Memorandum

Florida Department of Environmental Protection

TO: Jeff Koerner, Office of Permitting and Compliance

THROUGH: Syed Arif, Office of Permitting and Compliance

FROM: Christy DeVore, Office of Permitting and Compliance

Date: November 14, 2011

SUBJECT: Title V Air Operation Permit No. 0310358-013-AV

Trail Ridge Landfill, Inc.
Trail Ridge Energy, LLC
Final Title V Air Operation Permit Revision

The final permit for this project is attached for your approval and signature. Day 47 is November 14, 2011.

The attached final determination identifies issuance of the proposed Title V air operation permit, and summarizes the publication process. There were no comments received from EPA in response to the proposed permit or from the applicant or public in response to the proposed permit.

I recommend your approval of the attached final permit for this project.

Attachments

NOTICE OF FINAL PERMIT

In the Matter of an
Application for Permit by:

City of Jacksonville
Public Works Department
117 West Duval Street, St. James Building, 4th Floor
Jacksonville, FL 32202

Responsible Official:
Ms. Karen Bowling, Chief Administrative Officer

Permit No. 0310358-013-AV
Trail Ridge Landfill, Inc.
Trail Ridge Energy, LLC
Title V Air Operation Permit Revision
Duval County

Enclosed is the final permit package to revise the Title V air operation permit for Trail Ridge Energy, LLC. The existing facility is located in Duval County at 5110 U.S. Highway 301, Baldwin, Florida. This permit is issued pursuant to Chapter 403, Florida Statutes.

Any party to this order has the right to seek judicial review of it under Section 120.68 of the Florida Statutes by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department of Environmental Protection in the Office of General Counsel (Mail Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000) and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The notice must be filed within 30 days after this order is filed with the clerk of the Department.

Executed in Tallahassee, Florida.

Jeffery F. Koerner, P.E., — 11-16-11 (Date)
Program Administrator
Office of Permitting and Compliance
Division of Air Resource Management

Enclosures
JFK/sa/scd

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this Notice of Final Permit (including the Final Permit and Final Determination), or a link to these documents available electronically on a publicly accessible server, was sent by electronic mail with received receipt requested to the persons listed below:

Ms. Karen Bowling, City of Jacksonville (kbowling@coj.net)
Mr. Scott Salisbury, Trail Ridge Energy, LLC (scott.salisbury@landfillenergy.com)
Mr. Robert Harvey, P.E., Derenzo and Associates, Inc. (rharvey@derenzo.com)
Mr. Chris Kirts, Northeast District (christopher.kirts@dep.state.fl.us)
Mr. Richard Robinson, Duval County Environmental Resources Management (robinson@coj.net)
Ms. Kathleen Forney, EPA Region 4 (forney.kathleen@epa.gov)
Ms. Heather Abrams Ceron, EPA Region 4 (ceron.heather@epa.gov)
Ms. Ana Oquendo, US EPA Region 4 (oquendo.ana@epa.gov)
Ms. Barbara Friday, DEP OPC (barbara.friday@dep.state.fl.us) (for posting with U.S. EPA, Region 4)
Ms. Lynn Scearce, DEP OPC Reading File (lynn.scearce@dep.state.fl.us)

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to Section 120.52(7), Florida Statutes, with the designated agency clerk, receipt of which is hereby acknowledged.

Barbara J. Friday — 11/16/11
(Clerk) (Date)

PERMITTEE

City of Jacksonville
Public Works Department
117 West Duval Street, St. James Building, 4th Floor
Jacksonville, FL 32202

PERMITTING AUTHORITY

Florida Department of Environmental Protection (Department)
Division of Air Resource Management
Office of Permitting and Compliance
2600 Blair Stone Road, MS #5505
Tallahassee, Florida 32399-2400

PROJECT

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

The purpose of this Title V air operation permit revision is to add the installation and operation of four new Caterpillar Model No. G3520C engine generator sets and to modify the carbon monoxide (CO) emission standard as Best Available Control Technology (BACT) for the proposed and existing engine generator sets in construction permit modification Permit No. 0310358-012-AC/PSD-FL374C.

NOTICE AND PUBLICATION

The Department distributed an Intent to Issue a revised Title V air operation permit package on August 18, 2011. The applicant published the Public Notice of Intent to Issue Air Permit in the Financial News and Daily Record on August 26, 2011. The Department received the proof of publication on September 6, 2011. A proposed permit was issued for EPA review on September 28, 2011.

COMMENTS

No comments on the proposed permit were received from the EPA Region 4 Office or the public.

CONCLUSION

The final action of the Department is to issue the permit with no changes from the proposed permit.

Title V Air Operation Permit Revision

Permit No. 0310358-013-AV

APPLICANT

The applicant for this project is the City of Jacksonville. The applicant's responsible official and mailing address are: Ms Karen Bowling, Chief Administrative Officer, City of Jacksonville Public Works Department, 117 West Duval Street, St. James Building, 4th Floor, Jacksonville, FL 32202.

FACILITY DESCRIPTION

The existing Trail Ridge Landfill facility is located at 5110 U.S. Highway 301 South in Baldwin, Duval County, Florida. The Trail Ridge Energy, LLC facility is located at the existing Trail Ridge Landfill facility. The Trail Ridge Energy, LLC facility includes six lean-burn spark-ignition reciprocating internal combustion engine (RICE)-generator sets firing landfill gas, is categorized under Standard Industrial Classification (SIC) Code No. 4953, Refuse Systems. The UTM coordinates are Zone 17, 399.873 km East, and 3344.309 km North.

Trail Ridge Landfill is a Class I Municipal Solid Waste (MSW) Landfill consisting of 176 acres. This landfill commenced construction in 1992. Trail Ridge Landfill receives approximately 2,500 - 3,000 tons of waste daily. The site totals 977 acres of land and currently has a 148-acre "footprint" which serves residential and commercial customers.

The nonmethane organic compounds (NMOC) emissions are greater than 50 megagrams per year. Landfill gas (LFG) is directed to an enclosed flare where methane, NMOC and HAPs contained in the gas are destroyed at high temperatures. The facility currently operates two flares – one 5,000 standard cubic feet per minute (scfm) open flare and one 1,600 scfm open flare.

In order to reduce the amount of LFG wasted by flaring, all available LFG from the landfill is supplied to Trail Ridge Energy for use as fuel to power the proposed internal combustion (IC) engine electricity generation plant.

PROJECT DESCRIPTION

The purpose of this permitting project is to revise the existing Title V permit for the above referenced facility to add the installation and operation of four new Caterpillar Model No. G3520C engine generator sets and to modify the carbon monoxide (CO) emissions standard as Best Available Control Technology (BACT) for the proposed and existing engine/generator sets.

PROCESSING SCHEDULE AND RELATED DOCUMENTS

March 17, 2011	Department received the application for an air pollution construction permit and Title V revision permit.
April 8, 2011	Department requested additional information.
June 20, 2011	Department received additional information; application complete.
August 18, 2011	Department issued the Draft Title V revision permit.
August 26, 2011	Public Notice was published.
September 28, 2011	Department issued the Proposed Title V revision permit.

PRIMARY REGULATORY REQUIREMENTS

Title III: The facility is not identified as a major source of hazardous air pollutants (HAP).

Title V: The facility is a Title V major source of air pollution in accordance with Chapter 62-213, Florida Administrative Code (F.A.C.).

PSD: The facility is a Prevention of Significant Deterioration (PSD)-major source of air pollution in accordance with Rule 62-212.400, F.A.C.

NSPS: The facility does operate units subject to the New Source Performance Standards (NSPS) of 40 Code of Federal Regulations (CFR) 60.

NESHAP: The facility does operate units subject to the National Emissions Standards for Hazardous Air Pollutants (NESHAP) of 40 CFR 63.

CAIR: The facility is not subject to the Clean Air Interstate Rule (CAIR) set forth in Rule 62-296.470, F.A.C.

PROJECT REVIEW

To incorporate the provisions of permit No. 0310358-012-AC, which authorized the construction of four lean-burn reciprocating internal combustion engine/generator sets as part of the existing landfill gas-to-energy plant at the Trail Ridge Landfill. In addition, the permittee requested a modification to the CO emissions standard as Best Available Control Technology (BACT) for the existing engine/generator sets. The landfill gas will be used to fuel the proposed four and existing six lean-burn reciprocating internal combustion engine/generator sets. The plant will have the potential to generate an additional 6.4 megawatts (MW) of electricity for a combined nominal 16 MW of power to the electrical grid. In addition, the applicant requested a concurrent revision of the Title V air operation permit. The two existing flares will be retained as additional combustion devices for the landfill gas. The landfill gas will be routed through a landfill gas treatment system and then to the engines. As necessary, residual landfill gas will be routed to the flares. The project will result in the following potential emissions increases at the existing landfill: 284.7 tons/year of carbon monoxide (CO); 51.7 tons/year of nitrogen oxides (NO_X); 20.7 tons/year of particulate matter (PM), particulate matter with a mean particle diameter of 10 microns or less (PM_{10}) and particulate matter with a mean particle diameter of 2.5 microns or less ($PM_{2.5}$); 16.6 tons/year of sulfur dioxide (SO_2); and 24.2 tons/year of volatile organic compounds (VOC).

AC/PSD Permit Revisions. The applicant requested the concurrent processing of an air construction permit revision to change air construction (AC)/PSD permit conditions. See Permit No. 0310358-012-AC/PSD-FL-374C for the changes made. The Technical Evaluation and Preliminary Determination summarizes the requested changes, the Department's responses and identifies the changes made to the underlying air construction permit conditions. These changes have been reflected within the Title V air operation permit.

Changes have been made in the proposed Title V air operation permit as detailed in the Proposed Title V Determination.

CONCLUSION

This project revises Title V air operation permit No. 0310358-010-AV, which was issued on May 5, 2011. This Title V air operation permit revision is issued under the provisions of Chapter 403, Florida Statues (F.S.), and Chapters 62-4, 62-210 and 62-213, F.A.C.

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

Permitting Authority:

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

Telephone: (850) 717-9000
Fax: (850) 717-9001

Title V Air Operation Permit Revision

Permit No.: 0310358-013-AV

Table of Contents

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
Office of Permitting and Compliance
Division of Air Resource Management

11-16-11
(Date)

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).

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 55° C (131° 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 i^{th} section, megagrams
t_i = age of the i^{th} 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. Compliance Determination with Surface Methane Operational Standard: 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 i^{th} section, megagrams
t_i = age of the i^{th} 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:

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

where,

Q_i= NMOC emission rate from the i^{th} 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 i^{th} section, megagram
t_i= age of the solid waste in the i^{th} 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. Collection & Control System Capping or Closure: 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 constructedand 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)]

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.

APPENDIX A
ABBREVIATIONS, ACRONYMS, CITATIONS AND IDENTIFICATION NUMBERS

Abbreviations and Acronyms:

° F: degrees Fahrenheit
acfm: actual cubic feet per minute
AOR: Annual Operating Report
ARMS: Air Resource Management System (Department's database)
BACT: best available control technology
Btu: British thermal units
CAM: compliance assurance monitoring
CEMS: continuous emissions monitoring system
cfm: cubic feet per minute
CFR: Code of Federal Regulations
CO: carbon monoxide
COMS: continuous opacity monitoring system
DARM: Division of Air Resources Management
DCA: Department of Community Affairs
DEP: Department of Environmental Protection
Department: Department of Environmental Protection
dscfm: dry standard cubic feet per minute
EPA: Environmental Protection Agency
ESP: electrostatic precipitator (control system for reducing particulate matter)
EU: emissions unit
F.A.C.: Florida Administrative Code
F.D.: forced draft
F.S.: Florida Statutes
FGR: flue gas recirculation
Fl: fluoride
ft²: square feet
ft³: cubic feet
gpm: gallons per minute
gr: grains
HAP: hazardous air pollutant
Hg: mercury
I.D.: induced draft
ID: identification
ISO: International Standards Organization (refers to those conditions at 288 Kelvin, 60% relative humidity and 101.3 kilopascals pressure.)
kPa: kilopascals
LAT: Latitude
lb: pound
lbs/hr: pounds per hour
LONG: Longitude
MACT: maximum achievable technology
mm: millimeter
MMBtu: million British thermal units
MSDS: material safety data sheets
MW: megawatt
NESHAP: National Emissions Standards for Hazardous Air Pollutants
NOx: nitrogen oxides
NSPS: New Source Performance Standards
O&M: operation and maintenance
O_2: oxygen
OPC: Office of Permitting and Compliance
ORIS: Office of Regulatory Information Systems
OS: Organic Solvent
Pb: lead
PM: particulate matter
PM_{10}: particulate matter with a mean aerodynamic diameter of 10 microns or less
PSD: prevention of significant deterioration
psi: pounds per square inch
PTE: potential to emit
RACT: reasonably available control technology
RATA: relative accuracy test audit
RMP: Risk Management Plan
RO: Responsible Official
SAM: sulfuric acid mist
scf: standard cubic feet
scfm: standard cubic feet per minute
SIC: standard industrial classification code

APPENDIX A
ABBREVIATIONS, ACRONYMS, CITATIONS AND IDENTIFICATION NUMBERS

Abbreviations and Acronyms:

SNCR: selective non-catalytic reduction (control system used for reducing emissions of nitrogen oxides)
SOA: Specific Operating Agreement
SO_2: sulfur dioxide
TPH: tons per hour
TPY: tons per year
UTM: Universal Transverse Mercator coordinate system
VE: visible emissions
VOC: volatile organic compounds
x: By or times

Citations:

The following examples illustrate the methods used in this permit to abbreviate and cite the references of rules, regulations, guidance memorandums, permit numbers and ID numbers.

Code of Federal Regulations:

Example: **[40 CFR 60.334]**

Where:	40	refers to	Title 40
	CFR	refers to	Code of Federal Regulations
	60	refers to	Part 60
	60.334	refers to	Regulation 60.334

Florida Administrative Code (F.A.C.) Rules:

Example: **[Rule 62-213.205, F.A.C.]**

Where:	62	refers to	Title 62
	62-213	refers to	Chapter 62-213
	62-213.205	refers to	Rule 62-213.205, F.A.C.

Identification Numbers:

Facility Identification (ID) Number:

Example: Facility ID No.: 1050221

Where:

105 = 3-digit number code identifying the facility is located in Polk County

---

0221 = 4-digit number assigned by state database.

