

4.0 Startup Standard Operating Procedure

"Startup means the setting in operation of an affected source or portion of an affected source for any purpose." (40 CFR §63.2)

The standard operating procedure for the startup of the landfill gas treatment system is to:

1. Ensure that no unsafe conditions are present.

2. Contact, prior to startup, the Seminole Energy in charge Plant Operator.

APPENDIX A

Startup / Shutdown / Malfunction Report Forms and Documents

Seminole Energy

Startup/Shutdown/Malfunction Report Form

Section 1 - All Events

List all affected piece(s) of equipment: _____

Type of Event	Military Time Date/Time Start	Military Time Date/Time End	Duration (hours)	Event Code (see back of form)	SOP* Followed? Yes	SOP* Followed? No**
☐ Startup						
☐ Shutdown						
☐ Malfunction					Complete Section 2 Below	

* Standard Operating Procedure (SOP) for Flare Startups (Manual & Automatic) and Shutdowns are provided in SSM Plan
If SOP in SSM Plan was not followed, **notify personnel on contact list immediately.

Section 2 - Malfunction Events Only

Step	Corrective Action Procedures for All Malfunctions	☑ *Check one of the following for each step:* Procedure completed	Procedure Not Applicable
1.	Determine if landfill gas is being released to the air (can you smell landfill gas, or measure/detect gas flow?).	☐	
2.	If landfill gas is being released to the air, notify personnel on "Contact List".	☐	☐
3.	Determine if the malfunction is causing an unsafe operating condition (air entering landfill or piping, smoking, vibration, or other problem), which may harm people, the environment or the landfill gas control equipment.	☐	
4.	If unsafe operating condition exists, or landfill gas is being released to the air, **stop** (if possible) **landfill gas flow.**	☐	☐
5.	If Control device or other system component is shutdown due to Step 4, follow Shutdown SOP and Complete Section 1 - "Shutdown".	☐	☐
6.	Detemine if other personnel/resource (qualified technician, electrician, consultant or other) are needed for malfunction diagnosis.	☐	
7.	If additional personnel needed, notify qualified personnel: ? *Record Contact Name:* ? *Record Contact Date:* ? *Record Contact Time:* ? *Contact site representative with information recorded here.*	☐	☐
8.	Start malfunction diagnosis.	☐	
9.	Determine if other resources are needed to fix the malfunction (qualified technician, electrician, contractor, on-site resources, manufacturer's representative, or other).	☐	
10.	If additional resources needed, contact qualified resource: ? *Record Contact Name:* ? *Record Contact Date:* ? *Record Contact Time:* ? *Contact site representative with information recorded here.*	☐	☐
11.	Fix the malfunction.	☐	
12.	Once the malfunction is fixed, re-start the system per SOP if it had been shut down, and record start-up times and dates in Section 1 of this form.	☐	☐
13.	Record date that malfunction occurred, date that malfunction was repaired, and total time that system was out of service in Section 1 of this form.	☐	
14.	Sign this form and place it in the Start-up, Shutdown, Malfunction file.	☐	
15.	If the procedures listed above were not followed, **notify personnel on contact list immediately.**	☐	☐

Date Form Filled Out: _____ **Signature:** _____

Seminole Energy

Event Codes

For Start-ups and Shutdowns

Startup: The setting in operation of an affected source or portion of an affected source for any purpose.
Shutdown: The cessation of operation of an affected source or portion of any source for any purpose.

Code	Event
1	Maintenance
2	Suspected Collection System Malfunction
3	Suspected Control Device Malfunction
4	Suspected Continuous Monitoring System Malfunction (Temperature/Flow/Other)
5	Training
6	Gas System Construction/Expansion
7	Normal Backup Operation
99	Other(Describe) _____

For Malfunctions

Malfunction : Any sudden, infrequent and not reasonably preventable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual mannter. Failures that are caused in part by poor maintenance or carelss operation are not malfunctions.

Code	Event
10	Automatic shutdown of control device by designed protective systems
11	Autodialer Callout
12	Shutdown alarms that result in the device not shutting down
13	Unalarmed shutdown
14	Control Device Smoking
15	Inspection identified malfunction
16	Loss of power - utility down
17	Loss of power - unknown
18	Damaged Well, Header or Lateral Piping
19	Leaks at wellheads, valves, flanges, test ports, seals, couplings, etc.
20	Condensate Knock-out Problems
21	Collection Piping Blockages
22	Problems due to Settlement
23	Loss of phase
24	Blower overload condition
25	Blower bearing failure
26	Broken belts (if belt-drive) or broken coupling (if drect-drive) in blower
27	Continuous Monitoring System Malfunction - Thermocouple
28	Continuous Monitoring System Malfunction - UV Scanner
29	Continuous Monitoring System Malfunction - Flow Monitor
30	Continuous Monitoring System Malfuction - Flow Recorder
31	Continuous Monitoring System Malfuction - Temperature Recorder
32	Act of God (i.e., lightening, wind, etc.)
99	Other(Describe) _____

APPENDIX B

Startup / Shutdown / Malfunction Plan Deviation Report

Seminole Energy

Startup, Shutdown, and Malfunction Plan Deviation Report

Facility: _____ Date Form Completed: _____

Unit ID: _____

Event: ☑ *check the appropriate box.*

☐ Startup ☐ Shutdown ☐ Malfunction

Date: _____ Time: _____

Duration: _____

Provide detailed explanation of the circumstance of the startup, shutdown, malfunction:

_____

_____

Provide description of corrective action:

_____

_____

Describe the reasons the Startup, Shutdown, Malfunction Plan was not adequate:

_____

_____

Describe proposed revisions to the Startup, Shutdown, Malfunction Plan:

_____

_____

Were any excess emissions and/ or parameter monitoring exceedances believed to have occurred during the event?
☑ *check the appropriate box.*

☐ Yes ☐ No

Name: _____

Title: _____

Signature: _____

Seminole Energy

Startup, Shutdown, and Malfunction Plan

Sample Semiannual Report Letter
(All SSM Events in Compliance with the SSM Plan)

Seminole Energy

Startup, Shutdown, and Malfunction Plan

Date

Air Agency Address

RE: Semiannual Startup, Shutdown, Malfunction (SSM) Plan Report
XXXXX Landfill
Facility Title V Operating Permit No.
Reporting Period: _____ to _____

Dear _____:

The XXXXX Landfill is subject to the National Emissions Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills (Landfill NESHAP – 40 CFR 63 Subpart AAAA). The NESHAP requires that a report be submitted on a semiannual basis, a report be submitted to the Administrator discussing the facility's compliance with the procedures in their SSM Plan, during SSM events (40 CFR 63.10(d)(5)).

The actions taken at the facility during all SSM events, for the reporting period listed above, were consistent with the procedures listed in the SSM Plan at the facility.

During the reporting period listed above, there (were/were not any) revisions made to the SSM Plan at the facility. (If changes were made, state why – revised to reflect new equipment, new contact numbers, etc.).

If you have any questions regarding this Semiannual SSM Plan Report, please contact me at (List Phone Number).

Sincerely,

XXXXXXXXXXXXXX
(NAME OF COMPANY/TITLE HERE)

Seminole Energy

Startup, Shutdown, and Malfunction Plan

Sample Semiannual Report Letter
(One or more SSM Events NOT in Compliance with the SSM Plan)

Seminole Energy

Startup, Shutdown, and Malfunction Plan

Date

Air Agency Address

RE: Semiannual Startup, Shutdown, Malfunction (SSM) Plan Report
XXXXXXXXX Landfill
Facility Title V Operating Permit No.
Reporting Period: _____ to _____

Dear _____:

The Facility Name Landfill is subject to the National Emissions Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills (Landfill NESHAP – 40 CFR 63 Subpart AAAA). The NESHAP requires that a report be submitted on a semiannual basis, a report be submitted to the Administrator discussing the facility's compliance with the procedures in their SSM Plan, during SSM events (40 CFR 63.10(d)(5)).

The actions taken at the facility during one or more SSM events, for the reporting period listed above, were not consistent with the procedures listed in the SSM Plan at the facility. However, the source did not exceed any of the emissions limitations in the Landfill NESHAP during these events. The attached table lists the information that must be submitted in the Semiannual SSM Plan Report in this instance.

During the reporting period listed above, there were ____ revisions made to the SSM Plan at the facility. (If changes were made, state why – revised to reflect new procedures to address non conforming event (mandatory), new equipment, new contact numbers, etc.).

If you have any questions regarding this Semiannual SSM Plan Report, please contact me at (List Phone Number).

Sincerely,

XXXXXXXXX
(NAME OF COMPANY/TITLE HERE)

Attachment: Description of all Malfunction Events

Seminole Energy

Startup, Shutdown, and Malfunction Plan

Attachment 1:
Description of all Malfunction Events
For the Reporting Period _____ to _____

Total Number of Malfunctions: _____

Date of Malfunction	Total Duration (hours)	Equipment Affected*	Description of Malfunction	Were SSM Plan Procedures Followed (Y/N)	Date of SSM Plan Revision to Address Event**

* Control Device, Continuous Monitoring System, or Collection System
**Not Applicable if SSM Plan Procedures were followed during the Malfunction Event

Seminole Energy

Startup, Shutdown, and Malfunction Plan

Sample Immediate Notification Letter

(SSM Events NOT in Compliance with the SSM Plan, and Facility Experienced Excess Emissions)

Seminole Energy

Startup, Shutdown, and Malfunction Plan

Date

Air Agency Address

RE: XXXXXXXX Landfill
Facility Title V Operating Permit No.
40 CFR 63 Subpart AAAA – Landfill NESHAP
Immediate Notification Report: Non-conforming SSM Event

Dear _____:

The XXXXXX Landfill is subject to the National Emissions Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills (Landfill NESHAP – 40 CFR 63 Subpart AAAA). 40 CFR 63.10(d)(5) of the NESHAP requires that if actions taken at the facility during a startup, shutdown or malfunction (SSM) event are not consistent with the facility's SSM Plan, and the event results in excess emissions, the Agency must be notified verbally within 2 working days after the actions are taken. A letter must be written within 7 days of the event.

Please consider this letter as the required written report for the SSM event that occurred at the facility on (list date). As required by the NESHAP, a verbal notification was made to (give name of agency, person talked to) on (list date).

In accordance with the NESHAP, the following information is required in the letter report for this event:

Record the actions taken for the event: Describe what occurred, what was done, and how it differed from the SSM plan actions.

Describe excess emissions: Discuss the type of emission, and where it came from

Revise the SSM plan within 45 days of the non-conforming event:
Give a date by which the SSM plan will be revised.

If you have any questions regarding this Immediate Notification Report, please contact me at (List Phone Number).

Sincerely,

XXXXXXXX
(NAME OF COMPANY HERE)

APPENDIX C

Gas Treatment System Monitoring
And
SSM Plan Revision History

Seminole Energy

Startup, Shutdown, and Malfunction Plan

SSM Plan Revision History

This SSM Plan will be amended if equipment or processes are added that are not covered under the plan or will be revised within 45 days of non-conforming events if the procedures described herein do not adequately address any malfunction or start-up/shutdown events that occur at the facility. A copy of the original plan and all revisions/addendums will be kept on file at the facility for at least five (5) years.

Date of Revision	Reason For Revision

Derenzo and Associates, Inc.
Environmental Consultants

August 10, 2006

Mr. Syed Arif, P.E.
Bureau of Air Regulation
Division of Air Resource Management
Department of Environmental Protection
STATE OF FLORIDA
2600 Blair Stone Road, MS 5505
Tallahassee, FL 32399-2400

Subject: Seminole Energy, L.L.C.
DEP File No. 1170084-005-AC (PSD-FL-376)
Response to July 13, 2006 request for information

Dear Mr. Arif:

Derenzo and Associates, Inc. (Derenzo and Associates), on behalf of Seminole Energy, L.L.C (Seminole Energy), is submitting to the Florida Department of Environmental Protection, Division of Air Resource Management (FDEP-DARM) information that was requested by the regulatory agency (USEPA Region 4) on July 13, 2006.

Attachment A provides for reference the July 13, FDEP-DARM communication.

Item 1 – CAT 3520 PM10 Emissions

The CAT 3520C gas IC engine PM10 emission limit specified for the Bio Energy Texas LFG fueled electricity generation facility is 0.148 g/bhp-hr, which is based on E rated emission factors presented in Table 2.4-5 of *Compilation of Air Pollutant Emission Factors Volume I: Stationary Point and Area Sources, Fifth Edition* (USEPA AP-42).

Seminole Energy has submitted permit application data to the FDEP-DARM for its proposed electricity generation facility that indicate and justify that BACT for PM10 emitted from LFG fueled engines (CAT 3520C) is 0.24 g/bhp-hr. This value is supported by data on LFG fueled IC engines that are presented in the USEPA RBL Clearinghouse for LFG fueled IC engines (i.e., permitted PM10 emissions rates that range from 0.04 to 0.34 g/bhp-hr).

Information previously submitted to the FDEP-DARM states that:

Operational experience obtained by Caterpillar, Inc. and users of its LFG fueled IC engines (Landfill Energy Systems the parent company of Seminole Energy) *indicates that PM-10 emissions for LFG fueled IC engines are dependent on engine operating hours. While PM-10 emissions from the operation of new LFG fueled IC engines have been initially tested to be*

very low (i.e., <0.06 g/bhp-hr) subsequent measurements on the same equipment that are representative of increased engine operating hours indicate the presence of higher emission levels. The increased PM-10 emissions (from new engine operating conditions) has been attributed to particulate contributions from crankcase lubrication oil aerosols, which is the result of normal wear on piston rings and seals (i.e., not additional particulate contributions from the source of the LFG fuel).

Landfill Energy Systems representatives recorded in 2001 and 2002 the average daily crankcase oil consumption for CAT 3616 gas IC engines operated on LFG. These data indicate that the average amount of oil consumed per day during each of the recorded months ranged from a low of approximately 2 gallons to a high of approximately 18 gallons.

The PM10 emission limit for these CAT 3616 gas IC engines (which have a 4,230 bhp-hr rating compared to 2,227 bhp-hr for the CAT 3520) was initially set at a value of approximately 0.06 g/bhp-hr. This value was obtained from the results of initial compliance tests performed on new identical engines operated at another landfill (and thought to be appropriate based on available engine operating information).

Particulate (PM10) emission tests that were performed on these CAT 3616 engines during the 2000 to 2002 operating period indicate that the results of the initial 2000 compliance tests (that reflect new engine operations) varied from results of subsequent compliance tests (over the three year period) by a maximum value of approximate 300 % (300% difference in the highest single engine three test average observed in 2000 compared to the same measurements in 2001 and 2002). The highest PM10 emission rate that was measured during the three year period was 0.1721 g/bhp-hr (which serves as the basis of the requested 0.24 g/bhp-hr limit, 0.1721 g/bhp-hr with a 40% upper limit uncertainty factor).

Caterpillar does not provide particulate emission guarantees for the CAT 3616 gas IC engine (which was introduced to the LFG energy development market in the mid 1990s or the CAT 3520C gas IC engine (which was introduced in 2005, ordering allowed in early 2005 for delivery in late 2005). Therefore, actual LFG fueled engine operational and emission compliance experience serve as the best source of information (as presented in the preceding text) to establish appropriate particulate emission limits that can be achieved over all fuel quality and engine operating conditions.

The fact that the Bio Energy Texas LFG fueled electricity generation facility has been permitted with a PM10 emission limit of 0.148 g/bhp-hr and may have demonstrated compliance with this limit during an initial single compliance test does not imply (or guarantee) that the limit can be achieved over all fuel quality and engine operating conditions. The engine may have been successfully operated to initially demonstrate compliance with the specified particulate emission limit; however, no data are available to demonstrate that the 0.148 g/bhp-hr limit can be maintained over the 20 year operating life of the equipment.

The information presented in the preceding text summarizes the data that have been assembled by Seminole Energy and serve as a basis for the use of a 0.24 g/bhp-hr PM10 emission limit instead of the 0.148 g/bhp-hr limit.

Item 2 – CAT 3520 HCl Emissions

Landfill Energy Systems has been issued a PSD permit for new CAT 3520 gas IC engines that will be operated in the State of New Jersey (Ocean County Landfill). This permit approval utilized the results of site specific landfill gas composition test results (multiple tests), which were supplemented with USEPA AP-42 data, and resulted in a HCl engine emission factor of 3.64 pounds per million cubic feet of gas burned (lb./MMcf).

Landfill Energy Systems performed compliance tests (in March 2006) on landfill gas that is used to fuel engines operated in the State of Michigan (Pine Tree Acres landfill). These analytical measurements resulted in a HCl engine emission factor of 2.68 lb./MMcf.

No landfill gas composition data are available from the Osceola Road Solid Waste Management Facility. Therefore, the USEPA AP-42 default data were used to calculate a lb./MMscf HCl emission factor for the proposed engine operations, which results in a HCl engine emission factor of 11.95 lb./MMcf.

Based on variables in gas composition characteristics (primarily individual chemical concentrations) that exist between landfills (and geographic regions of the country), it is not possible to provide a correlation (that ensures and maintains ongoing compliance) between HCl emission factors based on actual site measurements and that which might exist at the Osceola Road Solid Waste Management Facility. Therefore, Seminole Energy has requested that its engine operations be limited to HCl emissions that are less than 10 TPY.

Trail Ridge Energy, a sister company of Seminole Energy, provided information to the FDEP-DARM on April 10, 2006 that indicates compliance with a 10 TPY HCl facility emission limit can be demonstrated annually through the collection and analysis of samples of the landfill gas used to fuel the IC engines. The HCl emission factor developed from the LFG analyzes (pounds of HCl per million cubic feet LFG fuel combustion) times the annual totalized measurement of treated gas (fuel) flow to the facility (million cubic feet of gas) will result in the actual amount of HCl emitted by the IC engine operations.

Attachment B provides the New Jersey and Michigan landfill gas HCl analyses.

Item 3 – CAT 3520 SO_2 Emissions

Landfill Energy Systems has been issued a PSD permit for new CAT 3520 gas IC engines that will be operated in the State of New Jersey (Ocean County Landfill). This permit approval utilized the results of site specific landfill gas composition test results (multiple tests that

include a maximum 180 ppmv H_2S concentration), which were supplemented with USEPA AP-42 data, and resulted in a SO_2 engine emission factor of 32.19 lb./MMcf.

No landfill gas (sulfur) composition data are available from the Osceola Road Solid Waste Management Facility.

The USEPA AP-42 default data (which includes a 35.5 ppmv H_2S concentration) result in a lb./MMscf SO_2 emission factor for the proposed engine operations of 8.46 lb./MMcf.

The USEPA AP-42 default data and a 164.2 ppmv H_2S concentration (which is based on an average value calculated from multiple sets of test data) were used to calculate a lb./MMscf HCl emission factor for the proposed engine operations, which results in a SO_2 engine emission factor of 27.5 lb./MMcf.

Seminole Energy plans to demonstrate compliance with short and long term SO_2 emission limits through the collection and analysis (semi annually) of samples of the landfill gas used to fuel the IC engines. The SO_2 emission factor developed from the landfill gas analyzes (pounds of SO_2 per million cubic feet LFG fuel combustion) times the short and long term (annual) totalized measurement of treated gas (fuel) flow to the facility (million cubic feet of gas) will result in the actual amount of SO_2 emitted by the IC engine operations.

Attachment C provides the New Jersey landfill and AP-42 sulfur content analyses and SO_2 emission factor calculations.

Seminole Energy appreciates the consideration of the FDEP-DARM of the information that is presented in this document.

Please contact us if you have questions or require additional information.

Sincerely,

DERENZO AND ASSOCIATES, INC.

David R. Derenzo
Services Director

c: Bill Owen, Landfill Energy Systems
Scott Salisbury, Landfill Energy Systems
B. Nelson
J. Koerner, CD
B. Worley, EPA
G. Bempah, NPS

ATTACHMENT A

July 13, 2006 FDEP-DARM Communication

Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Colleen M. Castille
Secretary

July 13, 2006

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Scott Salisbury
Seminole Energy, L.L.C.
29261 Wall Street
Wixom, Michigan 48393

Re: DEP File No. 1170084-005-AC (PSD-FL-376)
Seminole Energy – Installation of six (6) reciprocating internal combustion engines

Dear Mr. Salisbury:

Enclosed are comments submitted by the Environmental Protection Agency (EPA), Region 4, in regards to the completeness issues for this project. Please submit the information as requested by EPA to the Department's Bureau of Air Regulation. We are still awaiting comments from U.S. Fish and Wildlife Service, which will be forwarded to you if we receive them.

The Department will resume processing this application after receipt of the requested information. Rule 62-4.050(3), F.A.C. requires that all applications for a Department permit must be certified by a professional engineer registered in the State of Florida. This requirement also applies to responses to Department requests for additional information of an engineering nature. A new certification statement by the authorized representative or responsible official must accompany any material changes to the application. Rule 62-4.055(1), F.A.C. now requires applicants to respond to requests for information within 90 days.

If you have any questions regarding this matter, please call Mr. Syed Arif, P.E. at 850/921-9528 or Mr. James Purvis of EPA at 404/562-9139.

Sincerely,

Syed Arif

Syed Arif, P.E.
Bureau of Air Regulation

/sa

Enclosure

cc: G. Worley, EPA Region 4
J. Bunyak, NPS
L. Kozlov, DEP-CD
J. Pope, P.E., Clayton Group Services, Inc.

Arif, Syed

From: Purvis.James@epamail.epa.gov
Sent: Wednesday, July 12, 2006 12:08 PM
To: Arif, Syed
Cc: Little.James@epamail.epa.gov; Forney.Kathleen@epamail.epa.gov; Worley.Gregg@epamail.epa.gov
Subject: Seminole Electric LFG project

- Can the source owner provide data supporting the claim that the source can not meet a lower particulate emission rate such as the one taken and operated successfully at Bio Energy Texas utilizing the same ICs?

- The source owner has used AP-42 emission factors to estimate PTE of HCl from the project and found that potential to be 10.9 TPY HCl.
However, the source owner states its parent company, Landfill Energy Systems has historical or test data available that shows the use of
AP-42 factors largely overestimates actual expected emissions. Does the source owner have available supporting data that could correlate emissions from these mentioned facilities and the site for the proposed project? Please explain the approach taken. If use of AP-42 factors is preferred by the source, an operating restriction to limit emissions to 10 TPY HCl is necessary to ensure enforcibility of this condition.

- The source has used AP-42 emission factors to estimate sulfur content of LFG onsite but references findings from parent company sulfur content analysis being available. Can the source owner perform sulfur analysis of LFG onsite? Can the source owner explain how it anticipates showing compliance?

James D Purvis
Environmental Engineer
EPA Region IV
Air, Pesticides & Toxics Management Division - Air Permitting Section

ATTACHMENT B

New Jersey and Michigan Landfill Gas HCl Analyses

Derenzo and Associates, Inc.

Combined List of Potential LFG Constituents
Ocean County Landfill Measurements and AP-42 Default Concentrations

LFG Constituent	Concentration[1] (ppmv)	Origin
1,1,1-trichloroethane	0.1	7/21/04 measurement
1,1,2,2-tetrachloroethane	1.11	AP-42
1,1-dichloroethane	0.25	7/21/04 measurement
1,1-dichloroethene	0.2	AP-42
1,2,4-trimethylbenzene	2.2	9/14/04 measurement
1,2-dichloroethane	0.41	AP-42
1,2-dichloropropane	0.18	AP-42
1,3,5-trimethylbenzene	0.92	9/14/04 measurement
1,4-dichlorobenzene	0.82	9/14/04 measurement
2,2,4-trimethylepentane	1.0	9/14/04 measurement
2-propanol (isopropyl alcohol)	1.0	7/21/04 measurement
4-ethyltoluene	1.1	7/21/04 measurement
Acetone	1.07	7/24/03 measurement
Acrylonitrile	6.33	AP-42
Benzene	0.94	9/14/04 measurement
Bromodichloromethane	3.13	AP-42
Butane	5.03	AP-42
Carbon disulfide	0.136	7/24/03 measurement
Carbon monoxide	141.0	AP-42
Carbon tetrachloride	0.004	AP-42
Carbonyl sulfide	0.49	AP-42
Chlorobenzene	0.3	9/14/04 measurement
Chlorodifluoromethane	1.3	AP-42
Chloroethane (ethyl chloride)	0.338	7/24/03 measurement
Chloroform (trichloromethane)	0.03	AP-42
Chloromethane (methyl chloride)	0.26	7/21/04 measurement
cis-1,2 Dichloroethene	0.4	9/14/04 measurement
Cyclohexane	3.2	9/14/04 measurement
Dichlorobenzene	0.21	AP-42
Dichlorodifluoromethane	1.6	9/14/04 measurement
Dichlorofluoromethane	2.62	AP-42
Dichloromethane (methylene chloride)	0.56	9/14/04 measurement
Ethane	889	AP-42
Ethanol	11.0	7/21/04 measurement
Ethyl Acetate	1.8	9/14/04 measurement
Ethylene dibromide	0.001	AP-42
Ethyl mercaptan	2.28	AP-42
Ethylbenzene	6.3	9/14/04 measurement
Fluorotrichloromethane (Freon 11)	0.3	9/14/04 measurement
Freon 113	0.055	7/21/04 measurement
Freon 114	0.12	7/21/04 measurement

Notes

1 Highest site measurement (Appendix D-1) or where no site measurement data exist AP-42 default concentration, which is provided at the end of this Appendix

Appendix D-1 is not provided in this communication

Derenzo and Associates, Inc.

Combined List of Potential LFG Constituents
Ocean County Landfill Measurements and AP-42 Default Concentrations

LFG Constituent	Concentration[1] (ppmv)	Origin
Heptane	3.7	9/14/04 measurement
Hexane	3.4	9/14/04 measurement
Hydrogen sulfide	180	7/24/03 measurements
Mercury	0.000292	AP-42
Methyl Ethyl Ketone (MEK)	1.9	9/14/04 measurement
Methyl Isobutyl Ketone (MIBK)	0.3	9/14/04 measurement
Methyl mercaptan	2.49	AP-42
Methyl tert-butyl ether (MTBE)	1.4	9/14/04 measurement
Pentane	3.29	AP-42
Perchloroethylene (tetrachloroethylene)	0.43	9/14/04 measurement
Propane	11.1	AP-42
Propylbenzene	0.26	7/21/04 measurement
Propylene	9.6	9/14/04 measurement
Styrene	0.45	9/14/04 measurement
t-1,2-dichloroethene	2.84	AP-42
Toluene	12.0	9/14/04 measurement
Tretrahydrofuran	4.0	9/14/04 measurement
Trichloroethylene (trichloroethene)	0.2	7/21/04 measurement
Trimethylbenzenes	1.25	7/21/04 measurement
Vinyl chloride	1.5	9/14/04 measurement
Xylene (m)	7.0	9/14/04 measurement
Xylene (o)	2.7	9/14/04 measurement
Xylene (o,m,p)	7.3	7/21/04 measurement
Xylene (p)	2.3	9/14/04 measurement
Xylene (p,m)	0.918	7/24/03 measurement

Notes

1 Highest site measurement (Appendix D-1) or where no site measurement data exist AP-42 default concentration, which is provided at the end of this Appendix

Appendix D-1 is not provided in this communication

Derenzo and Associates, Inc.

