City of Jacksonville
Trail Ridge Municipal Solid Waste (MSW) Landfill

Facility ID No.: 0310358
Duval County

Title V Air Operation Permit Revision

FINAL Permit No.: 0310358-013-AV

<u>Permitting Authority:</u>

State of Florida
Department of Environmental Protection
Division of Air Resource Management
Office of Permitting and Compliance

2600 Blair Stone Road, MS#5505
Tallahassee, Florida 32399-2400

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Title V Air Operation Permit Revision

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Florida Department of Environmental Protection

Rick Scott
Governor

Jennifer Carroll
Lt. Governor

Herschel T. Vinyard Jr.
Secretary

PERMITTEE:
City of Jacksonville
Solid Waste Division
1031 Superior Street
Jacksonville, Florida 32254

Permit No.: 0310358-013-AV
Trail Ridge Energy, LLC
Facility Id No.: 0310358
Title V Air Operation Permit Revision

The purpose of this permit is to: 1) revise the Title V Air Operation Permit No. 0310358-010-AV and 2) incorporate the terms and conditions of Construction Permit 0310358-012-AC. The existing facility is located at 5110 U.S. Highway 301, Baldwin, Duval County, Florida, UTM Coordinates: Zone 17, 399.765 km East and 3344.919 km North; Latitude: 30° 14' 00" North and Longitude: 82° 02' 30" West.

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.

Effective Date: November 16, 2011
Renewal Application Due Date: September 27, 2014
Expiration Date: May 10, 2015

Executed in Tallahassee, Florida
For the Division of Air Resource Management

_____ _____
Jeffery F. Koerner, P.E., Program Administrator (Date)
Office of Permitting and Compliance
Division of Air Resource Management

JFK/sa/scd

Subsection A. Facility Description.

This facility an active, Class I municipal solid waste (MSW) landfill consisting of 176 acres that is operated by Trail Ridge Landfill, Inc. and owned by the City of Jacksonville. The landfill has an overall design capacity of 24,332,000 cubic yards (18,249,113 tons) according to the Gas Collection and Control System Design Plan received June 10, 1997.

The Class I landfill was constructed in sixteen (16) phases: Phases IA, IB, IC, IIA, IIB, IIC, IIIA, IIIB, IVA, IVB, IIIC, IVC, VA, VB, VC, and VD. Each of the phases is constructed and authorized to accept waste in accordance with the Solid Waste Permit. MSW received by the facility is placed in active cells where it is compacted and covered. The MSW undergoes anaerobic decomposition releasing landfill gas that consists of carbon dioxide, methane (approximately 40-60%), water vapor, and greater than 50 MG/year of non-methane organic compounds (NMOC).

The landfill gas is produced from both active and capped cells. This gas is collected by an active, landfill gas collection system (a series of vertical and/or horizontal collection piping, blower system) and routed to a treatment system that treats the landfill gas for subsequent use as fuel to power the reciprocating internal combustion engines (RICE)-generator sets at the Trail Ridge Energy, LLC electricity generation plant. Trail Ridge Energy, LLC is located on a parcel of land segregated from the Trail Ridge Landfill, Inc. operations. Any excess landfill gas that exceeds the volume Trail Ridge Energy LLC is able to accept is diverted to the 5,000 scfm or the de-rated 1,600 scfm open flares for control.

Subsection B. Summary of Emissions Units.

EU No.	Brief Description
Regulated Emissions Units	
001	Municipal Solid Waste Landfill (Active, Landfill Gas Collection System which consists of a series of vertical and/or horizontal collection piping, blower system that includes two 2,500 scfm centrifugal exhauster type LFG blowers designed at a minimum of -60”wc inlet suction and 10” wc discharge pressure and currently 89 NSPS gas extraction wells. The number of gas extraction wells to be installed will change dependent on compliance with the 40 CFR 60 WWW Standards.)
010	5,000 scfm Open, Non-Assisted Flare manufactured by Parnel Biogas, Inc. Two centrifugal exhaust landfill gas blowers with a maximum design of 2,500 cfm each, with a minimum of -60 “w.c. inlet suction and 10” w.c. discharge pressure.
011	A de-rated 1,600 scfm Open, Non-Assisted Flare manufactured by Landfill Gas Specialties. A centrifugal exhaust landfill gas blower with a maximum design of 1,600 cfm, a minimum of -60 “w.c. inlet suction and 10” w.c. discharge pressure.
002	Fugitive Dust Emissions from unpaved roads and landfill work areas.
004 – 009 and 012 – 015	Ten 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 generated by and received from the Trail Ridge landfill facility.

Subsection C. Applicable Regulations.

The Trail Ridge Landfill is a Major/Title V source of air pollution pursuant to Chapter 62-210, FAC and Rule 2.301, Jacksonville Environmental Protection Board (JEPB), because the potential 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. The landfill is also an EPA designated Title V source in accordance with the standards of 40 CFR 60 Subpart WWW, Standards of Performance for Municipal Solid Waste Landfills (40 CFR 60.752(c)), because the design capacity of the landfill is greater than 2.5 million cubic meters and megagrams.

The landfill is located in an area unclassifiable for the air pollutant particulate matter (PM) less than or equal to ten (10) micrometers, in the area of influence of an air quality maintenance area for PM and in an air quality maintenance area for ozone pursuant to Chapter 62-204, Florida Administrative Code (FAC) and Jacksonville Environmental Protection Board (JEPB), Rule 2.201.

The landfill commenced construction after May 30, 1991 and therefore is subject to the provisions of 40 CFR 60, Subpart A, General Provisions, Subpart WWW, Standards of Performance for Municipal Solid Waste Landfills in accordance with 40 CFR 60.750(a). The landfill is subject to the provisions of 40 CFR 63, Subpart A, General Provisions and 40 CFR 63 Subpart AAAA, National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Municipal Solid Waste Landfills in accordance with 40 CFR 63.1935. The landfill is also subject to the provisions of 40 CFR 61, Subpart A, General Provisions and 40CFR Part 61 Subpart M (Asbestos).

The Department has presumed that the Trail Ridge Landfill facility has a control relationship over the Trail Ridge Energy LLC electricity generation operations since the Trail Ridge Energy LLC electricity generation operations are under contract with the landfill and the operations will be fueled exclusively with methane-rich landfill gas provided by the landfill. The Trail Ridge Energy LLC engine plant project is permitted under Permit No. 0310358-004-AC/PSD-FL-374. The facility is therefore a major stationary source in accordance with Rule 62-212.400(PSD), F.A.C

Prior to the landfill gas being sent to the Trail Ridge Energy LLC engine plant for re-use, the landfill gas is sent to a treatment system. The treatment system is subject to 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 Subpart AAAA- National Emission Standards for Hazardous Air Pollutants- Municipal Solid Waste Landfills. In addition, the proposed four engine/generator sets, Emission Unit ID Nos. 012-015, are also subject to 40 CFR 60 Subpart JJJJ and 40 CFR 63 Subpart ZZZZ.

Also, included in this permit are miscellaneous insignificant emission units and/or activities.
Compliance Assurance Monitoring (CAM) requirements are not applicable to this facility.
Based upon the Title V air operation permit revision application received March 7, 2011:

- The facility is a Title V source
- An Area source of hazardous air pollutants (HAPs)
- Major source of air pollutants, other than HAPs
- One or more emissions units subject to NSPS (40 CFR 60)
- One or more emissions units subject to NESHAP (40 CFR Part 61 and Part 63)

These documents are on file with the permitting authority:
Application for Title V Air Operation Permit Revision received March 7, 2011
Request for Additional Information dated April 8, 2011
Comments from Trail Ridge Energy LLC received June 20, 2011
Draft Title V Operation Permit Revision issued August 19, 2011
Comments from Trail Ridge Energy LLC received August 30, 2011
Proposed Title V Operation Permit Revision issued September 28, 2011

Section II. Facility-Wide Conditions.

The following conditions apply facility-wide:

FW1. APPENDIX TV, TITLE V CONDITIONS, is a part of this permit. {Permitting note: APPENDIX TV, TITLE V CONDITIONS, is distributed to the permittee only. Other persons requesting copies of these conditions shall be provided a copy when requested or otherwise appropriate.}

FW2. General Pollutant Emission Limiting Standards. Objectionable Odor Prohibited. 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(2), F.A.C.; and Rule 2.1001, JEPB; Construction Permit No. 0310358-004-AC/PSD-FL-374]

FW3. **Not federally enforceable.** The facility shall be subject to City of Jacksonville Ordinance Code, Title X, Chapter 360 [Environmental Regulation], Chapter 362 [Air and Water Pollution], Chapter 376 [Odor Control] and JEPB, Rule 1. [Final Rules with Respect to Organization, Procedure and Practice].

FW4. **Not federally enforceable.** The facility shall be subject to JEPB Rule 2, Part Nos. I through VII and Part Nos. IX through XIII.

Emissions and Controls

FW5. General Particulate Emission Limiting Standards. General Visible Emissions Standard. Except for emissions units that are subject to a particulate matter or opacity limit set forth or established by rule and reflected by conditions in this permit, no person shall cause, let, permit, suffer or allow to be discharged into the atmosphere the emissions of air pollutants from any activity, the density of which is equal to or greater than that designated as Number 1 on the Ringelmann Chart (20 percent opacity). EPA Method 9 is the method of compliance pursuant to Chapter 62-297, F.A.C. [Rules 62-296.320(4)(b)1. & 4., F.A.C.; Rule 2.1001, JEPB and Rule 2.1101, JEPB]

FW6. Open Burning Prohibition. Open burning is prohibited, except when determined by the Department to be the only feasible method of operation and authorized by this permit or an emergency exists which requires immediate action to protect human health and safety. [Rule 62-296.320(3)(a)&(b), F.A.C.]

FW7. Prevention of Accidental Releases (Section 112(r) of CAA). If, and when, the facility becomes subject to 112(r), the permittee shall:

a. Submit its Risk Management Plan (RMP) to the Chemical Emergency Preparedness and Prevention Office (CEPPO) RMP Reporting Center. Any Risk Management Plans, original submittals, revisions or updates to submittals, should be sent to: RMP Reporting Center, Post Office Box 10162, Fairfax, VA 22038, Telephone: (703) 227-7650.
b. Submit to the permitting authority Title V certification forms or a compliance schedule in accordance with Rule 62-213.440(2), F.A.C.

[40 CFR 68]

FW8. Insignificant Emissions Units and/or Activities. Appendix I-1, List of Insignificant Emissions Units and/or Activities, is a part of this permit. [Rules 62-213.440(1), 62-213.430(6) and 62-4.040(1)(b), FAC and Rules 2.501 and 2.1301, JEPB]

FW9. General Pollutant Emission Limiting Standards. Volatile Organic Compounds (VOC) Emissions or Organic Solvents (OS) Emissions. The permittee shall allow no person to store, pump, handle, process, load, unload or use in any process or installation, volatile organic compounds (VOC) or organic solvents (OS) without applying known and existing vapor emission control devices or systems deemed necessary and ordered by the Department. [Rule 62-296.320(1)(a), FAC and Rule 2.1001, JEPB]

FW10. Emissions of Unconfined Particulate Matter. Pursuant to Rules 62-296.320(4)(c)1., 3. & 4., F.A.C., reasonable precautions to prevent emissions of unconfined particulate matter at this facility include the following requirements:

i. The following requirements are "not federally enforceable":

Waste is placed in lifts in the landfill in a manner to prevent windblown litter and dust. The working face is kept as small as practicable to further reduce windblown dust and litter;

Portable fences are used around and near the working face to keep windblown litter in the work area;

Waste is covered daily to prevent windblown litter after operation hours;

Paved Roads: During hours of operation, the frequency of vehicle traffic may warrant dust control measures. Roadway sweeping is performed as needed, especially during the time periods during the year when there is typically less rainfall. Roadway washing takes place as needed to prevent carryout of dirt and mud to adjoining roadways;

Unpaved Roads: Roadways in the active areas of the landfill will be graded and compacted to allow safe passage of vehicles and to prevent carry out of dirt and mud. Dust control will be managed using a water truck as needed;

Roads General: the type and frequency of the dust control operations will vary according to the weather conditions. Maintenance of the paved and unpaved roads will be performed on an as needed basis.

[Rule 62-296.320(4)(c)2., F.A.C.; and, proposed by the applicant in the Renewal Title V permit application received February 29, 2008]

Excess Emissions

{Permitting Note: The Excess Emissions Rule at Rule 62-210.700, F.A.C., cannot vary any requirement of a NSPS or NESHAP provision}

FW11. Minimization of Emissions. At all times, including periods of startup, shutdown and malfunction, owners and operators shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions.

Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures and inspection of the source. [40 CFR 60.11(d); Rule 2.201, JEPB]

FW12. 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(4), F.A.C.; Rule 2.201, JEPB]

FW13. Considering operational variations in types of industrial equipment operations affected by this rule, the Department may adjust maximum and minimum factors to provide reasonable and practical regulatory controls consistent with the public interest. [Rule 62-210.700(5), F.A.C.; Rule 2.201, JEPB]

FW14. Startup, Shutdown, Malfunction Plan. The Permittee shall adopt and implement a written startup, shutdown and malfunction (SSM) plan that describes, in detail, procedures for operating and maintaining the source during periods of startup, shutdown and malfunction. The plan shall meet the requirements of 40 CFR 63.6(e)(3) including containing a program of corrective action for malfunctioning processes and the air pollution control and monitoring equipment used to comply with the relevant standards of 40 CFR Part 63. The current SSM Plan shall be maintained at the facility and be available for inspection and copying by the Administrator upon request. If the SSM Plan is subsequently revised pursuant to 40 CFR 63.6(e)(3)(viii), the Permittee shall maintain at the facility each previous (i.e., superseded) version of the SSM Plan and shall make each such previous version available for inspection and copying by the Administrator for a period of 5 years after revision of the plan. Any revisions made to the startup, shutdown and malfunction plan in accordance with the procedures established by 40 CFR 63.6(e), shall not be deemed to constitute a Part 70 or 71 permit revision. Moreover, none of the procedures specified by the startup, shutdown and malfunction plan for an affected source shall be deemed to fall within the permit shield. [40 CFR 63.6(e)]

FW15. When appropriate, any recording, monitoring, or reporting requirements that are time-specific shall be in accordance with the effective date of the permit, which defines day one. [Rule 62-213.440, F.A.C.; and Rule 2.501, JEPB]

Annual Reports and Fees

See Appendix RR, Facility-wide Reporting Requirements for additional details.