APPENDIX A

ABBREVIATIONS, ACRONYMS, CITATIONS AND IDENTIFICATION NUMBERS

Permit Numbers:

Example: 1050221-002-AV, or
1050221-001-AC

Where:

AC = Air Construction Permit
AV = Air Operation Permit (Title V Source)
105 = 3-digit number code identifying the facility is located in Polk County
0221= 4-digit number assigned by permit tracking database
001 or
002= 3-digit sequential project number assigned by permit tracking database

Example: PSD-FL-185
PA95-01
AC53-208321

Where:

PSD = Prevention of Significant Deterioration Permit
PA = Power Plant Siting Act Permit
AC53 = old Air Construction Permit numbering identifying the facility is located in Polk County

Trail Ridge Energy, LLC
Trail Ridge Landfill, City of Jacksonville
BACT from PSD-FL-374C/0310358-012-AC
Baldwin, Duval County

PROJECT DESCRIPTION

EU No.	Emission Unit Description
004-009 and 012-015	Ten Caterpillar Model G3520C lean-burn reciprocating internal combustion engine/generator sets

The City of Jacksonville. operates the existing Trail Ridge Landfill, which is a municipal solid waste landfill located in Duval County at 5110 US Highway 301 South, Baldwin, Florida. Trail Ridge Energy proposes to install and operate four new Caterpillar Model No. G3520C engine generator sets and to modify the CO emissions standard as Best Available Control Technology (BACT) for the four proposed and six existing engine generator sets. Landfill gas will be used to fuel the ten lean-burn Caterpillar Model No. CAT G3520C engine/generator sets capable of producing a combined nominal 16 megawatts (MW) of power to the electrical grid. The two existing flares will be retained as additional combustion devices for the landfill gas. The landfill gas will be routed through a landfill gas treatment system and then to the landfill gas engines. If necessary, residual landfill gas will be routed to the flares. The landfill gas treatment system includes initial gas de-watering (moisture knock-out vessel), gas compressors and blowers, air-to-gas coolers and particulate filtration.

Exhaust gas from each engine will exit an individual stack (23 feet tall) equipped with a noise muffler. The six existing engines are housed in an enclosed building and the four proposed engines will be housed adjacent in an enclosed building. In accordance with Rule 62-212.400, F.A.C., the proposed project is subject to PSD major stationary source preconstruction review for emissions of CO, NO_X and PM/PM_{10}.

FINAL BACT DETERMINATIONS

In accordance with Rule 62-212.400, F.A.C., the Department specifies the following BACT determinations for each engine.

Pollutant	BACT Standard	Control Technology	Compliance Method
CO	3.5 g/bhp-hour and 17.2 lb/hour	Combustion design combined with good combustion and maintenance practices.	EPA Method 10
NO_X	0.6 g/bhp-hour and 3.0 lb/hour		EPA Method 7 or 7E
PM/PM_{10}	*Work Practice Standard*: The landfill gas pretreatment system shall include a filtration system to remove particulate down to 1 micron.		Design and maintenance records
	Work Practice Standard: Visible emissions from each engine exhaust stack shall not exceed 10% opacity, based on a six-minute average.		EPA Method 9

CP1.1. Compliance Schedule. The facility has been issued Construction Permit No. 0310358-007-AC which authorizes the re-installation and initial operation of an open flare to control the emissions of landfill gas generated at the Trail Ridge Landfill. The flare will be de-rated to a maximum capacity of 1,600 scfm.

Because the applicant included this flare in the Title V Operation Permit Renewal application, a Compliance Plan has been incorporated into this Title V Operation Permit Renewal to address the requirements of the air construction permit. The permittee shall meet the following milestones:

E.U. ID. No.	Milestone	Milestone Date
001	De-rating and re-installation of the 1,600 scfm flare (and blower system)	Pursuant to the timeframes established in the air construction permit.
001	Compliance Testing conducted and test reports submitted pursuant to requirements of air construction permit	Pursuant to the timeframes established in the air construction permit.
001	Responsible Official to submit "Certification of Compliance", addressing this emissions unit, indicating what is not in compliance, when non-compliance started, the degree or amount of non-compliance, the duration of non-compliant operations, steps taken to identify and correct non-compliant conditions, and actions (with time table), to correct any current non-compliant conditions and achieve compliance.	No later 180 after the emissions unit commences operation

CP2.1. Compliance Schedule. The facility has been issued Construction Permit No. 0310358-012-AC/PSD-FL-347C which authorizes the installation of four Caterpillar (CAT) Model G3520C or equivalent gas IC engines and electricity generators.

Because the applicant included these engine/generator sets in the Title V Operation Permit Revision application, a Compliance Plan has been incorporated into this Title V Operation Permit Revision to address the requirements of the air construction permit. The permittee shall meet the following milestones:

E.U. ID. No.	Milestone	Milestone Date
012-015	Installation of four Caterpillar (CAT) Model G3520C gas IC engines and electricity generators	Pursuant to the timeframes established in the air construction permit.
012-015	Compliance Testing conducted and test reports submitted pursuant to requirements of air construction permit	Pursuant to the timeframes established in the air construction permit.
012-015	Responsible Official to submit "Certification of Compliance", addressing these emissions units, indicating what is not in compliance, when non-compliance started, the degree or amount of non-compliance, the duration of non-compliant operations, steps taken to identify and correct non-compliant conditions, and actions (with time table), to correct any current non-compliant conditions and achieve compliance.	No later 180 after the emissions units commences operation

Appendix D-1

Definitions

40 CFR 60 Subpart WWW / 40 CFR 63 Subpart AAAA - Municipal Solid Waste Landfills

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act or in subpart A of this part.

Active collection system means a gas collection system that uses gas mover equipment.

Active landfill means a landfill in which solid waste is being placed or a landfill that is planned to accept waste in the future.

Bioreactor Reserved

Closed landfill means a landfill in which solid waste is no longer being placed, and in which no additional solid wastes will be placed without first filing a notification of modification as prescribed under § 60.7(a)(4). Once a notification of modification has been filed, and additional solid waste is placed in the landfill, the landfill is no longer closed. A landfill is considered closed after meeting the criteria of § 258.60 of this title.

Closure means that point in time when a landfill becomes a closed landfill.

Commercial solid waste means all types of solid waste generated by stores, offices, restaurants, warehouses, and other nonmanufacturing activities, excluding residential and industrial wastes.

Controlled landfill means any landfill at which collection and control systems are required under this subpart as a result of the nonmethane organic compounds emission rate. The landfill is considered
controlled at the time a collection and control system design plan is submitted in compliance with § 60.752(b)(2)(i).

Design capacity means the maximum amount of solid waste a landfill can accept, as indicated in terms of volume or mass in the most recent permit issued by the State, local, or Tribal agency responsible for
regulating the landfill, plus any in-place waste not accounted for in the most recent permit. If the owner or operator chooses to convert the design capacity from volume to mass or from mass to volume to demonstrate its design capacity is less than 2.5 million megagrams or 2.5 million cubic meters, the calculation must include a site specific density, which must be recalculated annually.

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.

Disposal facility means all contiguous land and structures, other appurtenances, and improvements on the land used for the disposal of solid waste.

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

Emission rate cutoff means the threshold annual emission rate to which a landfill compares its estimated emission rate to determine if control under the regulation is required.

Enclosed combustor means an enclosed firebox which maintains a relatively constant limited peak temperature generally using a limited supply of combustion air. An enclosed flare is considered an enclosed combustor.

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

EPA approved State plan means a State plan that EPA has approved based on the requirements in 40 CFR part 60, subpart B to implement and enforce 40 CFR part 60, subpart Cc. An approved State plan becomes effective on the date specified in the notice published in the Federal Register announcing EPA's approval.

Federal plan means the EPA plan to implement 40 CFR part 60, subpart Cc for existing MSW landfills located in States and Indian country where State plans or tribal plans are not currently in effect. On the effective date of an EPA approved State or tribal plan, the Federal plan no longer applies. The Federal plan is found at 40 CFR part 62, subpart GGG.

Flare means an open combustor without enclosure or shroud.

Gas mover equipment means the equipment (i.e., fan, blower, compressor) used to transport landfill gas through the header system.

Household waste means any solid waste (including garbage, trash, and sanitary waste in septic tanks) derived from households (including, but not limited to, single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day-use recreation areas).

Industrial solid waste means solid waste generated by manufacturing or industrial processes that is not a hazardous waste regulated under Subtitle C of the Resource Conservation and Recovery Act, parts 264 and 265 of this title. Such waste may include, but is not limited to, waste resulting from the following manufacturing processes: electric power generation; fertilizer/agricultural chemicals; food and related products/by-products; inorganic chemicals; iron and steel manufacturing; leather and leather products; nonferrous metals manufacturing/foundries; organic chemicals; plastics and resin manufacturing; pulp and paper industry; rubber and miscellaneous plastic products; stone, glass, clay, and concrete products; textile manufacturing; transportation equipment; and water treatment. This term does not include mining waste or oil and gas waste.

Interior well means any well or similar collection component located inside the perimeter of the landfill waste. A perimeter well located outside the landfilled waste is not an interior well.

Landfill means an area of land or an excavation in which wastes are placed for permanent disposal, and that is not a land application unit, surface impoundment, injection well, or waste pile as those terms are defined under § 257.2 of this title.

Lateral expansion means a horizontal expansion of the waste boundaries of an existing MSW landfill. A lateral expansion is not a modification unless it results in an increase in the design capacity of the landfill.

Modification means an increase in the permitted volume design capacity of the landfill by either horizontal or vertical expansion based on its permitted design capacity as of May 30, 1991. Modification does not occur until the owner or operator commences construction or the horizontal or vertical expansion.

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.

Municipal solid waste landfill emissions or MSW landfill emissions means gas generated by the decomposition of organic waste deposited in an MSW landfill or derived from the evolution of organic compounds in the waste.

NMOC means nonmethane organic compounds, as measured according to the provisions of § 60.754.

Nondegradable waste means any waste that does not decompose through chemical breakdown or microbiological activity. Examples are, but are not limited to, concrete, municipal waste combustor ash, and metals.

Passive collection system means a gas collection system that solely uses positive pressure within the landfill to move the gas rather than using gas mover equipment.

Sludge means any solid, semisolid, or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility, exclusive of the treated effluent from a wastewater treatment plant.

Solid waste means any garbage, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges that are point sources subject to permits under 33 U.S.C. 1342, or source, special nuclear, or by-product material as defined by the Atomic Energy Act of 1954, as amended (42 U.S.C 2011 et seq.).

Sufficient density means any number, spacing, and combination of collection system components, including vertical wells, horizontal collectors, and surface collectors, necessary to maintain emission and migration control as determined by measures of performance set forth in this part.

Sufficient extraction rate means a rate sufficient to maintain a negative pressure at all wellheads in the collection system without causing air infiltration, including any wellheads connected to the system as a result of expansion or excess surface emissions, for the life of the blower.

Tribal plan means a plan submitted by a tribal authority pursuant to 40 CFR parts 9, 35, 49, 50, and 81 to implement and enforce 40 CFR part 60, subpart Cc.

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.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

4APT-ATMB

OCT 19 2006

Joseph Kahn, Acting Director
Division of Air Resource Management
FL Department of Environmental Protection
Mail Station 5500
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Dear Mr. Kahn:

The purpose for this letter is to provide you with a determination regarding emission limit applicability and monitoring requirements for landfill gas that will be combusted in internal combustion engines to produce electricity at the following landfills located in Florida:

Trail Ridge Landfill (Baldwin, Florida)

Brevard County Landfill (Cocoa, Florida)

Seminole County Landfill (Geneva, Florida)

These landfills are subject to 40 CFR Part 60, Subpart WWW (Standards of Performance for Municipal Solid Waste Landfills), and a consultant (Derenzo and Associates, Inc.) representing the owners of all three sites submitted applicability determination requests to the U.S. Environmental Protection Agency (EPA) Region 4 and to your agency. The primary question posed in these requests is whether the landfill gas processing operations at these sites constitute "treatment" as this term is defined under Subpart WWW. Based upon our review of the information provided with the applicability determination request, we concluded that the gas processing conducted at the three landfills in question does constitute treatment under Subpart WWW. Therefore, the gas leaving the treatment systems at these landfills is no longer subject to the control and monitoring requirements in Subpart WWW. Details regarding the gas processing systems at these sites and the basis for our determination are provided in the remainder of this letter.

Derenzo and Associates requested a determination regarding whether the gas processing at the three landfills in Florida constitutes treatment because gas that has been treated is no longer subject to the control requirements in Subpart WWW. Under provisions in 40 CFR §60.752(b)(2)(iii), gas collected from landfills subject to Subpart WWW must be routed to either a flare, a control system that reduces nonmethane organic compound (NMOC) emissions by 98 weight-percent, an enclosed combustor, or a

treatment system that processes the gas for subsequent sale or use. If an enclosed combustor is used, NMOC emissions must be reduced by either 98 weight-percent or to a concentration of less than 20 parts per million as hexane, corrected to three percent oxygen. Although landfill gas is no longer subject to the control requirements in Subpart WWW after it has been processed for subsequent sale or use, emissions from any atmospheric vents in the treatment system must be sent to a control system (flare, enclosed combustor, etc.) that complies with the removal efficiency standards in the rule.

According to the process description that Derenzo and Associates provided with its applicability determination requests, gas collected at the three landfills in question is filtered to remove particles larger than one micron, dewatered, and compressed. According to several previous U.S. Environmental Protection Agency (EPA) determinations, a landfill gas processing operation that includes filtration to ten microns or less, dewatering, and compression constitutes treatment in accordance with provisions in 40 CFR §60.752(b)(2)(iii)(C). Since the gas processing operations at the three landfills in question include all of the steps cited in EPA's previous determinations, they constitute treatment systems for Subpart WWW purposes, and the treated gas leaving these systems will no longer be subject to control or monitoring requirements under the rule.

If you have any questions about the determination provided in this letter, please contact Mr. David McNeal of the EPA Region 4 staff at (404) 562-9102.

Sincerely,

Beverly H. Banister
Director
Air, Pesticides and Toxics
Management Division

cc: Syed Arif
Division of Air Resource Management
FL Department of Environmental Protection
Mail Station 5500
2600 Blair Stone Road
Tallahassee, FL 32399-2400

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

AUG 2 6 2008

Christopher L. Kirts, P.E.
District Air Program Administrator
Florida Department of Environmental Protection
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7590

Dear Mr. Kirts:

This letter is in response to a July 30, 2008, e-mail in which Rita Felton-Smith of your staff requested a written determination regarding an issue that the City of Jacksonville (City) raised in conjunction with the operation of gas collection wells at the Trail Ridge Landfill in Baldwin, Florida. This landfill is subject to 40 CFR Part 60, Subpart WWW (Standards of Performance for Municipal Solid Waste Landfills), and the e-mail from Rita Felton-Smith asked for a determination regarding whether landfill owners/operators must obtain State approval when establishing alternative temperature limits for gas collection wells under provisions in 40 CFR §60.753(e). Based upon our review of Subpart WWW and supporting information, we determined that State approval for such alternative temperature limits is required. The remainder of this letter provides details regarding the basis for this determination.

Owners and operators of landfills required to install and operate a gas collection and control system under Subpart WWW are subject to a number of operating limits promulgated under 40 CFR 60.753. Included under these provisions is a gas collection well temperature limit of 55° C (131° F) in 40 CFR §60.753(e). This provision also allows owners/operators of affected facilities to establish higher temperature limits by demonstrating that the higher limits do not cause fires or significantly inhibit anaerobic decomposition by killing methanogens.