LFG Combustion Hydrogen Chloride Emission Factor (Ocean County Landfill)

Influent Chlorine Compounds	Landfill Gas Concentration[1] (ppm)	Molecular Formula	No. Chlorine Atoms	HCl Emission Factor (lb./MMcf)
1,1,1-trichloroethane	0.1	$C_2H_3Cl_3$	3	0.03 [a,c]
1,1,2,2-tetra chloroethane	1.11	$C_2H_2Cl_4$	4	0.42 [b]
1,1-dichloroethane	0.25	$C_2H_4Cl_2$	2	0.05 [c]
1,1-dichloroethene	0.2	$C_2H_2Cl_2$	2	0.04 [b]
1,2-dichloroethane	0.41	$C_2H_4Cl_2$	2	0.08 [b]
1,2-dichloropropane	0.18	$C_3H_6Cl_2$	2	0.03 [b]
1,4-dichlorobenzene	0.82	$C_6H_4Cl_2$	2	0.15 [c]
Bromodichloromethane	3.13	$CBrCl_2$	2	0.59 [b]
Carbon tetrachloride	0.004	CCl_4	4	0.00 [b]
Chlorobenzene	0.3	C_6H_5Cl	1	0.03 [c]
Chlorodifluoromethane	1.3	$CHFCl$	1	0.12 [b]
Chloroethane	0.338	C_2H_5Cl	1	0.03 [c]
Chloroform	0.03	$CHCl_3$	3	0.01 [b]
Chloromethane	0.26	CH_3Cl	1	0.02 [c]
Dichlorobenzene	0.21	$C_6H_4Cl_2$	2	0.04 [b]
c-1,2-dichloroethene	0.4	$C_2H_2Cl_2$	2	0.08 [c]
Dichlorodifluoromethane	1.6	CF_2Cl_2	2	0.30 [c]
Dichlorofluoromethane	2.62	$CHFCl_2$	2	0.49 [b]
Dichloromethane	0.56	CH_2Cl_2	2	0.11 [c]
Fluorotrichloromethane	0.3	$CFCl_3$	3	0.08 [c]
Freon 113	0.055	$C_2F_3Cl_3$	3	0.02 [c]
Freon 114	0.12	$C_2F_4Cl_2$	2	0.02 [c]
Perchloroethylene	0.43	C_2Cl_4	4	0.16 [c]
Trichloroethylene	0.2	C_2HCl_3	3	0.06 [c]
t-1,2-dichloroethane	2.84	$C_2H_2Cl_2$	2	0.54 [b]
Vinyl chloride	1.5	C_2HCl	1	0.14 [c]
Total hydrogen chloride emission factor (lb./MMcf)				**3.64**

Notes

1. From the data presented in Table F-5. (which is the preceding table in this attachement)

a. Assumes complete conversion of chloride to HCl, calculation for 1,1,1-trichloroethane (TCE):
(0.1 ft^3 TCE/MMcf LFG) (3 mol HCl/mol TCE) (36.46 lb. HCl/mol) / (387 ft^3/mol)
= 0.03 lb. HCl/MMcf LFG

b. Based on AP-42 default concentrations, which are provided at the end of this Appendix.

c. Based on results of measured (Appendix D) LFG concentrations. Appendix D is not provided is this communication)

Table 1
Calculation of HCl Emission Factor
Based on Influent Landfill Gas Chlorinated Compounds
to the
Internal Combustion Engines
at the
Sumpter Energy Associates, Inc., Pine Tree Acres Landfill, Inc. Facility
Lenox, Michigan

Test Date(s): March 7, 2006
Derenzo Project No.: 0601013

Influent Chlorinated Compounds	CAS Number	Limit of Detection (ppbv)	Concentration (ppbv)	(ppm)	Molecular Formula	No. Chlorine Atoms	Resulting HCl emission factor (lb/MMscf)[a]
1,1,1-trichloroethane	71-55-6	8.3	44	0.04	$C_2H_3Cl_3$	3	0.012
1,1,2-trichloroethane	79-00-5	8.3	ND	0.01	$C_2H_3Cl_3$	3	0.002
1,1,2,2-tetrachloroethane	79-34-5	8.3	ND	0.01	$C_2H_2Cl_4$	4	0.003
1,1-dichloroethane	75-34-3	8.3	210	0.21	$C_2H_4Cl_2$	2	0.040
1,1-dichloroethene	75-35-4	8.3	37	0.04	$C_2H_2Cl_2$	2	0.007
1,2-dichlorobenzene	95-50-1	8.3	7	0.01	$C_6H_4Cl_2$	2	0.001
1,2-dichloroethane	107-06-2	8.3	66	0.07	$C_2H_4Cl_2$	2	0.012
cis-1,2-dichloroethene	156-59-2	8.3	1,450	1.45	$C_2H_2Cl_2$	2	0.274
trans-1,2-dichloroethene	156-60-5	8.3	43	0.04	$C_2H_2Cl_2$	2	0.008
1,2-dichloropropane	78-87-5	8.3	ND	0.01	$C_3H_6Cl_2$	2	0.002
1,2,4-trichlorobenzene	120-82-1	33.5	ND	0.03	$C_6H_3Cl_3$	3	0.010
1,3-dichlorobenzene	541-73-1	8.3	ND	0.01	$C_6H_4Cl_2$	2	0.002
cis-1,3-dichloropropene	10061-01-5	8.3	ND	0.01	$C_3H_4Cl_2$	2	0.002
trans-1,3-dichloropropene	10061-02-6	8.3	ND	0.01	$C_3H_4Cl_2$	2	0.002
1,4-dichlorobenzene	106-46-7	8.3	395	0.40	$C_6H_4Cl_2$	2	0.075
Bromodichloromethane	75-27-4	8.3	ND	0.01	$CHBrCl_2$	2	0.002
Carbon tetrachloride	56-23-5	8.3	ND	0.01	CCl_4	4	0.003
Chlorobenzene	108-90-7	8.3	77	0.08	C_6H_5Cl	1	0.007
Chlorodifluoromethane	75-45-6	33.5	1,500	1.50	$CHClF_2$	1	0.142
Chloroethane	75-00-3	8.3	180	0.18	C_2H_5Cl	1	0.017
Chloroform	67-66-3	8.3	ND	0.01	$CHCl_3$	3	0.002
Chloromethane	74-87-3	33.5	62	0.06	CH_3Cl	1	0.006
alpha Chlorotoluene	100-44-7	8.3	ND	0.01	C_7H_7Cl	1	0.001
Dibromochloromethane	124-48-1	8.3	ND	0.01	$CHBr_2Cl$	1	0.001
Dichlorofluoromethane	75-43-4	33.5	650	0.65	$CHCl_2F$	2	0.123
Freon 11	75-69-4	8.3	190	0.19	CCl_3F	3	0.054
Freon 12	75-71-8	8.3	1,400	1.40	CCl_2F_2	2	0.265
Freon 113	76-13-1	8.3	21	0.02	$C_2Cl_3F_3$	3	0.006
Freon 114	76-14-2	8.3	100	0.10	$C_2Cl_2F_4$	2	0.019
Hexachlorobutadiene	87-68-3	33.5	ND	0.03	C_4Cl_6	6	0.019
Methylene Chloride	75-09-2	8.3	2,550	2.55	CH_2Cl_2	2	0.483
Tetrachloroethene	127-18-4	8.3	1,550	1.55	C_2Cl_4	4	0.587
Trichloroethene	79-01-6	8.3	955	0.96	C_2HCl_3	3	0.271
Vinyl chloride	75-01-4	8.3	2,300	2.30	C_2H_3Cl	1	0.218
Total HCl emission factor (lb/MMscf)							**2.68**
Total HCl emission rate (lb/hr)							**0.34** [b]

Sample Calculations:

a. HCl Concentration from 1,1,1 trichloroethane (TCE):
(0.044 ft^3 TCE/MMscf LFG) * (3 mol HCl/mol TCE) * (36.460 lb. HCl/mol) / (385.3 ft^3 HCl/mol) = 0.01 lb. HCl / MMscf LFG

b. HCl emission rate (lb/hr):
(2.68 lb HCl / MMscf LFG) / (1,000,000 scf / MMscf) (2100 scf/min, avg. inlet LFG flow to engines during sampling) * (60 min/hr) = 0.34 lb HCl / hr

Note: Allowable facility wide hydrogen chloride emissions = 0.70 lb/hr

ATTACHMENT C

New Jersey Landfill
and
AP-42 Sulfur Content Analyses
and
SO_2 Emission Factor Calculations

Derenzo and Associates, Inc.

Sulfur Dioxide Emission Factor for LFG Combustion (Ocean County Landfill)

LFG Influent Sulfur Compound	Measured Concentrations (ppmv)	EPA AP-42 Concentrations (ppmv)	Utilized Concentrations (ppmv)	Molecular Formula	No. Sulfur Atoms	Sulfur Content as H_2S (ppmv)	Resulting SO_2 Emission Rate (lb./MMcf)
Hydrogen sulfide	180.0 [A]	35.50 [B]	180.0 [A]	H_2S	1	180.0 [C]	29.93 [D]
Carbon disulfide	0.136 [A]	0.58 [B]	0.136 [A]	CS_2	2	0.3	0.09
Carbonyl sulfide	ND [A]	0.49 [B]	0.49 [B]	CSO	1	0.5	0.08
Dimethyl sulfide	ND [A]	7.82 [B]	7.82 [B]	C_2H_6S	1	7.8	1.30
Ethyl mercaptan	ND [A]	2.28 [B]	2.28 [B]	C_2H_6S	1	2.3	0.38
Methyl mercaptan	ND [A]	2.49 [B]	2.49 [B]	CH_4S	1	2.5	0.41
Total						**193.4**	**32.19** [E]

Notes

A. Results from measurements performed on samples of the Ocean County Landfill gas (Appendix D). Appendix D is not provided in this communication

B. Default concentration for LFG constituents from USEPA Compilation of Air Pollutant Emission Factors, Fifth Edition, Volume I: Stationary Point and Area Sources (AP-42), Table 2.4-1, which is provided at the end of this Appendix

C. Determined by multiplying concentration by number of sulfur atoms in the molecule.

D. Sample calculation: SO_2 generation from hydrogen sulfide (H_2S):

(180.0 scf H_2S/MMcf LFG) (1 scf SO_2/scf H_2S) (64.06 lb.SO_2/mol) / (385.3 ft^3/mol)

= 29.93 lb SO_2/MMcf LFG

E. Calculation of SO_2 emission factor from sulfur content, as H_2S:

(193.4 scf H_2S/MMcf LFG) (1 scf SO_2/scf H_2S) (64.06 lb.SO_2/mol) / (385.3 ft^3/mol)

= 32.1 lb SO_2/MMcf LFG

Derenzo and Associates, Inc.

Sulfur Dioxide Emission Factor for LFG Combustion (AP-42 Default Data)

LFG Influent Sulfur Compound	Measured Concentrations (ppmv)	EPA AP-42 Concentrations (ppmv)	Utilized Concentrations (ppmv)	Molecular Formula	No. Sulfur Atoms	Sulfur Content as H_2S (ppmv)	Resulting SO_2 Emission Rate (lb./MMcf)
Hydrogen sulfide	180.0 [A]	35.50 [B]	35.50 [B]	H_2S	1	35.5 [C]	5.90 [D]
Carbon disulfide	0.136 [A]	0.58 [B]	0.58 [B]	CS_2	2	1.2	0.39
Carbonyl sulfide	ND [A]	0.49 [B]	0.49 [B]	CSO	1	0.5	0.08
Dimethyl sulfide	ND [A]	7.82 [B]	7.82 [B]	C_2H_6S	1	7.8	1.30
Ethyl mercaptan	ND [A]	2.28 [B]	2.28 [B]	C_2H_6S	1	2.3	0.38
Methyl mercaptan	ND [A]	2.49 [B]	2.49 [B]	CH_4S	1	2.5	0.41
Total						**49.7**	**8.46** [E]

Notes

A. Results from measurements performed on samples of the Ocean County Landfill gas (Appendix D).

B. Default concentration for LFG constituents from USEPA Compilation of Air Pollutant Emission Factors, Fifth Edition, Volume I: Stationary Point and Area Sources (AP-42), Table 2.4-1, which is provided at the end of this Appendix

C. Determined by multiplying concentration by number of sulfur atoms in the molecule.

D. Sample calculation: SO_2 generation from hydrogen sulfide (H_2S):

(35.5 scf H_2S/MMcf LFG) (1 scf SO_2/scf H_2S) (64.06 lb.SO_2/mol) / (385.3 ft^3/mol)

= 5.90 lb SO_2/MMcf LFG

E. Calculation of SO_2 emission factor from sulfur content, as H_2S:

(49.7 scf H_2S/MMcf LFG) (1 scf SO_2/scf H_2S) (64.06 lb.SO_2/mol) / (385.3 ft^3/mol)

= 8.5 lb SO_2/MMcf LFG

Derenzo and Associates, Inc.
Environmental Consultants

8/31/06

APPENDIX I

AIR QUALITY MODELING PROTOCOL AND AMBIENT AIR IMPACT RESULTS FOR SEMINOLE ENERGY, L.L.C.

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AIR QUALITY MODELING PROTOCOL AND AMBIENT AIR IMPACT RESULTS FOR SEMINOLE ENERGY, L.L.C.

1.0 INTRODUCTION TO AIR QUALITY IMPACT ANALYSES

Seminole Energy, L.L.C. (Seminole Energy) plans to construct and operate an electricity generation facility that will result in the beneficial use, after treatment, of landfill gas (LFG) that is collected from the Seminole County Landfill, Inc. Osceola Road Solid Waste Facility (Seminole Landfill). The proposed electricity generation facility will be located on a leased site within the boundaries of the Seminole Landfill in Geneva, Seminole County, Florida.

Seminole Landfill owns and operates an active LFG collection system that directs the LFG to two (2) open utility flares for the destruction of methane and hydrocarbons in the LFG. Seminole Energy will treat the recovered LFG and produce electricity using gas that would otherwise be combusted in the flaring system. The proposed facility is presented in this protocol as a new emission source; however, it is important to note that emissions from the proposed facility will replace air pollutant emissions that would otherwise be released by the flaring system (i.e., the reduction in LFG flaring is a secondary benefit of this project).

1.1 Class II Area Impacts

The proposed Seminole Energy LFG-fueled electricity generation facility will be a major source of CO relative to federal Prevention of Significant Deterioration (PSD) regulations. Therefore, air quality impact analyses are required for all regulated criteria pollutants (CO, NO_X, SO_2, PM_{10}, except ozone) that have the potential to be emitted by the proposed facility in order to demonstrate that these emissions will not cause or significantly contribute to a violation of National Ambient Air Quality Standards (NAAQS).

This protocol presents technical information and procedures that were used for performing air pollutant dispersion modeling analyses to predict maximum ambient air impacts that are produced by the modified stationary source (proposed electricity generation facility and existing flare emissions) and appropriate background sources.

The calculated ambient air impact results are compared to Class II Area PSD increment concentrations and NAAQS to demonstrate that the proposed project emissions are acceptable relative to federal PSD and NAAQS program requirements.

Section 3.0 of this protocol presents technical information and procedures that were used to perform the Class II Area impact analyses.

1.2 Class I Areas

The Seminole Landfill in Geneva, Florida is located over 100 kilometers from all national wilderness areas; therefore, Federal Class I criteria pollutant and visibility impact analyses are not required to be preformed for the proposed LFG fueled internal combustion engine electricity generation facility.

Table I-1.1 presents the distances from the proposed Seminole Energy facility to the closest three (3) Class I Wilderness Areas.

Table I-1.1 National Wilderness Areas and their approximate distances from the proposed Seminole Energy Facility

State	Wilderness Area	Representative UTM coordinates (km) East	North	Distance (km)
FL	Seminole Energy Facility	3,185	491	-
FL	Chassahowitzka Wilderness Area	3,174	344	150
GA	Okefenokee National Wilderness Area	3,385	383	230
GA	Wolf Island National Wilderness Area	3,465	471	280

2.0 SITE CHARACTERISTICS AND FACILITY INFORMATION

Seminole Landfill owns approximately 32.47 square kilometers (km^2) of land 25 miles northeast of Orlando, to the west of US Highway 95. The landfill (portion of the property currently and previously used for waste disposal) occupies approximately 0.97 km^2 of land located in the west central area of the Seminole Landfill property. The proposed electricity generation facility will be located at the southern border of the landfill.

The LFG fueled internal combustion (IC) engines will be housed in a single building (with dimensions of 62.7 feet by 108.7 feet) constructed in a leased area (within the landfill property) near the existing LFG collection system header. A gas transmission line (fuel supply pipe) will be connected to the header of the existing LFG collection system and a dedicated gas blower/compressor will be used to draw methane-rich gas (fuel) from the existing LFG collection system to the proposed gas treatment system and electricity generation facility.

A single meter (flow totalizer) will be installed and operated at the Seminole Energy electricity generation facility to measure the total amount of LFG fuel that is supplied to power the six (6) IC engines (i.e., individual engine fuel use meters will not be installed).

Seminole Landfill currently owns and operates two (2) utility flares to control landfill gas emissions. The open utility flares have maximum capacities of 3,000 and 2,145 cubic feet per minute (scfm) of landfill gas (i.e., total LFG control capacity of 5,145 scfm). After the installation of the proposed engine facility the flares will serve as back-up control devices and only be used when an excess amount of gas exists (e.g., if an engine is taken off-line for maintenance or if the landfill gas production rate exceeds the amount that can be used in the engines). Initially, the flares will only be used as a backup emission control device (producing electricity from combustion of the LFG in the IC engines is the preferred use for the gas). Throughout the lifetime of the electricity generation project, it is anticipated that the maximum amount of LFG recovered from the landfill will equal 5000 scfm based on a curve of recoverable gas produced per year for the next 20 years at the Seminole Landfill. The proposed electricity generation facility will use at full capacity 3500 scfm, resulting in the requirement to flare up to 1500 scfm (slightly less than 30% of the total flaring capacity).

2.1 Land Use

The general classification of the land surrounding the proposed facility is rural.

The population density of the area within a radius of 3 km from the proposed source was determined using a county population density map from the 2000 U.S. Census Bureau. The density map indicates that the area surrounding the facility has a population density between 0 and 165 persons per square mile. Because the area surrounding the proposed Seminole Energy

facility has a population density significantly less than 1000 persons per square mile (and no significant development has occurred since the 2000 census), the land use of that area can be considered rural. The Census Bureau lists urban areas as having at least 1000 persons per square mile. The facility location is not in an industrial area that would significantly impact the population density analysis (in heavy industrial areas the non-resident population may be much larger than those indicated by standard population density plots).

2.2 Topography

The topography of the land that surrounds the Seminole Landfill is relatively flat. The base elevation of the proposed Seminole Energy electricity generation facility is approximately 7.68 meters (25.2 ft.) above sea level and the minimum stack heights of the proposed IC engine exhaust stacks is 20 feet (as measured from local grade), which results in an exhaust stack release elevation of 45.2 feet above sea level. Based on review of topography plots of the surrounding area there is no terrain within 3 km that has elevations greater than 45.2 feet above sea level.

Appendix I-1 provides a site plan of the proposed electricity generation facility building and surrounding topography.

2.3 Exhaust Stack Parameters

2.3.1 IC Engines

The proposed Seminole Energy electricity generation facility will use IC engines that are fueled with treated LFG and designed to operate at base load (100% capacity) conditions. Each of the proposed IC engines is expected to exhaust effluent gas at a rate of 12,050 actual cubic feet per minute (acfm) at 900°F through an 18-inch diameter stack. These engines will operate continuously with the exception of planned maintenance shutdowns or automatic engine shutdowns (instantaneous, automatic engine shutdowns if monitored operating parameters are outside of preset ranges). The amount of time required for an engine start-up is minimal. Since the engines are operated at base load conditions and the durations of engine shutdown and startup times are minimal, no air quality impact concentrations analyses were performed for these specific events (i.e., the engines will not be operated for any appreciable amount of time at loads other than 100%).

Each of the six IC engine exhaust stacks were entered into the computer dispersion model as individual point sources.

2.3.2 Open Utility Flares

Seminole Landfill currently owns and operates a 2,145 scfm utility flare (Phase 1 Flare) and a 3,000 scfm utility flare (Phase 2 Flare) to control LFG emissions. Following startup of the

proposed electricity generation facility the utility flares will be used to control excess emissions of LFG (i.e., during times where the amount of LFG produced exceeds the amount that can be controlled in the IC engines). The flares are designed to achieve a 98% destruction of total hydrocarbons when the LFG has a methane content between 40-60%. The LFG at Seminole Landfill is estimated to have a methane content of 55%. The Phase 1 Flare has an actual release height of 8.53 m, the Phase 2 Flare has an actual release height of 11.58 m. An equivalent release height and diameter were calculated for the flares based on the actual release height and design heat release using the following equations from the TSCREEN users manual:

Phase 1 Utility Flare

$H_{equiv} = H_{actual} + 0.00128(Q_c^{0.478})$; and
$D_{equiv} = 1.754*10^{-4} * sqrt(Q_c)$

Where: H_{equiv} = Equivalent stack height
H_{actual} = Actual stack height (8.53m)
D_{equiv} = Equivalent stack diameter (m); and
Q_c = Flared gas heat release ($70.785*10^6$ Btu/hr)

Phase 2 Utility Flare

$H_{equiv} = H_{actual} + 0.00128(Q_c^{0.478})$; and
$D_{equiv} = 1.754*10^{-4} * sqrt(Q_c)$

Where: H_{equiv} = Equivalent stack height
H_{actual} = Actual stack height (11.58m)
D_{equiv} = Equivalent stack diameter (m); and
Q_c = Flared gas heat release ($99.000 *10^6$ Btu/hr)

The equations above account for the flared gas plume rise based on an effective buoyancy flux parameter. Using a gas heat release rate equivalent to the combustion of 3,000 and 2,145 scfm of gas at 550 Btu/scf results in equivalent flare heights of 15.77 m and 20.07 m and equivalent diameters of 1.470 m and 1.754 m for flares 1 and 2, respectively.

The flares were entered into the computer dispersion model as individual point sources using the calculated equivalent height, diameter and default values for temperature (1000 degrees Celsius) and velocity (20 meters per second).

Preliminary modeling was performed to determine the flare with the maximum off-site impacts. The results of this modeling indicate that the Phase 1 Flare release parameters and location (relative to the facility boundary) result in maximum off-site ambient air impacts. Therefore, the modified source modeling (impacts associated with simultaneous operation of the proposed

electricity generation facility and flares) was performed based on the worst-case scenario that all flared LFG (1500 cfm) is directed to the Phase 1 Flare. In practice, this flare will most likely not receive all the flared LFG.

Table I-2.1 presents exhaust stack parameters for the six (6) identical IC engines and utility flares that were used in the air quality impact analyses.

Appendix I-2 provides a plot plan of the proposed electricity generation facility building, IC engine exhaust stacks and flares on a UTM coordinate system.

2.4 GEP Stack Height Analysis and Influencing Structures

The proposed IC engines will be installed within a 62.7 ft. (width) by 108.7 ft. (length) building that has a roof height of 15 ft. The individual exhaust stacks will be located on the roof of the building and set approximately 20 feet from the western edge of the building. The stacks will extend above the roof at least 5 feet (i.e., overall engine exhaust release height of 20 ft. as measured from grade of the land that surrounds the building) and exhaust vertically. The proposed electricity generation facility will have a maximum projected crosswind width of 125.5 feet (i.e., the diagonal of the rectangular building).

In general, air pollutant dispersion models consider the influence of building structures on exhaust stack plumes (i.e., downwash conditions) when the exhaust stack has a height that is less than its Good Engineering Practice (GEP) stack height. The GEP stack height for the proposed engine exhaust stacks is 37.5 ft. (11.43 meters) determined with the following equation:

$H_{GEP} = H_b + 1.5L$

where: H_{GEP} = formula GEP stack height (ft.)
H_b = height of adjacent building (15 ft.)
L = lesser of height or maximum projected width of adjacent building (15 ft)

Other nearby structures have the potential to influence the plume rise of the engine exhaust stacks if the distance between the stacks and the nearby structure is less than five times the L dimension (lesser of the building height or maximum projected width) of the structure. There are no other nearby structures located within the 5L radius.

There are no other structures located near the proposed electricity generation facility that have the potential to increase the calculated GEP stack height (i.e., the dimensions of the proposed facility control the GEP stack height determination). The release height of the proposed identical engine exhaust stacks is less than the GEP stack height (based on the dimensions of the structure in which the engines will be installed); therefore, emissions from the proposed electricity generation facility exhaust stacks have the potential to be influenced by aerodynamic downwash created by

the building that houses the equipment. The influence of stack downwash on emission impacts was included in the dispersion modeling analyses.

The UTM coordinate locations and heights of the influencing structure (i.e., the building that houses the proposed engines) and proposed engine exhaust stacks were input to the USEPA Building Profile Input Program, Plume Rise Enhancement version (BPIP-PRIME). This computer program calculates projected building widths and heights for the influencing structure as a function of wind direction for use in the building downwash algorithms of the dispersion model that is used for the significant impact analysis (which is described in the following section of this document).

Appendix I-3 provides a compact disc that contains the BPIP input files (.PIP and .GPW files) and output building parameter files (.TAB, .SUM and .SO files) that were used in the modeling analysis.

Table I-2.1 Exhaust stack parameters for the proposed LFG combustion devices; open utility flares and Seminole Energy facility

Source ID	Location (UTM) East (m)	Location (UTM) North (m)	Base Elev. (m)	Stack Height (m)	Stack Height (ft)	Stack Diameter (m)	Stack Diameter (ft)	Temp. (K)	Exit Velocity (m/s)
SICE01	491,240	3,184,521	7.67	6.09	20.0	0.457	1.5	755	34.64
SICE02	491,235	3,184,521	7.67	6.09	20.0	0.457	1.5	755	34.64
SICE03	491,230	3,184,521	7.67	6.09	20.0	0.457	1.5	755	34.64
SICE04	491,225	3,184,521	7.67	6.09	20.0	0.457	1.5	755	34.64
SICE05	491,220	3,184,521	7.67	6.09	20.0	0.457	1.5	755	34.64
SICE06	491,215	3,184,521	7.67	6.09	20.0	0.457	1.5	755	34.64
FLARE1†	491,949	3,184,550	6.04	15.77	51.74	1.470	4.82	1273	20.00
FLARE2†	491,049	3,185,200	4.86	20.07	65.86	1.745	5.72	1273	20.00

† Data presented for height and diameter are equivalent values calculated for open flares, using equations from the TSCREEN users manual. Exit temperature and velocity are default values for open flares.

3.0 CLASS II AREA SIGNIFICANT IMPACT ANALYSIS

3.1 Purpose

A new source that has potential criteria air pollutant emissions in excess of PSD major source thresholds is required to perform analyses to determine whether its regulated air pollutant emissions will significantly impact the ambient air in designated Class II areas. In NAAQS attainment areas, a demonstration that indicates the maximum predicted ambient air pollutant impacts (concentrations) caused by the emissions of a proposed source are less than the applicable PSD significant impact levels is equivalent to a demonstration of compliance with Federal and State ambient air standards.

Table I-3.1 presents PSD significant impact levels established for Class II areas.

Air pollutant emissions from major sources that result in predicted ambient air impacts that exceed the significant impact levels are required to perform additional modeling to consider the cumulative impact caused by background emission sources and regional air pollutant background concentrations to demonstrate compliance with PSD increment consumption requirements and applicable federal ambient air quality standards (NAAQS).

For the purposes of the Class II modeling demonstration the criteria pollutant emissions from the operation of the IC engines at 100% capacity, and the larger utility flare operating at a capacity of 50% (1500 scfm of the 3000 scfm maximum for the Phase 1 Flare) were considered in order to provide the most conservative (i.e., maximum) estimate of ambient air impacts. Based on results from LFG generation models the estimated LFG generation rate will not support simultaneous operation of the engines and flare at the modeled capacities except for one year within the next twenty when the landfill gas curve is at its maximum. (i.e., there is not enough landfill gas that will be produced any other year to support operation of the engine facility and flare at the modeled capacities).

3.2 Criteria Pollutant Emission Rates

Table I-3.2 presents criteria pollutant emission rates for the proposed electricity generation facility that were used in the modeling analysis. These emission rates are the same as those presented in Table 3 of the permit application document. The maximum SO_2 and NO_2 impacts produced by the proposed electricity generation facility were based on the total conversion of SO_X compounds to SO_2, and 75% conversion of NO_X compounds to NO_2.

Table I-3.3 presents criteria pollutant emission rates for the Phase 1 Flare that was used in the modeling analysis. The emission rates are based on the LFG throughput specified in the previous section and pollutant emission factors currently used by the facility for annual reporting.

3.3 Refined Modeling

The radius of significant impact was calculated for each criteria pollutant released from the proposed facility. The radius of significant impact, which is pollutant and impact averaging time specific, is the minimum distance from the proposed emission source at which all of the calculated impacts (in any direction) are equal to or less than the corresponding significant impact level.

Screening modeling is often performed for an initial determination of maximum impacts and the radius of significant impact. However, the screening model (e.g., SCREEN3) only calculates impacts associated with a single representative emission source. Due to the differences between the IC engine and flare exhaust parameters, no screening modeling was performed for this project (the SIA was performed using a refined model).

3.3.1 Model Selection

The AERMOD (American Meteorological Society/Environmental Protection Agency Regulatory Model) air pollutant dispersion model (version No. 04300) was used to calculate ground-level pollutant concentrations resulting from the proposed electricity generation facility and flare air pollutant emission rates and exhaust configuration. AERMOD is the most recent Gaussian steady-state plume dispersion model released by USEPA for use in assessing ambient air impacts associated with air pollutant releases and was adopted by the USEPA as the preferred general purpose dispersion model (Federal Register Notice November 9, 2005). The USEPA *Guideline on Air Quality Models* (40 CFR Part 51, Appendix W) specifies that impacts calculated with most steady-state Gaussian plume models are applicable at distances up to 50 km from the origin of the emission source.

The use of the AERMOD model was determined appropriate because it:

- Can be used to model concentrations at both simple and complex terrain receptors.
- Uses the plume rise enhancement (PRIME) building downwash algorithm, which has been shown to be superior to the downwash algorithm in previously released Gaussian steady-state plume dispersion models.

The following sections present input data and processing options that were used for the AERMOD air pollutant dispersion modeling. The AERMOD input files were prepared by entering appropriate data (applicable to the specific emission process) and model operating parameters into a Windows-based graphical user interface (GUI) developed by BEE-Line Software (BEEST for Windows, current version 9.50).

3.3.2 Model Options

The AERMOD dispersion model was executed with regulatory default options, which include the use of stack-tip downwash and incorporate the effects of elevated terrain (if applicable). In regulatory default mode, no calculations are performed for deposition or plume depletion.

Based on information presented in Section 2.1 of this protocol, the land use for the area surrounding the proposed electricity generation facility is predominantly classified as rural (as opposed to urban). Therefore, no options for urban dispersion were used to calculate air quality impact concentrations produced by the modeled emission sources.

3.3.3 Meteorological Data

Meteorological data (hourly surface measurements and upper-air soundings) for the five-year period 1999 through 2003 with site characteristics (surface roughness, albedo and Bowen Ratio) were provided by the Florida DEP for this project. The surface and upper air data were originally obtained from the Orlando and Tampa Bay areas. The data were preprocessed by the Florida DEP using the AERMET meteorological preprocessor program to produce two types of data files for each meteorological year that are used by AERMOD; surface scalar parameters (*filename*.sss) and vertical profiles (*filename*.pfc). A profile base elevation of 28.65 meters (94 feet) was used with the meteorological data for the execution of AERMOD.

The AERMET data files used for this project are provided on the compact disc in Appendix I-3.

3.3.4 Receptor Network

Ground-level pollutant impact concentrations are required to be calculated for all nearby areas that are considered to be ambient air (i.e., areas in which public access is not precluded or restricted by the stationary source). Preliminary modeling results (using AERMOD) indicate that some of the criteria pollutants exceed PSD Class II significance levels exterior to property owned by the Seminole Landfill. The receptor network (locations at which air pollutant impact concentrations are calculated) used in the AERMOD modeling analyses was developed by creating a grid of receptors on a Cartesian coordinate system having a spacing of 100 meters to determine off-site impacts up to 1.6 km from the facility to ensure that all maximum impacts were within the boundary of the receptor grid. Receptors were placed at the Seminole Landfill facility boundary and extended 1.6 km in all directions from the proposed facility.

No flagpole receptors were identified in the area surrounding the proposed facility location.

Figure I-3.1 presents a depiction of the receptor network that was used to perform the refined modeling analysis.

3.3.5 Terrain Data

As presented in Section 2.2 of this protocol and the site plan in Appendix I-1, complex terrain will not be considered as part of the refined modeling analysis, as there are no offsite receptors at elevations that exceed the stack height. The terrain in the region surrounding the Seminole Landfill property is at elevations lower than the stack release elevation of the proposed facility; therefore, the terrain was classified as simple.

USGS 30-meter (7.5 minute) ASCII Digital Elevation Models (DEM) files were obtained for the geographical area surrounding the facility. The DEM data were based on the North American Datum of 1927 (NAD27). USEPA's AERMAP computer program was used to extract data from the DEM files and calculate source base elevations and receptor elevations using the default algorithm (inverse distance squared of the nearest four terrain nodes).

The DEM data files and AERMAP output files that were used in the model are provided on the compact disc in Appendix I-3.

3.3.6 Pollutant Impact Averaging Times

Maximum ambient air pollutant impact concentrations produced by the proposed emission sources were determined for the specified five-year meteorological period. These results were compared to the PSD significant impact levels, and if applicable, to establish the radius of significant impact (i.e., the geographic areas that surround the proposed emission facility that are determined to have maximum impacts that are greater than the significance values). The highest calculated impact for each pollutant and averaging period for the five-year meteorological data set was used for the SIA and radius of impact determination.

The impact concentration(s) calculated for:

- SO_2 were based on maximum 3-hr, 24-hr and annual average impacts.
- PM_{10} were based on maximum 24-hr and annual impacts.
- CO were based on the maximum 1-hr and 8-hr average impacts.
- NO_2 was based on the maximum annual average impact.

Highest 2nd high impacts for short-term pollutant averaging periods that are used for PSD and NAAQS demonstrations were not considered for determinations of the SIA and radius of significant impact.

3.4 Refined Modeling SIA Results

Appendix I-4 provides AERMOD output summary files and a plot depicting the maximum radius of impact.

These results indicate that emissions from the combined operation of the utility flare and proposed electricity generation facility result in maximum impact concentrations that exceed the Class II significant impact levels for PM_{10} (annual and 24-hr), NO_X annual and SO_2 (annual, 24-hr and 3-hr). The impacts do not exceed the significant impact level for CO (1-hr and 8-hr).

Table I-3.5 presents the proposed Seminole Energy facility and utility flare emission rates used in the modeling demonstration, and the predicted impacts from the proposed facility, flare and combined impact.

The maximum radius of impact for any pollutant is 0.9 km. Therefore, the proposed receptor grid (which considers receptors out to a distance of 1.6 km from the facility) adequately encompasses the significant impact area. The calculated significant impact area will be used to determine the number of sources that need to be included in the multisource modeling analysis (described in Section 4.0 of this document).