FW16. Statement of Compliance**.** The annual statement of compliance pursuant to Rule 62-213.440(3)(a)2., FAC and Rule 2.501, JEPB shall be submitted to the Department and EPA within sixty (60) days after the end of the calendar year using DEP form No. 62-213.900(7), FAC.
{*Permitting Note*: This condition implements the requirements of Rules 62-213.440(3)(a)2. & 3., FAC. (see Condition RR.7. of APPENDIX RR – FACILITY-WIDE REPORTING REQUIREMENTS)} [40 CFR 70.6, Rule 62-213.440, FAC and Rule 2.501, JEPB]

FW17. The permittee shall submit all compliance related notifications and reports required of this permit to the Department's North East District Office:

Department of Environmental Protection
Northeast District Office
7825 Baymeadows Way, Suite B-200
Jacksonville, Florida 32256
Telephone: 904/807-3300, Fax: 904/448-4363

FW18. Any reports, data, notifications, certifications and requests required to be sent to the United States Environmental Protection Agency, Region 4, should be sent to:

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

FW19. Annual Emissions Fee Form and Fee. The annual Title V emissions fees are due (postmarked) by March 1st of each year. The completed form and calculated fee shall be submitted to: Major Air Pollution Source Annual Emissions Fee, P.O. Box 3070, Tallahassee, Florida 32315-3070. The forms are available for download by accessing the Title V Annual Emissions Fee On-line Information Center at the following Internet web site: http://www.dep.state.fl.us/Air/permitting/tvfee.htm.
[Rule 62-213.205, F.A.C.]

FW20. Certification by Responsible Official (RO). In addition to the professional engineering certification required for applications by Rule 62-4.050(3), F.A.C., any application form, report, compliance statement, compliance plan and compliance schedule submitted pursuant to Chapter 62-213, F.A.C., shall contain a certification signed by a responsible official that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate and complete. Any responsible official who fails to submit any required information or who has submitted incorrect information shall, upon becoming aware of such failure or incorrect submittal, promptly submit such supplementary information or correct information. [Rule 62-213.420(4), F.A.C. and Rule 2.501, JEPB]

FW21. Compliance Plan: CP-1. Under Air Construction Permit No. 0310358-007-AC, the permittee is authorized to de-rate and re-install the open, non-assisted flare manufactured by Landfill Gas Specialties (formerly permitted under Construction Permit No. 0310358-001-AC, Emissions Unit 001). The flare shall be de-rated to a maximum capacity of 1,600 scfm of landfill gas. The flare is subject to 40 CFR 60, Subpart WWW and 60.18. Appendix CP-1 is a part of this permit.
[Rule 62-213.440(2), F.A.C.]

Trail Ridge Landfill, Inc.
5110 US Highway 301 South
Baldwin, Florida 32234

Facility Identification Code (SIC):

Major Group No. 40, Industry Group No. 4953

Primary Responsible Official: Kerri Stewart, City of Jacksonville Chief Administrative Officer
Facility ID No.: 0310358
Duval County

The primary responsible official is responsible for all appropriate reporting and compliance certifications for the entire facility (Trail Ridge Landfill, Inc. and Trial Ridge Energy, LLC).

Subsection A. Emissions Unit 001

The specific conditions in this section apply to the following emissions unit:

Emission Unit	Brief Description
001	Municipal Solid Waste Landfill (Active, Landfill Gas Collection System which consists of a series of vertical and/or horizontal collection piping, blower system that includes two 2,500 scfm centrifugal exhauster type LFG blowers designed at a minimum of -60”wc inlet suction and 10” wc discharge pressure and currently 89 NSPS gas extraction wells. The number of gas extraction wells to be installed will change dependent on compliance with the 40 CFR 60 WWW Standards.)

A Municipal Solid Waste Landfill consisting of 176 acres.

Landfill gas is collected by an active, landfill has collections system that currently includes 89 gas extraction wells. The number of gas extraction wells to be installed will change dependent on compliance with the 40 CFR 60 WWW Standards. The extracted landfill gas is routed through lateral piping to a header pipe which runs along the outer edge of the landfill. Two blowers pulls the extracted gas through the header pipe to a gas treatment system for subsequent use as fuel to power the internal combustion (IC) engines at the City of Jacksonville Trail Ridge Energy, LLC Plant and/or a physically limited 1,600 scfm open flare (reinstalled 3,200 scfm flare) and/or a 5,000 scfm open flare for destruction by combustion.

The primary mode of operation is the fueling of the internal combustion engines at the Trial Ridge Energy LLC Plant. Any excess landfill gas that exceeds the volume the Trail Ridge Energy LLC Plant is able to accept is to be diverted to the 5,000 scfm or 1,600 scfm open flares for control.

Permitting Note: This emissions unit is subject to 40 CFR Part 60, Subpart WWW adopted by reference in Rule 62-204.800(8)(b)72, F.A.C.; 40 CFR, Part 61, Subpart M-National Emission Standard for Asbestos; and 40 CFR Part 63, Subpart AAAA adopted by reference in Rule 62-204.800(11)(b)58, F.A.C.

Essential Potential to Emit (PTE) Parameters

A.1. Landfill Design Capacity: The overall design capacity of the landfill is 24,332,000 cubic yards (18,249,113 tons). [Rule 62-210.200(PTE), FAC and Rule 2.301, JEPB, Gas Collection and Control System Design Plan received June 10, 1997; FINAL Title V Permit No. 0310358-003-AV; Initial Title V Permit Application received March 12, 1997]

A.2. Landfill Gas Collection System-Design: The LFG collection system at this facility is an active collection system. The system shall be designed as follows:

(1) To handle the maximum expected gas flow rate from the entire area of the landfill that warrants control over the intended use period of the gas control or treatment system equipment;

(2) Collect gas from each area, cell, or group of cells in the landfill in which the initial solid waste has been placed for a period of:

(i) 5 years or more if active; or

(ii) 2 years or more if closed or at final grade;

(3) Collects gas at a sufficient extraction rate;

(4) Designed to minimize off-site migration of subsurface gas.

[40 CFR 60.752(b)(2)(ii)(A)]

A.3. Method of Operation -Landfill Gas Collection System: The LFG collection system shall be operated such that gas is collected from each area, cell, or group of cells in the MSW landfill in which solid waste has been in place for:

(1) 5 years or more if active; or
(2) 2 years or more if closed or at final grade;

[40 CFR 60.753(a)]

A.4. Landfill Gas Collection (LFG) System Hours of Operation: The hours of operation are not restricted, i.e., 8760 hours per year. [Rule 62-210.200(PTE), FAC and Rule 2.301, JEPB]

A.5. Landfill Gas Collection System: LFG Control: Any excess landfill gas that exceeds the volume the Trail Ridge Energy LLC Plant is able to accept shall be diverted to the 5,000 scfm or the de-rated 1,600 scfm open flares for control. Collected LFG shall not be vented to the atmosphere. In the event the collection or control system is inoperable, the gas mover system shall be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere shall be closed within 1 hour.

Subsections B and C address the open flares and Subsection E addresses the internal combustion engines at the Trail Ridge Energy, LLC Plant.

[40 CFR 60.753(a); 40 CFR 60.752(b)(2)(iii)(A); 40 CFR 60.753(e); Construction Permit No. 0310358-004-AC/PSD-FL-374]

A.6. Method of Operation- LFG Treatment System/Flares: The control or treatment system shall be operated at all times when the collected gas is routed to the system. [40 CFR 60.753(f)]

A.7. Landfill Gas Collection or Control System- Inoperable: In the event the collection or control system is inoperable, the gas mover system shall be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere shall be closed within 1 hour. [40 CFR 60.753(e)]

Landfill Gas Collection System Operation Requirements

A.8. Wellhead Operation- Pressure: The collection system shall be operated with negative pressure at each wellhead except under the following conditions:

(1) A fire or increased well temperature. The owner or operator shall record instances when positive pressure occurs in efforts to avoid a fire. These records shall be submitted with the annual reports as provided in Condition A.21.(1);

(2) Use of a geomembrane or synthetic cover. The owner or operator shall develop acceptable pressure limits in the design plan;

(3) A decommissioned well. A well may experience a static positive pressure after shut down to accommodate for declining flows. All design changes shall be approved by the Administrator.

[40 CFR 60.753(b)]

A.9. Wellhead Operation-Temperature, Nitrogen or Oxygen Level: Each interior wellhead in the collection system shall be operated with a landfill gas temperature less than 55º C (131º F) and with either a nitrogen level less than 20 percent or an oxygen level less than 5 percent.

(1) The nitrogen level shall be determined using Method 3C.

(2) The oxygen shall be determined by an oxygen meter using Method 3A or 3C except that:

(i) The span shall be set so that the regulatory limit is between 20 and 50 percent of the span;

(ii) A data recorder is not required;

(iii) Only two calibration gases are required, a zero and span and ambient air may be used as the span;

(iv) A calibration error check is not required;

(v) The allowable sample bias, zero drift and calibration drift are ±10 percent.

[40 CFR 60.753(c)]

A.10. Wellhead Operation-Temperature, Nitrogen or Oxygen Level- Higher Operating Value: The owner or operator may establish a higher operating temperature, nitrogen, or oxygen value at a particular well after obtaining approval from the Department.

A higher operating value demonstration shall show supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens.

All such higher operating values shall be approved by the Department in accordance with the requirements of Rule 62-297.620, F.A.C.

[40 CFR 60.753(c); EPA Determination dated August 26, 2008; Rule 62-4.070, F.A.C.. Rule 62-204.800(8)(a), F.A.C.]

A.11. Landfill Gas Collection System – Methane Concentration @ Surface of Landfill: The collection system shall be operated so that the methane concentration is less than 500 parts per million above background at the surface of the landfill.

To determine if this level is exceeded, the owner or operator shall conduct surface testing around the perimeter of the collection area and along a pattern that traverses the landfill at 30 meter intervals and where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover.

The owner or operator may establish an alternative traversing pattern that ensures equivalent coverage. A surface monitoring design plan shall be developed that includes a topographical map with the monitoring route and the rationale for any site-specific deviations from the 30 meter intervals. Areas with steep slopes or other dangerous areas may be excluded from the surface testing.

[40 CFR 60.753(d)]

Monitoring Of Operations

A.12. Landfill Gas Collection System – Temperature, Pressure, Nitrogen or Oxygen: A sampling port and a thermometer, other temperature measuring device, or an access port for temperature measurements shall be installed at each wellhead and:

(1) The gauge pressure in the gas collection header shall be measured on a monthly basis as provided in Condition A.15.(3); and

(2) The nitrogen or oxygen concentration in the landfill gas shall be monitored on a monthly basis as provided in Condition A.15.(5); and

(3) The temperature of the landfill gas shall be on a monthly basis as provided in Condition A.15.(5).

[40 CFR 60.756(a)]

A.13. Landfill Surface Methane Concentration Monitoring: The owner or operator seeking to demonstrate compliance with Condition A.17. shall monitor surface concentrations of methane according to the instrument specifications and procedures provided in Condition A.18.

Any closed landfill that has no monitored exceedances of the operational standard in three consecutive quarterly monitoring periods may skip to annual monitoring. Any methane reading of 500 ppm or more above background detected during the annual monitoring returns the frequency for that landfill to quarterly monitoring. [40 CFR 60.756(f)]

Landfill Gas Collection System corrective action requirements

A.14. Landfill Gas Collection System - Corrective Action. If monitoring demonstrates that the operational requirements in Conditions A.8., A.9. and A.11.,. are not met, corrective action shall be taken as specified in Condition A.15.(3) through (5) or Condition A.17. If corrective actions are taken as specified in Condition A.15. through A.17., the monitored exceedance is not a violation of the operational requirements in this section. [40 CFR 60.753(g)]

Compliance Provisions

A.15. Compliance Determination for Gas Collection System: The specified methods in paragraphs (1) through (6) of this condition shall be used to determine whether the gas collection system is in compliance with Condition A.2.

(1) For the purposes of calculating the maximum expected gas generation flow rate from the landfill to determine compliance with Condition A.2.(1), one of the following equations shall be used. The k and L_o kinetic factors should be those published in the most recent Compilation of Air Pollutant Emission Factors (AP-42) or other site specific values demonstrated to be appropriate and approved by the Administrator. If k has been determined as specified in § 60.754(a)(4),, the value of k determined from the test shall be used. A value of no more than 15 years shall be used for the intended use period of the gas mover equipment. The active life of the landfill is the age of the landfill plus the estimated number of years until closure.

(i) For sites with unknown year-to-year solid waste acceptance rate:

$$Q_m = 2L_o R (e^{-kc} - e^{-kt})$$

where,

Q_m = maximum expected gas generation flow rate, cubic meters per year
L_o = methane generation potential, cubic meters per megagram solid waste
R = average annual acceptance rate, megagrams per year
k = methane generation rate constant, $year^{-1}$
t = age of the landfill at equipment installation plus the time the owner or operator intends to use the gas mover equipment or active life of the landfill, whichever is less. If the equipment is installed after closure, t is the age of the landfill at installation, years
c = time since closure, years (for an active landfill c = O and $e^{-kc} = 1$)

(ii) For sites with known year-to-year solid waste acceptance rate:
where,

Q_M = maximum expected gas generation flow rate, cubic meters per year
k = methane generation rate constant, $year^{-1}$
L_o = methane generation potential, cubic meters per megagram solid waste
M_i = mass of solid waste in the ith section, megagrams
t_i = age of the ith section, years

(iii) Actual flow data may be used to project the maximum expected gas generation flow rate instead of, or in conjunction with, the equations in paragraphs (1) (i) and (ii) of this Condition.

(2) For the purposes of determining sufficient density of gas collectors for compliance with Condition A.2.(2), the owner or operator shall design a system of vertical wells, horizontal collectors, or other collection devices, satisfactory to the Administrator, capable of controlling and extracting gas from all portions of the landfill sufficient to meet all operational and performance standards.

(3) For the purpose of demonstrating whether the gas collection system flow rate is sufficient to determine compliance with Condition A.2.(3), the owner or operator shall measure gauge pressure in the gas collection header at each individual well, monthly. If a positive pressure

exists, action shall be initiated to correct the exceedance within 5 calendar days, except for the three conditions allowed under Condition A.8. If negative pressure cannot be achieved without excess air infiltration within 15 calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial measurement of positive pressure. Any attempted corrective measure shall not cause exceedances of other operational or performance standards. An alternative timeline for correcting the exceedence may be submitted to the Administrator for approval.

(4) Owners or operators are not required to expand the system as required in paragraph (3) of this Condition during the first 180 days after gas collection system startup.