Exceedances of the temperature limit in Subpart WWW have been detected for seven of the gas collection wells at the Trail Ridge Landfill. In a letter that the City sent to your agency in order to address these exceedances, the City asserted that 40 CFR §60.753 does not specifically require Administrator approval for higher landfill gas collection well temperature limits. In her e-mal to the U.S. Environmental Protection Agency (EPA) Region 4, Rita Felton-Smith requested a written determination regarding whether this position taken by the City is correct. Based upon our review of Subpart WWW and supporting information, we disagree with the City's position that it can unilaterally establish alternative temperature limits for gas collection wells at the Trail Ridge Landfill. The basis for this conclusion is summarized below:

1. The City contends that 40 CFR §60.753(c) does not specifically require Administrator approval for higher operating values. While the language in this provision does not explicitly say that State approval for alternative temperature limits in required, it does not say that landfill owners/operators can unilaterally establish alternative temperature limits either.

2. The language in 40 CFR §60.753(c) references a higher operating value demonstration that includes supporting data as part of the process for establishing higher temperature limits. This requirement for a demonstration that includes supporting data implies some sort of approval process in conjunction with setting an alternative temperature limit.

3. If a landfill owner/operator can unilaterally establish alternative temperature limits without obtaining approval from the State agency responsible for implementing Subpart WWW, there would be no point in having temperature limits in 40 CFR §60.753(c) to begin with.

4. Implementation guidance that EPA issued in conjunction with the promulgation of Subpart WWW clearly says that State approval for alternative operating limits is required. EPA issued a document titled Municipal Solid Waste Landfills, Volume 1: Summary of the Requirements for the New Source Performance Standards and Emission Guidelines for Municipal Solid Waste Landfills (EPA-455R/96-004) to assist with the implementation of Subpart WWW. Page 2-13 of this guidance document (enclosed) discusses the provisions involving alternative limits under 40 CFR §60.753(c), and this section of the guidance document clearly says these alternative limits require State approval.

For the reasons outlined above, we have concluded that the City's interpretation regarding the approval process for alternative temperature limits under 40 CFR §60.753(c) is incorrect. In order to obtain approval for an alternative temperature limit for gas collection wells under Subpart WWW, an owner/operator must submit the demonstration and supporting information described in 40 CFR §60.753(c), and after reviewing this information, the State can either approve or disapprove the proposed alternative limit.

If you have any questions about the determination provided in this letter, please contact Mr. David McNeal of the EPA Region 4 staff at (404) 562-9102.

Sincerely,

Beverly H. Banister
Director
Air, Pesticides and Toxics
Management Division

Enclosure

cc: Rita Felton-Smith
Florida Department of Environmental Protection

United States
Environmental Protection
Agency

Office of Air Quality
Planning and Standards
Research Triangle Park, NC 27711

EPA-453/R/96-004
February 1999

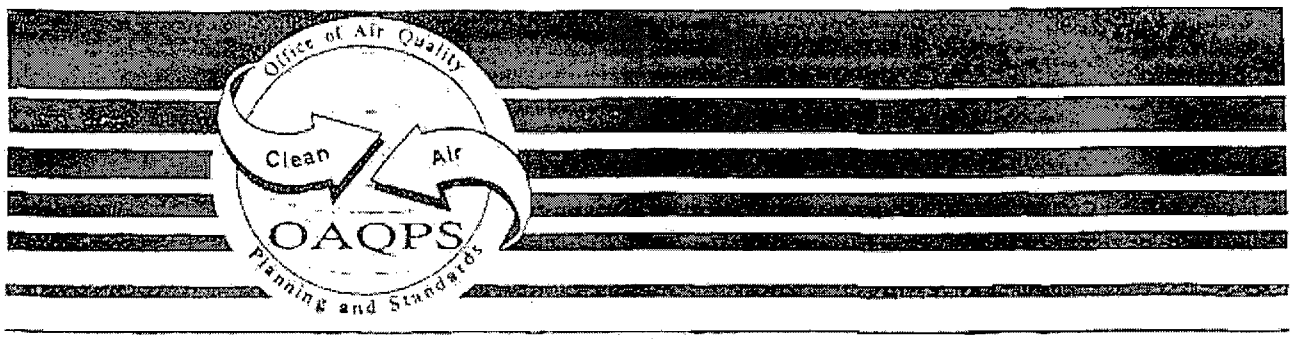
Air

EPA

Municipal Solid Waste Landfills, Volume 1:

Summary of the Requirements for the New Source Performance Standards and Emission Guidelines for Municipal Solid Waste Landfills

FINAL



§ 60.759, it may be appropriate to use alternative operating and compliance provisions that are consistent with the site-specific design.

This section briefly describes the operational requirements that are used to ensure that the collection system is performing in accordance with its design and that the four design criteria listed in the previous section are met on a continuing basis. Additional details on monitoring and compliance determination provisions are provided in section 2.1.3.

To ensure that the collection system is designed to handle the maximum expected gas generation rate, § 60.755(a) provides procedures for calculating the gas generation flow rate.

Landfill gas is effectively collected from the landfill when gas collectors are operated at a sufficient gas extraction rate. To demonstrate that the gas extraction rate for an active gas collection system is sufficient, a negative pressure must be maintained at each wellhead [§ 60.753(b) and § 60.755(a)(3)] except as noted in § 60.753(b). Gas collection systems that operate at a sufficient gas extraction rate minimize the potential of off-site migration of subsurface LFG [§ 60.752(b)(2)(ii)].

An excessive gas extraction rate may cause air infiltration into the landfill through its surface and sides. Under the rule, the nitrogen gas concentration in the collected LFG must be maintained below 20 percent (or the oxygen concentration maintained below 5 percent) and the temperature of the collected LFG must be below 55 ^{o}C (131 ^{o}F) to prevent excess air infiltration [§ 60.753(c) and § 60.755(a)(5)]. For a specific site, the owner or operator may establish a higher temperature, or a higher nitrogen or oxygen level for particular wells, with approval from the State.

An inadequate gas extraction rate may cause LFG to escape through the landfill surface. Under the rule, the gas extraction rate is considered adequate when 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, surface testing is conducted around the perimeter of the collection area, along a pattern that traverses the landfill at 30 meter intervals, and where visual observations indicate elevated concentrations of landfill gas (e.g., distressed vegetation, cracks or seeps in the cover). The owner or operator may establish an alternative traversing pattern that ensures equivalent coverage [§ 60.753(d) and § 60.755(c)].

Collection system parameters (pressure, nitrogen concentration, oxygen concentration, temperature, surface methane concentration) must be monitored periodically to

Appendix F – 40 CFR 61 Subpart M Figure 4

Generator	1. Work site name and mailing address	Owner's name	Owner's telephone no.
	2. Operator's name and address		Operator's telephone no.
	3. Waste disposal site (WDS) name, mailing address, and physical site location		WDS phone no.
	4. Name, and address of responsible agency		
	5. Description of materials	6. Containers No. Type	7. Total quantity m^3 (yd^3)
	8. Special handling instructions and additional information		
	9. OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.		
	Printed/typed name & title	Signature	Month Day Year
Transporter	10. Transporter 1 (Acknowledgment of receipt of materials)		
	Printed/typed name & title Address and telephone no.	Signature	Month Day Year
	11. Transporter 2 (Acknowledgment of receipt of materials)		
	Printed/typed name & title Address and telephone no.	Signature	Month Day Year
Disposal Site	12. Discrepancy indication space		
	13. Waste disposal site owner or operator: Certification of receipt of asbestos materials covered by this manifest except as noted in item 12.		
	Printed/typed name & title	Signature	Month Day Year

(Continued)

Figure 4. Waste Shipment Record

INSTRUCTIONS

Waste Generator Section (Items 1-9)

1. Enter the name of the facility at which asbestos waste is generated and the address where the facility is located. In the appropriate spaces, also enter the name of the owner of the facility and the owner's phone number.

2. If a demolition or renovation, enter the name and address of the company and authorized agent responsible for performing the asbestos removal. In the appropriate spaces, also enter the phone number of the operator.

3. Enter the name, address, and physical site location of the waste disposal site (WDS) that will be receiving the asbestos materials. In the appropriate spaces, also enter the phone number of the WDS. Enter "on-site" if the waste will be disposed of on the generator's property.

4. Provide the name and address of the local, State, or EPA Regional office responsible for administering the asbestos NESHAP program.

5. Indicate the types of asbestos waste materials generated. If from a demolition or renovation, indicate the amount of asbestos that is

   - Friable asbestos material
   - Nonfriable asbestos material

6. Enter the number of containers used to transport the asbestos materials listed in item 5. Also enter one of the following container codes used in transporting each type of asbestos material (specify any other type of container used if not listed below):

   DM - Metal drums, barrels
   DP - Plastic drums, barrels
   BA - 6 mil plastic bags or wrapping

7. Enter the quantities of each type of asbestos material removed in units of cubic meters (cubic yards).

8. Use this space to indicate special transportation, treatment, storage or disposal or Bill of Lading information. If an alternate waste disposal site is designated, note it here. Emergency response telephone numbers or similar information may be included here.

9. The authorized agent of the waste generator must read and then sign and date this certification. The date is the date of receipt by transporter.

NOTE: The waste generator must retain a copy of this form.

(continued)

Figure 4. Waste Shipment Record

Transporter Section (Items 10 & 11)

10. & 11. Enter name, address, and telephone number of each transporter used, if applicable. Print or type the full name and title of person accepting responsibility and acknowledging receipt of materials as listed on this waste shipment record for transport. Enter date of receipt and signature.

NOTE: The transporter must retain a copy of this form.

Disposal Site Section (Items 12 & 13)

12. The authorized representative of the WDS must note in this space any discrepancy between waste described on this manifest and waste actually received as well as any improperly enclosed or contained waste. Any rejected materials should be listed and destination of those materials provided. A site that converts asbestos-containing waste material to nonasbestos material is considered a WDS.

13. The signature (by hand) of the authorized WDS agent indicates acceptance and agreement with statements on this manifest except as noted in item 12. The date is the date of signature and receipt of shipment.

NOTE: The WDS must retain a completed copy of this form. The WDS must also send a completed copy to the operator listed in item 2.

Figure 4. Waste Shipment Record

Appendix I-1, List of Insignificant Emissions Units and/or Activities.

City of Jacksonville **FINAL Permit No.:** 0310358-013-AV

Trail Ridge Municipal Solid Waste Landfill **Facility ID No.:** 0310358

The facilities, emissions units, or pollutant-emitting activities listed in Rule 62-210.300(3)(a), F.A.C., Categorical Exemptions, or that meet the criteria specified in Rule 62-210.300(3)(b)1., F.A.C., Generic Emissions Unit Exemption, are exempt from the permitting requirements of Chapters 62-210, 62-212 and 62-4, F.A.C.; provided, however, that exempt emissions units shall be subject to any applicable emission limiting standards and the emissions from exempt emissions units or activities shall be considered in determining the potential emissions of the facility containing such emissions units. Emissions units and pollutant-emitting activities exempt from permitting under Rules 62-210.300(3)(a) and (b)1., F.A.C., shall not be exempt from the permitting requirements of Chapter 62-213, F.A.C., if they are contained within a Title V source; however, such emissions units and activities shall be considered insignificant for Title V purposes provided they also meet the criteria of Rule 62-213.430(6)(b), F.A.C. No emissions unit shall be entitled to an exemption from permitting under Rules 62-210.300(3)(a) and (b)1., F.A.C., if its emissions, in combination with the emissions of other units and activities at the facility, would cause the facility to emit or have the potential to emit any pollutant in such amount as to make the facility a Title V source.

The below listed emissions units and/or activities are considered insignificant pursuant to Rule 62-213.430(6), F.A.C.

Activity	Rationale for Exemption
Fugitive VOC and HAP emissions from leachate storage tanks (6 – 22,000 gallon tanks)	Leachate vapor pressure is less than 15 kPa therefore VOC potential to emit is < 5 tpy. The leachate is 99+% water, therefore HAP emissions will be minimal. Tanks are not subject to 40 CFR 60 Subpart Kb.
VOC emissions from 550 gallon gasoline storage tank	Rule 62-210.300(3)(a)19. ,F.A.C.
Aggregate handling and storage piles	Particulate matter potential to emit is less than 5 tpy
Fugitive VOC emissions from spray painting from spray cans	Minor touch-up aerosol painting during maintenance activities. VOC potential to emit is less than 5 tpy.
(2) Emergency backup generators – a 465 and 166.	Rule 62-210.300(3)(a)35., F.A.C. All generators are diesel and the collective fuel usage is less than 32, 000 gallons of diesel fuel.
A portable generator of 125 hP at the borrow pit	Rule 62-210.300(3)(a)35., F.A.C. All generators are diesel and the collective fuel usage is less than 32, 000 gallons of diesel fuel.
(2) generators (9 and 12 hP) for lighting	Rule 62-210.300(3)(a)35., F.A.C. All generators are diesel and the collective fuel usage is less than 32, 000 gallons of diesel fuel.

Appendix I-1, List of Insignificant Emissions Units and/or Activities.

City of Jacksonville **FINAL Permit No.:** 0310358-013-AV

Trail Ridge Municipal Solid Waste Landfill **Facility ID No.:** 0310358

The facilities, emissions units, or pollutant-emitting activities listed in Rule 62-210.300(3)(a), F.A.C., Categorical Exemptions, or that meet the criteria specified in Rule 62-210.300(3)(b)1., F.A.C., Generic Emissions Unit Exemption, are exempt from the permitting requirements of Chapters 62-210, 62-212 and 62-4, F.A.C.; provided, however, that exempt emissions units shall be subject to any applicable emission limiting standards and the emissions from exempt emissions units or activities shall be considered in determining the potential emissions of the facility containing such emissions units. Emissions units and pollutant-emitting activities exempt from permitting under Rules 62-210.300(3)(a) and (b)1., F.A.C., shall not be exempt from the permitting requirements of Chapter 62-213, F.A.C., if they are contained within a Title V source; however, such emissions units and activities shall be considered insignificant for Title V purposes provided they also meet the criteria of Rule 62-213.430(6)(b), F.A.C. No emissions unit shall be entitled to an exemption from permitting under Rules 62-210.300(3)(a) and (b)1., F.A.C., if its emissions, in combination with the emissions of other units and activities at the facility, would cause the facility to emit or have the potential to emit any pollutant in such amount as to make the facility a Title V source.

The below listed emissions units and/or activities are considered insignificant pursuant to Rule 62-213.430(6), F.A.C.