Table I-3.1 Significant Impact Levels for Class II Areas ($\mu g/m^3$)

Pollutant	Annual	24-Hr	8-Hr	3-Hr	1-Hr
Nitrogen Dioxide (NO_2)	1.0	--	--	--	--
Carbon Monoxide (CO)	--	--	500	--	2000
Sulfur Dioxide (SO_2)	1.0	5.0	--	25.0	--
Particulates (PM_{10}/TSP)	1.0	5.0	--	--	--

Table I-3.2 Criteria pollutant emission rates for the proposed Seminole Energy facility used in the air quality analysis

Pollutant	LFG-Fired ICE Emission Factors		Single ICE[3] Emissions (lb/hr)	Facility Emission Rate for Six (6) ICE (lb/hr)	(TpY)	(g/s)
Nitrogen Dioxide (NO_x)[1]	0.60	g/bhp-hr	2.95	17.72	77.6	1.67
Carbon Monoxide (CO)	2.75	g/bhp-hr	13.54	81.23	355.8	10.24
Sulfur Dioxide (SO_2)	32.2	lb/MMcf	0.96	5.76	25.23	0.73
Particulates[2]	0.24	g/bhp-hr	1.18	7.09	31.05	0.89

1. Emission factor of 0.60 g/bhp-hr is for total oxides of nitrogen (NO_x), USEPA guidance specifies that 75% of NO_x can be considered NO_2, which is reflected only in the (g/s) emission rate.
2. Particulate emission rate for TSP, PM_{10} and $PM_{2.5}$.
3. Based on operation of a single engine at base load (100% capacity) conditions; engine output of 2233 hp and maximum theoretical fuel consumption of 35,075 scfh LFG .

Table I-3.3 Criteria pollutant emission rates for the Seminole Landfill utility flare used in the air quality analysis (Phase 1 Flare)

Pollutant	LFG Utility Flare Emission Factors		Utility Flare Emission Rate[2] (lb/hr)	(TpY)	(g/s)
Nitrogen Dioxide (NO_x) [1, 3]	0.06	lb/MMBtu	2.23	9.76	0.281
Carbon Monoxide (CO) [3]	0.20	lb/MMBtu	9.90	43.36	1.247
Sulfur Dioxide (SO_2) [4]	7.94	lb/MMscf LFG	0.714	3.13	0.090
Particulates [5]	17.0	lb/MMdscf CH_4	0.842	3.67	0.106

1. USEPA guidance specifies that 75% of NO_x can be considered NO_2, which is reflected in the emission rate.
2. Based on continuous operation at 1500 scfm LFG and heat value of 550 Btu/scfm (49.5 MMBtu/hr)
3. Manufacturer guaranteed emission rate
4. Based on default sulfur content of 46.9 ppmv
5. Default PM emission rate AP-42 section 2.4

Table I-3.4 Air impact results compared to PSD Class II Significant Impact Levels

Pollutant	Averaging Time	Flare Emission Rate (g/s)	Potential Energy Facility Emission Rate (g/s)	Maximum Predicted Flare Impact ($\mu g/m^3$)	Maximum Predicted Energy Facility Impact ($\mu g/m^3$)	Combined Energy and Flare Impact ($\mu g/m^3$)	Class II Significant Impact Levels ($\mu g/m^3$)
NO_2	Annual	0.281	1.67	0.04	2.79	2.81	1.0
CO	8-hr	1.247	10.24	5.51	281	281	500
	1-hr	1.247	10.24	14.1	421	421	2000
SO_2	Annual	0.090	0.726	0.01	1.21	1.22	1.0
	24-hr	0.090	0.726	0.33	13.7	13.7	5.0
	3-hr	0.090	0.726	0.63	26.8	26.8	25.0
PM_{10}	Annual	0.106	0.892	0.02	1.49	1.50	1.0
	24-hr	0.106	0.892	0.38	16.8	16.9	5.0

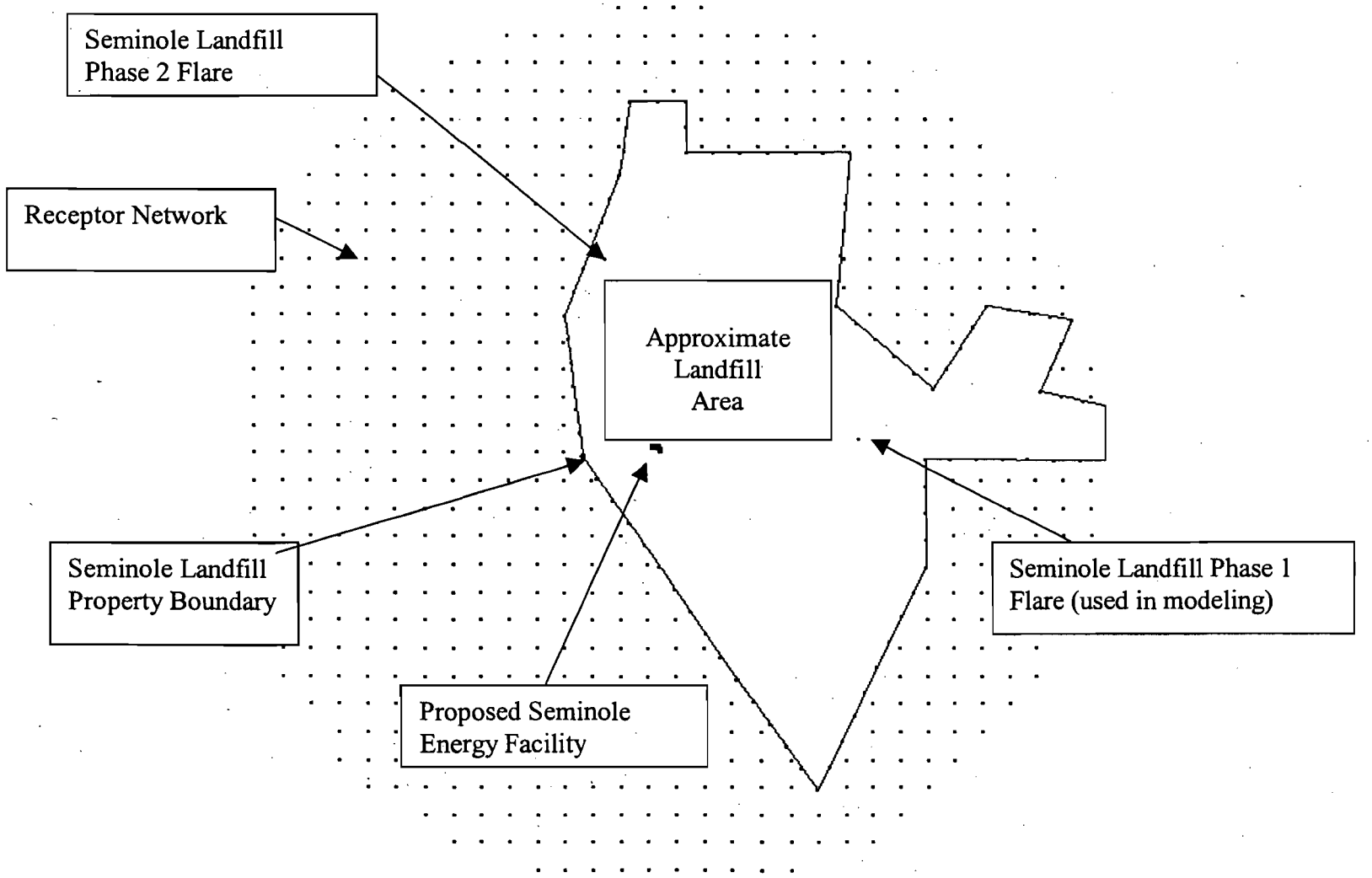


Figure I-3.1 Receptor network used in refined modeling analysis

4.0 BACKGROUND DATA AND MULTISOURCE MODELING

4.1 Background Sources

Major PSD sources with air pollutant emissions that produce ambient air quality impact concentrations that exceed the Class II significant concentrations are required to perform a multi-source air quality impact modeling demonstration (i.e., PSD increment consumption analysis and NAAQS compliance demonstration). A multisource modeling demonstration is required for all pollutants with a maximum impact that exceeds the PSD significant impact concentration and must consider all major sources that:

1. Are located within the significant impact area (sources located at a distance from the proposed facility that is less than the radius of significant impact); and

2. Have the potential to significantly impact the SIA of the proposed facility (generally considers major sources within 50 to 75 km from the SIA).

An inventory of background emission sources required to be considered in the multisource PSD increment and NAAQS modeling analysis (major sources located within 75 km of the significant impact area) was provided by the Florida DEP. The inventory provided by the department specified the emission units that consume PSD increment (those emission units that were installed subsequent to the applicable PSD baseline date).

Appendix I-5 provides the inventory of permitted air pollutant emission rates and exhaust stack parameters for the background sources provided by the Florida DEP for consideration in the multisource PSD increment and NAAQS modeling analysis.

Many of the sources in the original background sources inventory were screened out (i.e., excluded from the refined modeling demonstration) using the '20D' criteria. This method, recommended by the Florida DEP, excludes from the modeling analysis any source that has emissions (in TPY) less than 20 times the distance (in km) between the background source and the SIA.

4.2 Background Air Quality (Monitoring Data)

For the NAAQS demonstration, representative background pollutant concentrations were added to the predicted air pollutant impacts determined by the multisource modeling analysis. Available air monitoring data were retrieved from the USEPA AIRS website. The three most recent years of complete data from the nearest monitoring station were reviewed (2003-2005) to establish representative background air pollutant concentrations.

Table I-4.1 presents representative maximum background concentrations for each criteria pollutant that were used in the NAAQS demonstration.

4.3 Criteria Pollutant Emission Rates and Averaging Periods

The emission impact concentrations for the refined multisource air quality analysis were determined with the operating parameters and emission rates for the six individual engine exhaust stacks, the utility flare selected for modeling and appropriate background sources.

The results for the SIA (presented in Section 3.0) are based on the highest calculated impact for each averaging period for any of the five years modeled. For the PSD increment and NAAQS refined modeling analyses, the combined impact of the proposed facility and appropriate background sources was based on the:

- Highest second-high (i.e., highest of the second highest concentration predicted for any of the five meteorological years used) SO_2 impact for the PSD and NAAQS 3-hr, and 24-hr averaging periods.
- Highest SO_2 impact for the PSD and NAAQS annual averaging period.
- Highest PM_{10} impact for the PSD 24-hr averaging period.
- Highest second-high PM_{10} impact for the NAAQS 24-hr averaging period.
- Highest PM_{10} impact for PSD and NAAQS annual averaging period.
- Highest NO_2 impact for the PSD and NAAQS annual averaging period.

Compliance with the annual standard for all pollutants (NO_2, SO_2, PM_{10}) was based on the highest predicted annual impact for any of the five modeled years.

4.4 PSD and NAAQS Results

Table I-4.2 presents results of the PSD increment consumption analysis.

Table I-4.3 presents results of the state and federal ambient air quality standards analysis.

The highest NO_2 annual average ambient air impact produced by the modeled emission sources is 6 $\mu g/m^3$, which is less than the allowable PSD increment of 25 $\mu g/m^3$. This calculated impact results in a cumulative ambient air concentration, including background of 27 $\mu g/m^3$, less than

the NAAQS of 100 $\mu g/m^3$ (i.e., there are no calculated impacts beyond the Landfill facility property that exceed the NO_2 NAAQS).

The highest SO_2 3-hour ambient air impact produced by the modeled emission sources is 113 $\mu g/m^3$, which is less than the allowable PSD increment of 512 $\mu g/m^3$. This calculated impact results in a cumulative ambient air concentration, including background of 37.3 $\mu g/m^3$, less than the NAAQS of 1300 $\mu g/m^3$. The highest SO_2 24-hour ambient air impact produced by the modeled emission sources is 29.1 $\mu g/m^3$, which is less than the allowable PSD increment of 91 $\mu g/m^3$. This calculated impact results in a cumulative ambient air concentration, including background of 15.9 $\mu g/m^3$, less than the Florida ambient air quality standard of 260 $\mu g/m^3$. The highest SO_2 annual average ambient air impact produced by the modeled emission sources is 6.57 $\mu g/m^3$, which is less than the allowable PSD increment of 20 $\mu g/m^3$. This calculated impact results in a cumulative ambient air concentration, including background of 9.23 $\mu g/m^3$, less than the Florida ambient air quality standard of 60 $\mu g/m^3$. These calculated impacts result in cumulative ambient air concentrations, including backgrounds, less than the respective NAAQS and Florida ambient air quality standards (i.e., there are no calculated impacts beyond the Landfill facility property that exceed the standards).

The highest PM_{10} annual average ambient air impact produced by the modeled emission sources is 1.65 $\mu g/m^3$, which is less than the allowable PSD increment of 17 $\mu g/m^3$. This calculated impact results in a cumulative ambient air concentration, including background of 19 $\mu g/m^3$, less than the NAAQS of 50 $\mu g/m^3$. The highest PM_{10} 24-hour ambient air impact produced by the modeled emission sources is 16.9 $\mu g/m^3$, which is less than the allowable PSD increment of 30 $\mu g/m^3$. The 2nd highest PM_{10} 24-hour impact results in a cumulative ambient air concentration, including background of 72.9 $\mu g/m^3$, less than the NAAQS of 150 $\mu g/m^3$. These calculated impacts result in cumulative ambient air concentrations, including backgrounds, less than the respective NAAQS ambient air quality standards (i.e., there are no calculated impacts beyond the Landfill facility property that exceed the standards).

Appendix I-6 provides AERMOD output summary files and graphical plots for the PSD increment and NAAQS refined modeling analyses.

Table I-4.1 Monitoring data that will be used to establish background air quality for the NAAQS demonstration

Pollutant[1]	Averaging Time	Concentration[2] (ppm)	Concentration[2] ($\mu g/m^3$)	Monitoring Site	County[3]	Year(s)
NO_2	Annual	0.011	21	Morris Blvd. Winter Park	Orange	2003
SO_2	Annual	0.001	2.66	Morris Blvd. Winter Park	Orange	2003
	24-hour	0.006	15.9	Morris Blvd. Winter Park	Orange	2004
	3-hour	0.014	37.3	Morris Blvd. Winter Park	Orange	2004
PM_{10}	Annual	--	19	County Homes Road at US 17-92	Seminole	2004
	24-hour	--	60	County Homes Road at US 17-92	Seminole	2004

1. For NO_2, SO_2 and CO the monitoring data provided in the USEPA AIRS database are presented in ppm and were converted to $\mu g/m^3$ using an ideal gas relationship (0.02405 m^3/g-mol) and the molecular weights for NO_2 (46), SO_2 (64) and CO (28).

2. Maximum concentrations given from the 3 most recent years of data (2003, 2004 and 2005).

3. Orange County monitoring data were used for pollutant concentrations that are not measured by the Seminole County monitoring station.

Table I-4.2 Results of PSD increment consumption analysis

Pollutant	Averaging Period	Met. Year	Maximum Impact PSD Increment Consuming Sources[1] ($\mu g/m^3$)	Allowable PSD Class II Increment ($\mu g/m^3$)
NO_2	Annual	2001	6.03	25
SO_2	3-hr (2^{nd} high)	2001	113	512
SO_2	24-hr (2^{nd} high)	2000	29.1	91
SO_2	Annual	2000	6.57	20
PM_{10}	24-hr (1^{st} high)	2003	16.9	30
PM_{10}	Annual	2001	1.65	17

1. Includes the proposed Seminole Energy facility, existing LFG combustion sources at the Seminole County Landfill and appropriate PSD increment-consuming sources identified by the Florida DEP.

Table I-4.3 Results of Florida and Federal ambient air quality standards analysis

Pollutant	Averaging Period	Met. Year	Maximum Multisource Impact ($\mu g/m^3$)	Representative Background Concentration[1] ($\mu g/m^3$)	Max Combined Ambient Air Concentration ($\mu g/m^3$)	Florida Standards[2] ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
NO_2	Annual	2001	6.03	21	27.0		100
SO_2	3-hr (2^{nd} high)	2001	113	37.3	150	1300	1300
SO_2	24-hr (2^{nd} high)	2001	29.1	15.9	45.0	260	365
SO_2	Annual	2000	6.57	2.66	9.23	60	80
PM_{10}	24-hr (2^{nd} high)	2001	12.9	60	72.9		150
PM_{10}	Annual	2001	1.65	19	20.7		50

1. Background monitoring data provided in the USEPA AIRS database and presented in Table I-4.1.

2. Florida Ambient Air Quality Standards provided in Rule 62-204.240(a)(b)(c).

5.0 SPECIAL MODELING CONSIDERATIONS

5.1 Particle Deposition

Based on the design and operation of the proposed IC engines and the treatment (dewatering, compression and filtration) of LFG received from the landfill prior to its use as a fuel and combustion, the amount of particulates emitted from the combustion process are expected to be relatively small. Therefore, compliance with the particulate matter ambient air quality standards can be achieved without considering particle deposition (i.e., the removal of particulates from the exhaust plume over the distance of maximum ground-level impacts due to deposition are expected to be minimal).

5.2 Fugitive Emissions

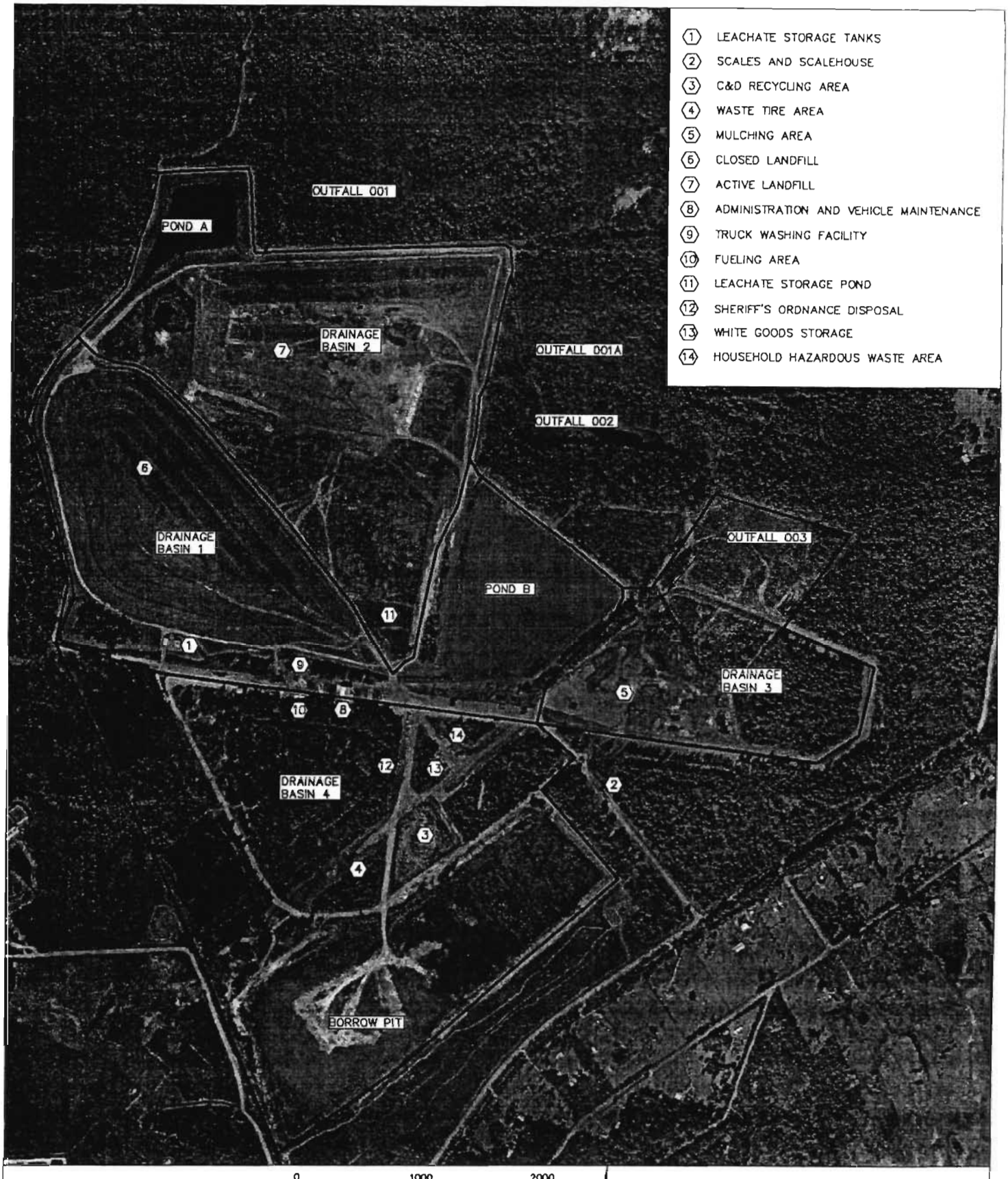
The proposed Seminole Energy electricity generation facility will utilize LFG that is supplied by the Seminole Landfill gas collection and control system. The proposed Seminole Energy electricity generation facility will not be a source of fugitive emissions.

5.3 Start-Up / Shutdown / Low Load Scenarios

The proposed electricity generation facility will use LFG-fueled IC engines that are designed to operate as base load (100% capacity) conditions. These engines will operate continuously with the exception for planned maintenance shutdowns or automatic engine shutdowns (instantaneous, automatic engine shutdowns if monitored operating parameters are outside of preset ranges). The amount of time required for an engine start-up is minimal. Since the engines are operated at base load conditions and the durations of engine shutdown and startup times are minimal, no air quality impact concentrations analyses will be performed for these specific events.

APPENDIX I-1

LANDFILL AND SEMINOLE ENERGY SITE PLANS
AND
TOPOGRAPHICAL PLOT



S2Li
531 Versailles Drive
Suite 202
Maitland, FL 32751-4569
Phone: (407) 475-9163
Fax: (407) 475-9169
Certification of Authorization #7831

SITE PLAN

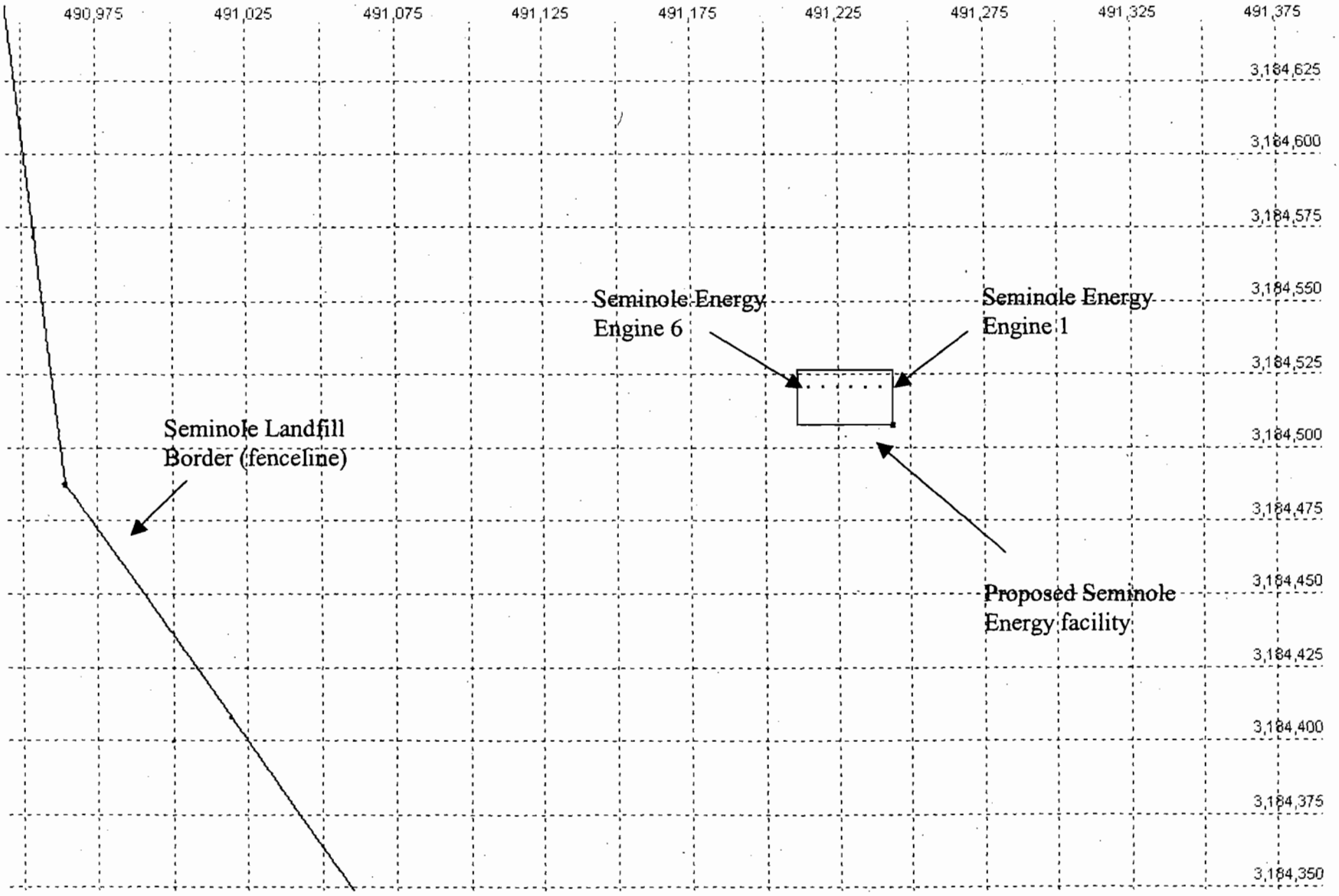
OSCEOLA ROAD SOLID WASTE MANAGEMENT FACILITY
SEMINOLE COUNTY, FLORIDA

FIGURE 2

APPENDIX I-2

COORDINATES FOR PROPOSED FACILITY AND STACKS

Derenzo and Associates, Inc.



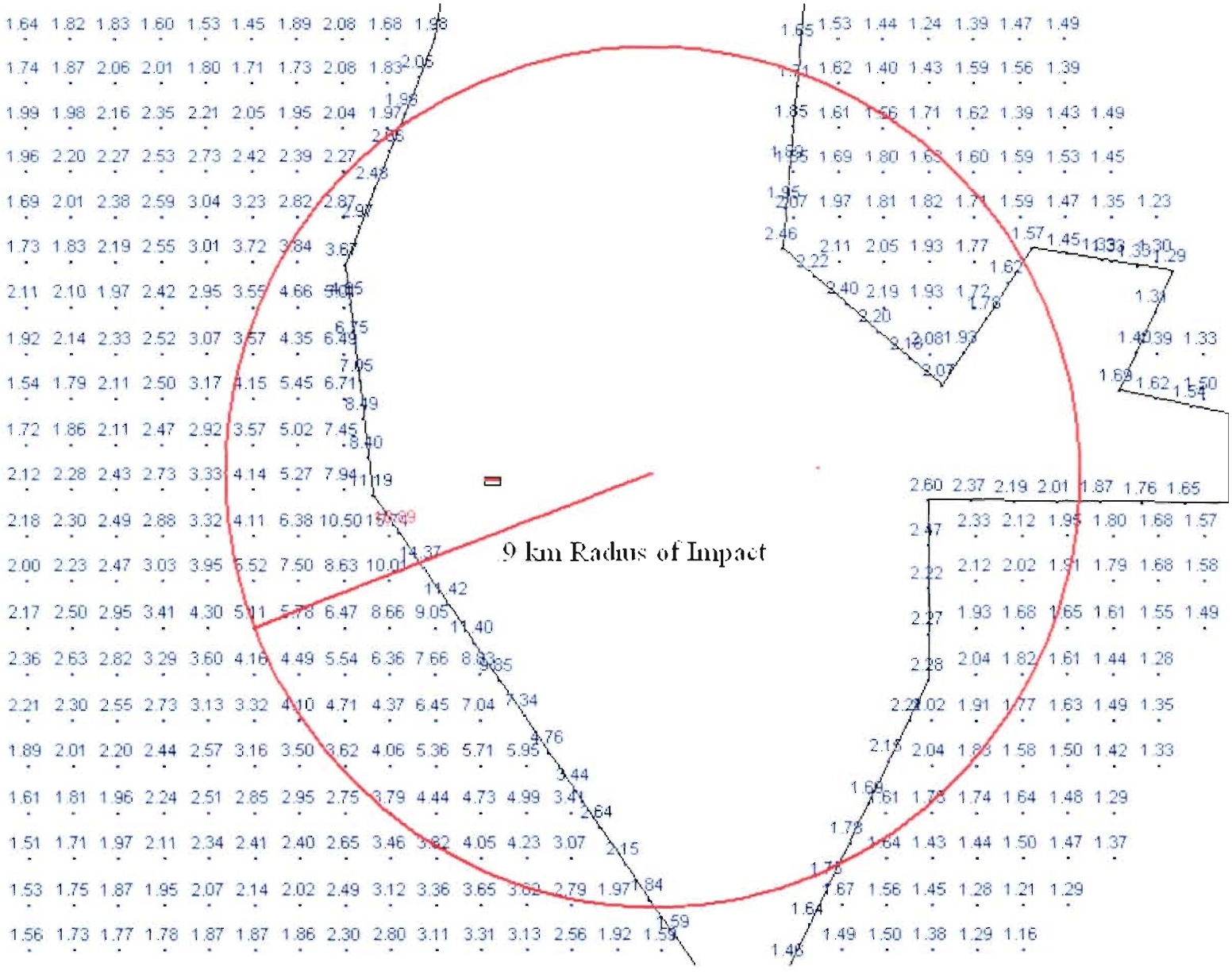
Seminole Energy Proposed Facility and Stacks

APPENDIX I-3

MODELING INPUT FILES

APPENDIX I-4

RESULTS OF CLASS II SIGNIFICANT IMPACT ANALYSIS



Seminole Energy Radius of Impact

Appendix I-4

AERMOD Modeling Results (NO_X Annual Significant Impact Analysis)

Model	File	Pollutant	Average	Group	Rank	Conc.	East(X)	North(Y)	Elev	Met File
AERMOD	Seminole03_01_NOX.USF	NOX	ANNUAL	ALL	1ST	2.81	491019.3	3184408	5.81	ORLANDO_2001.SFC
AERMOD	Seminole03_02_NOX.USF	NOX	ANNUAL	ALL	1ST	2.63	491019.3	3184408	5.81	ORLANDO_2002.SFC
AERMOD	Seminole03_00_NOX.USF	NOX	ANNUAL	ALL	1ST	2.58	491019.3	3184408	5.81	ORLANDO_2000.SFC
AERMOD	Seminole03_99_NOX.USF	NOX	ANNUAL	ALL	1ST	2.26	491074.7	3184328	5.95	ORLANDO_1999.SFC
AERMOD	Seminole03_03_NOX.USF	NOX	ANNUAL	ALL	1ST	2.04	491074.7	3184328	5.95	ORLANDO_2003.SFC
AERMOD	Seminole03_03_NOX.USF	NOX	ANNUAL	FLARES	1ST	0.046	492014	3184908	4.9	ORLANDO_2003.SFC
AERMOD	Seminole03_99_NOX.USF	NOX	ANNUAL	FLARES	1ST	0.044	492288.3	3184475	6	ORLANDO_1999.SFC
AERMOD	Seminole03_00_NOX.USF	NOX	ANNUAL	FLARES	1ST	0.043	492194	3184476	5.88	ORLANDO_2000.SFC
AERMOD	Seminole03_01_NOX.USF	NOX	ANNUAL	FLARES	1ST	0.042	492014	3184908	4.9	ORLANDO_2001.SFC
AERMOD	Seminole03_02_NOX.USF	NOX	ANNUAL	FLARES	1ST	0.042	492014	3184908	4.9	ORLANDO_2002.SFC
AERMOD	Seminole03_01_NOX.USF	NOX	ANNUAL	SEMNRG	1ST	2.79	491019.3	3184408	5.81	ORLANDO_2001.SFC
AERMOD	Seminole03_02_NOX.USF	NOX	ANNUAL	SEMNRG	1ST	2.61	491019.3	3184408	5.81	ORLANDO_2002.SFC
AERMOD	Seminole03_00_NOX.USF	NOX	ANNUAL	SEMNRG	1ST	2.56	491019.3	3184408	5.81	ORLANDO_2000.SFC
AERMOD	Seminole03_99_NOX.USF	NOX	ANNUAL	SEMNRG	1ST	2.24	491074.7	3184328	5.95	ORLANDO_1999.SFC
AERMOD	Seminole03_03_NOX.USF	NOX	ANNUAL	SEMNRG	1ST	2.03	491074.7	3184328	5.95	ORLANDO_2003.SFC