(5) For the purpose of identifying whether excess air infiltration into the landfill is occurring, the owner or operator shall monitor each well monthly for temperature and nitrogen or oxygen as provided in Condition A.9. If a well exceeds one of these operating parameters, action shall be initiated to correct the exceedance within 5 calendar days. If correction of the exceedance cannot be achieved within 15 calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial exceedance. Any attempted corrective measure shall not cause exceedances of other operational or performance standards. An alternative timeline for correcting the exceedence may be submitted to the Administrator for approval.

(6) N/A - the collection system conforms with the specifications provided in § 60.759.

[40 CFR 60.755(a)]

A.16. For purposes of compliance with Condition A.3., each well or design component shall be placed as specified in the approved design plan as provided in § 60.752(b)(2)(i). Each well shall be installed no later than 60 days after the date on which the initial solid waste has been in place for a period of:

(1) 5 years or more if active; or

(2) 2 years or more if closed or at final grade.

[40 CFR 60.755(b)]

A.17. <u>Compliance Determination with Surface Methane Operational Standard</u>: The following procedures shall be used for compliance with the surface methane operational standard as provided in Condition A.11.

(1) After installation of the collection system, the owner or operator shall monitor surface concentrations of methane along the entire perimeter of the collection area and along a pattern that traverses the landfill at 30 meter intervals (or a site-specific established spacing) for each collection area on a quarterly basis using an organic vapor analyzer, flame ionization detector, or other portable monitor meeting the specifications provided in Condition A.18.

(2) The background concentration shall be determined by moving the probe inlet upwind and downwind outside the boundary of the landfill at a distance of at least 30 meters from the perimeter wells.

(3) Surface emission monitoring shall be performed in accordance with section 4.3.1 of Method 21 of appendix A of Part 60, except that the probe inlet shall be placed within 5 to 10

centimeters of the ground. Monitoring shall be performed during typical meteorological conditions.

(4) Any reading of 500 parts per million or more above background at any location shall be recorded as a monitored exceedance and the actions specified in paragraphs (4) (i) through (v) of this Condition shall be taken. As long as the specified actions are taken, the exceedance is not a violation of the operational requirements of Condition A.11.

(i) The location of each monitored exceedance shall be marked and the location recorded.

(ii) Cover maintenance or adjustments to the vacuum of the adjacent wells to increase the gas collection in the vicinity of each exceedance shall be made and the location shall be re-monitored within 10 calendar days of detecting the exceedance.

(iii) If the re-monitoring of the location shows a second exceedance, additional corrective action shall be taken and the location shall be monitored again within 10 days of the second exceedance. If the re-monitoring shows a third exceedance for the same location, the action specified in paragraph (4)(v) of this Condition shall be taken and no further monitoring of that location is required until the action specified in paragraph (4)(v) has been taken.

(iv) Any location that initially showed an exceedance but has a methane concentration less than 500 ppm methane above background at the 10-day re-monitoring specified in paragraph (4) (ii) or (iii) of this Condition shall be re-monitored 1 month from the initial exceedance. If the 1-month remonitoring shows a concentration less than 500 parts per million above background, no further monitoring of that location is required until the next quarterly monitoring period. If the 1-month remonitoring shows an exceedance, the actions specified in paragraph (4) (iii) or (v) shall be taken.

(v) For any location where monitored methane concentration equals or exceeds 500 parts per million above background three times within a quarterly period, a new well or other collection device shall be installed within 120 calendar days of the initial exceedance. An alternative remedy to the exceedance, such as upgrading the blower, header pipes or control device and a corresponding timeline for installation may be submitted to the Administrator for approval.

(5) The owner or operator shall implement a program to monitor for cover integrity and implement cover repairs as necessary on a monthly basis.

[40 CFR 60.755(c)]

A.18. Instrumentation Specifications and Procedures for Surface Emissions Monitoring Device: The owner or operator shall comply with the following instrumentation specifications and procedures for surface emission monitoring devices:

(1) The portable analyzer shall meet the instrument specifications provided in Section 3 of Method 21 of Appendix A of Part 63, except that ``methane" shall replace all references to VOC.

(2) The calibration gas shall be methane, diluted to a nominal concentration of 500 parts per million in air.

(3) To meet the performance evaluation requirements in Section 3.1.3 of Method 21 of Appendix A of Part 63, the instrument evaluation procedures of Section 4.4 of Method 21 of Appendix A of Part 63 shall be used.

(4) The calibration procedures provided in Section 4.2 of Method 21 of Appendix A of Part 63 shall be followed immediately before commencing a surface monitoring survey.

[40 CFR 60.755(d)]

A.19. The provisions 40 CFR 63 Subpart WWW apply at all times, except during periods of start-up, shutdown, or malfunction, provided that the duration of start-up, shutdown, or malfunction shall not exceed 5 days for collection systems and shall not exceed 1 hour for treatment or control devices.

[40 CFR 60.755(e); 40 CFR 60.11(c)]

Reporting Requirements

A.20. Landfill Closure Notification: If the landfill is permanently closed, a closure report shall be submitted to the Administrator within 30 days of waste acceptance cessation. The Administrator may request additional information as may be necessary to verify that permanent closure has taken place in accordance with the requirements of 40 CFR 258.60. If a closure report has been submitted to the Administrator, no additional wastes may be placed into the landfill without filing a notification of modification as described under 40 CFR 60.7(a)(4). [40 CFR 60.757(d)]

A.21. Equipment Removal Report: The owner or operator of a controlled landfill shall submit an equipment removal report to the Administrator 30 days prior to removal or cessation of operation of the control equipment.

(1) The equipment removal report shall contain all of the following items:

(i) A copy of the closure report submitted in accordance with Condition A.20.;

(ii) A copy of the initial performance test report demonstrating that the 15 year minimum control period has expired; and

(iii) Dated copies of three successive NMOC emission rate reports demonstrating that the landfill is no longer producing 50 megagrams or greater of NMOC per year.

(2) The Administrator may request such additional information as may be necessary to verify that all of the conditions for removal in Condition A.33. have been met.

[40 CFR 60.757(e)]

A.22. Collection and Control System Monitoring Report: The owner or operator shall submit to the Administrator semi-annual reports[1] of the recorded information in (1) through (6) of this Condition.

(1) Value and length of time for exceedance of applicable parameters monitored under Conditions A.12., B.11. and C.11.

(2) N/A – The flares are not equipped with a bypass system

(3) Description and duration of all periods when the control device was not operating for a period exceeding 1 hour and length of time the control device was not operating.

(4) All periods when the collection system was not operating in excess of 5 days.

(5) The location of each exceedance of the 500 parts per million methane concentration as provided in Condition A.11. and the concentration recorded at each location for which an exceedance was recorded in the previous month.

(6) The date of installation and the location of each well or collection system expansion added pursuant to Conditions A.15.(3), A.16. and A.17.(4).

[1] The provisions of 40 CFR 63 Subpart AAAA requires this submittal on a semi-annual basis instead of the annual basis required in 40 CFR 60 Subpart WWW. Refer to Condition A.53.

[40 CFR 60.757(f); 40 CFR 63.1980(a)]

Recordkeeping Requirements

A.23. The owner or operator of an MSW landfill shall keep for at least 5 years up-to-date, readily accessible, on-site records of the design capacity report which triggered 40 CFR 60.752(b), the current amount of solid waste in-place and the year-by-year waste acceptance rate. Off-site records may be maintained if they are retrievable within 4 hours. Either paper copy or electronic formats are acceptable.

[40 CFR 60.758(a)]

A.24. Testing & Monitoring Records Retention: The owner or operator shall keep up-to-date, readily accessible records for the life of the control equipment of the data listed in paragraphs (1) through (4) of this Condition as measured during the initial performance test or compliance determination. Records of subsequent tests or monitoring shall be maintained for a minimum of 5 years. Records of the control device vendor specifications shall be maintained until removal.

(1) Where an owner or operator subject to the provisions of this subpart seeks to demonstrate compliance with Condition A.2.:

(i) The maximum expected gas generation flow rate as calculated in Condition A.15.(1). The owner or operator may use another method to determine the maximum gas generation flow rate, if the method has been approved by the Administrator.

(ii) The density of wells, horizontal collectors, surface collectors, or other gas extraction devices determined using the procedures specified in Condition A.30.(1).

(2) N/A – Control Device is not an enclosed combustor

(3) N/A – control device is not a boiler or process heater

(4) Where an owner or operator seeks to demonstrate compliance with Condition A.5. through use of an open flare, the flare type (i.e., nonassisted), all visible emission readings, heat content determination, flow rate measurements and exit velocity determinations made during the performance test as specified in § 60.18; continuous records of the flare pilot flame or flare flame monitoring and records of all periods of operations during which the pilot flame of the flare flame is absent.

[40 CFR 60.758(b)]

A.25. Equipment Continuous Operating Parameter Records: The owner or operator of a controlled landfill shall keep for 5 years up-to-date, readily accessible continuous records of the equipment operating parameters specified to be monitored in Conditions A.12. and A.13., as well as up-to-date, readily accessible records for periods of operation during which the parameter boundaries established during the most recent performance test are exceeded.

(1) Each owner or operator shall keep up-to-date, readily accessible continuous records of the indication of flow to the control devices specified under Conditions B.11. and C.12;

(2) Each owner or operator shall keep up-to-date, readily accessible continuous records of the flame or flare pilot flame monitoring specified under Conditions B.11. and C.11. and up-to-date, readily accessible records of all periods of operation in which the flame or flare pilot flame is absent.

[40 CFR 60.758(c), (c)(2) and (4); EPA Office of Air Quality Planning and Standards' Municipal Solid Waste Landfill New Source Performance Standards (NSPS and Emission Guidelines (EG) Questions and Answers document revised in May 2002]

A.26. Landfill Collection System Records: The owner or operator shall keep for the life of the collection system an up-to-date, readily accessible plot map showing each existing and planned collector in the system and providing a unique identification location label for each collector.

(1) Up-to-date, readily accessible records of the installation date and location of all newly installed collectors as specified under Condition A.16., shall be kept.

(2) Readily accessible documentation of the nature, date of deposition, amount and location of asbestos-containing or nondegradable waste excluded from collection as provided in Condition A.30.(3)(i) as well as any nonproductive areas excluded from collection as provided in Condition A.30.(3)(ii) shall be kept.

[40 CFR 60.758(d)]

A.27. Landfill Gas Collection and Control System – Exceedance Records: Except as provided in 40 CFR 60.752(b)(2)(i)(B), the owner or operator subject to the provisions of this subpart shall keep for at least 5 years up-to-date, readily accessible records of all collection and control system exceedances of the operational standards in Conditions A.8. through A.11., the reading in the subsequent month whether or not the second reading is an exceedance and the location of each exceedance.

Permitting Note: *40 CFR 60.752(b)(2)(i)(B) states the collection and control system design plan shall include any alternatives to the operational standards, test methods, procedures, compliance measures, monitoring, recordkeeping or reporting provisions of §§60.753 through 60.758 proposed by the owner or operator. 40 CFR 60.752(b)(2)(i)(D) states that the Administrator shall review the information submitted*

under paragraphs (A), (B) and (C) of this section and either approve it, disapprove it, or request that additional information be submitted.

[40 CFR 60.758(e)]

Test Methods and Procedures

A.28. NMOC Emission Rate Calculation. The NMOC emission rate shall be calculated using either the equation provided in paragraph (i) of this Condition or the equation provided in paragraph (ii) of this Condition.

Both equations may be used if the actual year-to-year solid waste acceptance rate is known, as specified in paragraph (i), for part of the life of the landfill and the actual year-to- year solid waste acceptance rate is unknown, as specified in paragraph (ii), for part of the life of the landfill. The values to be used in both equations are 0.05 per year for k, 170 cubic meters per megagram for L_o and 4,000 parts per million by volume as hexane for the C_{NMOC}. For landfills located in geographical areas with a thirty year annual average precipitation of less than 25 inches, as measured at the nearest representative official meteorologic site, the k value to be used is 0.02 per year.

(i) The following equation shall be used if the actual year-to-year solid waste acceptance rate is known.

where:

$$M_{NMOC} = \sum_{i=1}^{n} 2kL_oM_i\left(e^{-kt_i}\right)\left(C_{NMOC}\right)\left(3.6X10^{-9}\right)$$

M_{NMOC} = Total NMOC emission rate from the landfill, megagrams per year
k = methane generation rate constant, $year^{-1}$
L_o = methane generation potential, cubic meters per megagram solid waste
Mi = mass of solid waste in the ith section, megagrams
t_i = age of the ith section, years
C_{NMOC} = concentration of NMOC, parts per million by volume as hexane
3.6 x 10^{-9} = conversion factor

The mass of nondegradable solid waste may be subtracted from the total mass of solid waste in a particular section of the landfill when calculating the value for M_i if documentation of the nature and amount of such wastes is maintained.

(ii) The following equation shall be used if the actual year-to- year solid waste acceptance rate is unknown.

$$M_{NMOC} = 2L_o R (e^{-kc} - e^{-kt}) (C_{NMOC}) (3.6 \times 10^{-9})$$

Where:

M_{NMOC} = mass emission rate of NMOC, megagrams per year
L_o = methane generation potential, cubic meters per megagram solid waste
R = average annual acceptance rate, megagrams per year
k = methane generation rate constant, $year^{-1}$
t = age of landfill, years
C_{NMOC} = concentration of NMOC, parts per million by volume as hexane
c = time since closure, years. For active landfill c = O and e^{-kc}=1

3.6×10^{-9} = conversion factor

The mass of nondegradable solid waste may be subtracted from the total mass of solid waste in a particular section of the landfill when calculating a value for R, if documentation of the nature and amount of such wastes is maintained.

[40 CFR 60.754(a)(1)]

A.29. NMOC Emission Rate -Landfill Gas Collection System Removal: The NMOC emission rate shall be calculated for purposes of determining when the system can be removed as provided in Condition A.33., using the following equation:

$$M_{NMOC} = 1.89 \times 10^{-3} Q_{LFG} C_{NMOC}$$

where,

M_{NMOC}= mass emission rate of NMOC, megagrams per year

Q_{LFG}= flow rate of landfill gas, cubic meters per minute

C_{NMOC}= NMOC concentration, parts per million by volume as hexane

(1) The flow rate of landfill gas, Q_{LFG}, shall be determined by measuring the total landfill gas flow rate at the common header pipe that leads to the control device using a gas flow measuring device calibrated according to the provisions of section 4 of Method 2E of Appendix A of Part 60.

(2) The average NMOC concentration, C_{NMOC}, shall be determined by collecting and analyzing landfill gas sampled from the common header pipe before the gas moving or condensate removal equipment using the procedures in Method 25C or Method 18 of Appendix A of Part 60. If using Method 18 Appendix A of Part 60, the minimum list of compounds to be tested shall be those published in the most recent Compilation of Air Pollutant Emission Factors (AP–42). The sample location on the common header pipe shall be before any condensate removal or other gas refining units. The landfill owner or operator shall divide the NMOC concentration from Method 25C of Appendix A of Part 60 by six to convert from C_{NMOC} as carbon to C_{NMOC} as hexane.