Activity	Rationale for Exemption
Parts cleaning/solvent degreasing	Rule 62-210.300(3)(a)24., F.A.C.
Welding, cutting and grinding activities	Rule 62-210.300(3)(a)13., F.A.C.
VOC emissions from diesel tanks and refueling operations (3) 12,000 gallon diesel fuel tanks	Rule 62-210.300(3)(b)1., F.A.C. Diesel storage tanks not subject to 40 CFR 60 Subpart Kb
Fugitive emissions from mobile tire shredder	
Engine coolant for the 6 stand-alone, fan-cooled, radiators (drum quantities) located at the Trail Ridge Energy Plant	Rule 62-210.300(3)(b)1., F.A.C.
New Engine lube oil 2,000 gallon above-ground storage tank Used/Waste Engine lube oil 1,000 gallon above-ground storage tank	Rule 62-210.300(3)(a)16., F.A.C.

This Title V facility contains stationary internal combustion engines that are stated by the applicant not to be subject to the following federal rules:

- 40 CFR 60, Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines.
- 40 CFR 60, Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines.

However, the Title V facility included the federal rules in the list of Applicable Regulations, Title V Core List

Pursuant to Rule 62-213.460, F.A.C. – Permit Shield, the stationary internal combustion engines are stated below:

EU No.	Emission Unit Description
004-009	Six Caterpillar Model G3520C (CAT 3520) lean burn internal combustion engines

Description of the (6) Engines at the Trail Ridge Energy Plant

Engine Number	1	2	3	4	5	6
Serial Number	GZJ00276	GZJ00272	GZJ00264	GZJ00263	GZJ00261	GZJ00258
Sales Model	3520	3520	3520	3520	3520	3520
Built Date	2006-09-20	2006-09-15	2006-08-08	2006-08-08	2006-08-02	2006-08-01

- Each engine is a Caterpillar (CAT®) Model G3520C Internal Combustion Engine
- Each engine has a mechanical output rating of 2,233 brake horsepower
- Each engine is fuel by landfill gas only
- Each engine has a spark ignition

The Title V facility has stated the manufacture date of each of the specified G3520C Internal Combustion Engines is prior to the applicable effective date of 40 CFR 60, Subpart JJJJ. As such the engines are not subject to the provisions of this subpart. The provisions of 40 CFR 60 Subpart IIII applies to stationary compression-ignited engines, therefore these engines are not subject to the provisions of this subpart.

This section indentifies the federal New Source Performance Standards (NSPS) in 40 CFR 60 that may be applicable to emissions units regulated by this project.

NSPS SUBPART A - GENERAL PROVISIONS

The following emission units are subject to applicable NSPS in 40 CFR 60, which are adopted by reference in Rule 62-204.800(8), F.A.C.

EU No.	Emission Unit Description
012-015	Four Caterpillar Model G3520C (CAT 3520) lean burn internal combustion engines

The affected emission units are subject to the applicable General Provisions in Subpart A of the New Source Performance Standards including: §60.1 (Applicability); §60.2 (Definitions(; §60.3 (Units and Abbreviations); §60.4 (Address); §60.5 (Determination of Construction or Modification); §60.6 (Review of Plans); §60.7 (Notification and Record Keeping); §60.8 (Performance Tests); §60.9 (Availability of Information); §60.10 (State Authority); §60.11 (Compliance with Standards and Maintenance Requirements); §60.12 (Circumvention); §60.13 (Monitoring Requirements); §60.14 (Modification); §60.15 (Reconstruction); §60.16 (Priority List); §60.17 (Incorporations by Reference); §60.18 (General Control Device Requirements); §60.19 (General Notification and Reporting Requirements). The General Provisions are not included in this permit, but can be obtained from the Department upon request.

40 CFR PART 60, SUBPART JJJJ - Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

Source: 73 FR 3591, Jan. 18, 2008, unless otherwise noted.

Emission limitations in 40 CFR 60 Subpart JJJJ					
NOx (g/HP-hr)	CO (g/HP-hr)	VOC (g/HP-hr)	NOx (ppmvd at 15% O2)	CO (ppmvd at 15% O2)	VOC (ppmvd at 15% O2)
2	5	1	150	610	80

Emission limitations or	Compliance	Testing
**May certify to the emission standards for new nonroad SI engines in 40 CFR part 1048 if you have a lean burn engine that uses LPG. **May certify to the emission standards for new nonroad SI engines in 40 CFR part 1048 applicable to engines that are not severe duty engines if you have an engine: a. $75 \leq x < 373$ KW ($100 < x < 500$ HP) manufactured prior to January 1, 2011; or b. $x \geq 373$ KW (500 HP) manufactured prior to July 1, 2010.	(1) Comply by purchasing an engine certified according to procedures specified in this subpart, for the same model year and demonstrating compliance according to one of the methods specified above in (1-3) (a-b) (i-iii). (2) Purchase a non-certified engine and demonstrate compliance with the emission standards according to testing requirement in this subpart and according to: a. Engines 25 HP $< x \leq 500$ HP, must keep a maintenance plan and records of conducted maintenance and must maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test. b. Engines greater than 500 HP, same as above in item a. In addition, you must conduct subsequent performance testing every 8,760 hours or 3 years, whichever comes first. or Engines that are less than or equal to 500 HP and you purchase a non-certified engine or do not operate and maintain your certified engine: Perform initial performance testing as indicated in this section, but are not required to conduct subsequent performance testing unless the engine is rebuilt (defined in 40 CFR 94.11(a)) or undergoes major repair or maintenance.	(1) Must be conducted within 10% of 100% peak (or the highest achievable) load and according to the requirements in §60.8 and under the specific conditions that are specified by Table 2 to this subpart. (2) Cannot conduct performance tests during periods of startup, shutdown, or malfunction as specified in §60.8. If the engine is non-operational, you do not need to startup the engine solely to conduct a performance test; however, you must conduct the performance test immediately upon startup of the engine. (3) Conduct 3 separate test runs for each performance test required, as specified in §60.8(f). Each test run must be conducted within 10% of 100% peak (or the highest achievable) load and last at least 1 hour. (4) Follow 40 CFR 60.4244 (d-g) to determine compliance with specific pollutants.

40 CFR PART 63, SUBPART ZZZZ - National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

In accordance with Rule 62-204.800, F.A.C., the following federal regulations in Part 63 of Title 40 of the Code of Federal Regulations were adopted by reference. The original federal rule numbering has been retained.

{Permitting Note: The engines covered by this permit, EU012– EU-015, are regulated as shown in the following table. Only the Section §63.6590 of Subpart ZZZZ is included because of the limited applicability and requirements.}

EU No.	Engine	Rule Applicability
012-015	Four lean burn internal combustion engine/generator sets (Caterpillar Model No. G3520C) that combust landfill or digester gas equivalent to 10% or more of the gross heat input on an annual basis	As defined in 40 CFR 63 NESHAP Subpart ZZZZ, the proposed engines are defined as "new units located at an area source". To comply with the 40 CFR 63 NESHAP Subpart ZZZZ requirements, the installed engines must meet the 40 CFR 60 NSPS Subpart JJJJ requirements for spark ignition engines. No further requirements apply for such engines under 40 CFR 63 NESHAP Subpart ZZZZ.

GENERAL PROVISIONS

(version dated 10/9/2008)

FEDERAL REGULATIONS ADOPTED BY REFERENCE

In accordance with Rule 62-204.800, F.A.C., the following federal regulation in Title 40 of the Code of Federal Regulations (CFR) was adopted by reference. The original federal rule numbering has been retained.

Federal Revision Date: June 13, 2007

Rule Effective Date: October 1, 2007

Standardized Conditions Revision Date: October 9, 2008

40 CFR PART 60, SUBPART A - GENERAL PROVISIONS

§ 60.1 APPLICABILITY.

(a) Except as provided in subparts B and C, the provisions of this part apply to the owner or operator of any stationary source which contains an affected facility, the construction or modification of which is commenced after the date of publication in this part of any standard (or, if earlier, the date of publication of any proposed standard) applicable to that facility.

(b) Any new or revised standard of performance promulgated pursuant to section 111(b) of the Act shall apply to the owner or operator of any stationary source which contains an affected facility, the construction or modification of which is commenced after the date of publication in this part of such new or revised standard (or, if earlier, the date of publication of any proposed standard) applicable to that facility.

(c) In addition to complying with the provisions of this part, the owner or operator of an affected facility may be required to obtain an operating permit issued to stationary sources by an authorized State air pollution control agency or by the Administrator of the U.S. Environmental Protection Agency (EPA) pursuant to Title V of the Clean Air Act (Act) as amended November 15, 1990 (42 U.S.C. 7661). For more information about obtaining an operating permit see part 70 of this chapter.

(d) *Site-specific standard for Merck & Co., Inc.'s Stonewall Plant in Elkton, Virginia. {Not Applicable}*

§ 60.2 DEFINITIONS.

The terms used in this part are defined in the Act or in this section as follows:

Act means the Clean Air Act (42 U.S.C. 7401 *et seq.*)

Administrator means the Administrator of the Environmental Protection Agency or his authorized representative.

Affected facility means, with reference to a stationary source, any apparatus to which a standard is applicable.

Alternative method means any method of sampling and analyzing for an airpollutant which is not a reference or equivalent method but which has been demonstrated to the Administrator's satisfaction to, in specific cases, produce results adequate for his determination of compliance.

Approved permit program means a State permit program approved by the Administrator as meeting the requirements of part 70 of this chapter or a Federal permit program established in this chapter pursuant to Title V of the Act (42 U.S.C. 7661).

Capital expenditure means an expenditure for a physical or operational change to an existing facility which exceeds the product of the applicable "annual asset guideline repair allowance percentage" specified in the latest edition of Internal Revenue Service (IRS) Publication 534 and the existing facility's basis, as defined by section 1012 of the Internal Revenue Code. However, the total expenditure for a physical or operational change to an existing facility must not be reduced by any "excluded additions" as defined in IRS Publication 534, as would be done for tax purposes.

Clean coal technology demonstration project means a project using funds appropriated under the heading 'Department of Energy-Clean Coal Technology', up to a total amount of $2,500,000,000 for commercial demonstrations of clean coal technology, or similar projects funded through appropriations for the Environmental Protection Agency.

Commenced means, with respect to the definition of *new source* in section 111(a)(2) of the Act, that an owner or operator has undertaken a continuous program of construction or modification or that an owner or operator has entered into a contractual obligation to undertake and complete, within a reasonable time, a continuous program of construction or modification.

Construction means fabrication, erection, or installation of an affected facility.

Continuous monitoring system means the total equipment, required under the emission monitoring sections in applicable subparts, used to sample and condition (if applicable), to analyze, and to provide a permanent record of emissions or process parameters.

Electric utility steam generating unit means any steam electric generating unit that is constructed for the purpose of supplying more than one-third of its potential electric output capacity and more than 25 MW electrical output to any utility power distribution system for sale. Any steam supplied to a steam distribution system for the purpose of providing steam to a steam-electric generator that would produce electrical energy for sale is also considered in determining the electrical energy output capacity of the affected facility.

Equivalent method means any method of sampling and analyzing for an air pollutant which has been demonstrated to the Administrator's satisfaction to have a consistent and quantitatively known relationship to the reference method, under specified conditions.

Excess Emissions and Monitoring Systems Performance Report is a report that must be submitted periodically by a source in order to provide data on its compliance with stated emission limits and operating parameters, and on the performance of its monitoring systems.

Existing facility means, with reference to a stationary source, any apparatus of the type for which a standard is promulgated in this part, and the construction or modification of which was commenced before the date of proposal of that standard; or any apparatus which could be altered in such a way as to be of that type.

Force majeure means, for purposes of §60.8, an event that will be or has been caused by circumstances beyond the control of the affected facility, its contractors, or any entity controlled by the affected facility that prevents the owner or operator from complying with the regulatory requirement to conduct performance tests within the specified timeframe despite the affected facility's best efforts to fulfill the obligation. Examples of such events are acts of nature, acts of war or terrorism, or equipment failure or safety hazard beyond the control of the affected facility.

Isokinetic sampling means sampling in which the linear velocity of the gas entering the sampling nozzle is equal to that of the undisturbed gas stream at the sample point.

Issuance of a part 70 permit will occur, if the State is the permitting authority, in accordance with the requirements of part 70 of this chapter and the applicable, approved State permit program. When the EPA is the permitting authority, issuance of a Title V permit occurs immediately after the EPA takes final action on the final permit.

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

Modification means any physical change in, or change in the method of operation of, an existing facility which increases the amount of any air pollutant (to which a standard applies) emitted into the atmosphere by that facility or which results in the emission of any air pollutant (to which a standard applies) into the atmosphere not previously emitted.

Monitoring device means the total equipment, required under the monitoring of operations sections in applicable subparts, used to measure and record (if applicable) process parameters.

Nitrogen oxides means all oxides of nitrogen except nitrous oxide, as measured by test methods set forth in this part.

One-hour period means any 60-minute period commencing on the hour.

Opacity means the degree to which emissions reduce the transmission of light and obscure the view of an object in the background.

Owner or operator means any person who owns, leases, operates, controls, or supervises an affected facility or a stationary source of which an affected facility is a part.

Part 70 permit means any permit issued, renewed, or revised pursuant to part 70 of this chapter.

Particulate matter means any finely divided solid or liquid material, other than uncombined water, as measured by the reference methods specified under each applicable subpart, or an equivalent or alternative method.

Permit program means a comprehensive State operating permit system established pursuant to title V of the Act (42 U.S.C. 7661) and regulations codified in part 70 of this chapter and applicable State regulations, or a comprehensive Federal operating permit system established pursuant to title V of the Act and regulations codified in this chapter.

Permitting authority means:

(1) The State air pollution control agency, local agency, other State agency, or other agencyauthorized by the Administrator to carry out a permit program under part 70 of this chapter; or

(2) The Administrator, in the case of EPA-implemented permit programs under title V of the Act (42 U.S.C. 7661).

Proportional sampling means sampling at a rate that produces a constant ratio of sampling rate to stack gas flow rate.

Reactivation of a very clean coal-fired electric utility steam generating unit means any physical change or change in the method of operation associated with the commencement of commercial operations by a coal-fired utility unit after a period of discontinued operation where the unit:

(1) Has not been in operation for the two-year period prior to the enactment of the Clean Air Act Amendments of 1990, and the emissions from such unit continue to be carried in the permitting authority's emissions inventory at the time of enactment;

(2) Was equipped prior to shut-down with a continuous system of emissions control that achieves a removal efficiency for sulfur dioxide of no less than 85 percent and a removal efficiency for particulates of no less than 98 percent;

(3) Is equipped with low-NO_X burners prior to the time of commencement of operations following reactivation; and

(4) Is otherwise in compliance with the requirements of the Clean AirAct.

Reference method means any method of sampling and analyzing for an air pollutant as specified in the applicable subpart.