Appendix I-4

AERMOD Modeling Results (SO_2 Annual Significant Impact Analysis)

Model	File	Pollutant	Average	Group	Rank	Conc.	East(X)	North(Y)	Elev	Met File
AERMOD	Seminole03_01_SO2.USF	SO2	ANNUAL	ALL	1ST	1.21	491019.3	3184408	5.81	ORLANDO_2001.SFC
AERMOD	Seminole03_02_SO2.USF	SO2	ANNUAL	ALL	1ST	1.14	491019.3	3184408	5.81	ORLANDO_2002.SFC
AERMOD	Seminole03_00_SO2.USF	SO2	ANNUAL	ALL	1ST	1.11	491019.3	3184408	5.81	ORLANDO_2000.SFC
AERMOD	Seminole03_99_SO2.USF	SO2	ANNUAL	ALL	1ST	0.975	491074.7	3184328	5.95	ORLANDO_1999.SFC
AERMOD	Seminole03_03_SO2.USF	SO2	ANNUAL	ALL	1ST	0.882	491074.7	3184328	5.95	ORLANDO_2003.SFC
AERMOD	Seminole03_03_SO2.USF	SO2	ANNUAL	FLARES	1ST	0.015	492014	3184908	4.9	ORLANDO_2003.SFC
AERMOD	Seminole03_99_SO2.USF	SO2	ANNUAL	FLARES	1ST	0.014	492288.3	3184475	6	ORLANDO_1999.SFC
AERMOD	Seminole03_00_SO2.USF	SO2	ANNUAL	FLARES	1ST	0.014	492194	3184476	5.88	ORLANDO_2000.SFC
AERMOD	Seminole03_01_SO2.USF	SO2	ANNUAL	FLARES	1ST	0.014	492014	3184908	4.9	ORLANDO_2001.SFC
AERMOD	Seminole03_02_SO2.USF	SO2	ANNUAL	FLARES	1ST	0.013	492014	3184908	4.9	ORLANDO_2002.SFC
AERMOD	Seminole03_01_SO2.USF	SO2	ANNUAL	SEMNRG	1ST	1.21	491019.3	3184408	5.81	ORLANDO_2001.SFC
AERMOD	Seminole03_02_SO2.USF	SO2	ANNUAL	SEMNRG	1ST	1.13	491019.3	3184408	5.81	ORLANDO_2002.SFC
AERMOD	Seminole03_00_SO2.USF	SO2	ANNUAL	SEMNRG	1ST	1.11	491019.3	3184408	5.81	ORLANDO_2000.SFC
AERMOD	Seminole03_99_SO2.USF	SO2	ANNUAL	SEMNRG	1ST	0.968	491074.7	3184328	5.95	ORLANDO_1999.SFC
AERMOD	Seminole03_03_SO2.USF	SO2	ANNUAL	SEMNRG	1ST	0.877	491074.7	3184328	5.95	ORLANDO_2003.SFC

Appendix I-4

AERMOD Modeling Results (SO_2 24-Hour Significant Impact Analysis)

Model	File	Pollutant	Average	Group	Rank	Conc.	East(X)	North(Y)	Elev	Met File
AERMOD	Seminole03_01_SO2.USF	SO2	24-HR	ALL	1ST	13.73	491019.3	3184408	5.81	ORLANDO_2001.SFC
AERMOD	Seminole03_99_SO2.USF	SO2	24-HR	ALL	1ST	11.67	491074.7	3184328	5.95	ORLANDO_1999.SFC
AERMOD	Seminole03_03_SO2.USF	SO2	24-HR	ALL	1ST	11.47	491074.7	3184328	5.95	ORLANDO_2003.SFC
AERMOD	Seminole03_00_SO2.USF	SO2	24-HR	ALL	1ST	9.26	491185.3	3184168	6	ORLANDO_2000.SFC
AERMOD	Seminole03_02_SO2.USF	SO2	24-HR	ALL	1ST	7.95	491074.7	3184328	5.95	ORLANDO_2002.SFC
AERMOD	Seminole03_01_SO2.USF	SO2	24-HR	FLARES	1ST	0.326	492194	3184476	5.88	ORLANDO_2001.SFC
AERMOD	Seminole03_03_SO2.USF	SO2	24-HR	FLARES	1ST	0.227	492300	3184400	6.03	ORLANDO_2003.SFC
AERMOD	Seminole03_02_SO2.USF	SO2	24-HR	FLARES	1ST	0.211	492300	3184400	6.03	ORLANDO_2002.SFC
AERMOD	Seminole03_99_SO2.USF	SO2	24-HR	FLARES	1ST	0.181	491874	3185028	4.53	ORLANDO_1999.SFC
AERMOD	Seminole03_00_SO2.USF	SO2	24-HR	FLARES	1ST	0.153	492194	3184476	5.88	ORLANDO_2000.SFC
AERMOD	Seminole03_01_SO2.USF	SO2	24-HR	SEMNRG	1ST	13.67	491019.3	3184408	5.81	ORLANDO_2001.SFC
AERMOD	Seminole03_99_SO2.USF	SO2	24-HR	SEMNRG	1ST	11.67	491074.7	3184328	5.95	ORLANDO_1999.SFC
AERMOD	Seminole03_03_SO2.USF	SO2	24-HR	SEMNRG	1ST	11.46	491074.7	3184328	5.95	ORLANDO_2003.SFC
AERMOD	Seminole03_00_SO2.USF	SO2	24-HR	SEMNRG	1ST	9.26	491185.3	3184168	6	ORLANDO_2000.SFC
AERMOD	Seminole03_02_SO2.USF	SO2	24-HR	SEMNRG	1ST	7.94	491074.7	3184328	5.95	ORLANDO_2002.SFC

Appendix I-4

AERMOD Modeling Results (SO_2 3-Hour Significant Impact Analysis)

Model	File	Pollutant	Average	Group	Rank	Conc.	East(X)	North(Y)	Elev	Met File
AERMOD	Seminole03_00_SO2.USF	SO2	3-HR	ALL	1ST	26.21	491074.7	3184328	5.95	ORLANDO_2000.SFC
AERMOD	Seminole03_00_SO2.USF	SO2	3-HR	ALL	1ST	26.21	491074.7	3184328	5.95	ORLANDO_2000.SFC
AERMOD	Seminole03_99_SO2.USF	SO2	3-HR	ALL	1ST	24.69	491074.7	3184328	5.95	ORLANDO_1999.SFC
AERMOD	Seminole03_03_SO2.USF	SO2	3-HR	ALL	1ST	24.66	491019.3	3184408	5.81	ORLANDO_2003.SFC
AERMOD	Seminole03_02_SO2.USF	SO2	3-HR	ALL	1ST	24.29	491019.3	3184408	5.81	ORLANDO_2002.SFC
AERMOD	Seminole03_00_SO2.USF	SO2	3-HR	FLARES	1ST	0.625	492194	3184476	5.88	ORLANDO_2000.SFC
AERMOD	Seminole03_00_SO2.USF	SO2	3-HR	FLARES	1ST	0.625	492194	3184476	5.88	ORLANDO_2000.SFC
AERMOD	Seminole03_99_SO2.USF	SO2	3-HR	FLARES	1ST	0.598	492194	3184379	6	ORLANDO_1999.SFC
AERMOD	Seminole03_03_SO2.USF	SO2	3-HR	FLARES	1ST	0.541	492194	3184185	6.03	ORLANDO_2003.SFC
AERMOD	Seminole03_02_SO2.USF	SO2	3-HR	FLARES	1ST	0.526	492194	3184476	5.88	ORLANDO_2002.SFC
AERMOD	Seminole03_00_SO2.USF	SO2	3-HR	SEMNRG	1ST	26.21	491074.7	3184328	5.95	ORLANDO_2000.SFC
AERMOD	Seminole03_00_SO2.USF	SO2	3-HR	SEMNRG	1ST	26.21	491074.7	3184328	5.95	ORLANDO_2000.SFC
AERMOD	Seminole03_99_SO2.USF	SO2	3-HR	SEMNRG	1ST	24.69	491074.7	3184328	5.95	ORLANDO_1999.SFC
AERMOD	Seminole03_03_SO2.USF	SO2	3-HR	SEMNRG	1ST	24.65	491019.3	3184408	5.81	ORLANDO_2003.SFC
AERMOD	Seminole03_02_SO2.USF	SO2	3-HR	SEMNRG	1ST	24.24	491019.3	3184408	5.81	ORLANDO_2002.SFC

Appendix I-4

AERMOD Modeling Results (CO 1-Hour Significant Impact Analysis)

Model	File	Pollutant	Average	Group	Rank	Conc.	East(X)	North(Y)	Elev	Met File
AERMOD	Seminole03_02_CO.USF	CO	1-HR	ALL	1ST	421.38	491019.3	3184408	5.81	ORLANDO_2002.SFC
AERMOD	Seminole03_01_CO.USF	CO	1-HR	ALL	1ST	419.92	491019.3	3184408	5.81	ORLANDO_2001.SFC
AERMOD	Seminole03_99_CO.USF	CO	1-HR	ALL	1ST	416.81	491019.3	3184408	5.81	ORLANDO_1999.SFC
AERMOD	Seminole03_03_CO.USF	CO	1-HR	ALL	1ST	414.20	491019.3	3184408	5.81	ORLANDO_2003.SFC
AERMOD	Seminole03_00_CO.USF	CO	1-HR	ALL	1ST	413.29	491019.3	3184408	5.81	ORLANDO_2000.SFC
AERMOD	Seminole03_01_CO.USF	CO	1-HR	FLARES	1ST	14.75	492194	3184476	5.88	ORLANDO_2001.SFC
AERMOD	Seminole03_02_CO.USF	CO	1-HR	FLARES	1ST	14.12	492194	3184476	5.88	ORLANDO_2002.SFC
AERMOD	Seminole03_00_CO.USF	CO	1-HR	FLARES	1ST	13.53	492194	3184476	5.88	ORLANDO_2000.SFC
AERMOD	Seminole03_99_CO.USF	CO	1-HR	FLARES	1ST	13.00	492194	3184379	6	ORLANDO_1999.SFC
AERMOD	Seminole03_03_CO.USF	CO	1-HR	FLARES	1ST	11.32	492194	3184379	6	ORLANDO_2003.SFC
AERMOD	Seminole03_02_CO.USF	CO	1-HR	SEMNRG	1ST	421.26	491019.3	3184408	5.81	ORLANDO_2002.SFC
AERMOD	Seminole03_01_CO.USF	CO	1-HR	SEMNRG	1ST	419.83	491019.3	3184408	5.81	ORLANDO_2001.SFC
AERMOD	Seminole03_99_CO.USF	CO	1-HR	SEMNRG	1ST	416.67	491019.3	3184408	5.81	ORLANDO_1999.SFC
AERMOD	Seminole03_03_CO.USF	CO	1-HR	SEMNRG	1ST	414.16	491019.3	3184408	5.81	ORLANDO_2003.SFC
AERMOD	Seminole03_00_CO.USF	CO	1-HR	SEMNRG	1ST	413.21	491019.3	3184408	5.81	ORLANDO_2000.SFC

Appendix I-4

AERMOD Modeling Results (CO 8-Hour Significant Impact Analysis)

Model	File	Pollutant	Average	Group	Rank	Conc.	East(X)	North(Y)	Elev	Met File
AERMOD	Seminole03_01_CO.USF	CO	8-HR	ALL	1ST	281.04	491019.3	3184408	5.81	ORLANDO_2001.SFC
AERMOD	Seminole03_03_CO.USF	CO	8-HR	ALL	1ST	279.06	491130	3184248	6	ORLANDO_2003.SFC
AERMOD	Seminole03_00_CO.USF	CO	8-HR	ALL	1ST	278.28	490964	3184488	5.8	ORLANDO_2000.SFC
AERMOD	Seminole03_99_CO.USF	CO	8-HR	ALL	1ST	227.80	491074.7	3184328	5.95	ORLANDO_1999.SFC
AERMOD	Seminole03_02_CO.USF	CO	8-HR	ALL	1ST	217.15	491074.7	3184328	5.95	ORLANDO_2002.SFC
AERMOD	Seminole03_03_CO.USF	CO	8-HR	FLARES	1ST	6.10	492194	3184088	6.36	ORLANDO_2003.SFC
AERMOD	Seminole03_99_CO.USF	CO	8-HR	FLARES	1ST	5.73	491874	3185028	4.53	ORLANDO_1999.SFC
AERMOD	Seminole03_02_CO.USF	CO	8-HR	FLARES	1ST	5.51	492194	3184476	5.88	ORLANDO_2002.SFC
AERMOD	Seminole03_01_CO.USF	CO	8-HR	FLARES	1ST	5.51	492194	3184476	5.88	ORLANDO_2001.SFC
AERMOD	Seminole03_00_CO.USF	CO	8-HR	FLARES	1ST	4.81	492300	3184400	6.03	ORLANDO_2000.SFC
AERMOD	Seminole03_01_CO.USF	CO	8-HR	SEMNRG	1ST	280.49	491019.3	3184408	5.81	ORLANDO_2001.SFC
AERMOD	Seminole03_03_CO.USF	CO	8-HR	SEMNRG	1ST	279.06	491130	3184248	6	ORLANDO_2003.SFC
AERMOD	Seminole03_00_CO.USF	CO	8-HR	SEMNRG	1ST	276.61	490964	3184488	5.8	ORLANDO_2000.SFC
AERMOD	Seminole03_99_CO.USF	CO	8-HR	SEMNRG	1ST	227.59	491074.7	3184328	5.95	ORLANDO_1999.SFC
AERMOD	Seminole03_02_CO.USF	CO	8-HR	SEMNRG	1ST	217.14	491074.7	3184328	5.95	ORLANDO_2002.SFC

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AERMOD Modeling Results (PM_{10} Annual Significant Impact Analysis)

Model	File	Pollutant	Average	Group	Rank	Conc.	East(X)	North(Y)	Elev	Met File
AERMOD	Seminole03_01_PM10.USF	PM10	PERIOD	ALL	1ST	1.50	491019.3	3184408	5.81	ORLANDO_2001.SFC
AERMOD	Seminole03_02_PM10.USF	PM10	PERIOD	ALL	1ST	1.50	491019.3	3184408	5.81	ORLANDO_2002.SFC
AERMOD	Seminole03_03_PM10.USF	PM10	PERIOD	ALL	1ST	1.50	491019.3	3184408	5.81	ORLANDO_2003.SFC
AERMOD	Seminole03_00_PM10.USF	PM10	PERIOD	ALL	1ST	1.37	491019.3	3184408	5.81	ORLANDO_2000.SFC
AERMOD	Seminole03_99_PM10.USF	PM10	PERIOD	ALL	1ST	1.20	491074.7	3184328	5.95	ORLANDO_1999.SFC
AERMOD	Seminole03_03_PM10.USF	PM10	PERIOD	FLARES	1ST	0.017	492014	3184908	4.9	ORLANDO_2003.SFC
AERMOD	Seminole03_99_PM10.USF	PM10	PERIOD	FLARES	1ST	0.016	492288.3	3184475	6	ORLANDO_1999.SFC
AERMOD	Seminole03_00_PM10.USF	PM10	PERIOD	FLARES	1ST	0.016	492288.3	3184475	6	ORLANDO_2000.SFC
AERMOD	Seminole03_01_PM10.USF	PM10	PERIOD	FLARES	1ST	0.016	492288.3	3184475	6	ORLANDO_2001.SFC
AERMOD	Seminole03_02_PM10.USF	PM10	PERIOD	FLARES	1ST	0.016	492288.3	3184475	6	ORLANDO_2002.SFC
AERMOD	Seminole03_01_PM10.USF	PM10	PERIOD	SEMNRG	1ST	1.49	491019.3	3184408	5.81	ORLANDO_2001.SFC
AERMOD	Seminole03_02_PM10.USF	PM10	PERIOD	SEMNRG	1ST	1.49	491019.3	3184408	5.81	ORLANDO_2002.SFC
AERMOD	Seminole03_03_PM10.USF	PM10	PERIOD	SEMNRG	1ST	1.49	491019.3	3184408	5.81	ORLANDO_2003.SFC
AERMOD	Seminole03_00_PM10.USF	PM10	PERIOD	SEMNRG	1ST	1.36	491019.3	3184408	5.81	ORLANDO_2000.SFC
AERMOD	Seminole03_99_PM10.USF	PM10	PERIOD	SEMNRG	1ST	1.19	491074.7	3184328	5.95	ORLANDO_1999.SFC

AERMOD Modeling Results (PM_{10} 24-Hour Significant Impact Analysis)

Model	File	Pollutant	Average	Group	Rank	Conc.	East(X)	North(Y)	Elev	Met File
AERMOD	Seminole03_03_PM10.USF	PM10	24-HR	ALL	1ST	16.89	491019.3	3184408	5.81	ORLANDO_2003.SFC
AERMOD	Seminole03_03_PM10.USF	PM10	24-HR	SEMNRG	1ST	16.83	491019.3	3184408	5.81	ORLANDO_2003.SFC
AERMOD	Seminole03_03_PM10.USF	PM10	24-HR	FLARES	1ST	0.384	492194	3184476	5.88	ORLANDO_2003.SFC

APPENDIX I-5

DATA FOR BACKGROUND EMISSION SOURCES INCLUDED IN THE MULTISOURCE MODEL

Appendix I-5
Background Emission Sources

Facility ID	Facility	Owner/Company Name	East (m)	North (m)	PM_{10} (tpy)	NO_X (tpy)	SO2 (tpy)	Distance (km)	Radius of SI	20D Value	Interacting Source?
0830070	FGTC01	Florida Gas Transmission Company	418800	3240900		789	14	91.80	0.9	1818	No
0830070	FGTC02	Florida Gas Transmission Company	418802	3240900		46	10	91.80	0.9	1818	No
0830070	FGTC03	Florida Gas Transmission Company	418804	3240900	17	62	16	91.80	0.9	1818	No
1050061	HHFP01	Holly Hills Fruit Products	441000	3115400			92	85.44	0.9	1691	No
1050014	SSS01	Standard Sand & Silica Co.	442800	3117300		10		82.85	0.9	1639	No
1050014	SSS02	Standard Sand & Silica Co.	442802	3117300		35	96	82.85	0.9	1639	No
1050014	SSS03	Standard Sand & Silica Co.	442804	3117300		68	409	82.84	0.9	1639	No
0090112	RACP01	R. A. Connor Paving, Inc.	527770	3110290		201		82.72	0.9	1636	No
0090021	UAFP01	US Air Force/Patrick AFB	538800	3120800		38	129	79.50	0.9	1572	No
0090049	APAC01	APAC-Southeast Inc. Central Fl. Division	532600	3120600	86	197	147	76.13	0.9	1505	No
0970077	FLGC01	Florida Gas Transmission Company	442220	3128490		66	9	74.44	0.9	1471	No
0970014	FPCD01	Florida Power Corporation	446300	3126000		12973	9574	73.78	0.9	1458	Yes
0970014	FPCD02	Florida Power Corporation	446302	3126000	389	5061	3949	73.78	0.9	1458	Yes
0970014	FPCD03	Florida Power Corporation	446304	3126000	136	3097	678	73.77	0.9	1457	Yes
0970014	FPCD04	Florida Power Corporation	446306	3126000	104	2117	1801	73.77	0.9	1457	Yes
0970071	REF01	Reliant Energy Florida, L.L.C.	490430	3111310	688	5214	1377	73.20	0.9	1446	Yes
0970034	CARG01	Cargill, Inc.	452170	3124790	39	15	79	71.36	0.9	1409	No
0970007	SVC01	SVC Manufacturing, Inc.	451100	3125800		22	22	71.12	0.9	1404	No
0970043	KUA01	Kissimmee Utility Authority	449810	3127900	195	803	88	70.15	0.9	1385	No
0970043	KUA02	Kissimmee Utility Authority	449812	3127900		1352	228	70.15	0.9	1385	No
0970043	KUA03	Kissimmee Utility Authority	449814	3127900		775	421	70.15	0.9	1385	No
0951219	OPC01	Orlando Paving Company	437870	3139970	34	82	61	69.51	0.9	1372	No
0090015	GIV01	Good IV - TKLC, INC.	529900	3127300		28	0	69.05	0.9	1363	No
0690008	EPWG01	Eagle Picher, Ind. (Wolverince Gasket Div.)	424200	3194100		10		67.72	0.9	1336	No
0970032	STS01	Soil Treatment Services	455500	3127100		44		67.63	0.9	1335	No
0690014	SSC01	Silver Springs Citrus, Inc.	424440	3176540		51	217	67.27	0.9	1327	No
0690014	SSC02	Silver Springs Citrus, Inc.	424442	3176540		18		67.27	0.9	1327	No
0690014	SSC03	Silver Springs Citrus, Inc.	424444	3176540		20		67.27	0.9	1327	No
0950111	WDWC01	Walt Disney World Company	442000	3139000		13		67.05	0.9	1323	No
0950111	WDWC02	Walt Disney World Company	442002	3139000	90	1105	125	67.05	0.9	1323	No
0950111	WDWC03	Walt Disney World Company	442004	3139000	2	23		67.05	0.9	1323	No
0950111	WDWC04	Walt Disney World Company	442006	3139000		2037	525	67.05	0.9	1323	Yes
0090029	COT01	Coastal Terminals, LLC	538900	3141900		8	22	63.93	0.9	1261	No
0090029	COT02	Coastal Terminals, LLC	538902	3141900		5	16	63.93	0.9	1261	No
0090029	COT03	Coastal Terminals, LLC	538904	3141900		13	45	63.93	0.9	1261	No

Appendix I-5
Background Emission Sources

Facility ID	Facility	Owner/Company Name	East (m)	North (m)	PM_{10} (tpy)	NO_X (tpy)	SO2 (tpy)	Distance (km)	Radius of SI	20D Value	Interacting Source?
0970001	KUT01	Kissimmee Utility Authority	460100	3129300		35	129	63.39	0.9	1250	No
0970001	KUT02	Kissimmee Utility Authority	460102	3129300		226	243	63.39	0.9	1250	No
0970001	KUT03	Kissimmee Utility Authority	460104	3129300		74	73	63.38	0.9	1250	No
0970001	KUT04	Kissimmee Utility Authority	460106	3129300		1029	1117	63.38	0.9	1250	No
0690039	CAMP01	C A Meyer Paving & Construction Co.	433600	3158300	17	27	110	63.32	0.9	1248	No
0690039	CAMP02	C A Meyer Paving & Construction Co.	433602	3158300		123	95	63.32	0.9	1248	No
0090012	OUC01	Orlando Utilities Commission	537800	3142200		27	138	62.91	0.9	1240	No
0090113	FPL01	Florida Power & Light	537600	3142000		27	152	62.90	0.9	1240	No
0970002	SCCP01	St Cloud City Power Plant	471800	3124900	7	556	14	62.70	0.9	1236	No
0970002	SCCP02	St Cloud City Power Plant	471802	3124900	95	880	117	62.70	0.9	1236	No
0970002	SCCP03	St Cloud City Power Plant	471804	3124900			19	62.70	0.9	1236	No
0970005	FDOA01	Florida Dept. of Agriculture	459510	3133290		4		60.25	0.9	1187	No
0970030	ASEI01	APAC-Southeast Inc Central Fl. Division	461000	3132700		121	333	59.99	0.9	1182	No
0090005	UAFC01	US Air Force/Cape Canaveral AFS	540810	3151870	10	5	28	59.35	0.9	1169	No
0090005	UAFC02	US Air Force/Cape Canaveral AFS	540812	3151870			14	59.35	0.9	1169	No
0090005	UAFC03	US Air Force/Cape Canaveral AFS	540814	3151870			6	59.35	0.9	1169	No
0090005	UAFC04	US Air Force/Cape Canaveral AFS	540816	3151870			8	59.36	0.9	1169	No
0694801	LILP01	Lake Investment, L.P.	434000	3198800	306	3866	1467	59.00	0.9	1162	Yes
1270031	HPI01	Halifax Paving, Inc.	489240	3242810		87	125	58.33	0.9	1149	No
1270031	HPI02	Halifax Paving, Inc.	489242	3242810		158	232	58.33	0.9	1149	No
0950213	SWOF01	Sea World of Florida, Inc.	454900	3142500			3	55.55	0.9	1093	No
0090180	OPP01	Oleander Power Project, LP	520100	3137600	292	7119	1905	55.08	0.9	1084	Yes
0950053	LDCI01	Louis Dreyfus Citrus, Inc.	443800	3159500		23	99	53.63	0.9	1055	No
0950053	LDCI02	Louis Dreyfus Citrus, Inc.	443802	3159500		118	504	53.63	0.9	1055	No
0950053	LDCI03	Louis Dreyfus Citrus, Inc.	443804	3159500		75	424	53.63	0.9	1055	No
0950053	LDCI04	Louis Dreyfus Citrus, Inc.	443806	3159500	52	81	1293	53.62	0.9	1054	Yes
0950046	LHM01	Lockheed Martin Missiles & Fire Control	454500	3146200		6		53.08	0.9	1044	No
0950046	LHM02	Lockheed Martin Missiles & Fire Control	454502	3146200		6		53.08	0.9	1044	No
0090104	VPI01	VA Paving Inc.	522030	3142280		19	105	52.26	0.9	1027	No
0090051	NASA01	NASA	534200	3155000		39		52.12	0.9	1024	No
0090051	NASA02	NASA	534202	3155000		14	5	52.12	0.9	1024	No
0090051	NASA03	NASA	534204	3155000		3840		52.12	0.9	1024	Yes
0090051	NASA04	NASA	534206	3155000		47	17	52.12	0.9	1024	No
0090051	NASA05	NASA	534208	3155000		9	3	52.13	0.9	1025	No
0090051	NASA06	NASA	534210	3155000	19	53	19	52.13	0.9	1025	No

Appendix I-5
Background Emission Sources

Facility ID	Facility	Owner/Company Name	East (m)	North (m)	PM_{10} (tpy)	NO_X (tpy)	SO2 (tpy)	Distance (km)	Radius of SI	20D Value	Interacting Source?
0090051	NASA07	NASA	534212	3155000		4		52.13	0.9	1025	No
0690067	NOPI01	Natural Organic Products International	439150	3184640		9		52.09	0.9	1024	No
0950044	SPC01	Sonoco Products Co.	460700	3142400		147		52.02	0.9	1022	No
0950125	FPS01	FP Spiralkote Inc.	461370	3142050		3		51.91	0.9	1020	No
0950055	ICSF01	ICS-FL, LLC	439800	3178100		5		51.84	0.9	1019	No
1270090	IFI01	Imperial Foam & Insulation MFG. Co.	485000	3235600		3	10	51.47	0.9	1011	No
0950022	MCI01	Metro Crematory Inc.	446900	3158800		2		51.25	0.9	1007	No
0950182	CFF01	Central Florida Fuels, Inc.	446000	3160600		3	3	51.17	0.9	1005	No
0950168	JPBS01	Jancy Pet Burial Service	440300	3181300		11		51.04	0.9	1003	No
0950230	CRC01	Complete Resources Co.	461710	3143120		3		50.84	0.9	999	No
0090069	BCBC01	Brevard County Board of Commisioners	516300	3140400		15		50.73	0.9	997	No
0950068	MM01	Monterey Mushrooms	441380	3180200		31	28	50.05	0.9	983	No
0950203	OCL01	Orlando Cogen Limited, L.P.	459500	3146100	45	302	12	49.83	0.9	979	No
0950190	FGCO01	Florida Gas Transmission Company	451800	3154800		848	14	49.38	0.9	970	No
0950190	FGCO02	Florida Gas Transmission Company	451802	3154800	4	46	2	49.38	0.9	970	No
0950190	FGCO03	Florida Gas Transmission Company	451804	3154800	2	25	8	49.37	0.9	969	No
0950276	WMP01	Woodlawn Memorial Park and Funeral	450570	3156650		3		49.30	0.9	968	No
1270006	DWP01	D&W Paving	496400	3233300		5		49.06	0.9	963	No
1270011	HHS01	Halifax Humane Society	494810	3233160		4		48.78	0.9	958	No
7775087	INDE01	Independence Excavatinc, Inc.	463690	3144260	18			48.78	0.9	958	No
0950136	TCI01	Trailer Conditioners, Inc.	464100	3144300		3		48.51	0.9	952	No
0950136	TCI02	Trailer Conditioners, Inc.	464102	3144300	13			48.51	0.9	952	No
0090006	FPL01	Florida Power & Light (PCC)	522900	3148900		15859	96362	47.65	0.9	935	Yes
0950031	OPC01	Orlando Paving Company	463270	3146010		109	102	47.59	0.9	934	No
0950149	GMG01	Greenbrier Memorial Gardens	444230	3180710		10	7	47.16	0.9	925	No
1270074	CCI01	Crane Cams Inc.	491900	3231600		2		47.09	0.9	924	No
0950251	ACC01	ACCO	445330	3174150		23	8	47.06	0.9	923	No
0950184	GOAA01	Greater Orlando Aviation Authority	467300	3145000		3929	258	46.20	0.9	906	Yes
0950184	GOAA02	Greater Orlando Aviation Authority	467302	3145000		23	47	46.20	0.9	906	No
0950184	GOAA03	Greater Orlando Aviation Authority	467304	3145000		3	3	46.19	0.9	906	No
1270010	HMC01	Halifax Medical Center	494800	3230100		31		45.73	0.9	897	No
0950169	STI01	Stericycle Inc.	449500	3168000	6	21		44.89	0.9	880	No
0090196	REF01	Reliant Energy Florida, L.L.C.	521500	3151600	1105	5854	34314	44.71	0.9	876	Yes
0090196	REF02	Reliant Energy Florida, L.L.C.	521502	3151600	1185	6263	36723	44.71	0.9	876	Yes
0090008	OUC01	Orlando Utilities Commission	521300	3151700	90	1696	1251	44.50	0.9	872	Yes