(3) The owner or operator may use another method to determine landfill gas flow rate and NMOC concentration if the method has been approved by the Administrator.

[40 CFR 60.754(b)]

Specifications for active collection systems

A.30. Each owner or operator seeking to comply with 40 CFR 60.752(b)(2)(i) shall site active collection wells, horizontal collectors, surface collectors, or other extraction devices at a sufficient density throughout all gas producing areas using the following procedures unless alternative procedures have been approved by the Administrator as provided in § 60.752(b)(2)(i)(C) and (D):

(1) The collection devices within the interior and along the perimeter areas shall be certified to achieve comprehensive control of surface gas emissions by a professional engineer. The

following issues shall be addressed in the design: depths of refuse, refuse gas generation rates and flow characteristics, cover properties, gas system expandability, leachate and condensate management, accessibility, compatibility with filling operations, integration with closure end use, air intrusion control, corrosion resistance, fill settlement and resistance to the refuse decomposition heat.

(2) The sufficient density of gas collection devices determined in paragraph (1) of this Condition shall address landfill gas migration issues and augmentation of the collection system through the use of active or passive systems at the landfill perimeter or exterior.

(3) The placement of gas collection devices determined in paragraph (1) of this Condition shall control all gas producing areas, except as provided by paragraphs (3)(i) and (3)(ii) of this Condition.

(i) Any segregated area of asbestos or nondegradable material may be excluded from collection if documented as provided under Condition A.26. The documentation shall provide the nature, date of deposition, location and amount of asbestos or nondegradable material deposited in the area and shall be provided to the Administrator upon request.

(ii) Any nonproductive area of the landfill may be excluded from control, provided that the total of all excluded areas can be shown to contribute less than 1 percent of the total amount of NMOC emissions from the landfill. The amount, location and age of the material shall be documented and provided to the Administrator upon request. A separate NMOC emissions estimate shall be made for each section proposed for exclusion and the sum of all such sections shall be compared to the NMOC emissions estimate for the entire landfill. Emissions from each section shall be computed using the following equation:

$Q_i = 2\ k\ L_o M_i (e\text{-}^{kt}i)\ (C_{NMOC})\ (3.6 \times 10^{-9})$

where,

Q_i= NMOC emission rate from the ith section, megagrams per year
k = methane generation rate constant, $year^{-1}$
L_o= methane generation potential, cubic meters per megagram solid waste
M_i= mass of the degradable solid waste in the ith section, megagram
t_i= age of the solid waste in the ith section, years
C_{NMOC}= concentration of nonmethane organic compounds, parts per million by volume
3.6×10^{-9}= conversion factor

(iii) The values for k and C_{NMOC} determined in field testing shall be used if field testing has been performed in determining the NMOC emission rate or the radii of influence (this distance from the well center to a point in the landfill where the pressure gradient applied by the blower or compressor approaches zero). If field testing has not been performed, the default values for k, L_O and C_{NMOC} provided in Condition A.28. or the alternative values from §60.754(a)(5) shall be used. The mass of nondegradable solid waste contained within the given section may be subtracted from the total mass of the section when estimating emissions provided the nature, location, age and amount of the nondegradable material is documented as provided in paragraph (3)(i) of this Condition.

[40 CFR 60.759(a)]

A.31. The gas collection devices shall be constructed using the following equipment or procedures:

(1) The landfill gas extraction components shall be constructed of polyvinyl chloride (PVC), high density polyethylene (HDPE) pipe, fiberglass, stainless steel, or other nonporous corrosion resistant material of suitable dimensions to: convey projected amounts of gases; withstand installation, static and settlement forces; and withstand planned overburden or traffic loads. The collection system shall extend as necessary to comply with emission and migration standards. Collection devices such as wells and horizontal collectors shall be perforated to allow gas entry without head loss sufficient to impair performance across the intended extent of control. Perforations shall be situated with regard to the need to prevent excessive air infiltration.

(2) Vertical wells shall be placed so as not to endanger underlying liners and shall address the occurrence of water within the landfill. Holes and trenches constructed for piped wells and horizontal collectors shall be of sufficient cross-section so as to allow for their proper construction and completion including, for example, centering of pipes and placement of gravel backfill. Collection devices shall be designed so as not to allow indirect short circuiting of air into the cover or refuse into the collection system or gas into the air. Any gravel used around pipe perforations should be of a dimension so as not to penetrate or block perforations.

(3) Collection devices may be connected to the collection header pipes below or above the landfill surface. The connector assembly shall include a positive closing throttle valve, any necessary seals and couplings, access couplings and at least one sampling port. The collection devices shall be constructed of PVC, HDPE, fiberglass, stainless steel, or other nonporous material of suitable thickness.

[40 CFR 60.759(b)]

A.32. The landfill gas shall be conveyed to a control system in compliance with Condition A.5., through the collection header pipe(s). The gas mover equipment shall be sized to handle the maximum gas generation flow rate expected over the intended use period of the gas moving equipment using the following procedures:

(1) For existing collection systems, the flow data shall be used to project the maximum flow rate. If no flow data exists, the procedures in paragraph (2) of this Condition shall be used.

(2) For new collection systems, the maximum flow rate shall be in accordance with Condition A.15.(1).

[40 CFR 60.759(c)]

A.33. <u>Collection & Control System Capping or Closure</u>: The collection and control system may be capped or removed provided that all the conditions of the following paragraphs are met:

(A) The landfill shall be a closed landfill as defined in 40 CFR 60.751. A closure report shall be submitted to the Administrator as provided in Condition A.20.;

(B) The collection and control system shall have been in operation a minimum of 15 years; and

(C) Following the procedures specified in Condition A.29., the calculated NMOC gas produced by the landfill shall be less than 50 megagrams per year on three successive test dates. The test dates shall be no less than 90 days apart and no more than 180 days apart.

[40 CFR 60.752(b)(2)(v)]

A.34. MSW Landfill Closure. When a MSW landfill subject to 40 CFR 60 Subpart WWW is closed, the owner or operator is no longer subject to the requirement to maintain a Title V operating permit for the landfill if the landfill is not otherwise subject to the requirements of either part 70 or 71 and if either of the following conditions are met:

(1) N/A - the landfill is subject to the requirement for a control system under 60.752(b)(2); or

(2) The owner or operator meets the conditions for control system removal specified in Condition A.33.

[40 CFR 60.752(d)]

40 CFR 61 Subpart M Standards

A.35. Each owner or operator of an active waste disposal site that receives asbestos-containing waste material from a source covered under 40 CFR 61.149, 61.150, or 61.155 shall meet the requirements as stated below.

A.36. Visible Emissions. There shall be no visible emissions to the outside air from any active waste disposal site where asbestos-containing waste material has been deposited, or the requirements of Condition A.39. or A.40. must be met.

[40 CFR 61.154(a)]

A.37. Natural Barrier. The facility shall use a natural barrier to adequately deter access by the general public or warning signs and fencing must be installed and maintained as stated in Condition A.38., or the requirements of Condition A.39.(1) must be met.

[40 CFR 61.154(b)]

A.38. Warning Signs and Fencing. Warning signs and fencing must be installed and maintained as follows:

(1) Warning signs must be displayed at all entrances and at intervals of 100 m (330 ft) or less along the property line of the site or along the perimeter of the sections of the site where asbestos-containing waste material is deposited. The warning signs must:

(i) Be posted in such a manner and location that a person can easily read the legend; and

(ii) Conform to the requirements of 51 cm × 36 cm (20&inch;×14&inch;) upright format signs specified in 29 CFR 1910.145(d)(4) and this paragraph; and

(iii) Display the following legend in the lower panel with letter sizes and styles of a visibility at least equal to those specified in this paragraph.

Legend	Notation
Asbestos Waste Disposal Site	2.5 cm (1 inch) Sans Serif, Gothic or Block.
Do Not Create Dust	1.9 cm (3/4 inch) Sans Serif, Gothic or Block.
Breathing Asbestos is Hazardous to Your Health	14 Point Gothic.

Spacing between any two lines must be at least equal to the height of the upper of the two lines.

(2) The perimeter of the disposal site must be fenced in a manner adequate to deter access by the general public.

[40 CFR 61.154(b)(1) and (2)]

A.39. Cover. Rather than meet the no visible emission requirement of Condition A.36., at the end of each operating day, or at least once every 24-hour period while the site is in continuous operation, the asbestos-containing waste material that has been deposited at the site during the operating day or previous 24-hour period shall:

(1) Be covered with at least 15 centimeters (6 inches) of compacted nonasbestos-containing material, or

(2) Be covered with a resinous or petroleum-based dust suppression agent that effectively binds dust and controls wind erosion. Such an agent shall be used in the manner and frequency recommended for the particular dust by the dust suppression agent manufacturer to achieve and maintain dust control. Other equally effective dust suppression agents may be used upon prior approval by the Administrator.

For purposes of this Condition, any used, spent, or other waste oil is not considered a dust suppression agent.

[40 CFR 61.154(c)(1) and (2)]

A.40. Alternative Emissions Control Method. Rather than meet the no visible emission requirement of Condition A.36., use an alternative emissions control method that has received prior written approval by the Administrator according to following procedures:

(i) To obtain approval for an alternative method, a written application must be submitted to the Administrator demonstrating that the following criteria are met:

(ii) The alternative method will control asbestos emissions equivalent to currently required methods.

(iii) The suitability of the alternative method for the intended application.

(iv) The alternative method will not violate other regulations.

(v) The alternative method will not result in increased water pollution, land pollution, or occupational hazards.

[40 CFR 61.154(d); 40 CFR 61.149(c)(2)]

Recordkeeping

A.41. Records. For all asbestos-containing waste material received, the owner or operator of the active waste disposal site shall:

(1) Maintain waste shipment records, using a form similar to that shown in Figure 4 and include the following information:

(i) The name, address and telephone number of the waste generator.

(ii) The name, address and telephone number of the transporter(s).

(iii) The quantity of the asbestos-containing waste material in cubic meters (cubic yards).

(iv) The presence of improperly enclosed or uncovered waste, or any asbestos-containing waste material not sealed in leak-tight containers. Report in writing to the local, State, or EPA Regional office responsible for administering the asbestos NESHAP program for the waste generator (identified in the waste shipment record) and, if different, the local, State, or EPA Regional office responsible for administering the asbestos NESHAP program for the disposal site, by the following working day, the presence of a significant amount of improperly enclosed or uncovered waste. Submit a copy of the waste shipment record along with the report.

(v) The date of the receipt.

(2) As soon as possible and no longer than 30 days after receipt of the waste, send a copy of the signed waste shipment record to the waste generator.

(3) Upon discovering a discrepancy between the quantity of waste designated on the waste shipment records and the quantity actually received, attempt to reconcile the discrepancy with the waste generator. If the discrepancy is not resolved within 15 days after receiving the waste, immediately report in writing to the local, State, or EPA Regional office responsible for administering the asbestos NESHAP program for the waste generator (identified in the waste shipment record) and, if different, the local, State, or EPA Regional office responsible for administering the asbestos NESHAP program for the disposal site. Describe the discrepancy and attempts to reconcile it and submit a copy of the waste shipment record along with the report.

(4) Retain a copy of all records and reports required by this paragraph for at least 2 years.

For Figure 4 (refer to Appendix F)

[40 CFR 61.154(e)]

A.42. Records. Maintain, until closure, records of the location, depth and area and quantity in cubic meters (cubic yards) of asbestos-containing waste material within the disposal site on a map or diagram of the disposal area.

[40 CFR 61.154(f)]

A.43. Records – Inspections. Furnish upon request and make available during normal business hours for inspection by the Administrator, all records required under 40 CFR 61.154.

[40 CFR 61.154(i)]

Reporting Requirements

A.44. Closure- Disposal Locations/Quantities. Submit to the Administrator, upon closure of the facility, a copy of records of asbestos waste disposal locations and quantities. [40 CFR 61.154(h)]

A.45. Notification of Excavation. Notify the Administrator in writing at least 45 days prior to excavating or otherwise disturbing any asbestos-containing waste material that has been deposited at a waste disposal site and is covered. If the excavation will begin on a date other than the one contained in the original notice, notice of the new start date must be provided to the Administrator at least 10 working days before excavation begins and in no event shall excavation begin earlier than the date specified in the original notification. Include the following information in the notice:

(1) Scheduled starting and completion dates.

(2) Reason for disturbing the waste.

(3) Procedures to be used to control emissions during the excavation, storage, transport and ultimate disposal of the excavated asbestos-containing waste material. If deemed necessary, the Administrator may require changes in the emission control procedures to be used.

(4) Location of any temporary storage site and the final disposal site. (Secs. 112 and 301(a) of the Clean Air Act as amended (42 U.S.C. 7412, 7601(a))

[40 CFR 61.154(j)]

Landfill Closure Requirements

A.46. Upon closure, the owner or operator shall comply with all the following conditions for inactive waste disposal sites.

[40 CFR 61.154(g)]

A.47. The owner or operator shall comply with one of the following:

(1) Either discharge no visible emissions to the outside air from an inactive waste disposal site subject to this Condition; or

(2) Cover the asbestos-containing waste material with at least 15 centimeters (6 inches) of compacted nonasbestos-containing material and grow and maintain a cover of vegetation on the area adequate to prevent exposure of the asbestos-containing waste material. In desert areas where vegetation would be difficult to maintain, at least 8 additional centimeters (3 inches) of well-graded, nonasbestos crushed rock may be placed on top of the final cover instead of vegetation and maintained to prevent emissions; or

(3) Cover the asbestos-containing waste material with at least 60 centimeters (2 feet) of compacted nonasbestos-containing material and maintain it to prevent exposure of the asbestos-containing waste; or

(4) For inactive waste disposal sites for asbestos tailings, a resinous or petroleum-based dust suppression agent that effectively binds dust to control surface air emissions may be used

instead of the methods in paragraphs (1), (2) and (3) of this Condition. Use the agent in the manner and frequency recommended for the particular asbestos tailings by the manufacturer of the dust suppression agent to achieve and maintain dust control. Obtain prior written approval of the Administrator to use other equally effective dust suppression agents. For purposes of this paragraph, any used, spent, or other waste oil is not considered a dust suppression agent.

[40 CFR 61.151(a)]

A.48. Warning Signs. Unless a natural barrier adequately deters access by the general public, install and maintain warning signs and fencing as follows, or comply with paragraph (2) or (3).