Repowering means replacement of an existing coal-fired boiler with one of the following clean coal technologies: atmospheric or pressurized fluidized bed combustion, integrated gasification combined cycle, magnetohydrodynamics, direct and indirect coal-fired turbines, integrated gasification fuel cells, or as determined by the Administrator, in consultation with the Secretary of Energy, a derivative of one or more of these technologies, and any other technology capable of controlling multiple combustion emissions simultaneously with improved boiler or generation efficiency and with significantly greater waste reduction relative to the performance of technology in widespread commercial use as of November 15, 1990. Repowering shall also include any oil and/or gas-fired unit which has been awarded clean coal technology demonstration funding as of January 1, 1991, by the Department of Energy.

Run means the net period of time during which an emission sample is collected. Unless otherwise specified, a run may be either intermittent or continuous within the limits of good engineering practice.

Shutdown means the cessation of operation of an affected facility for any purpose.

Six-minute period means any one of the 10 equal parts of a one-hour period.

Standard means a standard of performance proposed or promulgated under this part.

Standard conditions means a temperature of 293 K (68F) and a pressure of 101.3 kilopascals (29.92 in Hg).

Startup means the setting in operation of an affected facility for any purpose.

State means all non-Federal authorities, including local agencies, interstate associations, and State-wide programs, that have delegated authority to implement: (1) The provisions of this part; and/or (2) the permit program established under part 70 of this chapter. The term State shall have its conventional meaning where clear from the context.

Stationary source means any building, structure, facility, or installation which emits or may emit any air pollutant.

Title V permit means any permit issued, renewed, or revised pursuant to Federal or State regulations established to implement title V of the Act (42 U.S.C. 7661). A title V permit issued by a State permitting authority is called a part 70 permit in this part.

Volatile Organic Compound means any organic compound which participates in atmospheric photochemical reactions; or which is measured by a reference method, an equivalent method, an alternative method, or which is determined by procedures specified under any subpart.

[44 FR 55173, Sept. 25, 1979, as amended at 45 FR 5617, Jan. 23, 1980; 45 FR 85415, Dec. 24, 1980; 54 FR 6662, Feb. 14, 1989; 55 FR 51382, Dec. 13, 1990; 57 FR 32338, July 21, 1992; 59 FR 12427, Mar. 16, 1994; 72 FR 27442, May 16, 2007]

§ 60.3 UNITS AND ABBREVIATIONS.

Used in this part are abbreviations and symbols of units of measure. These are defined as follows:

(a) System International (SI) units of measure:

A—ampere

g—gram

Hz—hertz

J—joule

K—degree Kelvin

kg—kilogram

m—meter

m^3 —cubic meter

mg—milligram—10^{-3}gram

mm—millimeter—10^{-3}meter

Mg—megagram—10^6 gram

mol—mole

N—newton

ng—nanogram—10^{-9}gram

nm—nanometer—10^{-9}meter

Pa—pascal

s—second

V—volt

W—watt

Ω—ohm

μg—microgram—10^{-6}gram

(b) Other units of measure:

Btu—British thermal unit

°C—degree Celsius (centigrade)

cal—calorie

cfm—cubic feet per minute

cu ft—cubic feet

dcf—dry cubic feet

dcm—dry cubic meter

dscf—dry cubic feet at standard conditions

dscm—dry cubic meter at standard conditions

eq—equivalent

°F—degree Fahrenheit

ft—feet

gal—gallon

gr—grain

g-eq—gram equivalent

hr—hour

in—inch

k—1,000

l—liter

lpm—liter per minute

lb—pound

meq—milliequivalent

min—minute

ml—milliliter

mol. wt.—molecular weight

ppb—parts per billion

ppm—parts per million

psia—pounds per square inch absolute

psig—pounds per square inch gage

°R—degree Rankine

scf—cubic feet at standard conditions

scfh—cubic feet per hour at standard conditions

scm—cubic meter at standard conditions

sec—second

sq ft—square feet

std—at standard conditions

(c) Chemical nomenclature:

CdS—cadmium sulfide

CO—carbon monoxide

CO_2—carbon dioxide

HCl—hydrochloric acid

Hg—mercury

H_2O—water

H_2S—hydrogen sulfide

H_2SO_4—sulfuric acid

N_2—nitrogen

NO—nitric oxide

NO_2—nitrogen dioxide

NO_X—nitrogen oxides

O_2—oxygen

SO_2—sulfur dioxide

SO_3—sulfur trioxide

SO_X—sulfur oxides

(d) Miscellaneous:

A.S.T.M.—American Society for Testing and Materials

[42 FR 37000, July 19, 1977; 42 FR 38178, July 27, 1977]

§ 60.4 ADDRESS.

All addresses that pertain to Florida have been incorporated. To see the complete list of addresses please go to http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&rgn=div6&view=text&node=40:6.0.1.1.1.1&idno=40.

Link to an amendment published at 73 FR 18164, Apr. 3, 2008.

(a) All requests, reports, applications, submittals, and other communications to the Administrator pursuant to this part shall be submitted in duplicate to the appropriate Regional Office of the U.S. Environmental Protection Agency to the attention of the Director of the Division indicated in the following list of EPA Regional Offices.

Region IV (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee), Director, Air and Waste Management Division, U.S. Environmental Protection Agency, 345 Courtland Street, NE., Atlanta, GA 30365.

(b) Section 111(c) directs the Administrator to delegate to each State, when appropriate, the authority to implement and enforce standards of performance for new stationary sources located in such State. All information required to be submitted to EPA under paragraph (a) of this section, must also be submitted to the appropriate State Agency of any State to which this authority has been delegated (provided, that each specific delegation may except sources from a certain Federal or State reporting requirement). The appropriate mailing address for those States whose delegation request has been approved is as follows:

(K) Bureau of Air Quality Management, Department of Environmental Regulation, Twin Towers Office Building, 2600 Blair Stone Road, Tallahassee, FL 32301.

[40 FR 18169, Apr. 25, 1975]

Editorial Note: For Federal Register citations affecting §60.4 see the List of CFR Sections Affected which appears in the Finding Aids section of the printed volume and on GPO Access.

§ 60.5 DETERMINATION OF CONSTRUCTION OR MODIFICATION.

(a) When requested to do so by an owner or operator, the Administrator will make a determination of whether action taken or intended to be taken by such owner or operator constitutes construction (including reconstruction) or modification or the commencement thereof within the meaning of this part.

(b) The Administrator will respond to any request for a determination under paragraph (a) of this section within 30 days of receipt of such request.

[40 FR 58418, Dec. 16, 1975]

§ 60.6 REVIEW OF PLANS.

(a) When requested to do so by an owner or operator, the Administrator will review plans for construction or modification for the purpose of providing technical advice to the owner or operator.

(b)

(1) A separate request shall be submitted for each construction or modification project.

(2) Each request shall identify the location of such project, and be accompanied by technical information describing the proposed nature, size, design, and method of operation of each affected facility involved in such project, including information on any equipment to be used for measurement or control of emissions.

(c) Neither a request for plans review nor advice furnished by the Administrator in response to such request shall (1) relieve an owner or operator of legal responsibility for compliance with any provision of this part or of any applicable State or local requirement, or (2) prevent the Administrator from implementing or enforcing any provision of this part or taking any other action authorized by the Act.

[36 FR 24877, Dec. 23, 1971, as amended at 39 FR 9314, Mar. 8, 1974]

§ 60.7 NOTIFICATION AND RECORD KEEPING.

(a) Any owner or operator subject to the provisions of this part shall furnish the Administrator written notification or, if acceptable to both the Administrator and the owner or operator of a source, electronic notification, as follows:

(1) A notification of the date construction (or reconstruction as defined under §60.15) of an affected facility is commenced postmarked no later than 30 days after such date. This requirement shall not apply in the case of mass produced facilities which are purchased in completed form.

(2) [Reserved]

(3) A notification of the actual date of initial startup of an affected facility postmarked within 15 days after such date.

(4) A notification of any physical or operational change to an existing facility which may increase the emission rate of any air pollutant to which a standard applies, unless that change is specifically exempted under an applicable subpart or in §60.14(e). This notice shall be postmarked 60 days or as soon as practicable before the change is commenced and shall include information describing the precise nature of the change, present and proposed emission control systems, productive capacity of the facility before and after the change, and the expected completion date of the change. The Administrator may request additional relevant information subsequent to this notice.

(5) A notification of the date upon which demonstration of the continuous monitoring system performance commences in accordance with §60.13(c). Notification shall be postmarked not less than 30 days prior to such date.

(6) A notification of the anticipated date for conducting the opacity observations required by §60.11(e)(1) of this part. The notification shall also include, if appropriate, a request for the Administrator to provide a visible emissions reader during a performance test. The notification shall be postmarked not less than 30 days prior to such date.

(7) A notification that continuous opacity monitoring system data results will be used to determine compliance with the applicable opacity standard during a performance test required by §60.8 in lieu of Method 9 observation data as allowed by §60.11(e)(5) of this part. This notification shall be postmarked not less than 30 days prior to the date of the performance test.

(b) Any owner or operator subject to the provisions of this part shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative.

(c) Each owner or operator required to install a continuous monitoring device shall submit excess emissions and monitoring systems performance report (excess emissions are defined in applicable subparts) and/or summary report form (see paragraph (d) of this section) to the Administrator semiannually, except when: more frequent reporting is specifically required by an applicable subpart; or the Administrator, on a case-by-case basis, determines that more frequent reporting is necessary to accurately assess the compliance status of the source. All reports shall be postmarked by the 30th day following the end of each six-month period. Written reports of excess emissions shall include the following information:

(1) The magnitude of excess emissions computed in accordance with §60.13(h), any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions. The process operating time during the reporting period.

(2) Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the affected facility. The nature and cause of any malfunction (if known), the corrective action taken or preventative measures adopted.

(3) The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments.

(4) When no excess emissions have occurred or the continuous monitoring system(s) have not been inoperative, repaired, or adjusted, such information shall be stated in the report.

(d) The summary report form shall contain the information and be in the format shown in figure 1 unless otherwise specified by the Administrator. One summary report form shall be submitted for each pollutant monitored at each affected facility.

(1) If the total duration of excess emissions for the reporting period is less than 1 percent of the total operating time for the reporting period and CMS downtime for the reporting period is less than 5 percent of the total operating time

for the reporting period, only the summary report form shall be submitted and the excess emission report described in §60.7(c) need not be submitted unless requested by the Administrator.

(2) If the total duration of excess emissions for the reporting period is 1 percent or greater of the total operating time for the reporting period or the total CMS downtime for the reporting period is 5 percent or greater of the total operating time for the reporting period, the summary report form and the excess emission report described in §60.7(c) shall both be submitted.

Figure 1—Summary Report—Gaseous and Opacity Excess Emission and Monitoring System Performance

Pollutant (Circle One—SO2/NOX/TRS/H2S/CO/Opacity)

Reporting period dates: From _____ to _____

Company:

Emission Limitation_____

Address:

Monitor Manufacturer and Model No._____
Date of Latest CMS Certification or Audit_____

Process Unit(s) Description:

Total source operating time in reporting period[1] _____

Emission data summary[1]		CMS performance summary[1]	
1. Duration of excess emissions in reporting period due to:		1. CMS downtime in reporting period due to:	
a. Startup/shutdown		a. Monitor equipment malfunctions	
b. Control equipment problems		b. Non-Monitor equipment malfunctions	
c. Process problems		c. Quality assurance calibration	
d. Other known causes		d. Other known causes	
e. Unknown causes		e. Unknown causes	
2. Total duration of excess emission		2. Total CMS Downtime	
3. Total duration of excess emissions × (100) [Total source operating time]	%2	3. [Total CMS Downtime] × (100) [Total source operating time]	%2

[1]For opacity, record all times in minutes. For gases, record all times in hours.

[2]For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in §60.7(c) shall be submitted.

On a separate page, describe any changes since last quarter in CMS, process or controls. I certify that the information contained in this report is true, accurate, and complete.

_____ Title

Name

_____

Date

_____

Signature

_____

(e)

(1) Notwithstanding the frequency of reporting requirements specified in paragraph (c) of this section, an owner or operator who is required by an applicable subpart to submit excess emissions and monitoring systems performance reports (and summary reports) on a quarterly (or more frequent) basis may reduce the frequency of reporting for that standard to semiannual if the following conditions are met:

(i) For 1 full year (e.g., 4 quarterly or 12 monthly reporting periods) the affected facility's excess emissions and monitoring systems reports submitted to comply with a standard under this part continually demonstrate that the facility is in compliance with the applicable standard;

(ii) The owner or operator continues to comply with all recordkeeping and monitoring requirements specified in this subpart and the applicable standard; and

(iii) The Administrator does not object to a reduced frequency of reporting for the affected facility, as provided in paragraph (e)(2) of this section.

(2) The frequency of reporting of excess emissions and monitoring systems performance (and summary) reports may be reduced only after the owner or operator notifies the Administrator in writing of his or her intention to make such a change and the Administrator does not object to the intended change. In deciding whether to approve a reduced frequency of reporting, the Administrator may review information concerning the source's entire previous performance history during the required recordkeeping period prior to the intended change, including performance test results, monitoring data, and evaluations of an owner or operator's conformance with operation and maintenance requirements. Such information may be used by the Administrator to make a judgment about the source's potential for noncompliance in the future. If the Administrator disapproves the owner or operator's request to reduce the frequency of reporting, the Administrator will notify the owner or operator in writing within 45 days after receiving notice of the owner or operator's intention. The notification from the Administrator to the owner or operator will specify the grounds on which thedisapproval is based. In the absence of a notice of disapproval within 45 days, approval is automatically granted.

(3) As soon as monitoring data indicate that the affected facility is not in compliance with any emission limitation or operating parameter specified in the applicable standard, the frequency of reporting shall revert to the frequency specified in the applicable standard, and the owner or operator shall submit an excess emissions and monitoring systems performance report (and summary report, ifrequired) at the next appropriate reporting period following the noncomplying event. After demonstrating compliance with the applicable standard for another full year, the owner or operator may again request approval from the Administrator to reduce the fequency of reporting for that standard as provided for in paragraphs (e)(1) and (e)(2) of this section.

(f) Any owner or operator subject to the provisions of this part shall maintain a file of all measurements, including continuous monitoring system, monitoring device, and performance testing measurements; all continuous monitoring system performance evaluations; all continuous monitoring system or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; andall other information required by this part recorded in a permanent form suitable for inspection. The file shall be retained for at least two years following the date of such measurements, maintenance, reports, and records, except as follows:

(1) This paragraph applies to owners or operators required to install a continuous emissions monitoring system (CEMS) where the CEMS installed is automated, and where the calculated data averages do not exclude periods of CEMS breakdown or malfunction. An automated CEMS records and reduces the measured data to the form of the pollutant emission standard through the use of a computerized data acquisition system. In lieu of maintaining a file of all CEMS subhourly measurements as required under paragraph (f) of this section, the owner or operator shall retain the most recent consecutive three averaging periods of subhourly measurements and a file that contains a hard copy of the data acquisition system algorithm used to reduce the measured data into the reportable form ofthe standard.