Appendix I-5
Background Emission Sources

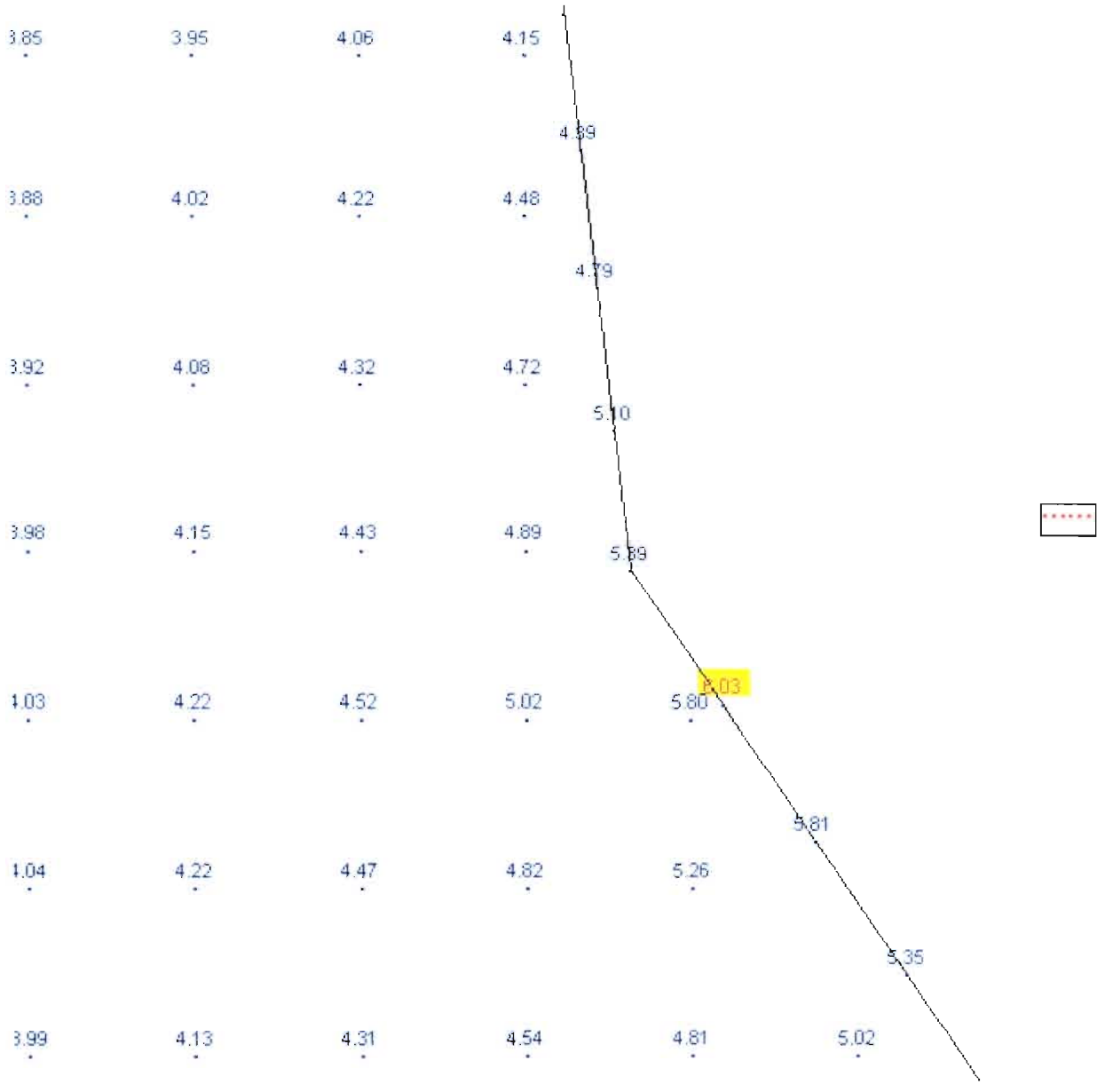
Facility ID	Facility	Owner/Company Name	East (m)	North (m)	PM_{10} (tpy)	NO_X (tpy)	SO2 (tpy)	Distance (km)	Radius of SI	20D Value	Interacting Source?
0090008	OUC02	Orlando Utilities Commission	521302	3151700	994	3205	3817	44.50	0.9	872	Yes
0950088	KBN01	Kerry's Bromeliad Nursery FKA Fernlea	451100	3167700		50	301	43.52	0.9	852	No
0950088	KBN02	Kerry's Bromeliad Nursery FKA Fernlea	451102	3167700			605	43.52	0.9	852	No
0950058	ABC01	A1 Block Corp.	462500	3155000		4		41.19	0.9	806	No
0950050	HCC01	Hydro Conduit Corp.	454600	3167800			7	40.27	0.9	787	No
7775075	ARM01	Angelo's Recycled Materials, Inc.	454870	3167860		80		40.00	0.9	782	No
0950156	OPC01	Orlando Paving Co.	455800	3167100		162	186	39.49	0.9	772	No
0950078	FL01	Frito-Lay	459550	3161010		26		39.45	0.9	771	No
0090043	ASO01	Astrotech Space Operations, Inc.	517400	3155700		2		38.91	0.9	760	No
1270117	VSWM01	Volusia Solid Waste Management Division	490210	3222890		47	29	38.39	0.9	750	No
1270117	VSWM02	Volusia Solid Waste Management Division	490212	3222890		88	22	38.39	0.9	750	No
0950063	FH01	Florida Hospital	463800	3160700		16		36.33	0.9	709	No
0950137	OUC01	Orlando Utilities Commission	483500	3150600		58	185	34.78	0.9	678	No
0950137	OUC02	Orlando Utilities Commission	483502	3150600	1025	3505	2343	34.78	0.9	678	Yes
0950137	OUC03	Orlando Utilities Commission	483504	3150600	375	25716	67393	34.78	0.9	678	Yes
1270003	NSBU01	New Smyrna Beach Utilities	505760	3214800		178		33.59	0.9	654	No
0950014	FBCD01	Florida Power Corp.	475200	3156800		661	1092	32.02	0.9	622	Yes
1270034	MFC01	Mid Florida Crematory	474500	3211000		2		31.34	0.9	609	No
1270004	NSBP01	New Smyrna Beach Power Plant	507700	3209800		170	9	30.17	0.9	585	No
1270004	NSBP02	New Smyrna Beach Power Plant	507702	3209800		1087	56	30.18	0.9	586	Yes
1270004	NSBP03	New Smyrna Beach Power Plant	507704	3209800		653	34	30.18	0.9	586	Yes
1270164	UCNS01	Utilities Commission, City of New Smyrna	506670	3209540	179	946	180	29.40	0.9	570	Yes
1270028	FPCO01	Florida Power Corp.	467500	3197200	809	14480	25754	26.92	0.9	520	Yes
1270028	FPCO02	Florida Power Corp.	467502	3197200	263	5113	19447	26.92	0.9	520	Yes
1270009	FPL01	Florida Power & Light (PSN)	468300	3190300	350	12071	1868	23.66	0.9	455	Yes
1270009	FPL02	Florida Power & Light (PSN)	468302	3190300		3228	19874	23.66	0.9	455	Yes
1270085	SIS01	Stationary Incinerator Services	506500	3201800		88	2	23.06	0.9	443	No
1170027	FEI01	Florida Extruders International Inc.	471100	3186300		22		20.22	0.9	386	No
1270020	FPCB01	Florida Power Corp.	473400	3193300	634	6858	5431	19.89	0.9	380	Yes
1170030	OPC01	Orlando Paving Co.	471800	3184700	31	96	102	19.44	0.9	371	No
1170018	DC01	Datamax Corp.	474800	3181300		2		16.75	0.9	317	No

Appendix I-5
Background Emission Sources Included in the Multisource Model

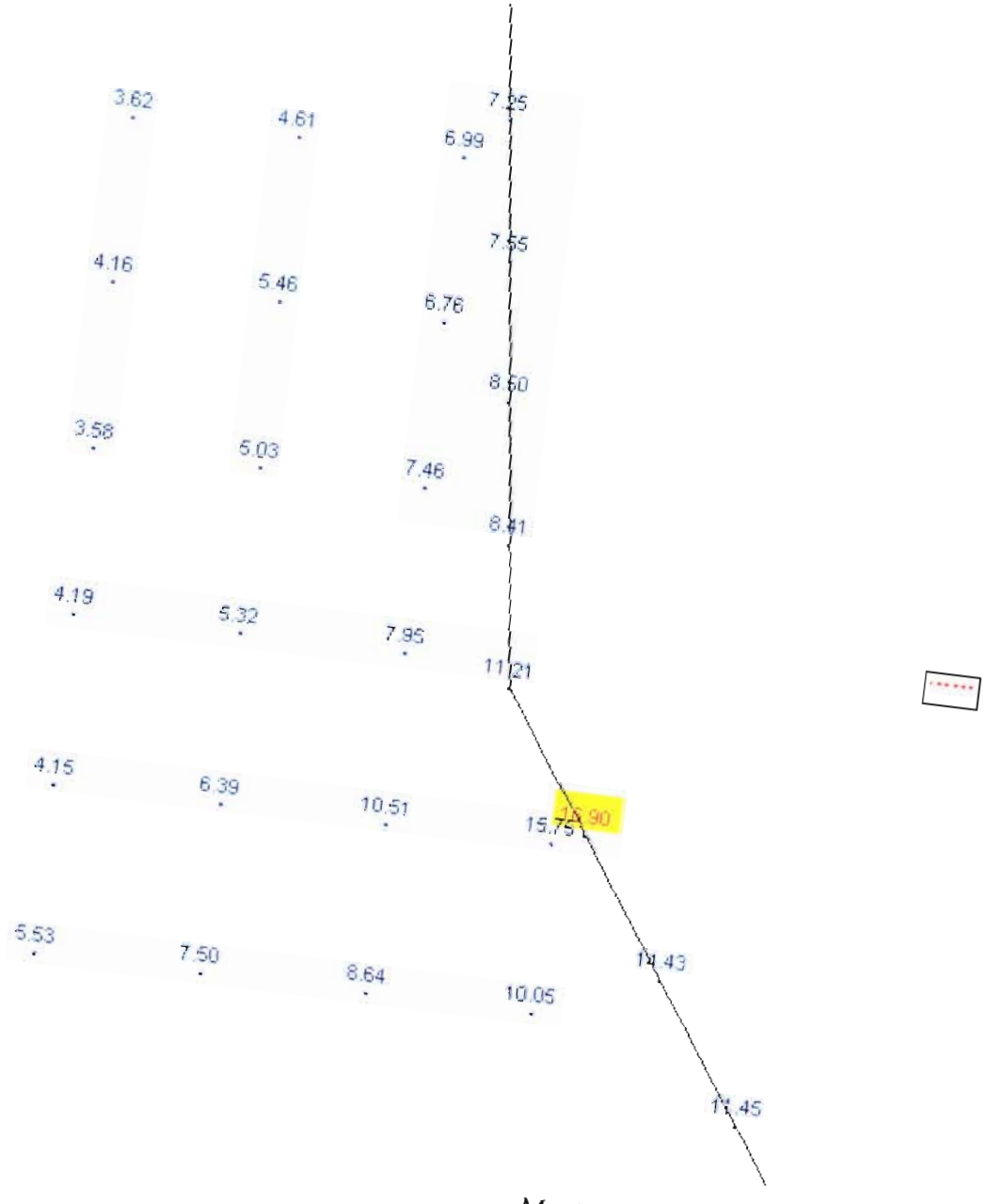
Facility ID	Facility	Owner/Company Name	East (m)	North (m)	Stack Ht (m)	Exit Temp (K)	Velocity (m/s)	Diam (m)	PM_{10} (g/s)	NO_X (g/s)	SO2 (g/s)	Distance (km)
0970014	FPCD01	Florida Power Corporation	446300	3126000	13.7	677.4	53.3	4.46		373.20	275.40	73.78
0970014	FPCD02	Florida Power Corporation	446302	3126000	15.2	834.7	53.1	4.19	11.20	145.60	113.60	73.78
0970014	FPCD03	Florida Power Corporation	446304	3126000	17.1	806.9	35.8	4.91	3.90	89.10	19.50	73.77
0970014	FPCD04	Florida Power Corporation	446306	3126000	22.9	829.7	42.5	5.79	3.00	60.90	51.80	73.77
0970071	REF01	Reliant Energy Florida, L.L.C.	490430	3111310	22.9	857.4	49.2	5.49	19.80	150.00	39.60	73.20
0950111	WDWC04	Walt Disney World Co.	442006	3139000	19.8	413.6	15.8	3.38		58.60	15.10	67.05
0694801	LILP01	Lake Investment, LP	434000	3198800	24.4	298.0	0.2	3.05	8.80	111.20	42.20	59.00
0090180	OPP01	Oleander Power Project, LP	520100	3137600	18.3	874.7	34.3	6.71	8.40	204.80	54.80	55.08
0950053	LDCI04	Louis Dreyfus Citrus, Inc.	443806	3159500	37.8	349.7	14.9	1.19	1.49	2.33	37.20	53.62
0090051	NASA03	NASA	534204	3155000	6.7	810.8	22.0	0.30		110.47		52.12
0090006	FPL01	Florida Power & Light (PCC)	522900	3148900	121.0	414.7	22.4	5.70		456.20	2772.00	47.65
0950184	GOAA01	Greater Orlando Aviation Authority	467300	3145000	4.6	388.6	3.9	0.30		113.02	7.43	46.20
0090196	REF01	Reliant Energy Florida, L.L.C.	521500	3151600	91.4	435.8	26.2	4.27	31.80	168.40	987.10	44.71
0090196	REF02	Reliant Energy Florida, L.L.C.	521502	3151600	91.4	444.1	32.7	4.30	34.09	180.16	1056.39	44.71
0090008	OUC01	Orlando Utilities Commission	521300	3151700	11.0	830.2	33.3	3.77	2.60	48.80	36.00	44.50
0090008	OUC02	Orlando Utilities Commission	521302	3151700	15.5	813.6	26.1	6.74	28.60	92.20	109.80	44.50
0950137	OUC02	Orlando Utilities Commission	483502	3150600	48.8	414.7	22.9	5.79	29.48	100.83	67.41	34.78
0950137	OUC03	Orlando Utilities Commission	483504	3150600	167.6	324.1	23.5	5.79	10.80	739.76	1938.68	34.78
0950014	FBCD01	Florida Power Corporation	475200	3156800	12.5	788.6	41.8	2.50		19.01	31.41	32.02
1270004	NSBP02	New Smyrna Beach Power Plant	507702	3209800	10.7	699.7	55.2	0.15		31.27	1.62	30.18
1270004	NSBP03	New Smyrna Beach Power Plant	507704	3209800	12.2	644.1	100.6	0.37		18.78	0.97	30.18
1270164	UCNS01	Utilities Commision, New Smyrna	506670	3209540	12.8	751.9	20.4	4.11	5.14	27.22	5.19	29.40
1270028	FPCO01	Florida Power Corporation	467500	3197200	13.7	838.6	52.9	5.39	23.29	416.55	740.87	26.92
1270028	FPCO02	Florida Power Corporation	467502	3197200	15.2	834.7	53.1	4.19	7.56	147.10	559.43	26.92
1270009	FPL01	Florida Power & Light (PSN)	468300	3190300	38.1	377.4	21.4	5.79	10.08	347.25	53.73	23.66
1270009	FPL02	Florida Power & Light (PSN)	468302	3190300	92.0	421.9	46.7	2.90		92.86	571.72	23.66
1270020	FPCB01	Florida Power Corporation	473400	3193300	12.5	788.6	40.8	3.75	18.25	197.29	156.24	19.89

APPENDIX I-6

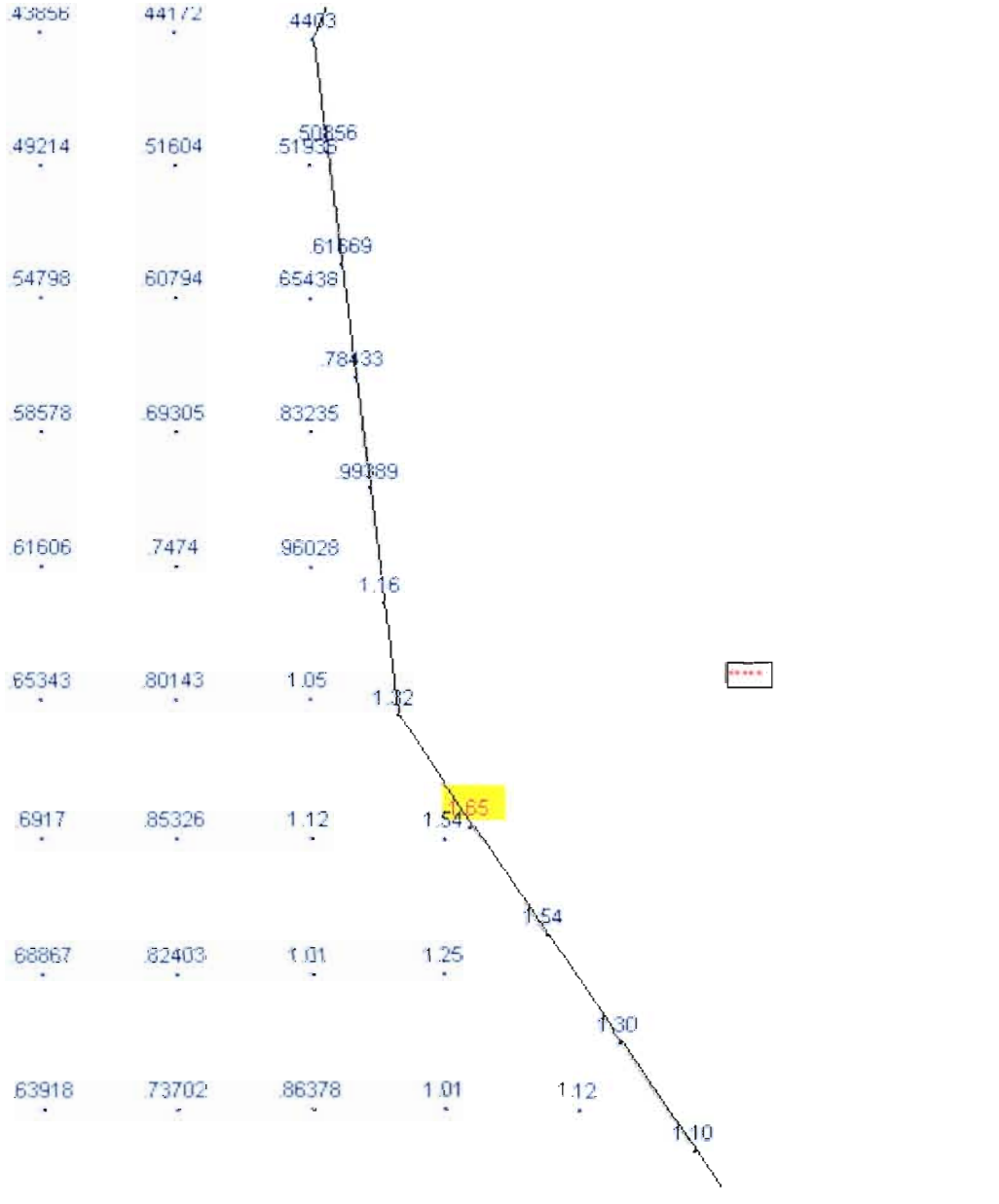
RESULTS OF PSD INCREMENT CONSUMPTION ANALYSIS



Maximum NO_X Annual



Maximum PM_{10} 24-Hour



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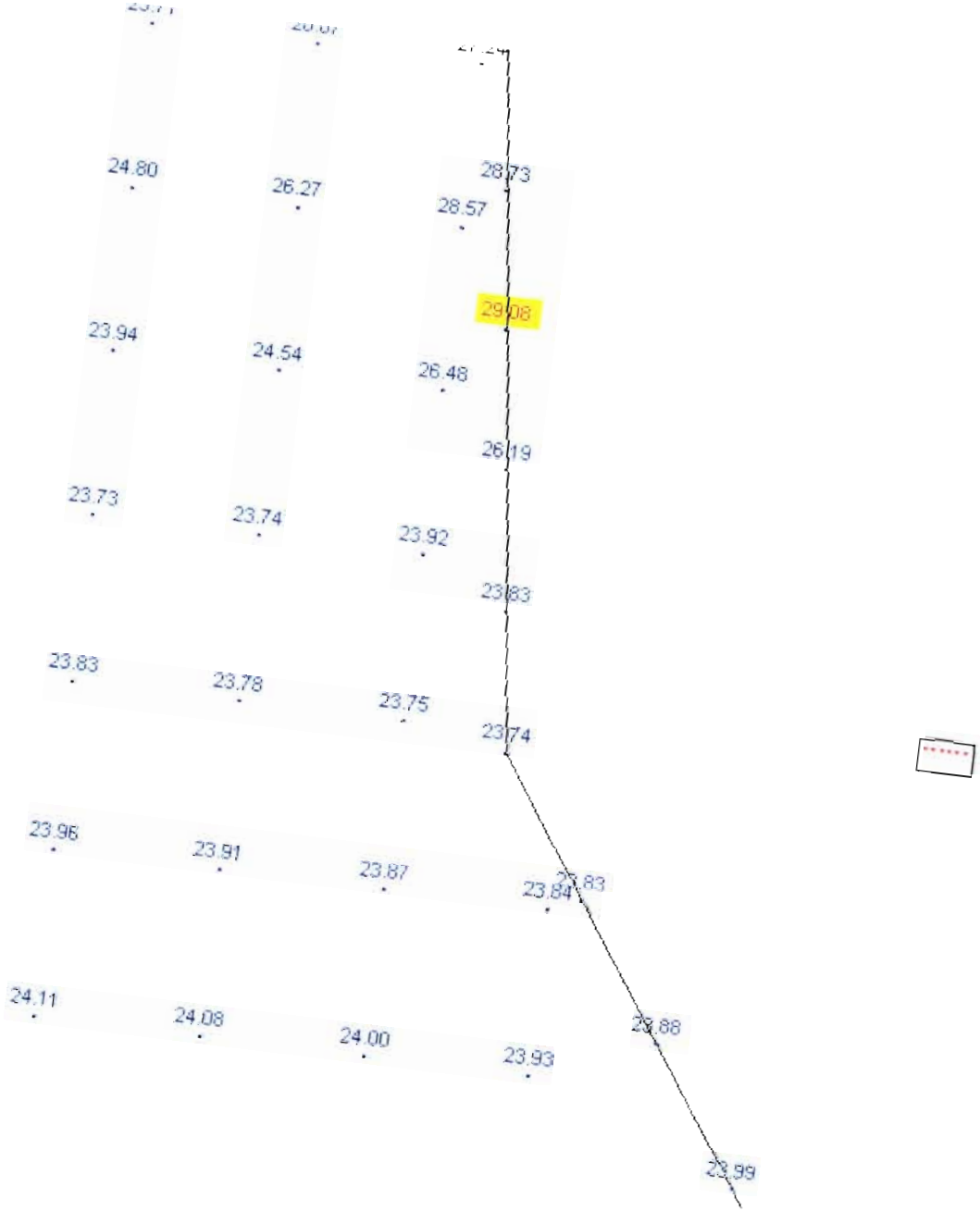
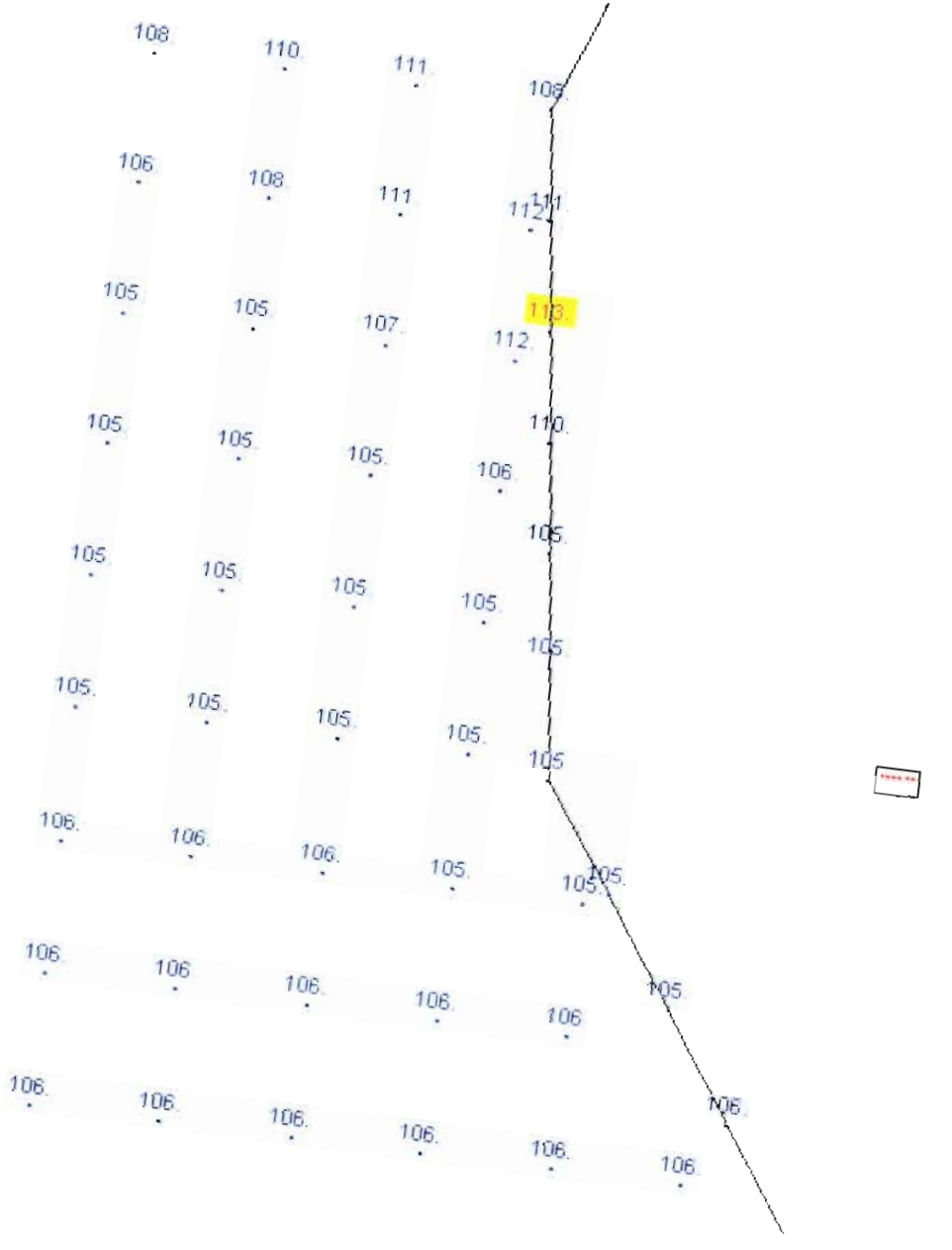


SO_2 24-Hour 2nd High



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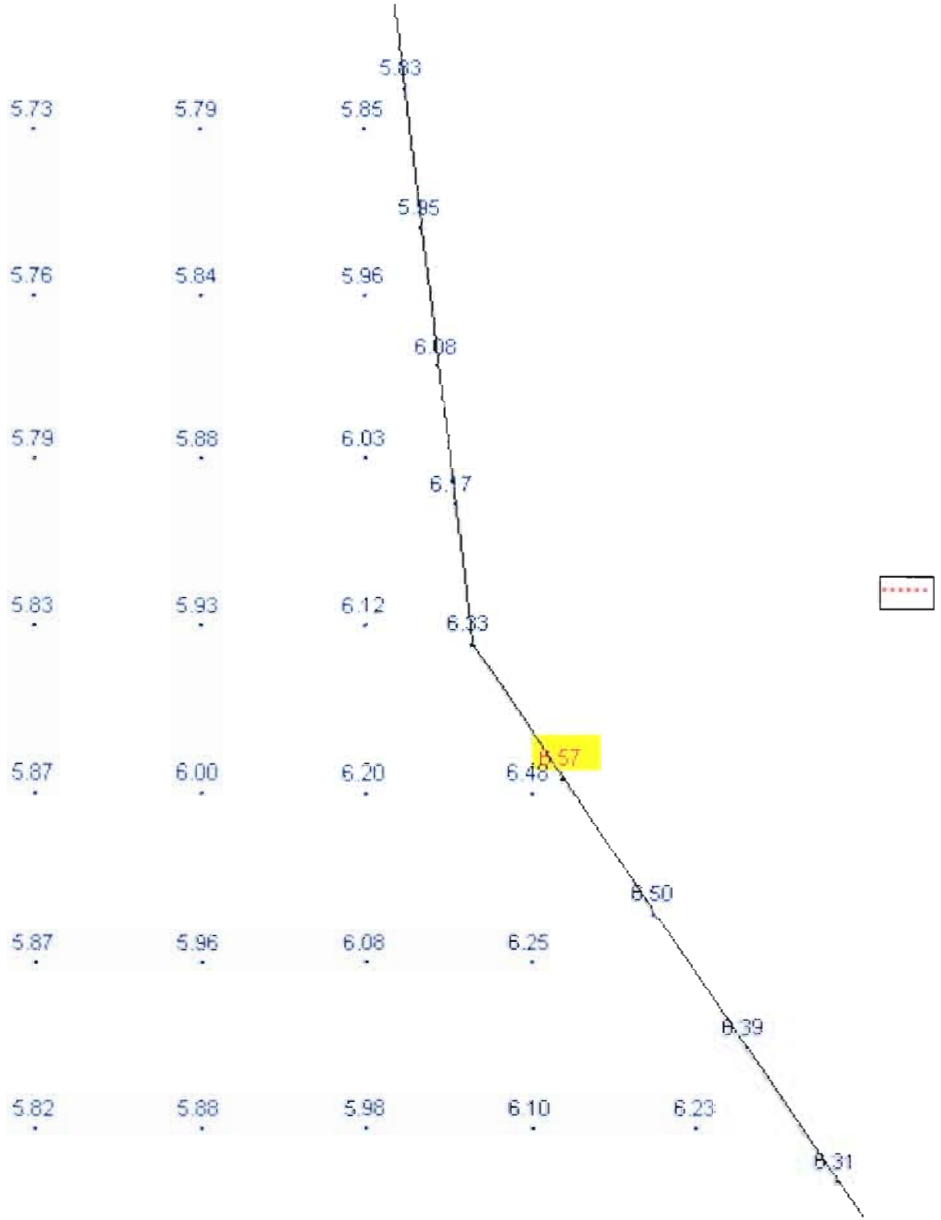

Maximum SO_2 Annual

Appendix I-6

AERMOD Modeling Results (NO_X Annual PSD Increment Consumption Analysis)