(1) Display warning signs at all entrances and at intervals of 100 m (328 ft) or less along the property line of the site or along the perimeter of the sections of the site where asbestos-containing waste material was deposited. The warning signs must:

(i) Be posted in such a manner and location that a person can easily read the legend; and

(ii) Conform to the requirements for 51 cm×36 cm (20&inch;×14&inch;) upright format signs specified in 29 CFR 1910.145(d)(4) and this paragraph; and

(iii) Display the following legend in the lower panel with letter sizes and styles of a visibility at least equal to those specified in this paragraph.

Legend	Notation
Asbestos Waste Disposal Site	2.5 cm (1 inch) Sans Serif, Gothic or Block
Do Not Create Dust	1.9 cm (3/4 inch) Sans Serif, Gothic or Block
Breathing Asbestos is Hazardous to Your Health	14 Point Gothic.

Spacing between any two lines must be at least equal to the height of the upper of the two lines.

(2) Fence the perimeter of the site in a manner adequate to deter access by the general public.

(3) When requesting a determination on whether a natural barrier adequately deters public access, supply information enabling the Administrator to determine whether a fence or a natural barrier adequately deters access by the general public.

[40 CFR 61.151(b)]

A.49. Alternative Control Methods. The owner or operator may use an alternative control method that has received prior approval of the Administrator rather than comply with the requirements of Conditions A.47. and A.48.

[40 CFR 61.151(c)]

A.50. Excavation. Notify the Administrator in writing at least 45 days prior to excavating or otherwise disturbing any asbestos-containing waste material that has been deposited at a waste disposal site under this section and follow the procedures specified in the notification. If the excavation will begin on a date other than the one contained in the original notice, notice of the new start date must be provided to the Administrator at least 10 working days before excavation begins and in no event shall excavation begin
earlier than the date specified in the original notification. Include the following information in the notice:

(1) Scheduled starting and completion dates.
(2) Reason for disturbing the waste.
(3) Procedures to be used to control emissions during the excavation, storage, transport and ultimate disposal of the excavated asbestos-containing waste material. If deemed necessary, the Administrator may require changes in the emission control procedures to be used.
(4) Location of any temporary storage site and the final disposal site.

[40 CFR 61.151(d)]

A.51. Deed Notation. Within 60 days of a site becoming inactive and after the effective date of Conditions A.46. through A.50., record, in accordance with State law, a notation on the deed to the facility property and on any other instrument that would normally be examined during a title search; this notation will in perpetuity notify any potential purchaser of the property that:

(1) The land has been used for the disposal of asbestos-containing waste material;
(2) The survey plot and record of the location and quantity of asbestos-containing waste disposed of within the disposal site required in Condition A.42. have been filed with the Administrator; and
(3) The site is subject to 40 CFR Part 61, Subpart M.

[40 CFR 61.151(e)]

40 CFR 63 Subpart AAAA Standards

A.52. The facility is no longer required to comply with the requirements of Conditions A.52 through A.56. when the facility is no longer required to apply controls as specified in Condition A.33.

[40 CFR 63.1950]

A.53. Collection and Control System Alternatives. All affected sources must comply with the SSM requirements in Subpart A of Part 63 as specified in Table 1 of 40 CFR 63 Subpart AAAA and all affected sources must submit compliance reports every 6 months as specified in Condition A.56.(a) and (b), including information on all deviations that occurred during the 6-month reporting period. Deviations for continuous emission monitors or numerical continuous parameter monitors must be determined using a 3-hour monitoring block average.

[40 CFR 63.1955(c)]

Compliance Demonstration

A.54. Compliance is determined in the same way it is determined for 40 CFR Part 60, Subpart WWW, including performance testing, monitoring of the collection system, continuous parameter monitoring and other credible evidence.

In addition, continuous parameter monitoring data, collected under Conditions B.11.(1) and C.11.(1), is used to demonstrate compliance with the operating conditions for control systems. If a deviation occurs, you have failed to meet the control device

operating conditions described in this Subsection and have deviated from the requirements of this Subsection.

Finally, you must develop and implement a written SSM plan according to the provisions in 40 CFR 63.6(e)(3). A copy of the SSM plan must be maintained on site. Failure to write, implement, or maintain a copy of the SSM plan is a deviation from the requirements of 40 CFR 63 Subpart AAAA.

[40 CFR 63.1960]

What is a Deviation

A.55. A deviation is defined in 40 CFR 63.1990. For the purposes of the landfill monitoring and SSM plan requirements, deviations include the items in paragraphs (a) through (c) of this Condition.

(a) N/A – TRL uses open flares.

(b) N/A – TRL uses open flares.

(c) A deviation occurs when a SSM plan is not developed or maintained on site.

[40 CFR 63.1965]

Recordkeeping and Reporting Requirements

A.56. (a) The Permittee shall keep records and reports as specified in 40 CFR Part 60, Subpart WWW, with one exception: The report described in Condition A.22., B.12. and C.17., shall be submitted every 6 months.

(b) The Permittee shall also keep records and reports as specified in the General Provisions of 40 CFR Part 60 and Part 63 as shown in Table 1 of Subpart AAAA. Applicable records in the general provisions include items such as SSM plans and the SSM plan reports.

(c) N/A – Landfill does not operate a bioreactor.

(d) N/A – Landfill does not operate a bioreactor.

(e) N/A – Landfill does not operate a bioreactor.

(f) N/A – Landfill does not operate a bioreactor

(g) If any liquids other than leachate is added in a controlled fashion to the waste mass and the facility does not comply with the bioreactor requirements in 40 CFR 63.1947, Condition A.53. and Condition A.56.(c) through (f), a record of calculations showing that the percent moisture by weight expected in the waste mass to which liquid is added is less than 40 percent shall be kept. The calculation must consider the waste mass, moisture content of the incoming waste, mass of water added to the waste including leachate recirculation and other liquids addition and precipitation and the mass of water removed through leachate or other water losses. Moisture level sampling or mass balances calculations can be used. The

calculations and the basis of any assumptions must be documented. A record of the calculations shall be kept until liquids addition has been ceased.

(h) If moisture content is calculated to establish the date the bioreactor is required to begin operating the collection and control system under 40 CFR 63.1947(a)(2) or (c)(2), a record of the calculations including the information specified in paragraph (g) of this Condition shall be kept for 5 years. Within 90 days after the bioreactor achieves 40 percent moisture content, report the results of the calculation, the date the bioreactor achieved 40 percent moisture content by weight and the date you plan to begin collection and control system operation.

[40 CFR 63.1980]

40 CFR 63 Subpart AAAA Definitions

Terms used in this Subsection are defined in the Clean Air Act, 40 CFR Part 60, Subparts A, Cc and WWW; 40 CFR Part 62, Subpart GGG and Subpart A of Part 63 and this Subsection that follows:

Bioreactor means a MSW landfill or portion of a MSW landfill where any liquid other than leachate (leachate includes landfill gas condensate) is added in a controlled fashion into the waste mass (often in combination with recirculating leachate) to reach a minimum average moisture content of at least 40 percent by weight to accelerate or enhance the anaerobic (without oxygen) biodegradation of the waste.

Deviation means any instance in which an affected source subject to this subpart, or an owner or operator of such a source:

(1) Fails to meet any requirement or obligation established by this subpart, including, but not limited to, any emissions limitation (including any operating limit) or work practice standard;
(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit; or
(3) Fails to meet any emission limitation, (including any operating limit), or work practice standard in this subpart during SSM, regardless of whether or not such failure is permitted by this subpart.

Emissions limitation means any emission limit, opacity limit, operating limit, or visible emissions limit.

Municipal solid waste landfill or MSW landfill means an entire disposal facility in a contiguous geographical space where household waste is placed in or on land. A municipal solid waste landfill may also receive other types of RCRA Subtitle D wastes (see Sec. 257.2 of this chapter) such as commercial solid waste, nonhazardous sludge, conditionally exempt small quantity generator waste and industrial solid waste. Portions of a municipal solid waste landfill may be separated by access roads. A municipal solid waste landfill may be publicly or privately owned. A municipal solid waste landfill may be a new municipal solid waste landfill, an existing municipal solid waste landfill, or a lateral expansion.

Work practice standard means any design, equipment, work practice, or operational standard, or combination thereof, that is promulgated pursuant to section 112(h) of the Clean Air Act.

[40 CFR 63.1990]

Common Conditions

A.57. This emissions unit is also subject to the applicable General Provisions of 40 CFR 60 Subpart A.

A.58. This emissions unit is also subject to the applicable General Provisions of 40 CFR Part 61 Subpart A.

A.59. This emissions unit is subject to the applicable requirements in 40 CFR Part 63, Subpart A, as Specified in Table 1 - Applicability of NESHAP General Provisions to Subpart AAAA .
[40 CFR 63.1955(b)]

Table 1 to Subpart AAAA of Part 63—Applicability of NESHAP General Provisions to Subpart AAAA

Part 63 Citation	Description	Explanation
63.1(a)	Applicability: general applicability of NESHAP in this part	Affected sources are already subject to the provisions of paragraphs (a)(10)–(12) through the same provisions under 40 CFR, part 60 subpart A.
63.1(b)	Applicability determination for stationary sources	
63.1(e)	Title V permitting	
63.2	Definitions	
63.4	Prohibited activities and circumvention	Affected sources are already subject to the provisions of paragraph (b) through the same provisions under 40 CFR, part 60 subpart A.
63.5(b)	Requirements for existing, newly constructed and reconstructed sources	
63.6(e)	Operation and maintenance requirements, startup, shutdown and malfunction plan provisions	
63.6(f)	Compliance with nonopacity emission standards	Affected sources are already subject to the provisions of paragraphs (f)(1) and (2)(i) through the same provisions under 40 CFR, part 60 subpart A.
63.10(b)(2)(i)–(b)(2)(v)	General recordkeeping requirements	
63.10(d)(5)	If actions taken during a startup, shutdown and malfunction plan are consistent with the procedures in the startup, shutdown and malfunction plan, this information shall be included in a semi-annual startup, shutdown and malfunction plan report. Any time an action taken during a startup, shutdown and malfunction plan is not consistent with the startup, shutdown and malfunction plan, the source shall report actions taken within 2 working days after commencing such actions, followed by a letter 7 days after the event	
63.12(a)	These provisions do not preclude the State from adopting and enforcing any standard, limitation, etc., requiring permits, or requiring emissions reductions in excess of those specified	
63.15	Availability of information and confidentiality	

The specific conditions in this section apply to the following emissions unit:

Emission Unit	Brief Description
010	5,000 scfm Open, Non-Assisted Flare manufactured by Parnel Biogas, Inc. Two centrifugal exhaust landfill gas blowers with a maximum design of 2,500 cfm each, with a minimum of -60 "w.c. inlet suction and 10" w.c. discharge pressure. The flare is currently equipped with a temperature monitoring system manufactured by Yokagawa, that records temperature, flare on and off time and blower run time. Flare Stack Height.....… 51' Exit Diameter……. 14" Outlet Gas Temperature…….. 1,200 °F (typically; in the combustion zone within the flame which cannot be monitored) Maximum LFG Flow Rate……..... 5,000 scfm Minimum LFG Flow Rate…….500 scfm Starter Fuel Type……Propane Destruction efficiency……98% NMOCs @ CH_4 content of 40-60%

Permitting Note: This emissions unit is subject to 40 CFR Part 60, Subpart WWW adopted by reference in Rule 62-204.800(8)(b)72, F.A.C.; and 40 CFR Part 63, Subpart AAAA adopted by reference in Rule 62-204.800(11)(b)58, F.A.C.

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

Essential Potential to Emit (PTE) Parameters

B.1. Permitted Capacity – Flare: The maximum landfill gas flowrate shall not exceed 5,000 cubic feet per minute of landfill gas. [Rule 62-210.200(PTE), FAC and Rule 2.301, JEPB.; Construction Permit No. 0310358-005-AC]

B.2. Hours of Operation -Flare: The hours of operation are not restricted, i.e., 8760 hours per year. [Rule 62-210.200(PTE), FAC and Rule 2.301, JEPB.; Construction Permit No. 0310358-005-AC]

Method of Flare Operation

B.3. Method of Operation. All LFG collected by the gas collection system shall be directed to the landfill gas treatment system for subsequent use as fuel at the Trail Ridge Energy LLC Plant. Any excess landfill gas that exceeds the volume the Trail Ridge Energy LLC Plant is able to accept shall be diverted to the 5,000 scfm or the de-rated 1,600 scfm open flares for control. Collected LFG shall not be vented to the atmosphere. [Rules 62-4.160(2), 62-4.070(3), 62-210.200(PTE), F.A.C.; Rule 2.301, JEPB; CFR 60.752(b)(2)(iii)(A); CFR 60.752(b)(2)(iii)(C); 40 CFR 60.753(e); Construction Permit No. 0310358-004-AC/PSD-FL-374]

B.4. Method of Operation-Flare Pilot Fuel: The flare shall fire propane gas as its pilot fuel. [Rules 62-4.160(2), 62-210.200(PTE), F.A.C.; Rule 2.301, JEPB]

B.5. Method of Operation. The control system shall be operated at all times when the collected gas is routed to the system. [40 CFR 60.18(e); 40 CFR 60.753(f)]

B.6. Method of Operation – Flare Flame: The flare shall be operated with a flame present at all times, as determined by the methods specified in Conditions B.11., B.16., B.17., B.18. and B.19. [Rule 62-296.800, F.A.C.; 40 CFR 60.18(c)(2)]

B.7. Method of Operation – LFG Heat Content & Flare Exit Velocity: The permittee shall comply with the heat content specifications stated in paragraph (a) and the maximum tip velocity specifications in paragraph (b):

(a) The flare shall be used only with the net heating value of the gas being combusted being 7.45 MJ/scm (200 Btu/scf) or greater. The net heating value of the gas being combusted shall be determined by the methods specified in Condition B.17.

(b) The flare shall be designed for and operated as follows:

(i) An exit velocity, as determined by the methods specified in Condition B.18., less than 18.3 m/sec (60 ft/sec), except as provided in (ii) and (iii).

(ii) An exit velocity, as determined by the methods specified in Condition B.18., equal to or greater than 18.3 m/sec (60 ft/sec) but less than 122 m/sec (400 ft/sec) is allowed if the net heating value of the gas being combusted is greater than 37.3 MJ/scm (1,000 Btu/scf).

(iii) An exit velocity, as determined by the methods specified in Condition B.18. less than the velocity, V_{max}, as determined by the method specified in Condition B.19. and less than 122 m/sec (400 ft/sec) is allowed.