(2) This paragraph applies to owners or operators required to install a CEMS where the measured data is manually reduced to obtain the reportable form of the standard, and where the calculated data averages do not exclude periods of CEMS breakdown or malfunction. In lieu of maintaining a file of all CEMS subhourly measurements as required under paragraph (f) of this section, the owner or operator shall retain all subhourly measurements for the most recent reporting period. The subhourly measurements shall be retained for 120 days from the date of the most recent summary or excess emission report submitted to the Administrator.

(3) The Administrator or delegated authority, upon notification to the source, may require the owner or operator to maintain all measurements as required by paragraph (f) of this section, if the Administrator or the delegated authority determines these records are required to more accurately assess the compliance status of the affected source.

(g) If notification substantially similar to that in paragraph (a) of this section is required by any other State or local agency, sending the Administrator a copy of that notification will satisfy the requirements of paragraph (a) of this section.

(h) Individual subparts of this part may include specific provisions which clarify or make inapplicable the provisions set forth in this section.

[36 FR 24877, Dec. 28, 1971, as amended at 40 FR 46254, Oct. 6, 1975; 40 FR 58418, Dec. 16, 1975; 45 FR 5617, Jan. 23, 1980; 48 FR 48335, Oct. 18, 1983; 50 FR 53113, Dec. 27, 1985; 52 FR 9781, Mar. 26, 1987; 55 FR 51382, Dec. 13, 1990; 59 FR 12428, Mar. 16, 1994; 59 FR 47265, Sep. 15, 1994; 64 FR 7463, Feb. 12, 1999]

§ 60.8 PERFORMANCE TESTS.

(a) Except as specified in paragraphs (a)(1),(a)(2), (a)(3), and (a)(4) of this section, within 60 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup of such facility, or at such other times specified by this part and at such other times as may be required by the Administrator under section 114 of the Act, the owner or operator of such facility shall conduct performance test(s) and furnish the Administrator a written report of the results of such performance test(s).

(1) If a force majeure is about to occur, occurs, or has occurred for which the affected owner or operator intends to assert a claim of force majeure, the owner or operator shall notify the Administrator, in writing as soon as practicable following the date the owner or operator first knew, or through due diligence should have known that the event may cause or caused a delay in testing beyond the regulatory deadline, but the notification must occur before the performance test deadline unless the initial force majeure or a subsequent force majeure event delays the notice, and in such cases, the notification shall occur as soon as practicable.

(2) The owner or operator shall provide to the Administrator a written description of the force majeure event anda rationale for attributing the delay in testing beyond the regulatory deadline to the force majeure; describe the measures taken or to be taken to minimize the delay; and identify a date by which the owner or operator proposes to conduct the performance test. The performance test shall be conducted as soon as practicable after the force majeure occurs.

(3) The decision as to whether or not to grant an extension to the performance test deadline is solely within the discretion of the Administrator. The Administrator will notify the owner or operator in writing of approval or disapproval of the request for an extension as soon as practicable.

(4) Until an extension of the performance test deadline has been approved by the Administrator under paragraphs (a)(1), (2), and (3) of this section, the owner or operator of the affected facility remains strictly subject to the requirements of this part.

(b) Performance tests shall be conducted and data reduced in accordance with the test methods and procedures containedin each applicable subpart unless the Administrator (1) specifies or approves, in specific cases, the use of a reference method with minor changes in methodology, (2) approves the use of an equivalent method, (3) approves the use of an alternative method the results of which he has determined to be adequate for indicating whether a specific source is in

compliance, (4) waives the requirement for performance tests because the owner or operator of a source has demonstrated by other means to the Administrator's satisfaction that the affected facility is in compliance with the standard, or (5) approves shorter sampling times and smaller sample volumes when necessitated by process variables or other factors. Nothing in this paragraph shall be construed to abrogate the Administrator's authority to require testing under section 114 of the Act.

(c) Performance tests shall be conducted under such conditions as the Administrator shall specify to the plant operator based on representative performance of the affected facility. The owner or operator shall make available to the Administrator such records as may be necessary to determine the conditions of the performance tests. Operations during periods of startup, shutdown, and malfunction shall not constitute representative conditions for the purpose of a performance test nor shall emissions in excess of the level of the applicable emission limit during periods of startup, shutdown, and malfunction be considered a violation of the applicable emission limit unless otherwisespecified in the applicable standard.

(d) The owner or operator of an affected facility shall provide the Administrator at least 30 days prior notice of any performance test, except as specified under other subparts, to afford the Administrator the opportunity to have an observer present. If after 30 days notice for an initially scheduled performance test, there is a delay (due to operational problems, etc.) in conducting the scheduled performance test, the owner or operator of an affected facility shall notify the Administrator (or delegated State or local agency) as soon as possible of any delay in the original test date, either by providing at least 7 days prior notice of the rescheduled date of the performance test, or by arranging a rescheduled date with the Administrator (or delegated State or local agency) by mutual agreement.

(e) The owner or operator of an affected facility shall provide, or cause to be provided, performance testing facilities as follows:

(1) Sampling ports adequate for test methods applicable to such facility. This includes (i) constructing the air pollution control system such that volumetric flow rates and pollutant emission rates can be accurately determined by applicable test methods and procedures and (ii) providing a stack or duct free of cyclonic flow during performance tests, as demonstrated by applicable test methods and procedures.

(2) Safe sampling platform(s).

(3) Safe access to sampling platform(s).

(4) Utilities for sampling and testing equipment.

(f) Unless otherwise specified in the applicable subpart, each performance test shall consist of three separate runs using the applicable test method. Each run shall be conducted for the time and under the conditions specified in the applicable standard. For the purpose of determining compliance with an applicable standard, the arithmetic means of results of the three runs shall apply. In the event that a sample is accidentally lost or conditions occur in which one of the three runs must be discontinued because of forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances, beyond the owner or operator's control, compliance may, upon the Administrator's approval, be determined using the arithmetic mean of theresults of the two other runs.

[36 FR 24877, Dec. 23, 1971, as amended at 39 FR 9314, Mar. 8, 1974; 42 FR 57126, Nov. 1, 1977; 44 FR 33612, June 11, 1979; 54 FR 6662, Feb. 14, 1989; 54 FR 21344, May 17, 1989; 64 FR 7463, Feb. 12, 1999; 72 FR 27442, May 16, 2007]

§ 60.9 AVAILABILITY OF INFORMATION.

The availability to the public of information provided to, or otherwise obtained by, the Administrator under this part shallbe governed by part 2 of this chapter. (Information submitted voluntarily to the Administrator for the purposes of §§60.5 and 60.6 is governed by §§2.201 through 2.213 of this chapter and not by §2.301 of this chapter.)

§ 60.10 STATE AUTHORITY.

The provisions of this part shall not be construed in any manner to preclude any State or political subdivision thereof from:

(a) Adopting and enforcing any emission standard or limitation applicable to an affected facility, provided that such emission standard or limitation is not less stringent than the standard applicable to such facility.

(b) Requiring the owner or operator of an affected facility to obtain permits, licenses, or approvals prior to initiating construction, modification, or operation of such facility.

§ 60.11 COMPLIANCE WITH STANDARDS AND MAINTENANCE REQUIREMENTS.

(a) Compliance with standards in this part, other than opacity standards, shall be determined in accordance with performance tests established by §60.8, unless otherwise specified in the applicable standard.

(b) Compliance with opacity standards in this part shall be determined by conducting observations in accordance with Method 9 in appendix A of this part, any alternative method that is approved by the Administrator, or as provided in paragraph (e)(5) of this section. For purposes of determining initial compliance, theminimum total time of observations shall be 3 hours (30 6-minute averages) for the performance test or other set of observations (meaning those fugitive type emission sources subject only to an opacity standard).

(c) The opacity standards set forth in this part shall apply at all times except during periods of startup, shutdown, malfunction, and as otherwise provided in the applicable standard.

(d) 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.

(e)

(1) For the purpose of demonstrating initial compliance, opacity observations shall be conducted concurrently with the initial performance test required in §60.8 unless one of the following conditions apply. If no performance test under §60.8 is required, then opacity observations shall be conducted within 60 days after achieving the maximum production rate at which the affected facility will be operated but no later than 180 days after initial startup of the facility. If visibility or other conditions prevent the opacity observations from being conducted concurrently with the initial performance test required under §60.8, the source owner or operator shall reschedule the opacity observations as soon after the initial performance test as possible, but not later than 30 days thereafter, and shall advise the Administrator of the rescheduled date. In these cases, the 30-day prior notification to the Administrator required in §60.7(a)(6) shall be waived. The rescheduled opacity observations shall be conducted (to the extent possible) under the same operating conditions that existed during the initial performance test conducted under §60.8. The visible emissions observer shall determine whether visibility or other conditions prevent the opacity observations from being made concurrently with the initial performance test in accordance with procedures contained in Method 9 of appendix B of this part. Opacity readings of portions of plumes which contain condensed, uncombined water vapor shall not be used for purposes of determing compliance with opacity standards. The owner or operator of an affected facility shall make available, upon request by the Administrator, such records as may be necessary to determine the conditions under which the visual observations weremade and shall provide evidence indicating proof of current visible observer emission certification. Except as provided in paragraph (e)(5) of this section, the results of continuous monitoring by transmissometer which indicate that the opacity at the time visual observations were made was not in excess of the standard are probative but not conclusive evidence of the actual opacity of an emission, provided that the source shall meet the burden of proving that the instrument used meets (at the time of the alleged violation) Performance Specification 1 in appendix B of

this part, has been properly maintained and (at the time of the alleged violation) that the resulting data have not been altered in any way.

(2) Except as provided in paragraph (e)(3) of this section, the owner or operator of an affected facility to which an opacity standard in this part applies shall conduct opacity observations in accordance with paragraph (b) of this section, shall record the opacity of emissions, and shall report to the Administrator the opacity results along with the results of the initial performance test required under §60.8. The inability of an owner or operator to secure a visible emissions observer shall not be considered a reason for not conducting the opacity observations concurrent with the initial performance test.

(3) The owner or operator of an affected facility to which an opacity standard in this part applies may request the Administrator to determine and to record the opacity of emissions from the affected facilty during the initial performance test and at such times as may be required. The owner or operator of the affected facility shall report the opacity results. Any request to the Administrator to determine and to record the opacity of emissions from an affected facility shall be included in the notification required in §60.7(a)(6). If, for some reason, the Administrator cannot determine and record the opacity of emissions from the affected facility during the performance test, then the provisions of paragraph (e)(1) of this section shall apply.

(4) An owner or operator of an affected facility using a continuous opacity monitor (transmissometer) shall record the monitoring data produced during the initial performance test required by §60.8 and shall furnish theAdministrator a written report of the monitoring results along with Method 9 and §60.8 performance test results.

(5) An owner or operator of an affected facility subject to an opacity standard may submit, for compliance purposes, continuous opacity monitoring system (COMS) data results produced during any performance test required under §60.8 in lieu of Method 9 observation data. If an owner or operator elects to submit COMS data for compliance with the opacity standard, he shall notify the Administrator of that decision, in writing, at least 30 days before any performance test required under §60.8 is conducted. Once the owner or operator of an affected facility has notified the Administrator to that effect, the COMS data results will be used to determine opacity compliance during subsequent tests required under §60.8 until the owner or operator notifies the Administrator, in writing, to the contrary. For the purpose of determining compliance with the opacity standard during a performance test required under §60.8 using COMS data, the minimum total time of COMS data collection shall be averages of all 6-minute continuous periods within the duration of the mass emission performance test. Results of the COMS opacity determinations shall be submitted along withthe results of the performance test required under §60.8. The owner or operator of an affected facility using a COMS for compliance purposes is responsible for demonstrating that the COMS meets the requirements specified in §60.13(c) of this part, that theCOMS has been properly maintained and operated, and that the resulting data have not been altered in any way. If COMS data results are submitted for compliance with the opacity standard for a period of time during which Method 9 data indicates noncompliance, the Method 9 data will be used to determine compliance with the opacity standard.

(6) Upon receipt from an owner or operator of the written reports of the results of the performance tests required by §60.8, the opacity observation results and observer certification required by §60.11(e)(1), and the COMS results, if applicable, the Administrator will make a finding concerning compliance with opacity and other applicable standards. If COMS data results are used to comply with an opacity standard, only those results are required to be submitted along with the performance test results required by §60.8. If the Administrator finds that an affected facility is in compliance with all applicable standards for which performance tests are conducted in accordance with §60.8 of this part but during the time such performance tests are being conducted fails to meet any applicable opacity standard, he shall notify the owner or operator and advise him that he may petition the Administrator within 10 days of receipt of notification to make appropriate adjustment to the opacity standard for the affected facility.

(7) The Administrator will grant such a petition upon a demonstration by the owner or operator that the affected facility and associated air pollution control equipment was operated and maintained in a manner to minimize the opacity of emissions during the performance tests; that the performance tests were performed under the conditions

established by the Administrator; and that the affected facility and associatedair pollution control equipment were incapable of being adjusted or operated to meet the applicable opacity standard.

(8) The Administrator will establish an opacity standard for the affected facility meeting the above requirements at a level at which the source will be able, as indicated by the performance and opacity tests, to meet the opacity standard at all times during which the source is meeting the mass or concentration emission standard. The Administrator will promulgate the new opacity standard inthe Federal Register.

(f) Special provisions set forth under an applicable subpart shall supersede any conflicting provisions in paragraphs (a) through (e) of this section.

(g) For the purpose of submitting compliance certifications or establishing whetheror not a person has violated or is in violation of any standard in this part, nothing in this part shall preclude the use, including the exclusive use, of any credible evidence or information, relevant to whether a source would have been in compliance with applicable requirements if the appropriate performance or compliance test or procedure had been performed.

[38 FR 28565, Oct. 15, 1973, as amended at 39 FR 39873, Nov. 12, 1974; 43 FR 8800, Mar. 3, 1978; 45 FR 23379, Apr. 4, 1980; 48 FR 48335, Oct. 18, 1983; 50 FR 53113, Dec. 27, 1985; 51 FR 1790, Jan. 15, 1986; 52 FR 9781, Mar. 26, 1987; 62 FR 8328, Feb. 24, 1997; 65 FR 61749, Oct. 17, 2000]

§ 60.12 CIRCUMVENTION.

No owner or operator subject to the provisions of this part shall build, erect, install, or use any article, machine, equipment or process, the use of which conceals an emission which would otherwise constitute a violation of an applicable standard. Such concealment includes, but is not limited to, the use of gaseous diluents to achieve compliance with an opacity standard or with a standard which is based on the concentration of a pollutant in the gases discharged to the atmosphere.

[39 FR 9314, Mar. 8, 1974]

§ 60.13 MONITORING REQUIREMENTS.