Model	File	Pollutant	Average	Group	Rank	Conc.	East(X)	North(Y)	Elev	Met File
AERMOD	Seminole03a_01_NOX.USF	NOX	ANNUAL	ALL	1ST	6.03	491019.3	3184408	5.81	ORLANDO_2001.SFC
AERMOD	Seminole03a_00_NOX.USF	NOX	ANNUAL	ALL	1ST	5.99	491019.3	3184408	5.81	ORLANDO_2000.SFC
AERMOD	Seminole03a_02_NOX.USF	NOX	ANNUAL	ALL	1ST	5.87	491019.3	3184408	5.81	ORLANDO_2002.SFC
AERMOD	Seminole03a_99_NOX.USF	NOX	ANNUAL	ALL	1ST	5.54	491074.7	3184328	5.95	ORLANDO_1999.SFC
AERMOD	Seminole03a_03_NOX.USF	NOX	ANNUAL	ALL	1ST	5.38	491074.7	3184328	5.95	ORLANDO_2003.SFC
AERMOD	Seminole03a_00_NOX.USF	NOX	ANNUAL	BGSOURCE	1ST	3.42	490800	3184200	6	ORLANDO_2000.SFC
AERMOD	Seminole03a_03_NOX.USF	NOX	ANNUAL	BGSOURCE	1ST	3.42	489800	3183900	7	ORLANDO_2003.SFC
AERMOD	Seminole03a_99_NOX.USF	NOX	ANNUAL	BGSOURCE	1ST	3.34	490000	3185500	4.5	ORLANDO_1999.SFC
AERMOD	Seminole03a_01_NOX.USF	NOX	ANNUAL	BGSOURCE	1ST	3.27	490100	3183400	7	ORLANDO_2001.SFC
AERMOD	Seminole03a_02_NOX.USF	NOX	ANNUAL	BGSOURCE	1ST	3.25	492000	3183500	5.3	ORLANDO_2002.SFC
AERMOD	Seminole03a_03_NOX.USF	NOX	ANNUAL	FLARES	1ST	0.046	492014	3184908	4.9	ORLANDO_2003.SFC
AERMOD	Seminole03a_99_NOX.USF	NOX	ANNUAL	FLARES	1ST	0.044	492288.3	3184475	6	ORLANDO_1999.SFC
AERMOD	Seminole03a_00_NOX.USF	NOX	ANNUAL	FLARES	1ST	0.043	492194	3184476	5.88	ORLANDO_2000.SFC
AERMOD	Seminole03a_01_NOX.USF	NOX	ANNUAL	FLARES	1ST	0.042	492014	3184908	4.9	ORLANDO_2001.SFC
AERMOD	Seminole03a_02_NOX.USF	NOX	ANNUAL	FLARES	1ST	0.042	492014	3184908	4.9	ORLANDO_2002.SFC
AERMOD	Seminole03a_01_NOX.USF	NOX	ANNUAL	SEMNRG	1ST	2.79	491019.3	3184408	5.81	ORLANDO_2001.SFC
AERMOD	Seminole03a_02_NOX.USF	NOX	ANNUAL	SEMNRG	1ST	2.61	491019.3	3184408	5.81	ORLANDO_2002.SFC
AERMOD	Seminole03a_00_NOX.USF	NOX	ANNUAL	SEMNRG	1ST	2.56	491019.3	3184408	5.81	ORLANDO_2000.SFC
AERMOD	Seminole03a_99_NOX.USF	NOX	ANNUAL	SEMNRG	1ST	2.24	491074.7	3184328	5.95	ORLANDO_1999.SFC
AERMOD	Seminole03a_03_NOX.USF	NOX	ANNUAL	SEMNRG	1ST	2.03	491074.7	3184328	5.95	ORLANDO_2003.SFC

Appendix I-6

AERMOD Modeling Results (SO_2 Annual PSD Increment Consumption Analysis)

Model	File	Pollutant	Average	Group	Rank	Conc.	East(X)	North(Y)	Elev	Met File
AERMOD	Seminole03a_00_SO2.USF	SO2	ANNUAL	ALL	1ST	6.57	491019.3	3184408	5.81	ORLANDO_2000.SFC
AERMOD	Seminole03a_02_SO2.USF	SO2	ANNUAL	ALL	1ST	6.56	491019.3	3184408	5.81	ORLANDO_2002.SFC
AERMOD	Seminole03a_01_SO2.USF	SO2	ANNUAL	ALL	1ST	6.49	491019.3	3184408	5.81	ORLANDO_2001.SFC
AERMOD	Seminole03a_03_SO2.USF	SO2	ANNUAL	ALL	1ST	6.48	491074.7	3184328	5.95	ORLANDO_2003.SFC
AERMOD	Seminole03a_99_SO2.USF	SO2	ANNUAL	ALL	1ST	6.17	491074.7	3184328	5.95	ORLANDO_1999.SFC
AERMOD	Seminole03a_03_SO2.USF	SO2	ANNUAL	BGSOURCE	1ST	5.66	489800	3183900	7	ORLANDO_2003.SFC
AERMOD	Seminole03a_02_SO2.USF	SO2	ANNUAL	BGSOURCE	1ST	5.56	490500	3183100	6.8	ORLANDO_2002.SFC
AERMOD	Seminole03a_00_SO2.USF	SO2	ANNUAL	BGSOURCE	1ST	5.50	491200	3183000	5.8	ORLANDO_2000.SFC
AERMOD	Seminole03a_01_SO2.USF	SO2	ANNUAL	BGSOURCE	1ST	5.38	490200	3183300	7	ORLANDO_2001.SFC
AERMOD	Seminole03a_99_SO2.USF	SO2	ANNUAL	BGSOURCE	1ST	5.24	489900	3185300	6.1	ORLANDO_1999.SFC
AERMOD	Seminole03a_03_SO2.USF	SO2	ANNUAL	FLARES	1ST	0.015	492014	3184908	4.9	ORLANDO_2003.SFC
AERMOD	Seminole03a_99_SO2.USF	SO2	ANNUAL	FLARES	1ST	0.014	492288.3	3184475	6	ORLANDO_1999.SFC
AERMOD	Seminole03a_00_SO2.USF	SO2	ANNUAL	FLARES	1ST	0.014	492194	3184476	5.88	ORLANDO_2000.SFC
AERMOD	Seminole03a_01_SO2.USF	SO2	ANNUAL	FLARES	1ST	0.014	492014	3184908	4.9	ORLANDO_2001.SFC
AERMOD	Seminole03a_02_SO2.USF	SO2	ANNUAL	FLARES	1ST	0.013	492014	3184908	4.9	ORLANDO_2002.SFC
AERMOD	Seminole03a_01_SO2.USF	SO2	ANNUAL	SEMNRG	1ST	1.21	491019.3	3184408	5.81	ORLANDO_2001.SFC
AERMOD	Seminole03a_02_SO2.USF	SO2	ANNUAL	SEMNRG	1ST	1.13	491019.3	3184408	5.81	ORLANDO_2002.SFC
AERMOD	Seminole03a_00_SO2.USF	SO2	ANNUAL	SEMNRG	1ST	1.11	491019.3	3184408	5.81	ORLANDO_2000.SFC
AERMOD	Seminole03a_99_SO2.USF	SO2	ANNUAL	SEMNRG	1ST	0.968	491074.7	3184328	5.95	ORLANDO_1999.SFC
AERMOD	Seminole03a_03_SO2.USF	SO2	ANNUAL	SEMNRG	1ST	0.877	491074.7	3184328	5.95	ORLANDO_2003.SFC

Appendix I-6

AERMOD Modeling Results (SO_2 24-Hour 2nd High PSD Increment Consumption Analysis)

Model	File	Pollutant	Average	Group	Rank	Conc.	East(X)	North(Y)	Elev	Met File
AERMOD	Seminole03a (psd)_00_SO2.USF	SO2	24-HR	ALL	2ND	29.08	490934	3184741	5.67	ORLANDO_2000.SFC
AERMOD	Seminole03a (psd)_01_SO2.USF	SO2	24-HR	ALL	2ND	26.10	490924	3184825	5.51	ORLANDO_2001.SFC
AERMOD	Seminole03a (psd)_03_SO2.USF	SO2	24-HR	ALL	2ND	25.89	490944	3184657	5.82	ORLANDO_2003.SFC
AERMOD	Seminole03a (psd)_99_SO2.USF	SO2	24-HR	ALL	2ND	25.04	490934	3184741	5.67	ORLANDO_1999.SFC
AERMOD	Seminole03a (psd)_02_SO2.USF	SO2	24-HR	ALL	2ND	21.47	490944	3184657	5.82	ORLANDO_2002.SFC
AERMOD	Seminole03a (psd)_00_SO2.USF	SO2	24-HR	BGSOURCE	2ND	25.45	490800	3183000	6	ORLANDO_2000.SFC
AERMOD	Seminole03a (psd)_01_SO2.USF	SO2	24-HR	BGSOURCE	2ND	25.28	492000	3183100	4.5	ORLANDO_2001.SFC
AERMOD	Seminole03a (psd)_99_SO2.USF	SO2	24-HR	BGSOURCE	2ND	24.13	490200	3183300	7	ORLANDO_1999.SFC
AERMOD	Seminole03a (psd)_03_SO2.USF	SO2	24-HR	BGSOURCE	2ND	23.37	492600	3185300	4.47	ORLANDO_2003.SFC
AERMOD	Seminole03a (psd)_02_SO2.USF	SO2	24-HR	BGSOURCE	2ND	20.68	492300	3185700	4.5	ORLANDO_2002.SFC
AERMOD	Seminole03a (psd)_01_SO2.USF	SO2	24-HR	FLARES	2ND	0.198	492194	3184379	6	ORLANDO_2001.SFC
AERMOD	Seminole03a (psd)_02_SO2.USF	SO2	24-HR	FLARES	2ND	0.162	492300	3184400	6.03	ORLANDO_2002.SFC
AERMOD	Seminole03a (psd)_03_SO2.USF	SO2	24-HR	FLARES	2ND	0.150	492149.6	3183999	6.29	ORLANDO_2003.SFC
AERMOD	Seminole03a (psd)_99_SO2.USF	SO2	24-HR	FLARES	2ND	0.140	492194	3184379	6	ORLANDO_1999.SFC
AERMOD	Seminole03a (psd)_00_SO2.USF	SO2	24-HR	FLARES	2ND	0.134	492154	3184788	4.91	ORLANDO_2000.SFC
AERMOD	Seminole03a (psd)_03_SO2.USF	SO2	24-HR	SEMNRG	2ND	10.20	491074.7	3184328	5.95	ORLANDO_2003.SFC
AERMOD	Seminole03a (psd)_01_SO2.USF	SO2	24-HR	SEMNRG	2ND	10.13	491019.3	3184408	5.81	ORLANDO_2001.SFC
AERMOD	Seminole03a (psd)_99_SO2.USF	SO2	24-HR	SEMNRG	2ND	9.12	491074.7	3184328	5.95	ORLANDO_1999.SFC
AERMOD	Seminole03a (psd)_00_SO2.USF	SO2	24-HR	SEMNRG	2ND	8.58	491185.3	3184168	6	ORLANDO_2000.SFC
AERMOD	Seminole03a (psd)_02_SO2.USF	SO2	24-HR	SEMNRG	2ND	7.07	491074.7	3184328	5.95	ORLANDO_2002.SFC

Appendix I-6

AERMOD Modeling Results (SO_2 3-Hour 2nd High PSD Increment Consumption Analysis)

Model	File	Pollutant	Average	Group	Rank	Conc.	East(X)	North(Y)	Elev	Met File
AERMOD	Seminole03a (psd)_01_SO2.USF	SO2	3-HR	ALL	2ND	113.20	490924	3184825	5.51	ORLANDO_2001.SFC
AERMOD	Seminole03a (psd)_99_SO2.USF	SO2	3-HR	ALL	2ND	100.11	492700	3183900	5	ORLANDO_1999.SFC
AERMOD	Seminole03a (psd)_02_SO2.USF	SO2	3-HR	ALL	2ND	98.64	491100	3183000	6	ORLANDO_2002.SFC
AERMOD	Seminole03a (psd)_03_SO2.USF	SO2	3-HR	ALL	2ND	98.59	490500	3183100	6.8	ORLANDO_2003.SFC
AERMOD	Seminole03a (psd)_00_SO2.USF	SO2	3-HR	ALL	2ND	87.61	492500	3185500	4.48	ORLANDO_2000.SFC
AERMOD	Seminole03a (psd)_01_SO2.USF	SO2	3-HR	BGSOURCE	2ND	108.41	491700	3183000	4.5	ORLANDO_2001.SFC
AERMOD	Seminole03a (psd)_99_SO2.USF	SO2	3-HR	BGSOURCE	2ND	100.10	492700	3183900	5	ORLANDO_1999.SFC
AERMOD	Seminole03a (psd)_02_SO2.USF	SO2	3-HR	BGSOURCE	2ND	98.64	491100	3183000	6	ORLANDO_2002.SFC
AERMOD	Seminole03a (psd)_03_SO2.USF	SO2	3-HR	BGSOURCE	2ND	98.58	490500	3183100	6.8	ORLANDO_2003.SFC
AERMOD	Seminole03a (psd)_00_SO2.USF	SO2	3-HR	BGSOURCE	2ND	87.59	492500	3185500	4.48	ORLANDO_2000.SFC
AERMOD	Seminole03a (psd)_02_SO2.USF	SO2	3-HR	FLARES	2ND	0.500	492194	3184476	5.88	ORLANDO_2002.SFC
AERMOD	Seminole03a (psd)_99_SO2.USF	SO2	3-HR	FLARES	2ND	0.487	492194	3184476	5.88	ORLANDO_1999.SFC
AERMOD	Seminole03a (psd)_03_SO2.USF	SO2	3-HR	FLARES	2ND	0.475	492194	3184185	6.03	ORLANDO_2003.SFC
AERMOD	Seminole03a (psd)_01_SO2.USF	SO2	3-HR	FLARES	2ND	0.473	492194	3184476	5.88	ORLANDO_2001.SFC
AERMOD	Seminole03a (psd)_00_SO2.USF	SO2	3-HR	FLARES	2ND	0.427	492288.3	3184475	6	ORLANDO_2000.SFC
AERMOD	Seminole03a (psd)_01_SO2.USF	SO2	3-HR	SEMNRG	2ND	25.84	491019.3	3184408	5.81	ORLANDO_2001.SFC
AERMOD	Seminole03a (psd)_03_SO2.USF	SO2	3-HR	SEMNRG	2ND	23.39	491074.7	3184328	5.95	ORLANDO_2003.SFC
AERMOD	Seminole03a (psd)_02_SO2.USF	SO2	3-HR	SEMNRG	2ND	22.11	491019.3	3184408	5.81	ORLANDO_2002.SFC
AERMOD	Seminole03a (psd)_00_SO2.USF	SO2	3-HR	SEMNRG	2ND	21.79	491074.7	3184328	5.95	ORLANDO_2000.SFC
AERMOD	Seminole03a (psd)_99_SO2.USF	SO2	3-HR	SEMNRG	2ND	21.63	491074.7	3184328	5.95	ORLANDO_1999.SFC

Appendix I-6

AERMOD Modeling Results (PM_{10} Annual PSD Increment Consumption Analysis)

Model	File	Pollutant	Average	Group	Rank	Conc.	East(X)	North(Y)	Elev	Met File
AERMOD	Seminole03a_01_PM10.USF	PM10	PERIOD	ALL	1ST	1.65	491019.3	3184408	5.81	ORLANDO_2001.SFC
AERMOD	Seminole03a_02_PM10.USF	PM10	PERIOD	ALL	1ST	1.65	491019.3	3184408	5.81	ORLANDO_2002.SFC
AERMOD	Seminole03a_03_PM10.USF	PM10	PERIOD	ALL	1ST	1.65	491019.3	3184408	5.81	ORLANDO_2003.SFC
AERMOD	Seminole03a_00_PM10.USF	PM10	PERIOD	ALL	1ST	1.54	491019.3	3184408	5.81	ORLANDO_2000.SFC
AERMOD	Seminole03a_99_PM10.USF	PM10	PERIOD	ALL	1ST	1.36	491074.7	3184328	5.95	ORLANDO_1999.SFC
AERMOD	Seminole03a_01_PM10.USF	PM10	PERIOD	SEMNRG	1ST	1.49	491019.3	3184408	5.81	ORLANDO_2001.SFC
AERMOD	Seminole03a_02_PM10.USF	PM10	PERIOD	SEMNRG	1ST	1.49	491019.3	3184408	5.81	ORLANDO_2002.SFC
AERMOD	Seminole03a_03_PM10.USF	PM10	PERIOD	SEMNRG	1ST	1.49	491019.3	3184408	5.81	ORLANDO_2003.SFC
AERMOD	Seminole03a_00_PM10.USF	PM10	PERIOD	SEMNRG	1ST	1.36	491019.3	3184408	5.81	ORLANDO_2000.SFC
AERMOD	Seminole03a_99_PM10.USF	PM10	PERIOD	SEMNRG	1ST	1.19	491074.7	3184328	5.95	ORLANDO_1999.SFC
AERMOD	Seminole03a_03_PM10.USF	PM10	PERIOD	FLARES	1ST	0.017	492014	3184908	4.9	ORLANDO_2003.SFC
AERMOD	Seminole03a_99_PM10.USF	PM10	PERIOD	FLARES	1ST	0.016	492288.3	3184475	6	ORLANDO_1999.SFC
AERMOD	Seminole03a_00_PM10.USF	PM10	PERIOD	FLARES	1ST	0.016	492288.3	3184475	6	ORLANDO_2000.SFC
AERMOD	Seminole03a_01_PM10.USF	PM10	PERIOD	FLARES	1ST	0.016	492288.3	3184475	6	ORLANDO_2001.SFC
AERMOD	Seminole03a_02_PM10.USF	PM10	PERIOD	FLARES	1ST	0.016	492288.3	3184475	6	ORLANDO_2002.SFC
AERMOD	Seminole03a_03_PM10.USF	PM10	PERIOD	BGSOURCE	1ST	0.171	490700	3186000	4.1	ORLANDO_2003.SFC
AERMOD	Seminole03a_00_PM10.USF	PM10	PERIOD	BGSOURCE	1ST	0.170	489800	3185100	6.3	ORLANDO_2000.SFC
AERMOD	Seminole03a_01_PM10.USF	PM10	PERIOD	BGSOURCE	1ST	0.170	489800	3185100	6.3	ORLANDO_2001.SFC
AERMOD	Seminole03a_02_PM10.USF	PM10	PERIOD	BGSOURCE	1ST	0.170	489800	3185100	6.3	ORLANDO_2002.SFC
AERMOD	Seminole03a_99_PM10.USF	PM10	PERIOD	BGSOURCE	1ST	0.164	490700	3186000	4.1	ORLANDO_1999.SFC

AERMOD Modeling Results (PM_{10} 24-Hour PSD Increment Consumption Analysis)

Model	File	Pollutant	Average	Group	Rank	Conc.	East(X)	North(Y)	Elev	Met File
AERMOD	Seminole03a_03_PM10.USF	PM10	24-HR	ALL	1ST	16.901	491019.3	3184408	5.81	ORLANDO_2003.SFC
AERMOD	Seminole03a_03_PM10.USF	PM10	24-HR	SEMNRG	1ST	16.833	491019.3	3184408	5.81	ORLANDO_2003.SFC
AERMOD	Seminole03a_03_PM10.USF	PM10	24-HR	FLARES	1ST	0.3835	492194	3184476	5.88	ORLANDO_2003.SFC
AERMOD	Seminole03a_03_PM10.USF	PM10	24-HR	BGSOURCE	1ST	0.9163	489900	3183700	7	ORLANDO_2003.SFC

Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Colleen M. Castille
Secretary

July 13, 2006

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Scott Salisbury
Seminole Energy, L.L.C.
29261 Wall Street
Wixom, Michigan 48393

Re: DEP File No. 1170084-005-AC (PSD-FL-376)
Seminole Energy – Installation of six (6) reciprocating internal combustion engines

Dear Mr. Salisbury:

Enclosed are comments submitted by the Environmental Protection Agency (EPA), Region 4, in regards to the completeness issues for this project. Please submit the information as requested by EPA to the Department's Bureau of Air Regulation. We are still awaiting comments from U.S. Fish and Wildlife Service, which will be forwarded to you if we receive them.

The Department will resume processing this application after receipt of the requested information. Rule 62-4.050(3), F.A.C. requires that all applications for a Department permit must be certified by a professional engineer registered in the State of Florida. This requirement also applies to responses to Department requests for additional information of an engineering nature. A new certification statement by the authorized representative or responsible official must accompany any material changes to the application. Rule 62-4.055(1), F.A.C. now requires applicants to respond to requests for information within 90 days.

If you have any questions regarding this matter, please call Mr. Syed Arif, P.E. at 850/921-9528 or Mr. James Purvis of EPA at 404/562-9139.

Sincerely,

Syed Arif, P.E.
Bureau of Air Regulation

/sa

Enclosure

cc: G. Worley, EPA Region 4
J. Bunyak, NPS
L. Kozlov, DEP-CD
J. Pope, P.E., Clayton Group Services, Inc.

Arif, Syed

From: Purvis.James@epamail.epa.gov
Sent: Wednesday, July 12, 2006 12:08 PM
To: Arif, Syed
Cc: Little.James@epamail.epa.gov; Forney.Kathleen@epamail.epa.gov; Worley.Gregg@epamail.epa.gov
Subject: Seminole Electric LFG project

- Can the source owner provide data supporting the claim that the source can not meet a lower particulate emission rate such as the one taken and operated successfully at Bio Energy Texas utilizing the same ICs?

- The source owner has used AP-42 emission factors to estimate PTE of HCl from the project and found that potential to be 10.9 TPY HCl.
However, the source owner states its parent company, Landfill Energy Systems has historical or test data available that shows the use of
AP-42 factors largely overestimates actual expected emissions. Does the source owner have available supporting data that could correlate emissions from these mentioned facilities and the site for the proposed project? Please explain the approach taken. If use of AP-42 factors is preferred by the source, an operating restriction to limit emissions to 10 TPY HCl is necessary to ensure enforcibility of this condition.

- The source has used AP-42 emission factors to estimate sulfur content of LFG onsite but references findings from parent company sulfur content analysis being available. Can the source owner perform sulfur analysis of LFG onsite? Can the source owner explain how it anticipates showing compliance?

James D Purvis
Environmental Engineer
EPA Region IV
Air, Pesticides & Toxics Management Division - Air Permitting Section

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1. Article Addressed to:

Mr. Scott Salisbury
Seminole Energy, L.L.C.
29261 Wall Street
Wixom, Michigan 48393

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A. Signature
X Diane Lehr ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* Diane Lehr | C. Date of Delivery 7-20-06

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

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City, State, ZIP+4
Wixom, Michigan 48393

PS Form 3800, June 2002 See Reverse for Instructions

Derenzo and Associates, Inc.
Environmental Consultants

June 7, 2006

Mr. Syed Arif, P.E.
Bureau of Air Regulation
Division of Air Resource Management
Department of Environmental Protection
STATE OF FLORIDA
2600 Blair Stone Road, MS 5505
Tallahassee, FL 32399-2400

Subject: Seminole Energy, L.L.C.
DEP File No. 1170084-005-AC (PSD-FL-376)
Response to May 16, 2006 request for information

Dear Mr. Arif:

Derenzo and Associates, Inc. (Derenzo and Associates), on behalf of Seminole Energy, L.L.C (Seminole Energy), is submitting to the Florida Department of Environmental Protection, Division of Air Resource Management (FDEP-DARM) information that was requested by the regulatory agency on May 16, 2006.

Attachment A provides for reference the May 16, FDEP-DARM communication.

Item 1 – 40 CFR 63, Part AAAA Applicability

The Osceola Road Solid Waste Management Facility (landfill):

1. Has a design capacity that is equal to or greater than 2.5 million megagrams (Mg) and 2.5 million cubic meters (m^3).

2. Non-methane organic compound (NMOC) emissions are calculated to be equal to or greater than 50 megagrams per year (Mg/yr) and have been collected and controlled since 1999.

3. Is subject to the requirements of the MSW landfill NSPS (40 CFR Part 60, subpart WWW).

National Emission Standards for Hazardous Air Pollutants; Municipal Solid Waste Landfill (40 CFR Part 63, Subpart AAAA) contains the same requirements as the EG/NSPS (40 CFR Part 60, subpart Cc and WWW), plus startup, shutdown malfunction (SSM) definition and reporting of deviations for out-of-range monitoring parameters. The final rule requires compliance reporting every 6 months while the EG/NSPS requires annual reporting. A MSW

landfill is subject to this subpart if it accepted waste since November 8, 1987 or has additional capacity for waste deposition and meets any one of the following three criteria. The MSW landfill is:

1. A major source as defined in 40 CFR 63.2 of subpart A (i.e., potential individual HAPs equal to or greater than 10 tons per year or combined HAPs equal to or greater than 25 tons per year).

2. Collocated with a major source as defined in 40 CFR 63.2 of subpart A.

3. An area source landfill that has design capacity equal to or greater than 2.5 million Mg and 2.5 million m^3 and has estimated uncontrolled emissions equal to or greater than 50 Mg/yr.

Attachment B provides the Osceola Road Solid Waste Management Facility Statement of Basis for Title V Operating Permit revisions that incorporate an additional landfill gas flaring system, requirements of 40 CFR Part 63, Subpart AAAA, and to add facility-wide individual and combined hazardous air pollutant (HAP) emissions limits to establish the facility as a synthetic minor for HAPs.

Derenzo and Associates is a contractor for Seminole Energy not Seminole County. Therefore, the applicable requirements of the Tile V Operating Permit issued (or planned to be issued) the Osceola Road Solid Waste Management Facility should be obtained from the appropriate Seminole County representatives.

Item 2 – Osceola Road Solid Waste Management Facility Approvals

Seminole Energy has requested that the Primary Responsible Official for the Osceola Road Solid Waste Management Facility (Mr. David Gregory) prepare for submittal to the FDEP-DARM a document that specifies Seminole Energy has the approval of Seminole County to construct and operate the proposed LFG fueled electricity generation facility at the Osceola Road Solid Waste Management Facility. It is expected that this document will be available for submittal to appropriate FDEP-DARM representatives in the near future.

Item 3 – Equipment Purchase/Ownership

Seminole Energy will purchase, pay for and own all of the equipment installed and operated at the proposed electricity generation facility.

Item 4 – Staged Equipment Installation

Seminole Energy (i.e., the owner of the proposed electricity generation facility at the landfill stationary source) is:

1. Aware that it may be required to demonstrate the adequacy of any previous determination of best available control technology (BACT) for the source: and

2. Willing to adhere to permit conditions that specify the FDEP-DARM may require BACT be reviewed and modified as appropriate at the latest reasonable time which occurs no later than 18 months prior to the commencement of construction of each independent phase of the project as required by Rule 62-212.400(10)(d) and specified in 40 CFR 52.21(j)(4).

Item 5 – Engine AP-42 PM_{10} Emission Calculations

Table 2.4-5 of *Compilation of Air Pollutant Emission Factors Volume I: Stationary Point and Area Sources, Fifth Edition* (USEPA AP-42) presents a particulate matter emission factor for LFG fueled IC Engines of 48 pounds per million dscf of methane.

Base load operations for a CAT 3520 engine that has a higher heating value (HHV) of approximately 14.9 MMBtu/hr are required to be fueled with a gas that contains 14,764.6 dscf/hr of methane based on a methane HHV of 1010 Btu/scf.

(14,912,226 Btu/hr HHV) / (1010 Btu/scf methane) = 14,764.6 dscf/hr methane

(14,764.6 dscf/hr methane) (48 lb. particulate /10^6 dscf methane) = 0.709 lb/hr. particulate

The Bio Energy Texas permit indicates that its CAT 3520 engines have a bake horsepower (bhp) rating of 2172.

Therefore, the gram/bhp-hr (g/bhp-hr) particulate (PM_{10}) emission rate is:

(0.709 lb/hr. particulate) (453 grams/lb) / 2172 hp = 0.148 g/bhp-hr

The Seminole Energy permit application presents CAT 3520 engine specification data that indicate the LHV input capacity of the equipment is 14.11 MMbtu/hr (15.68 MMBtu/hr HHV) and bhp rating is 2233 (which is slightly higher than the information specified for the Bio Energy Texas equipment).

Item 6 – Proposed Project Ambient Air Impact Analyses

Analyses are currently being performed to complete the ambient air quality impact demonstrations that are required by the regulatory agency for the proposed LFG fueled electricity generation processes. It is expected that these analyses will be submitted to appropriate FDEP-DARM representatives in the near future.

Seminole Energy appreciates the consideration of the FDEP-DARM of the information that is presented in this document.

Please contact us if you have questions or require additional information.

Sincerely,

DERENZO AND ASSOCIATES, INC.

David R. Derenzo
Services Director

c: Bill Owen, Landfill Energy Systems
C. Halladay
J. Konfow, CD
M. Worley, EPA
Q. Bennett, NPS

ATTACHMENT A

May 16, 2006 FDEP-DARM Communication

RECEIVED MAY 19 2006

Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Colleen M. Castille
Secretary

May 16, 2006

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CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Scott Salisbury
Seminole Energy, L.L.C.
29261 Wall Street
Wixom, Michigan 48393

Re: DEP File No. 1170084-005-AC (PSD-FL-376)
Seminole Energy – Installation of six (6) reciprocating internal combustion engines

Dear Mr. Salisbury:

The Department has received the application on April 18, 2006, to allow Seminole Energy to construct and operate an electric generation facility at the Osceola Road Solid Waste Management Facility in Seminole County. Based on our initial review of the proposed project, we have determined that additional information is needed in order to continue processing this application package. Please submit the information requested below to the Department's Bureau of Air Regulation:

1. The application in Section 3.3 states that the Seminole County (Board of County Commissioners) has submitted an application for revisions to the Title V Operating Permit. The application incorporates the requirements of 40 CFR 63, Part AAAA as well as establishing the facility as a synthetic minor for HAPS. Please explain the applicability of 40 CFR 63, Part AAAA if the facility is synthetic minor for HAPS. Does the landfill have a design capacity equal to or greater than 2.5 million megagrams and 2.5 million cubic meters and has estimated uncontrolled NMOC emissions equal to or greater than 50 megagrams per year?

2. The application in Section 5.2 states that Seminole Energy is part of the Osceola Road Solid Waste Management Facility and its approved Air Construction Permit is to be incorporated into the Solid Waste Facility Title V Operating Permit. Mr. David Gregory (407-665-2022) of the Solid Waste Division for the Seminole County Environmental Services Department is listed as the Primary Responsible Official for the Osceola Road Solid Waste Management Facility. Please provide a letter signed by him agreeing to be the Primary Responsible Official for the Seminole Energy and the Osceola Road Solid Waste Management Facility.

3. The application states that the electricity generation equipment and processes will be owned and operated by Seminole Energy. Will Seminole Energy, LLC be paying for the six internal combustion engines or will it be paid by the Seminole County?

4. The application indicates that this project could be a phased construction project. Initially only four of the six CAT G3520C gas IC engines will be installed. The remaining two will be installed when sufficient landfill gas is generated to fuel the remaining two engines. Rule 62-212.400(10)(d) requires that the owner or operator of a phased construction project shall adhere to the procedures provided in 40 CFR 52.21(j)(4). Those procedures requires that for phased construction projects, the determination of best available control technology shall be reviewed and modified as appropriate at the latest reasonable time which occurs no later than 18 months prior to commencement of construction of each independent phase of the project. At such time, the owner or operator of the applicable stationary

source may be required to demonstrate the adequacy of any previous determination of best available control technology for the source. Please indicate if the facility will be able to comply with this requirement.

5. In one of the responses to the Department's PM_{10} emission limit issue for the Trail Ridge facility it was indicated that the Bio Energy Texas PM_{10} emission limit was based on AP-42 emission factor. Please calculate based on AP-42 emission factor and show that it equates to 0.148 g/bhp-hr. The BACT PM_{10} emission limit proposed for Seminole Energy is 0.24 g/bhp-hr.

6. The Department has still not received the required air quality analysis and will have an additional 30 days after receiving the modeling information to send any further comments based on the modeling review. Any additional comments from EPA and the U.S. Fish and Wildlife Service will be forwarded to you after we receive them.