[Rule 62-296.800, F.A.C.; 40 CFR 60.18(c)(3)(ii); 40 CFR 60.18(c)(4) and Rule 2.201, JEPB]

B.8. Landfill Gas Collection or Control System- Inoperable: In the event the collection or control system is inoperable, the gas mover system shall be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere shall be closed within 1 hour. [40 CFR 60.753(e)]

Emission Limitations and Performance Standards

{Permitting note: Table 1-1, Summary of Air Pollutant Standards and Terms, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

{Permitting Note: Unless otherwise specified, the averaging time for these conditions is based on the specified averaging time of the applicable test method.}

B.9. Visible Emissions: The flare shall be designed for and operated with no visible emissions as determined by the methods specified in Conditions B.11., B.16., B.17., B.18. and B.19., except for periods not to exceed a total of 5 minutes during any 2 consecutive hours. [Rule 62-296.800, F.A.C.; Rule 62-296.320(4)(b), F.A.C., 40 CFR 60.18(c)(1); Construction Permit No. 0310358-005-AC].

Compliance Provisions

B.10. The provisions 40 CFR 63 Subpart WWW apply at all times, except during periods of start-up, shutdown, or malfunction, provided that the duration of start-up, shutdown, or malfunction shall not exceed 5 days for collection systems and shall not exceed 1 hour for treatment or control devices (i.e. the flare). [40 CFR 60.755(e); 40 CFR 60.11(c)]

Monitoring Of Operations

B.11. Landfill Gas Collection System – Flare: The flare shall be monitored to ensure that it is operated and maintained in conformance with its design. The following equipment shall be installed, calibrated, maintained and operated according to the manufacturer's specifications:

(1) A heat sensing device, such as an ultraviolet beam sensor or thermocouple, at the pilot light or the flame itself to indicate the continuous presence of a flame.

(2)(i) A device that records flow to the control device. The owner or operator shall install, calibrate and maintain a gas flow rate measuring device that shall record the flow to the control device at least every 15 minutes; or

(ii) N/A – The flare is not equipped with a bypass system.

[40 CFR 60.18(d); 40 CFR 60.756(c); 40 CFR 60.18(f)(2); EPA Office of Air Quality Planning and Standards' Municipal Solid Waste Landfill New Source Performance Standards (NSPS and Emission Guidelines (EG) Questions and Answers document revised in May 2002]

Notifications, Recordkeeping and Reporting Requirements

B.12. Control System Monitoring Report: The owner or operator shall submit to the Administrator semi-annual reports[1] of the following recorded information:

(1) Value and length of time for exceedance of applicable parameters monitored under Condition B.11.

(2) N/A – The flare is not equipped with a bypass system;

(3) Description and duration of all periods when the control device was not operating for a period exceeding 1 hour and length of time the control device was not operating.

[1] The provisions of 40 CFR 63 Subpart AAAA requires this submittal on a semi-annual basis instead of the annual basis required in 40 CFR 60 Subpart WWW. Refer to Conditions A.52.

[40 CFR 60.757(f)(1),(2) and (3); 40 CFR 63.1980(a); EPA Office of Air Quality Planning and Standards' Municipal Solid Waste Landfill New Source Performance Standards (NSPS and Emission Guidelines (EG) Questions and Answers document revised in May 2002]

B.13. Testing & Monitoring Records Retention: The owner or operator shall keep up-to-date, readily accessible records for the life of the control equipment of the data listed below as measured during the initial performance test or compliance determination. Records of subsequent tests or monitoring shall be maintained for a minimum of 5 years. Records of the control device vendor specifications shall be maintained until removal.

(1) The flare type (i.e., nonassisted);

(2) All visible emission readings;

(3) Heat content determination;

(4) Flow rate measurements;

(5) Exit velocity determinations made during the performance test as specified in 40 CFR 60.18;

(6) Continuous records of the flare pilot flame or flare flame monitoring and records of all periods of operations during which the pilot flame of the flare flame is absent.

[40 CFR 60.758(b)]

B.14. Recordkeeping of Operating Parameters: The owner or operator of a controlled landfill shall keep for 5 years up-to-date, readily accessible continuous records of the equipment operating parameters specified to be monitored in Condition B.11., as well as up-to-date, readily accessible records for periods of operation during which the parameter boundaries established during the most recent performance test are exceeded.

(1) Each owner or operator shall keep up-to-date, readily accessible continuous records of the indication of flow to the control device specified under Condition B.11;

(2) Each owner or operator shall keep up-to-date, readily accessible continuous records of the flame or flare pilot flame monitoring specified under Condition B.11. and up-to-date, readily accessible records of all periods of operation in which the flame or flare pilot flame is absent.

[40 CFR 60.758(c), (c)(2) and (4); EPA Office of Air Quality Planning and Standards' Municipal Solid Waste Landfill New Source Performance Standards (NSPS and Emission Guidelines (EG) Questions and Answers document revised in May 2002]

B.15. Collection & Control System Operational Standard Exceedance Records. Except as provided in 40 CFR 60.752(b)(2)(i)(B), the owner or operator shall keep for at least 5 years up-to-date, readily accessible records of all collection and control system exceedances of the operational standards in Conditions B.3, B.5. and B.8., the reading in the subsequent month whether or not the second reading is an exceedance and the location of each exceedance.

Permitting Note: *40 CFR 60.752(b)(2)(i)(B) states the collection and control system design plan shall include any alternatives to the operational standards, test methods, procedures, compliance measures, monitoring, recordkeeping or reporting provisions of §§60.753 through 60.758 proposed by the owner or operator. 40 CFR 60.752(b)(2)(i)(D) states that the Administrator shall review the information submitted under paragraphs (A), (B) and (C) of this section and either approve it, disapprove it, or request that additional information be submitted.*

[40 CFR 60.758(e)]

Test Methods and Procedures

B.16. Visible Emissions –Flare. The test method for visible emissions shall be in accordance with EPA Method 22 of 40 CFR 60 Appendix A, adopted and incorporated by reference in Rule 62-204.800, F.A.C. The required observation period shall be 2 hours and shall be used according to Method 22.

Pursuant to Method 22, the observer, at a minimum must be trained and knowledgeable regarding the effects of background contrast, ambient lighting, observer position relative to lighting, wind and the presence of uncombined water (condensing water vapor) on the visibility of emissions. This training is to be obtained from written materials found in References 1 and 2 or from the lecture portion of the Method 9 certification course.

A compliance test shall be conducted on an annual basis, once each federal fiscal year (October 1 – September 30).

[Rules 62-297.310(7)(a)4.a., 62-297.401(22),F.A.C.; 40 CFR 60.8(a); 40 CFR 60.11(e)(1); 40 CFR 60.18(f)(1)]

B.17. Net Heating Value – Flare. The net heating value of the gas being combusted in a flare shall be calculated using the following equation:

$$H_T = K \sum_{i=1}^{n} C_i H_i$$

where:

H_T= Net heating value of the sample, MJ/scm; where the net enthalpy per mole of offgas is based on combustion at 25 °C and 760 mm Hg, but the standard temperature for determining the volume corresponding to one mole is 20 °C;

K = Constant, 1.740 x 10-7 (1/ppm) (g mole/scm) (MJ/kcal) where the standard temperature for (g mole/scm) is 20°C;

C_i= the concentration of methane in the landfill gas as measured by Method 3C. A minimum of three 30-minute Method 3C samples are determined. The measurement of other organic components, hydrogen and carbon monoxide is not applicable; and

H_i= Net heat of combustion of sample component i, kcal/g mole at 25 °C and 760 mm Hg. The heats of combustion may be determined using ASTM D2382–76 or 88 or D4809–95 (incorporated by reference as specified in §60.17) if published values are not available or cannot be calculated.

The calculation and testing shall be conducted no less than on a 5 year basis, prior to permit renewal.

[40 CFR 60.18(f)(3); 40 CFR 60.754(e); Rule 62-4.070 & Rule 62-297.310(7)(a)3., F.A.C.]

B.18. Exit Velocity- Flare. The actual exit velocity of the flare shall be determined by dividing the volumetric flowrate (in units of standard temperature and pressure), as determined by Reference Methods 2, 2A, 2C, or 2D as appropriate; by the unobstructed (free) cross sectional area of the flare tip. Method 3C may be used to determine the landfill gas molecular weight for calculating the flare gas exit velocity under this condition.

The calculation and testing shall be conducted no less than on a 5 year basis, prior to permit renewal.

[40 CFR 60.18(f)(4) ; 40 CFR 60.754(e); Rule 62-4.070 &Rule 62-297.310(7)(a)3., F.A.C.]

B.19. Maximum Permitted Velocity – Flare. The maximum permitted velocity, V_{max}, for flares complying with Condition B.7.(b)(iii) shall be determined by the following equation.

$$\text{Log}_{10} (V_{max})=(H_T+28.8)/31.7$$

V_{max}=Maximum permitted velocity, M/sec
28.8=Constant

31.7=Constant
H_T=The net heating value as determined in Condition B.17.
The calculation and testing shall be conducted no less than on a 5 year basis, prior to permit renewal.

[40 CFR 60.18(f)(5); Rule 62-4.070, & Rule 62-297.310(7)(a)3., F.A.C.]

Common Conditions

B.20. This emissions unit is also subject to the applicable General Provisions of 40 CFR 60 Subpart A.

B.21. This emissions unit is subject to the applicable requirements in 40 CFR Part 63, Subpart A, as Specified in Table 1 - Applicability of NESHAP General Provisions to Subpart AAAA (refer to Condition E.9.) and the requirements of 40 CFR 63.1960 through 63.1985 of 40 CFR 63 Subpart AAAA as specified in Subsection E. [40 CFR 63.1955(b)]

The specific conditions in this section apply to the following emissions unit:

Emission Unit	Brief Description
011	A de-rated 1,600 scfm Open, Non-Assisted Flare manufactured by Landfill Gas Specialties. A centrifugal exhaust landfill gas blower with a maximum design of 1,600 cfm, a minimum of -60 "w.c. inlet suction and 10" w.c. discharge pressure. The flare is currently equipped with a digital recorder manufactured by Yokagawa. Flare Stack Height.....…… 31' Exit Diameter……..... 9" Outlet Gas Temperature…….……...1400-2000°F (typically; in the combustion zone within the flame which cannot be monitored) Maximum LFG Flow Rate……..... 1,600 scfm Minimum LFG Flow Rate…… 160 scfm Starter Fuel Type……..... Propane Destruction efficiency…… 98% NMOCs @ CH_4 content of 40-60%

Permitting Note: This emissions unit is subject to 40 CFR Part 60, Subpart WWW adopted by reference in Rule 62-204.800(8)(b)72, F.A.C.; and 40 CFR Part 63, Subpart AAAA adopted by reference in Rule 62-204.800(11)(b)58, F.A.C.

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

C.0. Upon demonstration of compliance with Air Construction Permit No. 0310358-007-AC and the milestones identified in Compliance Plan, Appendix CP-1, the permittee shall operate the referenced emissions unit in accordance with the conditions specified below.

Operational Parameters

C.1. Permitted Capacity - Flare: The maximum landfill gas flowrate shall not exceed 1,600 standard cubic feet per minute of landfill gas, averaged hourly. [Rule 62-210.200(PTE), FAC, Rule 62-4.070, F.A.C.; and Rule 2.301, JEPB.; Construction Permit No. 0310358-007-AC]

C.2. Hours of Operation- Flare. The hours of operation of the flare are not restricted, i.e. 8760 hours per year of operation. [Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.; Rule 2.301, JEPB]

Method of Flare Operation

C.3. Method of Operation. All LFG collected by the gas collection system shall be directed to the landfill gas treatment system for subsequent use as fuel at the Trail Ridge LLC Plant. Any excess landfill gas that exceeds the volume the Trail Ridge Energy LLC Plant is able to accept shall be diverted to the 5,000 scfm or the de-rated 1,600 scfm open flares for control. Collected LFG shall not be vented to the atmosphere.

Permitting Note: *The 1,600 scfm non-assisted, open flare shall not be operated as the sole control device as the current landfill gas flow exceeds the maximum capacity of this flare.*

[Rules 62-4.160(2), 62-4.070(3), 62-210.200(PTE), F.A.C.; Rule 2.301, JEPB; CFR 60.752(b)(2)(iii)(A); CFR 60.752(b)(2)(iii)(C); 40 CFR 60.753(e); Construction Permit No. 0310358-004-AC/PSD-FL-374]

C.4. Method of Operation – Flare Pilot Fuel. The flare shall fire propane gas as its pilot fuel. Propane shall be used only for the purpose of igniting the flare and not be utilized as a supplemental fuel. [Rules 62-4.160(2), 62-4.070(3), 62-210.200(PTE), F.A.C.; Rule 2.301, JEPB]

C.5. Method of Operation. The control system shall be operated at all times when the collected gas is routed to the system. [40 CFR 60.18(e); 40 CFR 60.753(f)]

C.6. Method of Operation –Flame Flame. The flare shall be operated with a flame present at all times, as determined by the methods specified in Conditions C.11., C.12., C.13., C.14. and C.15. [Rule 62-296.800, F.A.C.; 40 CFR 60.18(c)(2)]

C.7. Method of Operation – LFG Heat Content & Exit Velocity. The permittee shall comply with the heat content specifications stated in paragraph (a) and the maximum tip velocity specifications in paragraph (b):

(a) The flare shall be used only with the net heating value of the gas being combusted being 7.45 MJ/scm (200 Btu/scf) or greater. The net heating value of the gas being combusted shall be determined by the methods specified in Condition C.13.

(b) The flare shall be designed for and operated as follows:

(i) An exit velocity, as determined by the methods specified in Condition C.14., less than 18.3 m/sec (60 ft/sec), except as provided in (ii) and (iii).

(ii) An exit velocity, as determined by the methods specified in Condition C.14., equal to or greater than 18.3 m/sec (60 ft/sec) but less than 122 m/sec (400 ft/sec) is allowed if the net heating value of the gas being combusted is greater than 37.3 MJ/scm (1,000 Btu/scf).

(iii) An exit velocity, as determined by the methods specified in Condition C.14. less than the velocity, V_{max}, as determined by the method specified in Condition C.17. and less than 122 m/sec (400 ft/sec) is allowed.