(a) For the purposes of this section, all continuous monitoring systems required under applicable subparts shall be subject to the provisions of this section upon promulgation of performance specifications for continuous monitoring systems under appendix B to this part and, if the continuous monitoring system is used to demonstrate compliance with emission limits on a continuous basis, appendix F to this part, unless otherwise specified in an applicable subpart or by the Administrator. Appendix F is applicable December 4, 1987.

(b) All continuous monitoring systems and monitoring devices shall be installed and operational prior to conducting performance tests under §60.8. Verification of operational status shall, as a minimum, include completion of the manufacturer's written requirements or recommendations for installation, operation, and calibration of the device.

(c) If the owner or operator of an affected facility elects to submit continuous opacity monitoring system (COMS) data for compliance with the opacity standard as provided under §60.11(e)(5), he shall conduct a performance evaluation of the COMS as specified in Performance Specification 1, appendix B, of this part before the performance test required under §60.8 is conducted. Otherwise, the owner or operator of an affected facility shall conduct a performance evaluation of the COMS or continuous emission monitoring system (CEMS) during any performance test required under §60.8 or within 30 days thereafter in accordance with the applicable performance specification in appendix B of this part, The owner or operator of an affected facility shall conduct COMS or CEMS performance evaluations at such other times as may be required by the Administrator under section 114 of the Act.

(1) The owner or operator of an affected facility using a COMS to determine opacity compliance during any performance test required under §60.8 and as described in §60.11(e)(5) shall furnish the Administrator two or, upon request, more copies of a written report of the results of the COMS performance evaluation described in paragraph (c) of this section at least 10 days before the performance test required under §60.8 is conducted.

(2) Except as provided in paragraph (c)(1) of this section, the owner or operator of an affected facility shall furnish the Administrator within 60 days of completion two or, upon request, more copies of a written report of the results of the performance evaluation.

(d)

(1) Owners and operators of a CEMS installed in accordance with the provisions of this part, must check the zero (or low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily in accordance with a written procedure. The zero and span must, as a minimum, be adjusted whenever either the 24-hour zero drift or the 24-hour span drift exceeds two times the limit of the applicable performance specification in appendix B of this part. The system must allow the amount of the excess zero and span drift to be recorded and quantified whenever specified. Owners and operators of a COMS installed in accordance with the provisions of this part, must automatically, intrinsic to the opacity monitor, check the zero and upscale (span) calibration drifts at least once daily. For a particular COMS, the acceptable range of zero and upscale calibration materials is as defined in the applicable version of PS–1 in appendix B of this part. For a COMS, the optical surfaces, exposed to the effluent gases, must be cleaned before performing the zero and upscale drift adjustments, except for systems using automatic zero adjustments. The optical surfaces must be cleaned when the cumulative automatic zero compensation exceeds 4 percent opacity.

(2) Unless otherwise approved by the Administrator, the following procedures must be followed for a COMS. Minimum procedures must include an automated method for producing a simulated zero opacity condition and an upscale opacity condition using a certified neutral density filter or other related technique to produce a known obstruction of the light beam. Such procedures must provide a system check of all active analyzer internal optics with power or curvature, all active electronic circuitry including the light source and photodetector assembly, and electronic or electro-mechanical systems and hardware and or software used during normal measurement operation.

(e) Except for system breakdowns, repairs, calibration checks, and zero and span adjustments required under paragraph (d) of this section, all continuous monitoring systems shall be in continuous operation and shall meet minimum frequency of operation requirements as follows:

(1) All continuous monitoring systems referenced by paragraph (c) of this section for measuring opacity of emissions shall complete a minimum of one cycle of sampling and analyzing for each successive 10-second period and one cycle of data recording for each successive 6-minute period.

(2) All continuous monitoring systems referenced by paragraph (c) of this section for measuring emissions, except opacity, shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period.

(f) All continuous monitoring systems or monitoring devices shall be installed such that representative measurements of emissions or process parameters from the affected facility are obtained. Additional procedures for location of continuous monitoring systems contained in the applicable Performance Specifications of appendix B of this part shall be used.

(g) When the effluents from a single affected facility or two or more affected facilities subject to the same emission standards are combined before being released to the atmosphere, the owner or operator may install applicable continuous monitoring systems on each effluent or on the combined effluent. When the affected facilities are not subject to the same emission standards, separate continuous monitoring systems shall be installed on each effluent. When the effluent from one affected facility is released to the atmosphere through more than one point, the owner or operator shall install an applicable continuous monitoring system on each separate effluent unless the installation of fewer systems is approved by the Administrator. When more than one continuous monitoring system is used to measure the emissions from one affected facility (e.g., multiple breechings, multiple outlets), the owner or operator shall report the results as required from each continuous monitoring system.

(h)

(1) Owners or operators of all continuous monitoring systems for measurement ofopacity shall reduce all data to 6-minute averages and for continuous monitoring systems other than opacity to 1-hour averages for time periods as defined in §60.2. Six-minute opacity averages shall be calculated from 36 or more data points equally spacedover each 6-minute period.

(2) For continuous monitoring systems other than opacity, 1-hour averages shall be computed as follows, except that the provisions pertaining to the validation of partial operating hours are only applicable for affected facilities that are required by the applicable subpart to include partial hours in the emission calculations:

(i) Except as provided under paragraph (h)(2)(iii) of this section, for a full operating hour (any clock hour with 60 minutes of unit operation), at least four valid data points are required to calculate the hourly average, *i.e.* , one data point in each of the 15-minute quadrants of the hour.

(ii) Except as provided under paragraph (h)(2)(iii) of this section, for a partial operating hour (any clock hour with less than 60 minutes of unit operation), at least one valid data point in each 15-minute quadrant of the hour in which the unit operates is required to calculate the hourly average.

(iii) For any operating hour in which required maintenance or quality-assurance activities are performed:

(A) If the unit operates in two or more quadrants of the hour, a minimum of two valid data points, separated by at least 15 minutes, is required to calculate the hourly average; or

(B) If the unit operates in only one quadrant of the hour, at least one valid data point is required to calculate the hourly average.

(iv) If a daily calibration error check is failed during any operating hour, all data for that hour shall be invalidated, unless a subsequent calibration error test is passed in the same hour and the requirements of paragraph (h)(2)(iii) of this section are met, based solely on valid data recorded after the successful calibration.

(v) For each full or partial operating hour, all valid data points shall be used to calculate the hourly average.

(vi) Except as provided under paragraph (h)(2)(vii) of this section, data recorded during periods of continuous monitoring system breakdown, repair, calibration checks, and zero and span adjustments shall not be included in the data averages computed under this paragraph.

(vii) Owners and operators complying with the requirements of §60.7(f)(1) or (2) must include any data recorded during periods of monitor breakdown or malfunction in the data averages.

(viii) When specified in an applicable subpart, hourly averages for certain partial operating hours shall not be computed or included in the emission averages (*e.g.* hours with < 30 minutes of unit operation under §60.47b(d)).

(ix) Either arithmetic or integrated averaging of all data may be used to calculate the hourly averages. The data may be recorded in reduced or nonreduced form (*e.g.* , ppm pollutant and percent O_2or ng/J of pollutant).

(3) All excess emissions shall be converted into units of the standard using the applicableconversion procedures specified in the applicable subpart. After conversion into units of the standard, the data may be rounded to the same number of significant digits used in the applicable subpart to specify the emission limit.

(i) After receipt and consideration of written application, the Administrator may approve alternatives to any monitoring procedures or requirements of this part including, but not limited to the following:

(1) Alternative monitoring requirements when installation of a continuousmonitoring system or monitoring device specified by this part would not provide accurate measurements due to liquid water or other interferences caused by substances in the effluent gases.

(2) Alternative monitoring requirements when the affected facilityis infrequently operated.

(3) Alternative monitoring requirements to accommodate continuous monitoring systems that require additional measurements to correct for stack moisture conditions.

(4) Alternative locations for installing continuous monitoring systems or monitoring devices when the owner or operator can demonstrate that installation at alternate locations will enable accurate and representative measurements.

(5) Alternative methods of converting pollutant concentration measurements to units of thestandards.

(6) Alternative procedures for performing daily checks of zero and span drift that do not involve use of span gases or test cells.

(7) Alternatives to the A.S.T.M. test methods or sampling procedures specified by any subpart.

(8) Alternative continuous monitoring systems that do not meet the design or performance requirements in Performance Specification 1, appendix B, but adequately demonstrate a definite and consistent relationship between its measurements and the measurements of opacity by a system complying with the requirements in Performance Specification 1. The Administrator may require that such demonstration be performed for each affected facility.

(9) Alternative monitoring requirements when the effluent from a single affected facility or the combined effluent from two or more affected facilities is released to the atmosphere through more than one point.

(j) An alternative to the relative accuracy (RA) test specified in Performance Specification 2 of appendix B may be requested as follows:

(1) An alternative to the reference method tests for determining RA is available for sources with emission rates demonstrated to be less than 50 percent of the applicable standard. A source owner or operator may petition the Administrator to waive the RA test in Section 8.4 of Performance Specification 2 and substitute the procedures in Section 16.0 if the results of a performance test conducted according to the requirements in §60.8 of this subpart or other tests performed following the criteria in §60.8 demonstrate that the emission rate of the pollutant of interest in the units of the applicable standard is less than 50 percent of the applicable standard. For sources subject to standards expressed as control efficiency levels, a source owner or operatormay petition the Administrator to waive the RA test and substitute the procedures in Section 16.0 of Performance Specification 2 if the control device exhaust emission rate is less than 50 percent of the level needed to meet the control efficiency requirement. The alternative procedures do not apply if the continuous emission monitoring system is used to determine compliance continuously with the applicable standard. The petition to waive the RA test shall include a detailed description of the procedures to be applied. Included shall be location and procedure for conducting the alternative, the concentration or response levels of the alternative RA materials, and the other equipment checks included in the alternative procedure. The Administrator will reviewthe petition for completeness and applicability. The determination to grant a waiver will depend on the intended use of the CEMS data (e.g., data collection purposes other than NSPS) and may require specifications more stringent than in Performance Specification 2 (e.g., the applicable emission limit is more stringent than NSPS).

(2) The waiver of a CEMS RA test will be reviewed and may be rescinded at such time, following successful completion of the alternative RA procedure, that the CEMS data indicate that the source emissions are approaching the level. The criterion for reviewing the waiver is the collection of CEMS data showing that emissions have exceeded 70 percent of the applicable standard for seven, consecutive, averaging periods as specified by the applicable regulation(s). For sources subject to standards expressed as control efficiency levels, the criterion for reviewing the waiver is the collection of CEMS data showing that exhaust emissions have exceeded 70 percent of the level needed to meet the control efficiency requirement for seven, consecutive, averaging periods as specified by the applicable regulation(s) [e.g., §60.45(g) (2) and (3), §60.73(e), and §60.84(e)]. It is the responsibility of the source operator to maintain records and determine the level of emissions relative to the criterion on the waiver of RA testing. If this criterion is exceeded, the owner or operator must notify the Administrator within 10 days of such

occurrence and include a description of the nature and cause of the increasing emissions. The Administrator will review the notification and may rescind the waiver and require the owner or operator to conduct a RA test of the CEMS as specified in Section 8.4 of Performance Specification 2.

[40 FR 46255, Oct. 6, 1975; 40 FR 59205, Dec. 22, 1975, as amended at 41 FR 35185, Aug. 20, 1976; 48 FR 13326, Mar. 30, 1983; 48 FR 23610, May 25, 1983; 48 FR 32986, July 20, 1983; 52 FR 9782, Mar. 26, 1987; 52 FR 17555, May 11, 1987; 52 FR 21007, June 4, 1987; 64 FR 7463, Feb. 12, 1999; 65 FR 48920, Aug. 10, 2000; 65 FR 61749, Oct. 17, 2000; 66 FR 44980, Aug. 27, 2001; 71 FR 31102, June 1, 2006; 72 FR 32714, June 13, 2007]

Editorial Note: At 65 FR 61749, Oct. 17, 2000, §60.13 was amended by revising the words "ng/J of pollutant" to read "ng of pollutant per J of heat input" in the sixth sentence of paragraph (h). However, the amendment could not be incorporated because the words "ng/J of pollutant" do not exist in the sixth sentence of paragraph (h).

§ 60.14 MODIFICATION.

(a) Except as provided under paragraphs (e) and (f) of this section, any physical or operational change to an existing facility which results in an increase in the emission rate to the atmosphere of any pollutant to which a standard applies shall be considered a modification within the meaning of section 111 of the Act. Upon modification, an existing facility shall become an affected facility for each pollutant to which a standard applies and for which there is an increase in the emission rate to the atmosphere.

(b) Emission rate shall be expressed as kg/hr of any pollutant discharged into the atmosphere for which a standard is applicable. The Administrator shall use the following to determine emission rate:

(1) Emission factors as specified in the latest issue of "Compilation of Air Pollutant Emission Factors," EPA Publication No. AP–42, or other emission factors determined by the Administrator to be superior to AP–42 emission factors, in cases where utilization of emission factors demonstrates that the emission level resulting from the physical or operational change will either clearly increase or clearly not increase.

(2) Material balances, continuous monitor data, or manual emission tests in cases where utilization of emission factors as referenced in paragraph (b)(1) of this section does not demonstrate to the Administrator's satisfaction whether the emission level resulting from the physical or operational change will either clearly increase or clearly not increase, or where an owner or operator demonstrates to the Administrator's satisfaction that there are reasonable grounds to dispute the result obtained by the Administrator utilizing emission factors as referenced in paragraph (b)(1) of this section. When the emission rate is based on results from manual emissiontests or continuous monitoring systems, the procedures specified in appendix C of this part shall be used to determine whether an increase in emission rate has occurred. Tests shall be conducted under such conditions as the Administrator shall specify to the owner or operator based on representative performance of the facility. At least three valid test runs must be conducted before and at least three after the physical or operational change. All operating parameters which may affect emissions must be heldconstant to the maximum feasible degree for all test runs.

(c) The addition of an affected facility to a stationary source as an expansion to that source or as a replacement for an existing facility shall not by itself bring within the applicability of this part any other facility within that source.

(d) [Reserved]

(e) The following shall not, by themselves, be considered modifications under this part:

(1) Maintenance, repair, and replacement which the Administrator determines to be routine for a source category, subject to the provisions of paragraph (c) of this section and §60.15.

(2) An increase in production rate of an existing facility, if that increase can be accomplished without a capital expenditure on that facility.

(3) An increase in the hours of operation.

(4) Use of an alternative fuel or raw material if, prior to the date any standard under this part becomes applicable to that source type, as provided by §60.1, the existing facility was designed to accommodate that alternative use. A facility shall be considered to be designed to accommodate an alternative fuel or raw material if that use could be accomplished under the facility's construction specifications as amended prior to the change. Conversion to coal required for energy considerations, as specified in section 111(a)(8) of the Act, shall not be considered a modification.