The Department will resume processing this application after receipt of the requested information. Rule 62-4.050(3), F.A.C. requires that all applications for a Department permit must be certified by a professional engineer registered in the State of Florida. This requirement also applies to responses to Department requests for additional information of an engineering nature. A new certification statement by the authorized representative or responsible official must accompany any material changes to the application. Rule 62-4.055(1), F.A.C. now requires applicants to respond to requests for information within 90 days.

We will be happy to meet and discuss the details with you and your staff. If you have any questions, I can be contacted at 850/921-9528. You may discuss the modeling requirements with Mr. Cleve Holladay at 850/921-8689.

Sincerely,

Syed Arif

Syed Arif, P.E.
Bureau of Air Regulation

/sa

cc: Len Kozlov, DEP-CD
Jeff Pope, P.E., Clayton Group Services, Inc.
Gregg Worley, EPA Region 4
John Bunyak, NPS

ATTACHMENT B

Osceola Road Solid Waste Management Facility
Statement of Basis
For
Title V Operating Permit Revisions

STATEMENT OF BASIS

Seminole County Board of County Commissioners
Osceola Road Solid Waste Management Facility
Facility ID No.: **1170084**
Seminole County

Title V Air Operation Permit Renewal
DRAFT Permit Project No.: **1170084-003-AV**
Renewal of Title V Air Operation Permit No.: 1170084-001-AV

The initial Title V Air Operation Permit, No. 1170084-001-AV, was issued/effective on August 10, 1998, and the Title V Air Operation Permit Renewal was issued/effective on August 27, 2002. This Title V Air Operation Permit Revision is issued under the provisions of Chapter 403, Florida Statutes (F.S.), and Florida Administrative Code (F.A.C.) Chapters 62-4, 62-210 and 62-213. The above named permittee is hereby authorized to operate the facility shown on the application and approved drawing(s), plans, and other documents, attached hereto or on file with the permitting authority, in accordance with the terms and conditions of this permit.

The subject of this permit is the revision of Title V Air Operation Permit, No. 1170084-003-AV for the purpose of incorporating an additional landfill gas flare system as well as the requirements of 40 CFR, Part 63, Subpart AAAA, and to add facility-wide individual and combined hazardous air pollutant (HAP) emissions limits to establish the facility as a synthetic minor for HAPs. This facility is located at 1930 Osceola Road; UTM Coordinates: Zone 17, 492.00 km East and 3184.50 km North; and, Latitude: 28° 47' 30" North and Longitude: 81° 04' 42" West.

Seminole County operates the Osceola Road Solid Waste Management Facility (landfill) identified as emissions unit 001 (EU –001). This is an active, Class I landfill that began receiving waste in 1970. It has a design capacity of 45,000,000 cubic yards and an average annual yearly waste acceptance rate of 310,000 megagrams. It is also an active asbestos waste disposal site. There is no bioreactor at the landfill. Non-methane organic compound (NMOC) emissions are calculated to be equal to or greater than 50 megagrams per year. Landfill gas emissions have been collected and controlled since 1999. The landfill currently has two candlestick flares. The flares shall be operated with the flame present at all times as determined by a thermocouple, but are not subject to compliance assurance monitoring (CAM) under 40 CFR Part 64.

Based on the Title V Air Operation Permit Revision application received July 22, 2003, the landfill is not a major source of HAPs, but is a major source of non-HAP pollutants.

E.U. 001 The facility is subject to: 40 CFR Part 60, Subparts A (General Provisions) and WWW (Standards of Performance for Municipal Solid Waste Landfills); 40 CFR Part 63, Subparts A (General Provisions) and AAAA (National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills); with the exception of the candlestick flare control system, which shall have no visible emissions per 40 CFR Part 60.18(c)(1), the facility is subject to the General Visible Emissions (VE) limit of less than 20 percent per Rule 62-296.320(4)(b)1., F.A.C., VE testing of the candlestick flare is required annually; the General Volatile Organic Compound (VOC) standard per Rule 62-296.320(1)(a), F.A.C.; and the Objectionable Odor Rule per Rule 62-296.320(2), F.A.C.

Also included in this permit are miscellaneous unregulated/insignificant emissions units and/or activities.

Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Colleen M. Castille
Secretary

May 16, 2006

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Scott Salisbury
Seminole Energy, L.L.C.
29261 Wall Street
Wixom, Michigan 48393

Re: DEP File No. 1170084-005-AC (PSD-FL-376)
Seminole Energy – Installation of six (6) reciprocating internal combustion engines

Dear Mr. Salisbury:

The Department has received the application on April 18, 2006, to allow Seminole Energy to construct and operate an electric generation facility at the Osceola Road Solid Waste Management Facility in Seminole County. Based on our initial review of the proposed project, we have determined that additional information is needed in order to continue processing this application package. Please submit the information requested below to the Department's Bureau of Air Regulation:

1. The application in Section 3.3 states that the Seminole County (Board of County Commissioners) has submitted an application for revisions to the Title V Operating Permit. The application incorporates the requirements of 40 CFR 63, Part AAAA as well as establishing the facility as a synthetic minor for HAPS. Please explain the applicability of 40 CFR 63, Part AAAA if the facility is synthetic minor for HAPS. Does the landfill have a design capacity equal to or greater than 2.5 million megagrams and 2.5 million cubic meters and has estimated uncontrolled NMOC emissions equal to or greater than 50 megagrams per year?

2. The application in Section 5.2 states that Seminole Energy is part of the Osceola Road Solid Waste Management Facility and its approved Air Construction Permit is to be incorporated into the Solid Waste Facility Title V Operating Permit. Mr. David Gregory (407-665-2022) of the Solid Waste Division for the Seminole County Environmental Services Department is listed as the Primary Responsible Official for the Osceola Road Solid Waste Management Facility. Please provide a letter signed by him agreeing to be the Primary Responsible Official for the Seminole Energy and the Osceola Road Solid Waste Management Facility.

3. The application states that the electricity generation equipment and processes will be owned and operated by Seminole Energy. Will Seminole Energy, LLC be paying for the six internal combustion engines or will it be paid by the Seminole County?

4. The application indicates that this project could be a phased construction project. Initially only four of the six CAT G3520C gas IC engines will be installed. The remaining two will be installed when sufficient landfill gas is generated to fuel the remaining two engines. Rule 62-212.400(10)(d) requires that the owner or operator of a phased construction project shall adhere to the procedures provided in 40 CFR 52.21(j)(4). Those procedures requires that for phased construction projects, the determination of best available control technology shall be reviewed and modified as appropriate at the latest reasonable time which occurs no later than 18 months prior to commencement of construction of each independent phase of the project. At such time, the owner or operator of the applicable stationary

source may be required to demonstrate the adequacy of any previous determination of best available control technology for the source. Please indicate if the facility will be able to comply with this requirement.

5. In one of the responses to the Department's PM_{10} emission limit issue for the Trail Ridge facility it was indicated that the Bio Energy Texas PM_{10} emission limit was based on AP-42 emission factor. Please calculate based on AP-42 emission factor and show that it equates to 0.148 g/bhp-hr. The BACT PM_{10} emission limit proposed for Seminole Energy is 0.24 g/bhp-hr.
6. The Department has still not received the required air quality analysis and will have an additional 30 days after receiving the modeling information to send any further comments based on the modeling review. Any additional comments from EPA and the U.S. Fish and Wildlife Service will be forwarded to you after we receive them.

The Department will resume processing this application after receipt of the requested information. Rule 62-4.050(3), F.A.C. requires that all applications for a Department permit must be certified by a professional engineer registered in the State of Florida. This requirement also applies to responses to Department requests for additional information of an engineering nature. A new certification statement by the authorized representative or responsible official must accompany any material changes to the application. Rule 62-4.055(1), F.A.C. now requires applicants to respond to requests for information within 90 days.

We will be happy to meet and discuss the details with you and your staff. If you have any questions, I can be contacted at 850/921-9528. You may discuss the modeling requirements with Mr. Cleve Holladay at 850/921-8689.

Sincerely,

Syed Arif

Syed Arif, P.E.
Bureau of Air Regulation

/sa

cc: Len Kozlov, DEP-CD
Jeff Pope, P.E., Clayton Group Services, Inc.
Gregg Worley, EPA Region 4
John Bunyak, NPS

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Scott Salisbury
Trail Ridge Energy, L.L.C.
29261 Wall Street
Wixom, Michigan 48393

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Diane Lehr ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* Diane Lehr C. Date of Delivery 5-19-06

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Transfer from service label)* 7000 1670 0013 3110 1215

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Trail Ridge Energy, L.L.C.
29261 Wall Street
Wixom, Michigan 48393

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Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Colleen M. Castille
Secretary

April 21, 2006

* Application Scanned on 8/28/07

Mr. Gregg M. Worley, Chief
Air Permits Section
U.S. EPA, Region 4
61 Forsyth Street
Atlanta, Georgia 30303-8960

RE: Seminole Energy, L.L.C.
Osceola Road Waste Management Facility
1170084-005-AC, PSD-FL-376

Dear Mr. Worley:

Enclosed for your review and comment is a PSD application submitted by Seminole Energy, L.L.C., Inc. for a new gas fueled internal combustion engine electricity generation facility at the Osceola Road Waste Management Facility in Seminole County, Florida.

Your comments may be forwarded to my attention at the letterhead address or faxed to the Bureau of Air Regulation at 850/921-9533. If you have any questions, please contact Syed Arif, Review Engineer, at 850/921-9528.

Sincerely,

Patricia G. Adams

for Jeffrey F. Koerner, P.E., Administrator
North Permitting Section

JFK/pa

Enclosure

cc: S. Arif

Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Colleen M. Castille
Secretary

April 21, 2006

Mr. John Bunyak, Chief
Policy, Planning & Permit Review Branch
NPS – Air Quality Division
P. O. Box 25287
Denver, Colorado 80225

RE: Seminole Energy, L.L.C.
Osceola Road Waste Management Facility
1170084-005-AC, PSD-FL-376

Dear Mr. Bunyak:

Enclosed for your review and comment is a PSD application submitted by Seminole Energy, L.L.C., Inc. for a new gas fueled internal combustion engine electricity generation facility at the Osceola Road Waste Management Facility in Seminole County, Florida.

Your comments may be forwarded to my attention at the letterhead address or faxed to the Bureau of Air Regulation at 850/921-9533. If you have any questions, please contact Syed Arif, Review Engineer, at 850/921-9528.

Sincerely,

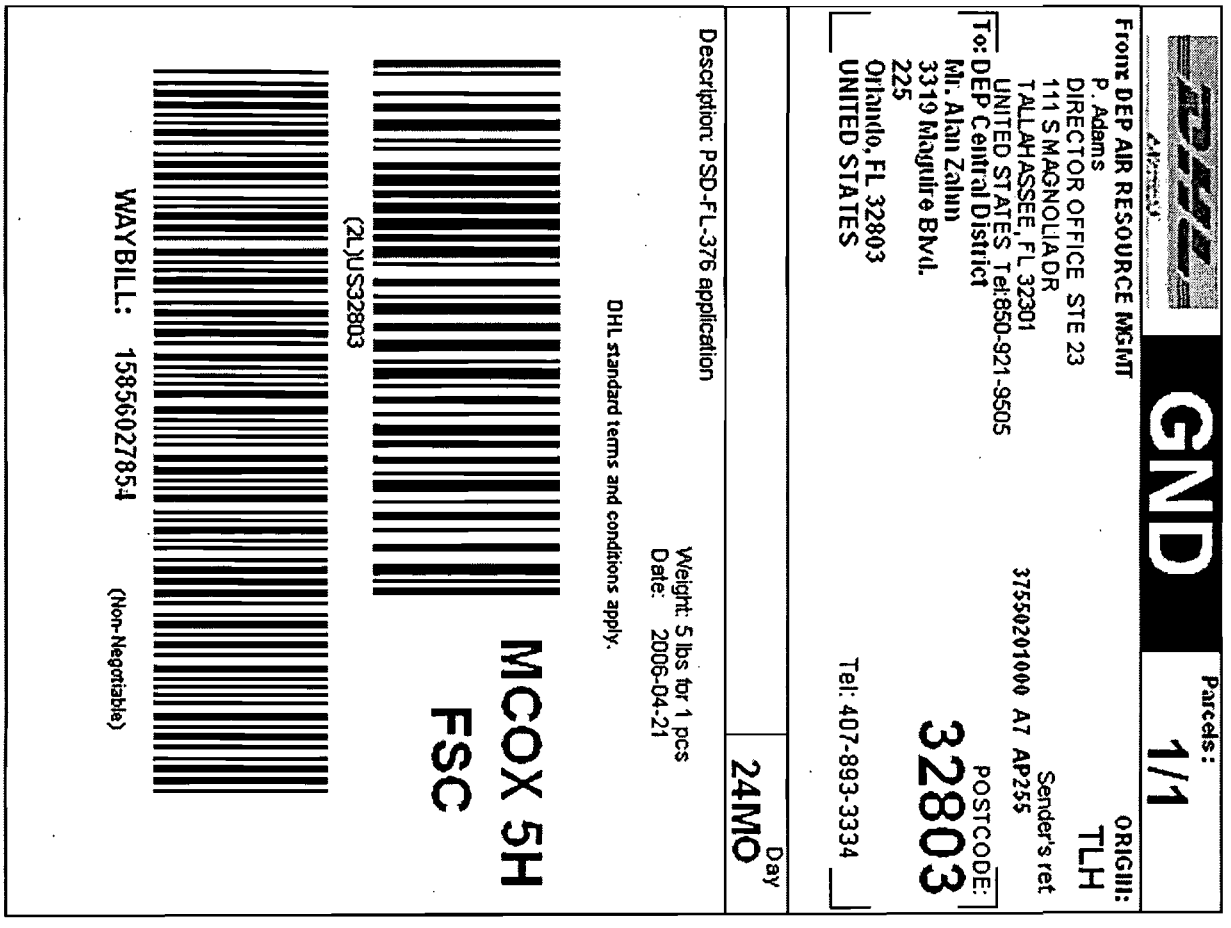
Patricia G. Adams

for Jeffrey F. Koerner, P.E., Administrator
North Permitting Section

JFK/pa

Enclosure

cc: S. Arif



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To(Company):
DEP Central District
225
3319 Maguire Blvd.

Orlando, FL 32803
UNITED STATES

Attention To: Mr. Alan Zahm
Phone#: 407-893-3334

Sent By: P. Adams
Phone#: 850-921-9505

Rate Estimate: 3.06
Protection: Not Required
Description: PSD-FL-376 application

Weight (lbs.): 5
Dimensions: 0 x 0 x 0

Ship Ref: 37550201000 A7 AP255
Service Level: Ground (Est. delivery in 1 business day(s))

Special Svc:

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Waybill #: 15854781854

To(Company):
U.S. EPA Region 4
Air Permits Section
61 Forsyth Street

Atlanta, GA 30303
UNITED STATES

Attention To: Mr. Gregg M. Worley
Phone#: 404-562-9141

Sent By: P. Adams
Phone#: 850-921-9505

Rate Estimate: 3.06
Protection: Not Required
Description: PSD-FL-376 application
PSD-FL-375 correspondence

Weight (lbs.): 7
Dimensions: 0 x 0 x 0

Ship Ref: 37550201000 A7 AP255
Service Level: Ground (Est. delivery in 1 business day(s))

Special Svc:

Date Printed: 4/21/2006
Bill Shipment To: Sender
Bill To Acct: 778941286

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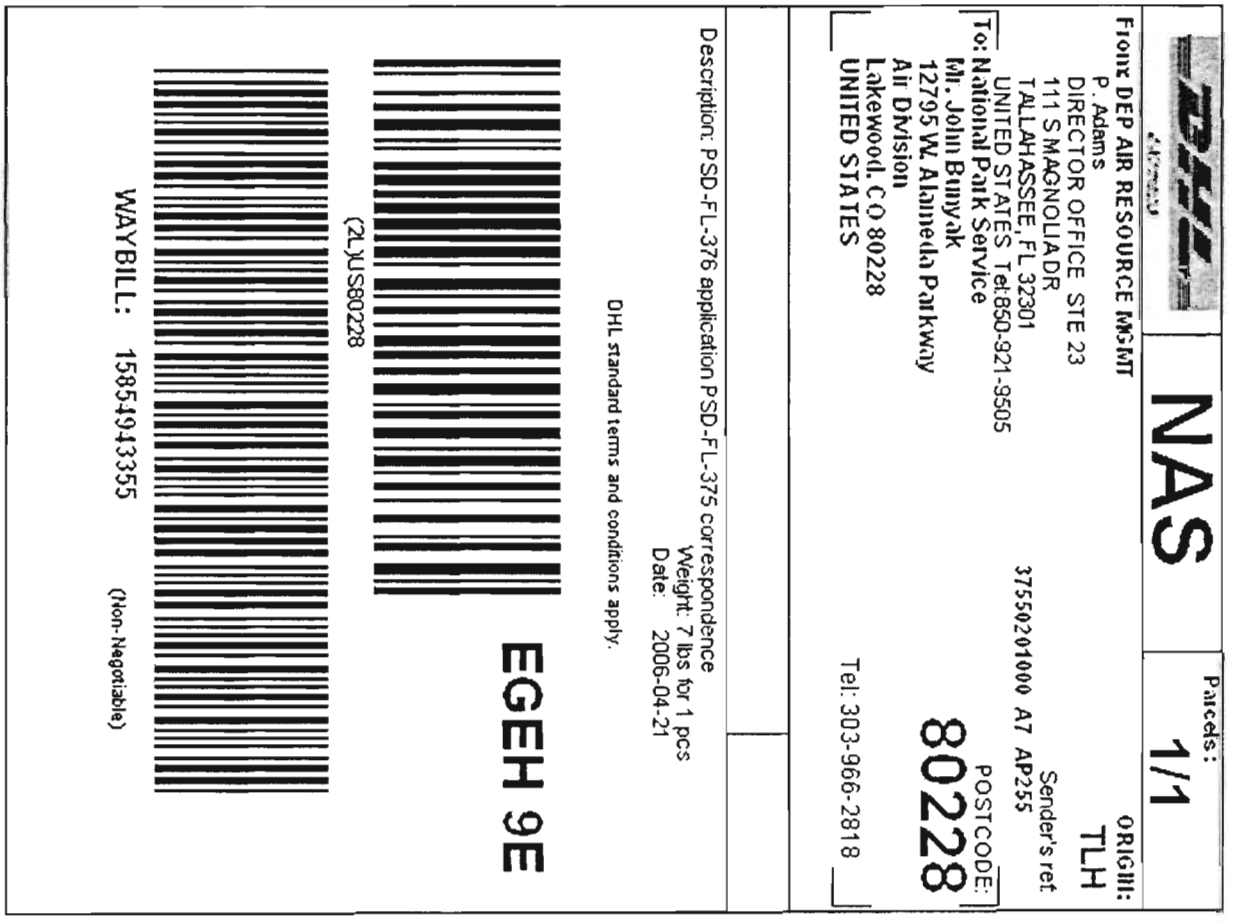

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SENDER'S RECEIPT
Waybill #: 15854943355

To(Company):
National Park Service
Air Division
12795 W. Alameda Parkway

Lakewood, CO 80228
UNITED STATES

Attention To: Mr. John Bunyak
Phone#: 303-966-2818

Sent By: P. Adams
Phone#: 850-921-9505

Rate Estimate: 17.32
Protection: Not Required
Description: PSD-FL-376 application
PSD-FL-375 correspondence

Weight (lbs.): 7
Dimensions: 0 x 0 x 0

Ship Ref: 37550201000 A7 AP255
Service Level: Next Day 3:00 (Next business day by 3 PM)

Special Svc:

Date Printed: 4/21/2006
Bill Shipment To: Sender
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Derenzo and Associates, Inc.
Environmental Consultants

April 17, 2006

Mr. Jeff Koerner
Bureau of Air Regulation
Division of Air Resource Management
Department of Environmental Protection
STATE OF FLORIDA
2600 Blair Stone Road, MS 5505
Tallahassee, FL 32399-2400

Subject: Seminole Energy, L.L.C.
PSD Air Construction Permit Application

Dear Mr. Koerner:

Derenzo and Associates, Inc. (Derenzo and Associates), on behalf of Seminole Energy, L.L.C, is submitting to the Florida Department of Environmental Protection, Division of Air Resource Management four copies of an Air Construction Permit application for a new landfill gas (LFG) fueled internal combustion (IC) engine electricity generation facility at the Osceola Road Waste Management Facility in Seminole County Florida.

A check payable to the Florida Department of Environmental Protection for $7,500 is attached to page 3 of Appendix A of the enclosed document labeled Master Copy to cover the Air Construction Permit application review services for a facility that is subject to Prevention of Significant Deterioration rules.

Appendix A of the enclosed documents provides a completed Department of Environmental Protection Division of Air Resources Management Application for Air Permit - Long Form for the proposed LFG-fueled IC engine electricity generation facility.

Attached is a copy of an April 10, 2006 document (without the complete document attachments) that was submitted to Mr. Arif of the FDEP-DARM, who has been assigned the review of a PSD Air Construction Permit application for an identical landfill gas to electricity generation facility (Trail Ridge Energy in Duval County), by Derenzo and Associates, Inc. This document addresses issues on the proposed project that were raised by Mr. Arif, which may be beneficial in the review of the Seminole Energy, L.L.C. permit application materials.

Sincerely,

DERENZO AND ASSOCIATES, INC.

David R. Derenzo
Services Director

enclosures
c: Bill Owen, Seminole Energy, w/enclosures
Scott, Salisbury, Seminole Energy, w/enclosures

Derenzo and Associates, Inc.
Environmental Consultants

April 10, 2006

Mr. Syed Arif, P.E.
Bureau of Air Regulation
Division of Air Resource Management
Department of Environmental Protection
STATE OF FLORIDA
2600 Blair Stone Road, MS 5505
Tallahassee, FL 32399-2400

Subject: Trail Ridge Energy, L.L.C.
DEP File No. 0310358-004-AC (PSD-FL-374)
Response to March 15, 2006 request for information

Dear Mr. Arif:

Derenzo and Associates, Inc. (Derenzo and Associates), on behalf of Trail Ridge Energy, L.L.C, is submitting to the Florida Department of Environmental Protection, Division of Air Resource Management (FDEP-DARM) information that was requested by the regulatory agency on March 15, 2006.

Attachment A provides for reference the March 15, FDEP-DARM communication.

Item 1 – Comparative Emissions Study

No comparative emissions study for products of combustion has been done between flare emissions and emissions from internal combustion engines.

Item 2 – Appendix H-1, Table 3

Attachment B provides corrected:

1. Appendix H-1, Table 3 data (based on LFG methane concentration of 45%, carbon dioxide concentration of 40%, nitrogen concentration of 10%, oxygen concentration of 5%, as presented in Table 1 of the main application document).

2. Landfill gas molecular weight information.

3. Page 41 of the main permit application document (the Trail Ridge Landfill LFG sulfur content is expected to be 0.018%).

Item 3 – Appendix H-2, Table 5

Attachment C provides corrected Appendix H-2, Table H-5, H-6 and H-7 footnote data. The sample calculation used an incorrect TCE ppmv concentration of 0.1 ppmv instead of the 0.48 ppmv value presented in the table. The calculations presented in the previously submitted documents are correct and not influenced by the correction.

Item 4 – Trail Ridge Landfill Stationary Source

Derenzo and Associates contacted Mr. Jeff Koerner prior to the submittal of the Trail Ridge Energy Air Construction Permit application to discuss the project and Title Operating Permit requirements. Mr. Koerner recommended that the Air Construction permit for the project be secured and subsequent permit application documents be submitted to the FDEP-DARM to incorporate the new air pollutant emission facility applicable requirements into the Title V Operatng Permit that was issued the stationary source (Trail Ridge Landfill).

Derenzo and Associates informed Mr. Koerner that based on the independent operating nature of the users of gas generated by landfills (i.e, the gas rights are typically held by a third party; the LFG electricity generation facility purchases gas from the gas rights holder, leases land from the landfill and has no involvement with the landfill operations; and the landfill has no involvement in the power generation operations), states such as Michigan and Illinois have issued Title V Operating Permits that have two or more sections with separate associated responsible officials and regulatory contacts. These operating permits are issued as separate documents (to each facility at the stationary source with appropriate applicable requirements) that are connected to the same stationary source by an identification number (Illinois) or one document (Michigan) with two (or more) sections (one for each facility at the stationary source).

Mr. Koerner appeared to understand the potential complexities of the compliance issues that are associated with incorporating the applicable requirements of the LFG gas user (electricity generation facility) and landfill owner/operator into a single combined Title V Operating Permit and informed Derenzo and Associates that the FDEP-DARM would try to accommodate a request for a sectionalized (or partitioned) operating permit.

Attachment D provides the Title V Operating Permit (State of Michigan Renewable Operating Permit) that has been issued Sumpter Energy Associates at the Pine Tree Landfill (SEA – PTA). Sumpter Energy Associates is a sister company of Trail Ridge Energy. This operating permit has two sections, one has the applicable requirements of the landfill owner/operator and the other has the applicable requirements of the LFG user (electricity generation facility).

Trail Ridge Energy will provide the FDEP-DARM with a letter from the Trail Ridge Landfill that indicates the construction and operation of the proposed electricity at the landfill stationary source is acceptable to the owner/operator.

Item 5 – HCl Emission Compliance

Trail Ridge Energy will demonstrate compliance with a 10 ton per year hydrogen chloride (HCl) facility emission limit through the collection and analysis of samples of the landfill gas (LFG) used to fuel the IC engines. The HCl emission factor developed from the LFG analyzes (pounds of HCl per million cubic feet LFG fuel combustion) times the annual totalized measurement of treated gas (fuel) flow to the facility (million cubic feet of gas) will result in the actual amount of HCl emitted by the six IC engine operations

Attachment E provides a proposal that presents services to measure the chlorinated content of the SEA – PTA LFG fuel for use in the development of an IC engine fuel combustion HCl emission factor.

There is no need to limit engine-generator operating hours in order to demonstrate compliance with a 10 TpY HCl facility limit. The main function of the facility is to produce as much electricity as possible for sale to the local utility. Any restriction on the number of hours that the engine-generators are allowed to operate annually has an adverse effect on the project economics and operating revenues.

Item 6 - IC Engine PM-10 Emissions

Trail Ridge Energy has submitted permit application data to the FDEP-DARM for its proposed electricity generation facility that indicate and justify that BACT for PM-10 emitted from the LFG fueled engines (CAT 3520C) is 0.24 g/bhp-hr. This value is supported by data on IC LFG fueled engines that is presented in the USEPA RBL Clearinghouse for LFG fueled IC engines. Permits issued LFG fueled IC engines have limited their PM-10 emissions to rates that range from 0.04 to 0.34 g/bhp-hr.

The information previously submitted to the FDEP-DARM states that:

Operational experience obtained by Caterpillar, Inc. and users of its LFG fueled IC engines indicates that PM-10 emissions for LFG fueled IC engines are dependent on engine operating hours. While PM-10 emissions from the operation of new LFG fueled IC engines have been initially tested to be very low (i.e., <0.06 g/bhp-hr) subsequent measurements on the same equipment that are representative of increased engine operating hours indicate the presence of higher emission levels. The increased PM-10 emissions (from new engine operating conditions) has been attributed to particulate contributions from crankcase lubrication oil aerosols, which is the result of normal wear on piston rings and seals (i.e., not additional particulate contributions from the source of the LFG fuel).

Trail Ridge Energy representatives recorded in 2001 and a portion of 2002 the average daily crankcase oil consumption for CAT 3616 gas IC engines operated on LFG.

Attachment F provides the specified CAT 3616 gas IC engine oil use records.

Particulate (PM-10) emission tests that were performed on these engines indicate that the results of the initial compliance tests (that reflect new engine operations) varied from results of subsequent compliance tests (over a three year period) by a maximum value of approximate 300 % (300% increase).

The results of the same tests indicate that the highest PM-10 emission measurement exceeds the permitted limit (over a three year period) by a maximum factor of approximately 3.

The PM-10 emission limit for the specified engines was set at a value <0.1 g/bhp-hr that was obtained from the results of tests performed on new identical engines operated at another landfill. Caterpillar does not provide particulate emission guarantees for the CAT 3616 gas IC engine, which is also the case for the CAT 3520C gas IC engine. Therefore, in the absence of operational and emission compliance experience with this equipment (which was newly introduced to the LFG energy development market in the mid 1990s like the CAT 3520C engine was in 2005 with ordering allowed in early 2005 for delivery in late 2005) as presented in the preceding text, the identical equipment test results (which served as the basis for the permitted limit) were believed to be representative of particulate emissions that would occur over all engine operating conditions (which proved not to be the case for the reasons specified).

Trail Ridge Energy representatives, which have over 15 years experience with permitting and operating LFG fueled IC engine operations and have a relationship with Caterpillar of a similar duration, are not aware of any new data that supports a claim that the CAT 3520C gas IC engine can achieve a PM-10 emission limit of 0.148 g/bhp-hr (or less) over the operating life of the equipment (under all LFG applications, site specific fuel quality variation and engine operating conditions).

The fact that Bio Energy Texas facility has been permitted with PM-10 emissions of 0.148 g/bhp-hr is not a basis for a determination that the value is BACT.

The federal *40 CFR Part 52.21(b) Definitions (12) Best available control technology* specifies that *Best available control technology means an emission limitation based on the maximum degree of reduction ...on a base-by-case basis, taking into account energy, environmental and economic factors and other costs, determines is achievable ...*

BACT is not a value or control specified:

1. By unsupported and potentially erroneous information that is used to establish permit limits.

2. By results of a limited set of compliance demonstration data that do not provide a basis that the limit can be continuously achieved over the operating conditions of the equipment.

3. In the absence of a detailed review of technical data on the equipment and an understanding of operating variables that properly address its potential emissions (as has been provided by Trail Ridge Energy).

Therefore, based on the preceding information and the previous permit application data submitted to the FDEP-DARM, PM-10 BACT for the CAT 3520C gas IC engine is 0.24 g/bhp-hr.

Item 7 - IC Engine Operations

The CAT® G3520C gas IC engines will operate under base load conditions (100% design capacity). There will be no periods of primary electrical generation when the engines are operated at partial loads. The main function of the facility is to produce as much electricity as possible for sale to the local utility. Engine down time and partial load electricity generation conditions have adverse effects on operating revenues. Engine startup and shutdown occurrences will be relatively infrequent.

Trail Ridge Energy expects to maintain a combined engine base load utilization factor of approximately 95% (i.e., on an annual basis, the combined facility engines will be operated at base load 95% of the time). Engine operations will be periodically stopped as necessary to perform equipment maintenance activities (i.e., on an annual basis, the combined facility engines will be stopped for maintenance approximately 5 % of the time).

The amount of time that is required to commence engine operations and ramp up power to base load conditions is less than 10 minutes. The amount of time that is required stop engine operations and ramp down power is less than 10 minutes. These infrequent periods of engine start up and shutdown will not have an impact on the potential hourly and annual air pollutant emission rates that are presented in the permit application documents.

Trail Ridge Energy , L.L.C.. appreciates the consideration of the FDEP-DARM of the information that is presented in this document.

Please contact us if you have questions or require additional information.

Sincerely,

DERENZO AND ASSOCIATES, INC.