[Rule 62-296.800, F.A.C.; 40 CFR 60.18(c)(3)(ii); 40 CFR 60.18(c)(4) and Rule 2.201, JEPB]

C.8. Landfill Gas Collection or Control System- Inoperable: In the event the collection or control system is inoperable, the gas mover system shall be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere shall be closed within 1 hour. [40 CFR 60.753(e)]

Emission Limitations and Performance Standards

{Permitting note: Table 1-1, Summary of Air Pollutant Standards and Terms, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

{Permitting Note: Unless otherwise specified, the averaging time for these conditions is based on the specified averaging time of the applicable test method.}

C.9. Visible Emissions. The flare shall be designed for and operated with no visible emissions as determined by the methods specified in Conditions C.11., C.12., C.13., C.14. and C.15., except for periods not to exceed a total of 5 minutes during any 2 consecutive hours. [Rule 62-296.800, F.A.C.; 40 CFR 60.18(c)(1), Rule 2.201, JEPB; Construction Permit No. 0310358-007-AC]

Compliance Provisions

C.10. The provisions 40 CFR 63 Subpart WWW apply at all times, except during periods of start-up, shutdown, or malfunction, provided that the duration of start-up, shutdown, or malfunction shall not exceed 5 days for collection systems and shall not exceed 1 hour for treatment or control devices (i.e. the flare). [40 CFR 60.755(e); 40 CFR 60.11(c)]

Monitoring Of Operations

C.11. Landfill Gas Collection System – Flare: The flare shall be monitored to ensure that it is operated and maintained in conformance with its design. The following equipment shall be installed, calibrated, maintained and operated according to the manufacturer's specifications:

(1) A heat sensing device, such as an ultraviolet beam sensor or thermocouple, at the pilot light or the flame itself to indicate the continuous presence of a flame.

(2)(i) A device that records flow to the control device. The owner or operator shall install, calibrate and maintain a gas flow rate measuring device that shall record the flow to the control device at least every 15 minutes; or

(ii) N/A – The flare is not equipped with a bypass system.

[40 CFR 60.18(d); 40 CFR 60.756(c); 40 CFR 60.18(f)(2); EPA Office of Air Quality Planning and Standards' Municipal Solid Waste Landfill New Source Performance Standards (NSPS and Emission Guidelines (EG) Questions and Answers document revised in May 2002; Construction Permit No. 0310358-007-AC]

Test Methods and Procedures

C.12. Visible Emissions –Flare. The test method for visible emissions shall be in accordance with EPA Method 22 of 40 CFR 60 Appendix A, adopted and incorporated by reference in Rule 62-204.800, F.A.C. The required observation period shall be 2 hours and shall be used according to Method 22.

Pursuant to Method 22, the observer, at a minimum must be trained and knowledgeable regarding the effects of background contrast, ambient lighting, observer position relative to lighting, wind and the presence of uncombined water (condensing water vapor) on the visibility of emissions. This training is to be obtained from written
materials found in References 1 and 2 or from the lecture portion of the Method 9 certification course.

Compliance tests shall be conducted on an annual basis, once each federal fiscal year (October 1 – September 30).

[Rules 62-297.310(7)(a)4.a., 62-297.401(22),F.A.C.; 40 CFR 60.8(a); 40 CFR 60.11(e)(1); 40 CFR 60.18(f)(1)]

C.13. Net Heating Value – Flare. The net heating value of the gas being combusted in a flare shall be calculated using the following equation:

$$H_T = K \sum_{i=1}^{n} C_i H_i$$

where:

H_T= Net heating value of the sample, MJ/scm; where the net enthalpy per mole of offgas is based on combustion at 25 °C and 760 mm Hg, but the standard temperature for determining the volume corresponding to one mole is 20 °C;

K = Constant, 1.740 x 10-7 (1/ppm) (g mole/scm) (MJ/kcal)

where the standard temperature for (g mole/scm) is 20°C;

C_i= the concentration of methane in the landfill gas as measured by Method 3C. A minimum of three 30-minute Method 3C samples are determined. The measurement of other organic components, hydrogen and carbon monoxide is not applicable; and

H_i= Net heat of combustion of sample component i, kcal/g mole at 25 °C and 760 mm Hg. The heats of combustion may be determined using ASTM D2382–76 or 88 or D4809–95 (incorporated by reference as specified in §60.17) if published values are not available or cannot be calculated.

The calculation and testing shall be conducted no less than on a 5 year basis, prior to permit renewal.

[40 CFR 60.18(f)(3); 40 CFR 60.754(e), Rules 62-4.070, & Rule 62-297.310(7)(a)3., F.A.C.]

C.14. Exit Velocity- Flare. The actual exit velocity of the flare shall be determined by dividing the volumetric flowrate (in units of standard temperature and pressure), as determined by Reference Methods 2, 2A, 2C, or 2D as appropriate; by the unobstructed (free) cross sectional area of the flare tip. Method 3C may be used to determine the landfill gas molecular weight for calculating the flare gas exit velocity under this condition.

The exit velocity shall be determined initially pursuant to Conditions C.6. and C.14. and then on an annual basis.

The calculation and testing shall be conducted no less than on a 5 year basis, prior to permit renewal.

[40 CFR 60.18(f)(4) ; 40 CFR 60.754(e), Rules 62-4.070, & Rule 62-297.310(7)(a)3., F.A.C.]

C.15. Maximum Permitted Velocity – Flare. The maximum permitted velocity, V_{max}, for flares complying with Specific Condition C.7.(b)(iii) shall be determined by the following equation.

$$\text{Log}_{10} (V_{max})=(H_T+28.8)/31.7$$

V_{max}=Maximum permitted velocity, M/sec
28.8=Constant
31.7=Constant
H_T=The net heating value as determined in Condition C.13.

The calculation and testing shall be conducted no less than on a 5 year basis, prior to permit renewal.

[40 CFR 60.18(f)(5); Rules 62-4.070, & Rule 62-297.310(7)(a)3., F.A.C.]

C.16. Flare Operation and Maintenance Plan. The flare shall be maintained in accordance with recommendations provided by the vendor. At a minimum the following shall be performed:

- The flame arrestor leading to the flare shall be inspected on an annual basis and cleaned if a high differential pressure across it exists.
- Replacement of thermocouples as needed
- Pilot gas cylinders inspected to ensure sufficient gas is present to relight the flare

All activities shall be performed as scheduled and recorded. This information shall be retained for at least 5 years from the date of measurement or recording and be readily assessable for onsite review by the Department.

[Rule 62-4.070(3), F.A.C.; Rule 62-4.160(7), F.A.C., Rule 62-213.440(1)(b)2.b., F.A.C., Construction Permit No. 0310358-007-AC]

C.17. Sulfur Dioxide- Sulfur Content of Landfill Gas. For emissions reporting purposes, sulfur dioxide emissions from the 1,600 scfm flare shall be determined using the results of the landfill gas analysis for sulfur content required by Construction Permit No. 0310358-004-AC for Trail Ridge Energy, LLC. [Rule 62-4.070, F.A.C.]

C.18. Hydrogen Chloride Content of Landfill Gas. For emissions reporting purposes, hydrogen chloride emissions from the 1,600 scfm flare shall be determined using the results of the landfill gas analysis for sulfur content required by Construction Permit No. 0310358-004-AC for Trail Ridge Energy, LLC. [Rule 62-4.070, F.A.C.]

Notifications, Recordkeeping and Reporting Requirements

C.19. Control System Monitoring Report: The owner or operator shall submit to the Administrator semi-annual reports[1] of the following recorded information:

(1) Value and length of time for exceedance of applicable parameters monitored under Condition C.11.

(2) N/A – The flare is not equipped with a bypass system;

(3) Description and duration of all periods when the control device was not operating for a period exceeding 1 hour and length of time the control device was not operating.

[1] The provisions of 40 CFR 63 Subpart AAAA requires this submittal on a semi-annual basis instead of the annual basis required in 40 CFR 60 Subpart WWW. Refer to Conditions A.52.

[40 CFR 60.757(f)(1),(2) and (3); 40 CFR 63.1980(a); EPA Office of Air Quality Planning and Standards' Municipal Solid Waste Landfill New Source Performance Standards (NSPS and Emission Guidelines (EG) Questions and Answers document revised in May 2002]

C.20. Recordkeeping Information. The permittee shall maintain the following records on a monthly basis. This information shall be retained at least five years from the date of the sample, measurement, or record:

a. The date and time when landfill gas is directed to the open flares, denoted by which of the two available flares. This record shall also include the date and time when landfill gas is

directed back to the Trail Ridge Energy LLC Plant;
b. The hours of operation, including any start-up, shutdown or malfunction in the operation of the flare;

c. The landfill gas flow rate to the open flares, denoted by which of the two available flares.

[Rule 62-4.070, F.A.C.; Rule 62-213.440(1)(b)2.b., F.A.C.; Rule 62-213.410, F.A.C.; Construction Permit No. 0310358-007-AC]

C.21. Testing & Monitoring Records Retention. The owner or operator shall keep up-to-date, readily accessible records for the life of the control equipment of the data listed below as measured during the initial performance test or compliance determination. Records of subsequent tests or monitoring shall be maintained for a minimum of 5 years. Records of the control device vendor specifications shall be maintained until removal.

(1) The flare type (i.e., nonassisted);
(2) All visible emission readings;
(3) Heat content determination;
(4) Flow rate measurements;
(5) Exit velocity determinations made during the performance test as specified in 40 CFR 60.18;
(6) Continuous records of the flare pilot flame or flare flame monitoring and records of all periods of operations during which the pilot flame of the flare flame is absent.

[40 CFR 60.758(b); EPA Office of Air Quality Planning and Standards' Municipal Solid Waste Landfill New Source Performance Standards (NSPS and Emission Guidelines (EG) Questions and Answers document revised in May 2002]

C.22. Equipment Continuous Operating Parameter Records: The owner or operator of a controlled landfill shall keep for 5 years up-to-date, readily accessible continuous records of the equipment operating parameters specified to be monitored in Condition C.11., as well as up-to-date, readily accessible records for periods of operation during which the parameter boundaries established during the most recent performance test are exceeded.

(1) Each owner or operator shall keep up-to-date, readily accessible continuous records of the indication of flow to the control device specified under Condition C.12;
(2) Each owner or operator shall keep up-to-date, readily accessible continuous records of the flame or flare pilot flame monitoring specified under Condition C.11. and up-to-date, readily accessible records of all periods of operation in which the flame or flare pilot flame is absent.

[40 CFR 60.758(c), (c)(2) and (4); EPA Office of Air Quality Planning and Standards' Municipal Solid Waste Landfill New Source Performance Standards (NSPS and Emission Guidelines (EG) Questions and Answers document revised in May 2002]

C.23. Collection & Control System Operational Standard Exceedance Records. Except as provided in 40 CFR 60.752(b)(2)(i)(B), the Permittee shall keep for at least 5 years up-to-date, readily accessible records of all collection and control system exceedances of the operational standards in Conditions C.3., C.5. and C.8., the reading in the subsequent month whether or not the second reading is an exceedance and the location of each exceedance.

Permitting Note: *40 CFR 60.752(b)(2)(i)(B) states the collection and control system design plan shall include any alternatives to the operational standards, test methods, procedures, compliance measures, monitoring, recordkeeping or reporting provisions of §§60.753 through 60.758 proposed by the owner or*

operator. 40 CFR 60.752(b)(2)(i)(D) states that the Administrator shall review the information submitted under paragraphs (A), (B) and (C) of this section and either approve it, disapprove it, or request that additional information be submitted.

[40 CFR 60.758(e)]

Common Conditions

C.24. This emissions unit is also subject to the applicable General Provisions of 40 CFR 60 Subpart A.

C.25. This emissions unit is subject to the applicable requirements in 40 CFR Part 63, Subpart A, as Specified in Table 1 - Applicability of NESHAP General Provisions to Subpart AAAA (refer to Condition E.9.) and the requirements of 40 CFR 63.1960 through 63.1985 of 40 CFR 63 Subpart AAAA as specified in Subsection E. [40 CFR 63.1955(b)]

Subsection D. Emissions Unit 002

The specific conditions in this section apply to the following emissions unit:

Emission Unit	Brief Description
002	Fugitive Dust Emissions from unpaved roads and landfill work areas.

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

Essential Potential to Emit (PTE) Parameters

D.1. This emissions unit shall be subject to the requirements of Rule 62-296.320(4)(c), FAC and Rule 2.1001, JEPB.

D.2. Reasonable precautions for this emission unit shall be as follows:

a. The application of water to unpaved roads to minimize the emission of unconfined PM

b. Minimization of speeds on unpaved roads through the use of posted speed limits and enforcement

c. Small phased work areas to minimize the amount of exposed area

d. As practical and as needed, install grass cover for completed areas (phases) of work

[Rule 62-296.320, FAC and Rule 2.1001, JEPB]

Trail Ridge Energy, LLC
46280 Dylan Drive
Novi, Michigan 48377

Facility Identification Code (SIC):

Major Group No. 40, Industry Group No. 4953

Responsible Official: Mr. Scott Salisbury,
Facility ID No.: 0310358
Duval County

The Trail Ridge Energy, LLC, electricity generation plant is located on leased land at the Trail Ridge Landfill facility. The electricity generation equipment and processes are owned and operated by Trail Ridge Energy, LLC and not directly under the control of the Trail Ridge Landfill.

The City of Jacksonville, Trail Ridge Landfill facility has a control relationship over the Trail Ridge Energy electricity generation operations since the Trail Ridge Landfill facility provides landfill gas to the engine plant. The provision of landfill gas to Trail Ridge Energy is contingent on these gases being produced by the Trail Ridge Landfill. Trail Ridge Energy and Trail Ridge Landfill are two separate entities and have separate responsible officials.

The specific conditions in this section apply to the following emissions unit(s):

Emission Unit	Brief Description

004-009 and 012-015	• Ten Caterpillar Model G3520C landfill gas fueled internal combustion engines and electricity generators for the generation of up to a total of 16 megawatts (nominal rating) of electricity. The engines will be fueled exclusively with landfill gas generated by and received from the Trail Ridge landfill facility.
	• The landfill gas will go through a gas treatment system prior to combustion in the engines.
	  • The system shall 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.

Permitting Note: The landfill gas treatment system is subject to 40 CFR Part 60, Subpart WWW - Standards of Performance for Municipal Solid Waste Landfills adopted by reference in Rule 62-204.800(8)(b)72., F.A.C.; 40 CFR Part 63, Subpart AAAA- National Emission Standards for Hazardous Air Pollutants (NESHAP) for Municipal Solid Waste Landfills adopted by reference in Rule 62-204.800(11)(b)58., F.A.C; The emissions unit is subject to Prevention of Significant Deterioration (PSD) pursuant to Rule 62-210.200(164)(a)2, F.A.C. and BACT Determination for CO, NOx and PM_{10} emissions. Emission Unit ID Nos. 012-015 are also subject to 40 CFR 60 Subpart JJJJ and 40 CFR 63 Subpart ZZZZ.