David R. Derenzo
Services Director

c: Bill Owen, Landfill Energy Systems

ATTACHMENT A

March 15, 2006 FDEP-DARM Communication

Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Colleen M. Castille
Secretary

March 15, 2006

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Scott Salisbury
Trail Ridge Energy, L.L.C.
29261 Wall Street
Wixom, Michigan 48393

Re: DEP File No. 0310358-004-AC (PSD-FL-374)
Trail Ridge Energy – Installation of six (6) reciprocating internal combustion engines

Dear Mr. Salisbury:

The Department has received the application on February 24, 2006, to allow Trail Ridge Energy to construct and operate an electric generation facility at the Trail Ridge Landfill Facility in Duval County. Based on our initial review of the proposed project, we have determined that additional information is needed in order to continue processing this application package. Please submit the information requested below to the Department's Bureau of Air Regulation:

1. Please indicate if a comparative emissions study for products of combustion has been done between flare emissions and emissions from internal combustion engines. If such a study was done, please provide the results to the Department.
2. Appendix H-1, Table H-3 of the application calculates fuel weight percent sulfur content. The CO_2 concentration is indicated as 52 percent by volume, whereas Table 1 of the main application shows expected CO_2 gas composition to be less than 40 percent by volume. Additionally, the LFG molecular weight does not match up between the calculated value (30.9 g/mol) and the one used in determining the LFG sulfur content (28 g/mol). Please explain the discrepancy.
3. Appendix H-2, Table H-5 of the application shows a sample calculation for 1,1,1 trichloroethane (TCE) emissions in footnote A. Please explain the reasons for using 0.1 ft3 TCE/MMcf LFG in the calculations. The same factor was used in Tables H-6 and H-7.
4. The application in Section 5.2 states that the Trail Ridge Energy is part of the Trail Ridge Landfill Stationary Source and its approved Air Construction Permit is to be incorporated into the landfill Title V Operating Permit. By doing so, Trail Ridge Landfill will be responsible for the compliance of all the permit conditions in the Air Construction Permit. Please provide a letter signed from the Responsible Official of the Trail Ridge Landfill facility agreeing to comply with all the requirements and being responsible for any violations of the Air Construction Permit.
5. Please explain how the facility will show compliance if the HCl emissions from the proposed engine operations are restricted to less than 10 TPY. Is the facility in agreement to limit the hours of operation of the engines to comply with the 10 TPY restrictions?

6. The application indicates that CAT G3520C gas IC engines have been installed and are operating at Bio Energy Texas. The maximum allowable PM_{10} emissions that is permitted for this facility is 0.148 g/bhp-hr. Please explain the reasons for requesting 0.24 g/bhp-hr for this project when the same IC engines will be utilized at Trail Ridge Energy.
7. Please indicate if the IC engines will operate continuously or whether the engines will frequently start and stop. When the engines do operate, will it be operating at base load or at less than base load? What affect will operating at less than base load have on emissions?

Modeling information under Appendix I of the application has not been submitted. The Department will have additional 30 days after receiving the modeling information to send any further comments based on the modeling review. Any additional comments from EPA and the U.S. Fish and Wildlife Service will be forwarded to you after we receive them.

The Department will resume processing this application after receipt of the requested information. Rule 62-4.050(3), F.A.C. requires that all applications for a Department permit must be certified by a professional engineer registered in the State of Florida. This requirement also applies to responses to Department requests for additional information of an engineering nature. A new certification statement by the authorized representative or responsible official must accompany any material changes to the application. Rule 62-4.055(1), F.A.C. now requires applicants to respond to requests for information within 90 days.

We will be happy to meet and discuss the details with you and your staff. If you have any questions, I can be contacted at 850/921-9528. You may discuss the modeling requirements with Mr. Cleve Holladay at 850/921-8689.

Sincerely,

Syed Arif, P.E.
Bureau of Air Regulation

/sa

cc: Chris Kirts, DEP-NED
Richard Robinson, ERM/AQB
Jeff Pope, P.E., Clayton Group Services, Inc.
Gregg Worley, EPA Region 4
John Bunyak, NPS

ATTACHMENT B

Corrected Appendix H-1, Table H-3 Data
Main permit application document page 41

Fuel Sulfur Content Calculation (% Weight)

Expected fixed gas concentrations[A]:	CH_4	45.0% vol.
	CO_2	40.0% vol.
	O_2	5.0% vol.
	Balance N_2	10.0% vol.

Calculated LFG molecular weight:

$(16)(\%CH_4) + (44)(\%CO_2) + (32)(\%O_2) + (28)(\%N_2) =$ 29.2 g/mol

LFG sulfur content: **164.2 ppm H_2S**

LFG sulfur content

$(164.2 \text{ mol } H_2S) / (10^6 \text{ mol LFG}) (32 \text{ g S/mol } H_2S) / (29.2 \text{ g LFG/mol}) =$ 0.018% wt.

A. Expected at LHV of 450 Btu/scf based on Landfill Energy Systems analyses (see Table 1 of main document)

Appendix O provides a draft SSM plan for the LFG treatment equipment and processes.

7.3 Federal Acid Rain Program

The federal Acid Rain Program (40 CFR Part 72) has been promulgated pursuant to requirements of Title IV of the 1990 Clean Air Act Amendments. New unit exemption provisions of §72.7 specify that utility units:

1. Having a total nameplate capacity of 25 MW or less;

2. Not burning coal or coal-derived fuel; and

3. Burning gaseous fuel with an annual average sulfur content of 0.05% by weight or less,

are exempt from the Acid Rain Program, except for its notification and recordkeeping requirements (§§72.2 through 72.7 and §§72.10 through 72.13).

Utility unit is defined for the purposes of Part 72 as *any person that sells electricity.* Therefore, the proposed electricity generation facility:

1. Is an utility that has a total nameplate capacity of 9.6 MW,

2. Does not burn coal or any coal-derived fuel, and

3. Only burns gaseous fuel (LFG) with an annual average sulfur content of less than 0.05% by weight (Appendix H, Table H-3 data indicate that the Trail Ridge Landfill LFG sulfur content is expected to be 0.018% by weight).

Based on the preceding information, the proposed LFG fueled IC engine electricity generation facility is only subject to the notification and recordkeeping requirements of the federal Acid Rain Program.

8.0 ADDITIONAL AIR IMPACT ANALYSES

Federal and State of Florida PSD regulations require (in addition to appropriate air pollutant emission BACT and air quality impact demonstrations) that new major sources address air quality issues that pertain to visibility degradation, and vegetation, soil and growth impacts.

Table 1. Measured and expected gas composition and fuel properties for LFG recovered from the Trail Ridge Landfill

Component	Sample Date[1] January 28, 2003	Expected[2] For IC Engine Fuel
Methane (% vol.)	48.7	>45
Carbon Dioxide (% vol.)	38.3	<40
Nitrogen (% vol.)	11.9	<10
Oxygen (% vol.)	2.3	<5
Fuel LHV (Btu/scf)	443.5[A]	>420

Notes

1. See Appendix E (Waste Energy Technology, LLC report dated February 2003)
2. Based on engine operator analysis.

ATTACHMENT C

Corrected Appendix H-2, Table H-5, H-6, H-7 Data

LFG Constituent Combustion Potential Air Contaminant Emissions
Internal Combustion Engine

LFG Constituent	Landfill Gas Concentration[1] (ppm)	(mg/m^3)	Molecular Weight (g/mol)	Destruction Effeciency[2] (%)	Emission (lb./hr)	Emission (TpY)
1,1,1-trichloroethane*	0.480	2.66	133.42	93.0%	0.000404	0.00177 [A]
1,1,2,2-tetrachloroethane*	1.110	7.75	167.85	93.0%	0.001175	0.00515
1,1-dichloroethane*	2.350	9.67	98.97	93.0%	0.001466	0.00642
1,1-dichloroethene*	0.200	0.81	96.94	93.0%	0.000122	0.00054
1,2-dichloroethane*	0.410	1.69	98.96	93.0%	0.000256	0.00112
1,2-dichloropropane*	0.180	0.85	112.98	93.0%	0.000128	0.00056
2-propanol (isopropyl alcohol)	50.100	125.22	60.11	86.1%	0.037703	0.16514
Acetone	7.010	16.93	58.09	86.1%	0.005098	0.02233
Acrylonitrile*	6.330	13.97	53.06	86.1%	0.004205	0.01842
Bromodichloromethane	3.130	21.32	163.83	93.0%	0.003233	0.01416
Butane	5.030	12.16	58.14	86.1%	0.003661	0.01604
Carbon disulfide*	0.580	1.84	76.13	86.1%	0.000553	0.00242
Carbon monoxide	141.000	164.22	28.01	86.1%	0.049446	0.21657
Carbon tetrachloride*	0.004	0.03	153.84	93.0%	0.000004	0.00002
Carbonyl sulfide*	0.490	1.22	60.07	86.1%	0.000369	0.00161
Chlorobenzene*	0.250	1.17	112.56	93.0%	0.000177	0.00078
Chlorodifluoromethane (Freon 22)	1.300	4.67	86.47	93.0%	0.000709	0.00310
Chloroethane*	1.250	3.35	64.52	93.0%	0.000508	0.00223
Chloroform*	0.030	0.15	119.39	93.0%	0.000023	0.00010
Chloromethane (methyl chloride)*	1.210	2.54	50.49	93.0%	0.000385	0.00169
Dichlorobenzene	0.210	1.28	147.00	93.0%	0.000195	0.00085
Dichlorodifluoromethane	15.700	78.93	120.91	93.0%	0.011969	0.05242
Dichlorofluoromethane	2.620	11.21	102.92	93.0%	0.001700	0.00745
Dichloromethane (methylene chloride)*	14.300	50.50	84.94	93.0%	0.007658	0.03354
Dimethyl sulfide (methyl sulfide)	7.820	20.20	62.13	93.0%	0.003063	0.01342
Ethane	889.000	1,111.90	30.08	86.1%	0.334792	1.46639
Ethanol	27.200	52.12	46.08	86.1%	0.015692	0.06873
Ethyl mercaptan (ethanethiol)[B]	2.280	5.89	62.13	99.0%	0.000128	0.00056
Ethylbenzene*	4.610	20.35	106.16	99.0%	0.000441	0.00193
Ethylene dibromide*	0.001	0.01	187.88	86.1%	0.000002	0.00001
Fluorotrichloromethane (Freon 11)	0.760	4.34	137.36	93.0%	0.000658	0.00288
Hexane*	6.570	23.54	86.17	86.1%	0.007088	0.03104
Hydrogen chloride*[C]	NA	NA	36.46	0.0%	0.416655	1.82495
Hydrogen sulfide*[D]	124.000	175.71	34.08	99.0%	0.003806	0.01667
Mercury (total)*	0.0003	0.00	200.61	0.0%	0.000005	0.00002

Notes

* 1990 CAA Amendments HAPs

1. Default concentration for LFG constituents from USEPA Compilation of Air Pollutant Emission Factors, Fifth Edition, Volume I: Stationary Point and Area Sources (AP-42), Table 2.4-1, which is provided at the end of this Appendix

2. AP-42 default control efficiency values for IC engines, Table 2.4-3, which are provided at the end of this Appendix.

A. Sample calculation, 1,1,1 trichloroethane (TCE) emissions

(0.48 ft^3 TCE/MMcf LFG) (133.42 lb. TCE/mol) (1-0.93) / (387 ft^3 TCE/mol) (0.034857 MMscf/hr) = 0.000404 lb./hr. TCE

(0.000404 lb./hr. TCE) (8,760 hr./yr.) (1.0 ton/2,000 lb) = 0.00177 TpY

B. Ethyl mercaptan has an autoignition temperature of 570 F, therefore a 99% DE was used.

C. Based on the Hydrogen chloride emission factor presented in Table F-7.

D. Hydrogen sulfide has an autoignition temperature of 500 F, therefore a 99% DE was used.

LFG Combustion Hydrogen Chloride Emission Factor

Influent Chlorine Compounds	Landfill Gas Concentration[1] (ppm)	Molecular Formula	No. Chlorine Atoms	HCl Emission Factor (lb./MMcf)
1,1,1-trichloroethane	0.48	$C_2H_3Cl_3$	3	0.14 [a,u]
1,1,2,2-tetra chloroethane	1.11	$C_2H_2Cl_4$	4	0.42 [u]
1,1-dichloroethane	2.35	$C_2H_4Cl_2$	2	0.44 [u]
1,1-dichloroethene	0.2	$C_2H_2Cl_2$	2	0.04 [u]
1,2-dichloroethane	0.41	$C_2H_4Cl_2$	2	0.08 [u]
1,2-dichloropropane	0.18	$C_3H_6Cl_2$	2	0.03 [u]
Bromodichloromethane	3.13	$CBrCl_2$	2	0.59 [u]
Carbon tetrachloride	0.004	CCl_4	4	0.00 [u]
Chlorobenzene	0.25	C_6H_5Cl	1	0.02 [u]
Chlorodifluoromethane	1.3	$CHFCl$	1	0.12 [b]
Chloroethane	1.25	C_2H_5Cl	1	0.12 [u]
Chloroform	0.03	$CHCl_3$	3	0.01 [u]
Chloromethane	1.21	CH_3Cl	1	0.11 [u]
Dichlorobenzene	0.21	$C_6H_4Cl_2$	2	0.04 [u]
Dichlorodifluoromethane	15.7	CF_2Cl_2	2	2.96 [u]
Dichlorofluoromethane	2.62	$CHFCl_2$	2	0.49 [u]
Dichloromethane	14.3	CH_2Cl_2	2	2.69 [u]
Fluorotrichloromethane	0.76	$CFCl_3$	3	0.21 [u]
Perchloroethylene	3.73	C_2Cl_4	4	1.41 [u]
Trichloroethylene	2.82	C_2HCl_3	3	0.80 [u]
t-1,2-dichloroethane	2.84	$C_2H_2Cl_2$	2	0.54 [u]
Vinyl chloride	7.34	C_2HCl	1	0.69 [u]
Total hydrogen chloride emission factor (lb./MMcf)				**11.95**

Notes

1. From AP-42 default concentrations as presented in Table H-5.

a. Assumes complete conversion of chloride to HCl, calculation for 1,1,1-trichloroethane (TCE):
(0.48 ft^3 TCE/MMcf LFG) (3 mol HCl/mol TCE) (36.46 lb. HCl/mol) / (387 ft^3/mol)
= 0.14 lb. HCl/MMcf LFG

b. Based on AP-42 default concentrations, which are provided at the end of this Appendix.

LFG Combustion Hazardous Air Pollutant Emission Factor
Internal Combustion Engine

HAPs[1]	Landfill Gas Concentration[2] (ppm)	Landfill Gas Concentration[2] (mg/m^3)	Molecular Weight (g/mol)	Destruction Effeciency[3] (%)	HAP Emission Factor (lb./MMcf)
1,1,1-trichloroethane	0.48	2.66	133.42	93.0%	0.012 [A]
1,1,2,2-tetrachloroethane	1.11	7.75	167.85	93.0%	0.034
1,1-dichloroethane	2.35	9.67	98.95	93.0%	0.042
1,1-dichloroethene	0.2	0.81	96.94	93.0%	0.004
1,2-dichloroethane	0.41	1.69	98.96	93.0%	0.007
1,2-dichloropropane	0.18	0.85	112.98	93.0%	0.004
Acrylonitrile	6.33	13.97	53.06	86.1%	0.121
Carbon disulfide	0.58	1.84	76.13	86.1%	0.016
Carbon tetrachloride	0.004	0.03	153.84	93.0%	0.000
Carbonyl sulfide	0.49	1.22	60.07	86.1%	0.011
Chlorobenzene	0.25	1.17	112.56	93.0%	0.005
Chloroethane	1.25	3.35	64.52	93.0%	0.015
Chloroform	0.03	0.15	119.39	93.0%	0.001
Chloromethane	1.21	2.54	50.49	93.0%	0.011
Dichloromethane	14.3	50.50	84.94	93.0%	0.220
Ethyl Benzene	4.61	20.35	106.16	86.1%	0.176
Ethylene dibromide	0.001	0.01	187.88	86.1%	0.000
Hexane	6.57	23.54	86.17	86.1%	0.203
Hydrogen chloride	NA	NA	36.46	0.0%	11.953 [B]
Mercury (total)	2.92E-04	0.00	200.61	0.0%	0.000
Methyl ethyl ketone	7.09	21.26	72.10	86.1%	0.184
Methyl isobutyl ketone	1.87	7.79	100.16	86.1%	0.067
Perchloroethylene	3.73	25.72	165.83	93.0%	0.112
Trichloroethylene	2.82	15.41	131.40	93.0%	0.067
Vinyl chloride	7.34	19.07	62.50	93.0%	0.083
Xylene	12.1	53.41	106.16	86.1%	0.461
Total HAP emission factor (lb./MMcf)					**13.81**

Notes

1. 1990 CAA Amendments Section 112(b) HAP

2. From AP-42 default concentrations as presented in Table H-5.

3. AP-42 default control efficiency values for IC engines, Table 2.4-3, which are provided at the end of this

A. Sample calculation, 1,1,1 trichloroethane (TCE) emissions
(0.48 ft^3 TCE/MMcf LFG) (133.42 lb. TCE/mol) (1-0.93) / (387 ft^3 TCE/mol)
=0.012 lb. TCE/MMcf LFG

B. Hydrogen chloride emission factor from Table H-6.

ATTACHMENT D

Sumpter Energy Associates - Pine Tree Landfill
State of Michigan Renewable Operating Permit

DEQ

Michigan Department Of Environmental Quality
Air Quality Division

State Registration Number
N5984

RENEWABLE OPERATING PERMIT

RO Permit Number
199600384

IS HEREBY ISSUED TO

PINE TREE ACRES INC. (LANDFILL)
AND
SUMPTER ENERGY ASSOCIATES (LANDFILL GAS CONTROL)

SRN: N5984

LOCATED AT

36600 29 MILE ROAD
LENOX TOWNSHIP, MI 48062

Permit Number: 199600384

Effective Date: December 12, 2002

Revision Date: March 2, 2006

Expiration Date: December 12, 2007

This permit is issued in accordance with and subject to Part 5506(3) of Article II, Chapter 1, Part 55 (Air Pollution Control) of P.A. 451 of 1994. Pursuant to Air Pollution Control Rule 336.1210(1), this permit constitutes the permittee's authority to operate the major stationary source identified above in accordance with the general conditions, special conditions and attachments contained herein. Operation of the major stationary source and all emission unit/process groups listed in the permit are subject to all applicable future or amended rules and regulations pursuant to P.A. 451 and the Clean Air Act.

This permit does not relieve the permittee from the responsibility to obtain the necessary permits to install pursuant to Air Pollution Control Rule 336.1201 for new or modified process or process equipment. In addition, issuance of this Renewable Operating Permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.

Michigan Department of Environmental Quality

Teresa Seidel
Southeast Michigan District Supervisor
Air Quality Division

ATTACHMENT E

Sumpter Energy Associates - Pine Tree Landfill
LFG Chlorinated Compound Measurements
and
Fuel Combustion HCl Emission Factor Development

Derenzo and Associates, Inc.
Environmental Consultants

January 20, 2005

Mr. Michael Laframboise
Manager of Operations
LANDFILL ENERGY SYSTEMS
29261 Wall Street
Wixom, MI 48393

Subject: Sumpter Energy Associates at Pine Tree Acres
Proposal to perform 2005 HCl LFG Tests
DAI Proposal No. P-05027

Dear Mr. Laframboise:

Derenzo and Associates, Inc. (Derenzo and Associates) is pleased to provide Sumpter Energy Associates with this proposal to perform sampling and analyses to measure the total chlorinated compound content of the gas use to fuel reciprocating internal combustion (IC) engine operations at the Pine Tree Acres landfill. The contents of this proposal are based on:

1. The experience of Derenzo and Associates with previous landfill gas (LFG) sampling and analyses provided Sumpter Energy Associates;

2. Results of hydrogen chloride (HCl) testing that was performed on the exhaust of IC engine nos. 6 and 7 in May 2004 and indicate the HCl emission rate of the engines is greater than 75% of the permitted emission limit; and

3. LFG testing requirements presented in Renewable Operating Permit No. 199600384 that was issued Sumpter Energy Associates that specifies:

   Permittee shall sample the LFG prior to the ICEs and analyze the sample for chlorine compounds concurrent with the initial HCl performance stack test required under Condition III.B.7-9. This data will be used to verify the HCl emission limit as determined during most recent stack test or by alternate method approved by the District Supervisor, Air Quality Division. If the measured HCl emission rate is less than 75% of the applicable limit, no additional sampling is required for the term of the RO permit. If the measured HCl emission rate is at or greater than 75% of the emission limit, the Permittee shall calculate a HCl emission factor based on the concentration of chlorinated compounds in the LFG and the measured HCl emission rate and demonstrate compliance with the HCl emission limit on an annual basis by sampling and analysis of LFG.

SCOPE OF SERVICES

Derenzo and Associates will perform the following activities to complete the annual LFG total chlorinated compound and HCl sampling/measurement-testing project:

- Travel to Lenox Township, Michigan to obtain LFG samples using approved U.S. Environmental Protection Agency (USEPA) and Michigan Department of Environmental Quality, Air Quality Division (MDEQ-AQD) procedures.

- Collect LFG samples from the appropriate LFG fuel supply line of the Sumpter Energy Associates electricity generation facility. Stainless steel canisters will be used to collect duplicate LFG samples.

- Analyze the collected samples to determine concentrations of the LFG components listed in the attached document. The canister samples will be analyzed for volatile organics (EPA Method TO-15A).

- Present all LFG component concentrations and HCl emission factor calculations in a summary report. Field data sheet recordings, sampling and analytical procedures, certified laboratory results and quality assurance data will be provided in the report.

MATERIAL TO BE PROVIDED BY SUMPTER ENERGY ASSOCIATES

Derenzo and Associates requires that Sumpter Energy Associates provide:

- Appropriate operating conditions to obtain representative samples of the LFG fuel.

- Safe access to the LFG sampling site.

SCHEDULE

Derenzo and Associates will perform the LFG sampling portion of the project at a mutually acceptable time. A Sumpter Energy Associates representative will be contacted to schedule and confirm specific LFG sampling dates.

FEES

The estimated cost of the LFG total chlorinated compound sampling, analyses and HCl emission factor reporting project including travel, materials, and out-of-pocket expenses is $xxx.

Derenzo and Associates, Inc. looks forward to being of continued service to Sumpter Energy Associates.

Please contact me if you have any questions.

Sincerely,

DERENZO AND ASSOCIATES, INC.

David R. Derenzo
Services Director

Disk 4\SEA PTA May 2005 LFG HCl tests

AIR TOXICS LTD.

Method : Modified TO-15

Compound	Rpt. Limit (ppbv)
Freon 12	0.50
Freon 114	0.50
Chloromethane	2.0
Vinyl Chloride	0.50
1,3-Butadiene	0.50
Bromomethane	0.50
Chloroethane	0.50
Freon 11	0.50
Ethanol	2.0
Freon 113	0.50
1,1-Dichloroethene	0.50
Acetone	2.0
2-Propanol	2.0
Carbon Disulfide	0.50
3-Chloropropene	2.0
Methylene Chloride	0.50
Methyl tert-butyl ether	0.50
trans-1,2-Dichloroethene	0.50
Hexane	0.50
1,1-Dichloroethane	0.50
2-Butanone (Methyl Ethyl Ketone)	0.50
cis-1,2-Dichloroethene	0.50
Tetrahydrofuran	0.50
Chloroform	0.50
1,1,1-Trichloroethane	0.50
Cyclohexane	0.50
Carbon Tetrachloride	0.50
2,2,4-Trimethylpentane	0.50
Benzene	0.50
1,2-Dichloroethane	0.50
Heptane	0.50
Trichloroethene	0.50
1,2-Dichloropropane	0.50
1,4-Dioxane	2.0
Bromodichloromethane	0.50
cis-1,3-Dichloropropene	0.50
4-Methyl-2-pentanone	0.50
Toluene	0.50
trans-1,3-Dichloropropene	0.50
1,1,2-Trichloroethane	0.50
Tetrachloroethene	0.50
2-Hexanone	2.0
Dibromochloromethane	0.50

Reporting Limits cited do not take into account sample dilution due to canister pressurization.

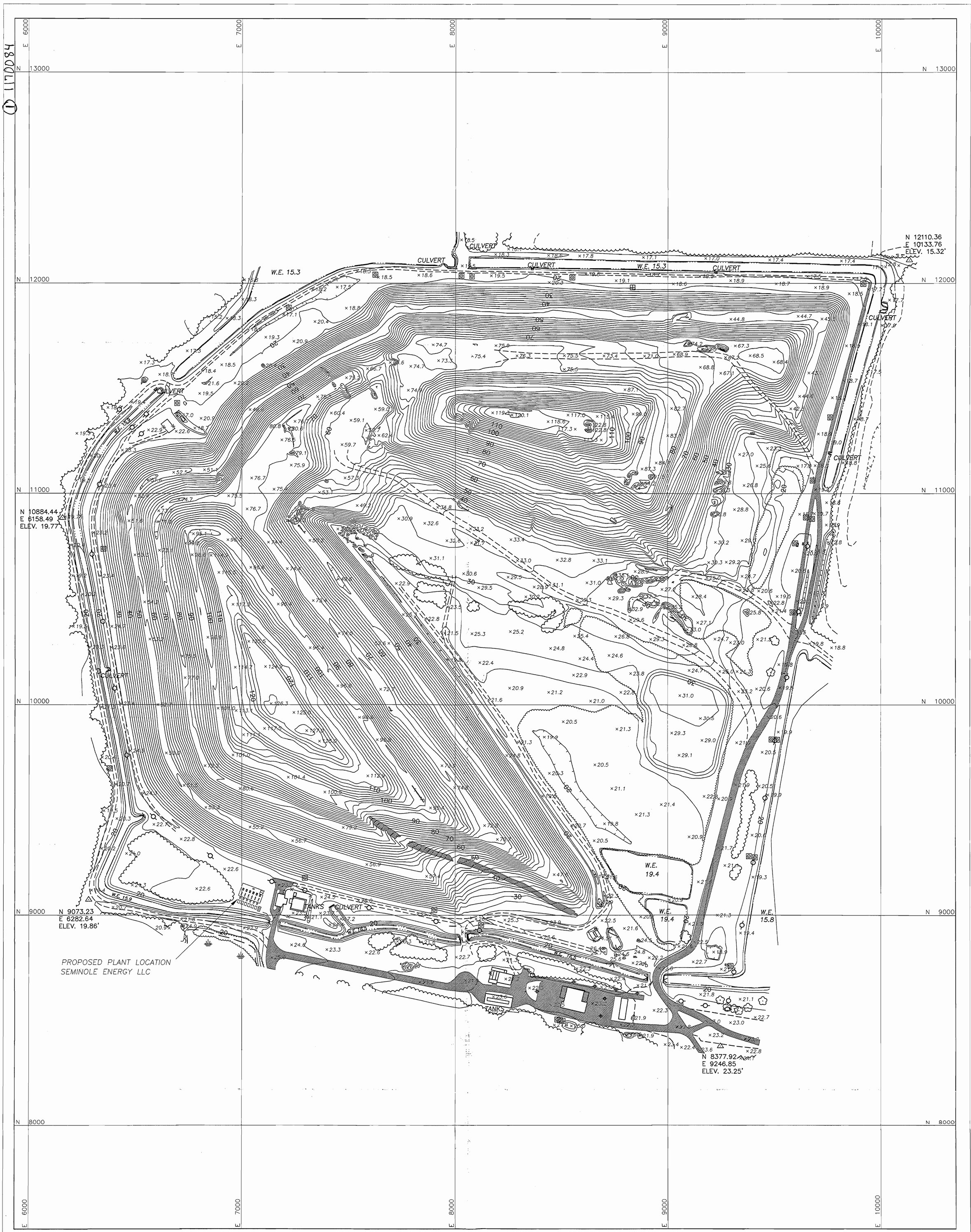
Average Daily Oil Usage for 2001

The following is the average amount of oil consumed per day for each month beginning January 2001 based on the recorded monthly consumption

Kiefer Landfill internal combustion engines

	UNIT 1	UNIT 2	UNIT 3
JAN - 01	4.4	3.8	4
FEB - 01	3.8	3.9	5.1
MAR - 01	5.3	3.8	5.2
APR - 01	4.1	3.5	4.7
MAY - 01	5	1.2	5.8
JUN - 01	1.2	2.1	3.2
JUL - 01	5.4	5.7	4.8
AUG - 01	5.7	4.4	6.1
SEPT - 01	8..9	9.3	9.7
OCT - 01	10.3	10.4	13.1
NOV - 01	8.6	11	13.8
DEC - 01	12.6	11.1	12.1
JAN - 02	11.9	12.2	14.5
FEB - 02	18.6	17.4	16.3
MAR - 02	16	18.6	16.3
APR - 02	16.2	19.8	16.4

4800711 (1)



SURVEYOR's NOTES:

1.) North, the grid, and the coordinates shown hereon are referenced to an assumed Cartesian grid and are client provided.

2.) Elevations are to National Geodetic Vertical Datum of 1929 and are client provided.

3.) This topographic survey was prepared by photogrammetric methods. See the attached report for map accuracy and surveyor's signature and seal. This map is limited to those features visible on aerial photography.

(THESE FEATURES ARE REPRESENTED BY SYMBOLS NOT TO SCALE)

- CONTROL
- UTILITY POLE
- LIGHT POLE
- TRAFFIC LIGHT
- SIGN
- POST
- FLAG
- MAIL BOX
- MANHOLE
- HYDRANT
- CATCH BASIN
- VALVE
- ELECTRICAL
- AC
- MISC SYMBOL
- CULVERT
- SWAMP/MARSH
- TREE
- PALM
- SHRUB

LEGEND:

(THESE FEATURES ARE TO SCALE)

- CURB
- PAVED ROAD
- CONCRETE SURFACE
- UNPAVED ROAD
- FENCE
- GUARDRAIL
- WALL
- RAILROAD
- STRUCTURE
- TREE LINE
- SHRUB LINE
- PIPELINE
- RECREATION
- EDGE OF GROVE
- EDGE OF WATER
- SWAMPLINE
- OBSCURED CONTOUR
- DEPRESSION CONTOUR

(THESE INFORMATIVE LABELS ARE NOT SCALE DEPENDENT)

- W.E. 74.4 WATER ELEVATION
- × 120.0 TYPICAL SPOT ELEVATION
- × 120.0 OBSCURED SPOT ELEVATION

NORTH

GRAPHIC SCALE

200 0 100 200 400 800

(IN FEET)
1 inch = 200 ft.

TOPOGRAPHIC SURVEY

OSCEOLA ROAD LANDFILL

PREPARED FOR: S2L, INC

PROJECT No. 13901 | DRAWING No. LD 3038 | No. 1 OF 1

475 SOUTH FIRST AVENUE
BARTOW, FLORIDA 33830
PHONE: (863)-533-9095
FAX: (863)-534-1464

PICKETT
SURVEYORS & PHOTOGRAMMETRISTS
PICKETT & ASSOCIATES, INC. LICENSED BUSINESS No. LB364

502 WEST MAIN STREET
WAUCHULA, FLORIDA 33873
PHONE: (863)-773-3950
FAX: (863)-773-3922

Horiz. Scale: 1" = 200'	Edited by: JC	Compiled by: DAT	Flight Date: 7/27/05
Contour Interval: 2'			Drawing Name: 13901.DWG

THIS MAP AND ATTACHED REPORT ARE NOT FULL AND COMPLETE WITHOUT THE OTHER AND ARE NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER

No.	DATE	APPROVED	REVISION
O.R.	08/09/05		ORIGINAL RELEASE