EQUIPMENT

E.1. Landfill Gas Engine/Generator Sets: The permittee is authorized to install and operate a total of ten (Caterpillar Model G3520C or equivalent) spark-ignited reciprocating internal combustion engines. Each engine is a 20-cylinder engine with a total displacement of approximately 86.3 liters. Each engine has a maximum rating of 2,233 bhp and is coupled to a 1,600 kW generator (nominal rating) for the generation of up to a total of 16 MW of electricity. The maximum rating when coupled to the electrical generator is 2,233 bhp. Each engine will fire LFG. The LFG will pass through a gas treatment system prior to combustion in the engines.

a. Each engine shall be equipped with an air-to-fuel ratio controller and ignition timing to maintain efficient fuel combustion.

b. Each engine shall be equipped with an automatic fail-safe block valve which must be designed to stop the flow of landfill gas in the event of an engine failure.

c. Each engine shall be equipped with a non-resettable elapsed time meter to indicate the elapsed engine operating time in cumulative hours.

d. A gas flow meter shall be installed to monitor the total flow rate to all of the landfill gas engines.

{Permitting Note: The heat input rate is based on 100% load (2,233 bhp), a nominal landfill gas heating value of 500 British thermal units (Btu) per scf and an approximate landfill gas firing rate of 580 scfm per engine.} [Application Nos. 0310358-004-AC and 0310358-012-AC; and Rules 62-4.070(3), 62-210.200(PTE) and 62-212.400(PSD), F.A.C.]

E.2. LFG Treatment System: The permittee shall design, install, operate and maintain a LFG Treatment System including equipment for: gas compression (blowers/compressors), de-watering (knock-out and chilling system) and particulate removal (filtration). Specifically, the permittee shall design, install, maintain and operate 1 micron primary and polishing filters to remove particulate matter from the LFG prior to combustion in the engines. The LFG treatment system shall not be equipped with atmospheric vents. [Application Nos. 0310358-004-AC and 0310358-012-AC; and Rule 62-212.400, F.A.C.]

PERFORMANCE RESTRICTIONS

E.3. Permitted Capacity: Each landfill gas engine has a maximum power rating of 2,233 bhp at 100% load (approximately 17.6 MMBtu/hour). The electrical generator set has a nominal power rating of 1,600 kilowatts. [Rule 62-210.200(PTE), F.A.C.]

E.4. Authorized Fuel: Each engine shall only fire landfill gas. [Application Nos. 0310358-004-AC and 0310358-012-AC and Rule 62-210.200(PTE), F.A.C.]

E.5. Restricted Operation: The hours of operation are not limited (8760 hours per year). [Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]

E.6. Operating Requirements (Emission Unit ID Nos. 004-009): The permittee shall set the air-to-fuel ratio for each engine based on the most recent emissions tests or each engine shall be operated within 0.5 percent of the oxygen content in the exhaust gas at the air-to-fuel ratio operated at during the most recent performance test demonstrating compliance with the standards specified in this permit and other operating conditions. [Rule 62-212.400(BACT), F.A.C. and Appendix F of Construction Permit Application; Construction Permit No. 0310358-004-AC/PSD-FL-374]

E.7. Operating Requirements (Emission Unit ID Nos. 012-015): The permittee shall set the air-to-fuel ratio for each engine based on the most recent emissions tests or each engine shall be operated within 0.5 percent of the oxygen content in the exhaust gas at the air-to-fuel ratio operated at during the most recent performance test demonstrating compliance with the standards specified in this permit and other operating conditions identified in NSPS 40 CFR 60, Subpart JJJJ. [Rule 62-212.400(BACT), F.A.C., NSPS Subpart JJJJ in 40 CFR 60 and Appendix F of Construction Permit Application; Construction Permit No. 0310358-004-AC/PSD-FL-374]

E.8. Applicable NSPS Provisions (Emission Unit ID Nos. 012-015): The landfill gas engines are subject to, and shall show compliance with, the applicable provisions in NSPS Subpart A (General Provisions) and NSPS Subpart JJJJ (Stationary Spark Ignition Internal Combustion Engines) of 40 CFR 60, which are identified in Appendix ICE of this permit. [NSPS Subparts A and JJJJ in 40 CFR 60 and Rule 62-204.800, F.A.C.]

E.9. Applicable NESHAP Provisions (Emission Unit ID Nos. 012-015): The landfill gas engines are subject to, and shall show compliance with, the applicable provisions in NESHAP Subpart A (General Provisions) and NESHAP Subpart ZZZZ (Reciprocating Internal Combustion Engines) of 40 CFR 63, which are identified in Appendix ICE of this permit. Pursuant to 40 CFR 63.6590, the landfill gas engines complies with NESHAP Subpart ZZZZ by complying with NSPS Subpart JJJJ. [NESHAP Subparts A and ZZZZ in 40 CFR 63 and Rule 62-204.800, F.A.C.]

EMISSIONS STANDARDS

E.10. Nitrogen Oxides (NOx): The emission rate of NOx from each engine/generator set exhaust shall not exceed 0.6 gram per brake horsepower hour (g/bhp-hr) and a maximum of 3.0 pounds per hour (lb/hr). [Rule 62-212.400(12), F.A.C.]

E.11. Carbon Monoxide (CO): The emission rate of CO from each engine/generator set exhaust shall not exceed 3.5 g/bhp-hr and a maximum of 17.2 lb/hr. [Rule 62-212.400(12), F.A.C.]

E.12. Particulate Matter/Particulate Matter less than 10 microns (PM/PM_{10}): Emissions of PM/PM_{10} shall be minimized by the following work practice standards: installing, maintaining and operating the LFG Treatment System that meets the filtration specification; and, as determined by EPA Method 9, visible emissions from each engine exhaust shall not exceed 10% opacity. {*Permitting Note: Based on these work practice standards, the expected maximum PM/PM_{10} emissions from each engine is 0.24 g/bhp-hr and a maximum of 1.2 lb/hr.}* [Rule 62-212.400(BACT), F.A.C.]

E.13. 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 1.4 lb/hr. *{Permitting Note: 1.0 g/bhp-hour limit is the NSPS Subpart JJJJ standard for Emission Unit ID Nos. 012-015, however the "g/bhp-hour" and "lb/hour" limits allow the project to avoid PSD preconstruction review for VOC emissions.}* [NESHAP Subparts A and JJJJ in 40 CFR 63 and Rules 62-204.800 and 62-212.400(12), F.A.C.]

E.14. Sulfur Dioxide (SO_2): Sulfur dioxide emissions from the ten engines shall not exceed 41.6 tons during any rolling 12 months. Emissions shall be calculated based on the representative sulfur content of each fuel and the actual monthly fuel consumption rate of each fuel based on the following:

a. LFG: The representative sulfur content for a given month shall be the sulfur content determined from sampling and analysis within the same semiannual period.

b. Fuel Consumption: The monthly fuel consumption shall be determined from the fuel flow monitors.

Compliance with the SO_2 emissions cap shall be determined by summing the calculated monthly SO_2 emissions from each fuel based on stoichiometry for a rolling 12-month period. *{Permitting Note: The SO_2 emissions increase from the new four engines is 16.6 tons per year. The project avoids PSD review for the new engines based on this emissions cap.}* [Rule 62-212.400(12)(Source Obligation), F.A.C.]

E.15. Hydrogen Chloride (HCl): Hydrogen chloride emissions from the facility shall not exceed 9.0 tons during any rolling 12 months. Emissions shall be calculated based on the representative chlorine content of LFG and the actual monthly fuel consumption rate of the engines and the amount flared based on the following:

a. LFG: The representative chlorine content for a given month shall be the chlorine content determined from sampling and analysis within the same semiannual period.

b. Fuel Consumption: The monthly fuel consumption shall be determined from the fuel flow monitors on the engines as well as the flares.

Compliance with the HCl emissions cap shall be determined by summing the calculated monthly HCl emissions from LFG based on stoichiometry for a rolling 12-month period. *{Permitting Note: This emissions cap ensures that the facility remains an area source of HAP emissions with regard to NESHAP Subpart ZZZZ in 40 CFR 63 (less than 10 tons per year of any single HAP and less than 25 tons per year for the combination of all HAP)}.* [Applicant Request and Rule 62-4.070(3), F.A.C.]

E.16. Visible Emissions: Visible emissions from each engine/generator set exhaust shall not exceed 10% opacity. [Rule 62-212.400, F.A.C.]

EXCESS EMISSIONS

E.17. Excess Emissions Allowed: Excess CO and NOx emissions (as specified in this subsection) resulting from startup, shutdown or malfunction of any emissions unit shall be permitted providing best operational practices to minimize emissions are adhered to and:

a. To the extent practicable, the operator shall strive to complete engines startups within 30 minute; and

b. The duration of excess emissions due to malfunctions shall be minimized but in no case exceed two hours in any 24-hour period.

[Rule 62-210.700(1), F.A.C.]

TESTING REQUIREMENTS

E.18. Initial Compliance Test (Emission Unit ID Nos. 012-015): Each landfill gas engine shall be tested to demonstrate initial compliance with the emissions standards for CO, NOx and VOC under 40 CFR 60, Subpart JJJJ as well as the BACT standards of this permit. In addition, each unit shall be tested for opacity in accordance with EPA Method 9. The initial performance test must be conducted within 60 days after achieving permitted capacity, but not later than 180 days after initial startup of each unit. *{Permitting Note: Since the BACT emission standards are more stringent than 40 CFR 60, Subpart JJJJ emission standards, compliance with the BACT emission standards will satisfy compliance with the 40 CFR 60, Subpart JJJJ emission standards.}* [Rules 62-212.400(BACT), 62-297.310(7)(a)1, F.A.C. and NSPS Subpart JJJJ in 40 CFR 60]

E.19. Periodic Compliance Tests (Emission Unit ID Nos. 012-015): Every 8,760 engine hours or at least once every three years, whichever comes first, each landfill gas engine shall be tested to demonstrate compliance with the emissions standards for CO, NOx and VOC under 40 CFR 60, Subpart JJJJ as well as the BACT standards of this permit. During these periodic tests, at least one landfill gas engine shall also be tested for opacity in accordance with EPA Method 9. *{Permitting Note: Since the BACT emission standards are more stringent than 40 CFR 60, Subpart JJJJ emission standards, compliance with the BACT emission standards will satisfy compliance with the 40 CFR 60, Subpart JJJJ emission standards.}* [Rules 62-212.400(BACT), 62-297.310(7)(a)1 and 4, F.A.C., and NSPS Subpart JJJJ in 40 CFR 60]

E.20. Performance Tests (Emission Unit ID Nos. 004-009): 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.

E.21. Test Requirements: During each required compliance stack test, the permittee shall operate a tested landfill gas engine at permitted capacity (90% to 100% of 2,233 bhp). The permittee shall

notify the Compliance Authority in writing at least 15 days prior to any scheduled stack tests. Tests shall be conducted in accordance with the applicable requirements specified in Appendix D (Common Testing Requirements) of this permit. *{Permitting Note: Although the NSPS provides for a 30-day test notification, a 15-day notice is sufficient in Florida.}* [Rule 62-297.310(7)(a)9, F.A.C.]

E.22. Test Methods: Tests required by this permit shall be performed in accordance with the following reference methods.

Method	Description of Method and Comments
1 - 4	Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content
7 or 7E	Determination of Nitrogen Oxide Emissions from Stationary Sources
9	Visual Determination of the Opacity of Emissions from Stationary Sources
10	Determination of Carbon Monoxide Emissions from Stationary Sources {Note: The method shall be based on a continuous sampling train.}
19	Determination of Sulfur Dioxide Removal Efficiency and Particulate Matter, Sulfur Dioxide, and Nitrogen Oxides Emission Rates (Optional F-factor method may be used to determine flow rate and gas analysis to calculate mass emissions in lieu of Methods 1-4.)
18	Measurement of Gaseous organic Compound Emissions by Gas Chromatography *{Note: the emission standards are based on VOC measured as methane.}*
25A	Determination of Total Gaseous Organic Concentration Using a Flame Ionization Analyzer *{Note: the emission standards are based on VOC measured as methane.}*
ALT-078	Clarification of Approval of an Alternative to Method 18 for 40 CFR Part 60, Subpart JJJJ

The above methods are described in Appendix A of 40 CFR 60 and are adopted by reference in Rule 62-204.800, F.A.C. No other methods may be used unless prior written approval is received from the Department. ALT-078 method is included in the Appendices. [Rules 62-204.800, 62-212.400(BACT) and Appendix A of 40 CFR 60]

E.23. LFG Composition Analysis: The following methods shall be used to satisfy the sampling/analysis of LFG:

a. Sulfur Content: ASTM Method D5504-01 or equivalent.

b. Chlorine Content: Modified EPA Method TO-15 or equivalent.

c. The LFG shall be collected and transported in an appropriate canister (e.g. SUMMA®, Bottle-Vac Sampler or equivalent).

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

MONITORING REQUIREMENTS

E.24. Landfill Gas Sampling/Analysis: At least semiannually, the permittee shall obtain the following representative samples of landfill gas: a sample taken during each required compliance stack test; and a sample taken during the next semiannual period. A representative sample shall be taken in each calendar semiannual period (January – June and July – December) approximately six months apart. Each gas sample shall be collected under normal operating conditions (i.e., with valves open for all operating cells) by appropriate canister (e.g. SUMMA®, Bottle-Vac Sampler or equivalent).

Each sample shall have an ultimate analysis conducted for at least sulfur and chlorine. Results shall also be reported as SO_2 and HCl emission factors in terms of lb/million standard cubic feet (lb/MMscf) of landfill gas. Based on the sampling results and Rule 62-297.310(7)(b)(Special Compliance Tests), F.A.C., the Compliance Authority may request additional gas sampling and analyses. [Rules 62-210.200 and 62-212.400, F.A.C.]

E.25. Monthly Records: Within ten calendar days following each month, the permittee shall observe and record the following information in a written log or electronic format accessible to a compliance inspector: number of hours of operation of each engine; total monthly landfill gas flow rate to all engines combined; and HCl and SO_2 emissions for the month and previous 12 months, rolling total. Emissions of HCl and SO_2 shall be calculated from the monthly fuel consumption as well as the analytical results for the chlorine and sulfur contents of the landfill gas representative of the given month of operation based on the semiannual sampling for that period. [Rule 62-210.200 (232), F.A.C.]

RECORDS AND REPORTS

E.26. Test Reports: The required test report shall be filed with the Department as soon as practical but no later than 45 days after the last sampling run of each test is completed. The test report shall provide sufficient detail on the emissions unit tested and the test procedures used to allow the Department to determine if the test was properly conducted and the test results properly computed. As a minimum, the test report, other than for an EPA test, shall provide the applicable information identified in Rule 62-297.310(8)(c). [Rule 62-297.310(8), F.A.C.]

COMMON CONDITIONS

E.27. General Provisions: This emissions unit is also subject to the applicable General Provisions of 40 CFR 63 Subpart A.