(5) The addition or use of any system or device whose primary function is the reduction of air pollutants, except when an emission control system is removed or is replaced by a system which the Administrator determines to be less environmentally beneficial.

(6) The relocation or change in ownership of an existing facility.

(f) Special provisions set forth under an applicable subpart of this part shall supersede any conflicting provisions of this section.

(g) Within 180 days of the completion of any physical or operational change subject to the control measures specified in paragraph (a) of this section, compliance with all applicable standards must be achieved.

(h) No physical change, or change in the method of operation, at an existing electric utility steam generating unit shall be treated as a modification for the purposes of this section provided that such change does not increase the maximum hourly emissions of any pollutant regulated under this section above the maximum hourly emissions achievable at that unit during the 5 years prior to the change.

(i) Repowering projects that are awarded funding from the Department of Energy as permanent clean coal technology demonstration projects (or similar projects funded by EPA) are exempt from the requirements of this section provided that such change does not increase the maximum hourly emissions of any pollutant regulated under this section above the maximum hourly emissions achievable at that unit during the five years prior to the change.

(j)

(1) Repowering projects that qualify for an extension under section 409(b) of the Clean Air Act are exempt from the requirements of this section, provided that such change does not increasethe actual hourly emissions of any pollutant regulated under this section above the actual hourly emissions achievable at that unit during the 5 years prior to the change.

(2) This exemption shall not apply to any new unit that:

(i) Is designated as a replacement for an existing unit;

(ii) Qualifies under section 409(b) of the Clean Air Act for an extension of an emission limitation compliance date under section 405 of the Clean Air Act; and

(iii) Is located at a different site than the existing unit.

(k) The installation, operation, cessation, or removal of a temporary clean coal technology demonstration project is exempt from the requirements of this section. A *temporary clean coal control technology demonstration project,* for the purposes of this section is a clean coal technology demonstration project that is operated for a period of 5 years or less, and which complies with the State implementation plan for the State in which the project is located and other requirements necessary to attain and maintainthe national ambient air quality standards during the project and after it is terminated.

(l) The reactivation of a very clean coal-fired electric utility steam generating unit is exempt from the requirements of this section.

[40 FR 58419, Dec. 16, 1975, as amended at 43 FR 34347, Aug. 3, 1978; 45 FR 5617, Jan. 23, 1980; 57 FR 32339, July 21, 1992; 65 FR 61750, Oct. 17, 2000]

§ 60.15 RECONSTRUCTION.

(a) An existing facility, upon reconstruction, becomes an affected facility, irrespective of any change inemission rate.

(b) "Reconstruction" means the replacement of components of an existing facility to such an extent that:

(1) The fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable entirely new facility, and

(2) It is technologically and economically feasible to meet the applicable standards set forth in this part.

(c) "Fixed capital cost" means the capital needed to provide all the depreciable components.

(d) If an owner or operator of an existing facility proposes to replace components, and the fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable entirely new facility, he shall notify the Administrator of the proposed replacements. The notice must be postmarked 60 days (or as soon as practicable) before construction of the replacements is commenced and must include the following information:

(1) Name and address of the owner or operator.

(2) The location of the existing facility.

(3) A brief description of the existing facility and the components which are to be replaced.

(4) A description of the existing air pollution control equipment and the proposed air pollution control equipment.

(5) An estimate of the fixed capital cost of the replacements and of constructing a comparable entirely new facility.

(6) The estimated life of the existing facility after the replacements.

(7) A discussion of any economic or technical limitations the facility may have in complying with the applicable standards of performance after the proposed replacements.

(e) The Administrator will determine, within 30 days of the receipt of the notice required by paragraph (d) of this section and any additional information he mayreasonably require, whether the proposed replacement constitutes reconstruction.

(f) The Administrator's determination under paragraph (e) shall be based on:

(1) The fixed capital cost of the replacements in comparison to the fixed capital cost that wouldbe required to construct a comparable entirely new facility;

(2) The estimated life of the facility after the replacements compared to the life of a comparable entirely new facility;

(3) The extent to which the components being replaced cause or contributeto the emissions from the facility; and

(4) Any economic or technical limitations on compliance with applicable standards of performance which are inherent in the proposed replacements.

(g) Individual subparts of this part may include specific provisionswhich refine and delimit the concept of reconstruction set forth in this section.

[40 FR 58420, Dec. 16, 1975]

§ 60.16 PRIORITY LIST.

A LIST OF PRIORITIZED MAJOR SOURCE CATEGORIES MAY BE FOUND AT THE FOLLOWING EPA WEB SITE: **HTTP://ECFR.GPOACCESS.GOV/CGI/T/TEXT/TEXT-IDX?C=ECFR&RGN=DIV6&VIEW=TEXT&NODE=40:6.0.1.1.1.1&IDNO=40**

§ 60.17 INCORPORATIONS BY REFERENCE.

The materials listed below are incorporated by reference in the corresponding sections noted. These incorporations by reference were approved by the Director of the Federal Register on the date listed. These materials are incorporated as they exist on the date of the approval, and a notice of any change in these materials will be published in the Federal Register. The materials are available for purchase at the corresponding address noted below, and all are available for inspection at the Library (C267–01), U.S. EPA, Research Triangle Park, NC or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741–6030, or go to: *http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.*

(a) The following materials are available for purchase from at least one of the following addresses: American Society for Testing and Materials (ASTM), 100 Barr Harbor Drive, Post Office Box C700, West Conshohocken, PA 19428–2959; or ProQuest, 300 North Zeeb Road, Ann Arbor, MI 48106.

(1) ASTM A99–76, 82 (Reapproved 1987), Standard Specification for Ferromanganese, incorporation by reference (IBR) approved for §60.261.

(2) ASTM A100–69, 74, 93, Standard Specification for Ferrosilicon, IBR approved for §60.261.

(3) ASTM A101–73, 93, Standard Specification for Ferrochromium, IBR approved for §60.261.

(4) ASTM A482–76, 93, Standard Specification for Ferrochromesilicon, IBR approved for §60.261.

(5) ASTM A483–64, 74 (Reapproved 1988), Standard Specification for Silicomanganese, IBR approved for §60.261.

(6) ASTM A495–76, 94, Standard Specification for Calcium-Silicon and Calcium Manganese-Silicon, IBR approved for §60.261.

(7) ASTM D86–78, 82, 90, 93, 95, 96, Distillation of Petroleum Products, IBR approved for §§60.562–2(d), 60.593(d), 60.593a(d), and 60.633(h).

(8) ASTM D129–64, 78, 95, 00, Standard Test Method for Sulfur in Petroleum Products (General Bomb Method), IBR approved for §§60.106(j)(2), 60.335(b)(10)(i), and Appendix A: Method 19, 12.5.2.2.3.

(9) ASTM D129–00 (Reapproved 2005), Standard Test Method for Sulfur in Petroleum Products (General Bomb Method), IBR approved for §60.4415(a)(1)(i).

(10) ASTM D240–76, 92, Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter, IBR approved for §§60.46(c), 60.296(b), and Appendix A: Method 19, Section 12.5.2.2.3.

(11) ASTM D270–65, 75, Standard Method of Sampling Petroleum and Petroleum Products, IBR approved for Appendix A: Method 19, Section 12.5.2.2.1.

(12) ASTM D323–82, 94, Test Method for Vapor Pressure of Petroleum Products (Reid Method), IBR approved for §§60.111(l), 60.111a(g), 60.111b(g), and 60.116b(f)(2)(ii).

(13) ASTM D388–77, 90, 91, 95, 98a, 99 (Reapproved 2004)ε^1 , Standard Specification for Classification of Coals by Rank, IBR approved for §§60.24(h)(8), 60.41 of subpart D of this part, 60.45(f)(4)(i), 60.45(f)(4)(ii), 60.45(f)(4)(vi), 60.41Da of subpart Da of this part, 60.41b of subpart Db of this part, 60.41c of subpart Dc of this part, and 60.4102.

(14) ASTM D388–77, 90, 91, 95, 98a, Standard Specification for Classification of Coals by Rank, IBR approved for §§60.251(b) and (c) of subpart Y of this part.

(15) ASTM D396–78, 89, 90, 92, 96, 98, Standard Specification for Fuel Oils, IBR approved for §§60.41b of subpart Db of this part, 60.41c of subpart Dc of this part, 60.111(b) of subpart K of this part, and 60.111a(b) of subpart Ka of this part.

(16) ASTM D975–78, 96, 98a, Standard Specification for Diesel Fuel Oils, IBR approved for §§60.111(b) of subpart K of this part and 60.111a(b) of subpart Ka of this part.

(17) ASTM D1072–80, 90 (Reapproved 1994), Standard Test Method for Total Sulfur in Fuel Gases, IBR approved for §60.335(b)(10)(ii).

(18) ASTM D1072–90 (Reapproved 1999), Standard Test Method for Total Sulfur in Fuel Gases, IBR approved for §60.4415(a)(1)(ii).

(19) ASTM D1137–53, 75, Standard Method for Analysis of Natural Gases and Related Types of Gaseous Mixtures by the Mass Spectrometer, IBR approved for §60.45(f)(5)(i).

(20) ASTM D1193–77, 91, Standard Specification for Reagent Water, IBR approved for Appendix A: Method 5, Section 7.1.3; Method 5E, Section 7.2.1; Method 5F, Section 7.2.1; Method 6, Section 7.1.1; Method 7, Section 7.1.1; Method 7C, Section 7.1.1; Method 7D, Section 7.1.1; Method 10A, Section 7.1.1; Method 11, Section 7.1.3; Method 12, Section 7.1.3; Method 13A, Section 7.1.2; Method 26, Section 7.1.2; Method 26A, Section 7.1.2; and Method 29, Section 7.2.2.

(21) ASTM D1266–87, 91, 98, Standard Test Method for Sulfur in Petroleum Products (Lamp Method), IBR approved for §§60.106(j)(2) and 60.335(b)(10)(i).

(22) ASTM D1266–98 (Reapproved 2003)e1, Standard Test Method for Sulfur in Petroleum Products (Lamp Method), IBR approved for §60.4415(a)(1)(i).

(23) ASTM D1475–60 (Reapproved 1980), 90, Standard Test Method for Density of Paint, Varnish Lacquer, and Related Products, IBR approved for §60.435(d)(1), Appendix A: Method 24, Section 6.1; and Method 24A, Sections 6.5 and 7.1.

(24) ASTM D1552–83, 95, 01, Standard Test Method for Sulfur in Petroleum Products (High-Temperature Method), IBR approved for §§60.106(j)(2), 60.335(b)(10)(i), and Appendix A: Method 19, Section 12.5.2.2.3.

(25) ASTM D1552–03, Standard Test Method for Sulfur in Petroleum Products (High-Temperature Method), IBR approved for §60.4415(a)(1)(i).

(26) ASTM D1826–77, 94, Standard Test Method for Calorific Value of Gases in Natural Gas Range by Continuous Recording Calorimeter, IBR approved for §§60.45(f)(5)(ii), 60.46(c)(2), 60.296(b)(3), and Appendix A: Method 19, Section 12.3.2.4.

(27) ASTM D1835–87, 91, 97, 03a, Standard Specification for Liquefied Petroleum (LP) Gases, IBR approved for §§60.41Da of subpart Da of this part, 60.41b of subpart Db of this part, and 60.41c of subpart Dc of this part.

(28) ASTM D1945–64, 76, 91, 96, Standard Method for Analysis of Natural Gas by Gas Chromatography, IBR approved for §60.45(f)(5)(i).

(29) ASTM D1946–77, 90 (Reapproved 1994), Standard Method for Analysis of Reformed Gas by Gas Chromatography, IBR approved for §§60.18(f)(3), 60.45(f)(5)(i), 60.564(f)(1), 60.614(e)(2)(ii), 60.614(e)(4), 60.664(e)(2)(ii), 60.664(e)(4), 60.704(d)(2)(ii), and 60.704(d)(4).

(30) ASTM D2013–72, 86, Standard Method of Preparing Coal Samples for Analysis, IBR approved for Appendix A: Method 19, Section 12.5.2.1.3.

(31) ASTM D2015–77 (Reapproved 1978), 96, Standard Test Method for Gross Calorific Value of Solid Fuel by the Adiabatic Bomb Calorimeter, IBR approved for §60.45(f)(5)(ii), 60.46(c)(2), and Appendix A: Method 19, Section 12.5.2.1.3.

(32) ASTM D2016–74, 83, Standard Test Methods for Moisture Content of Wood, IBR approved for Appendix A: Method 28, Section 16.1.1.

(33) ASTM D2234–76, 96, 97b, 98, Standard Methods for Collection of a Gross Sample of Coal, IBR approved for Appendix A: Method 19, Section 12.5.2.1.1.

(34) ASTM D2369–81, 87, 90, 92, 93, 95, Standard Test Method for Volatile Content of Coatings, IBR approved for Appendix A: Method 24, Section 6.2.

(35) ASTM D2382–76, 88, Heat of Combustion of Hydrocarbon Fuels by Bomb Calorimeter (High-Precision Method), IBR approved for §§60.18(f)(3), 60.485(g)(6), 60.485a(g)(6), 60.564(f)(3), 60.614(e)(4), 60.664(e)(4), and 60.704(d)(4).

(36) ASTM D2504–67, 77, 88 (Reapproved 1993), Noncondensable Gases in C3 and Lighter Hydrocarbon Products by Gas Chromatography, IBR approved for §§60.485(g)(5) and 60.485a(g)(5).

(37) ASTM D2584–68 (Reapproved 1985), 94, Standard Test Method for Ignition Loss of Cured Reinforced Resins, IBR approved for §60.685(c)(3)(i).

(38) ASTM D2597–94 (Reapproved 1999), Standard Test Method for Analysis of Demethanized Hydrocarbon Liquid Mixtures Containing Nitrogen and Carbon Dioxide by Gas Chromatography, IBR approved for §60.335(b)(9)(i).

(39) ASTM D2622–87, 94, 98, Standard Test Method for Sulfur in Petroleum Products by Wavelength Dispersive X-Ray Fluorescence Spectrometry, IBR approved for §§60.106(j)(2) and 60.335(b)(10)(i).

(40) ASTM D2622–05, Standard Test Method for Sulfur in Petroleum Products by Wavelength Dispersive X-Ray Fluorescence Spectrometry, IBR approved for §60.4415(a)(1)(i).

(41) ASTM D2879–83, 96, 97, Test Method for Vapor Pressure-Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope, IBR approved for §§60.111b(f)(3), 60.116b(e)(3)(ii), 60.116b(f)(2)(i), 60.485(e)(1), and 60.485a(e)(1).

(42) ASTM D2880–78, 96, Standard Specification for Gas Turbine Fuel Oils, IBR approved for §§60.111(b), 60.111a(b), and 60.335(d).

(43) ASTM D2908–74, 91, Standard Practice for Measuring Volatile Organic Matter in Water by Aqueous-Injection Gas Chromatography, IBR approved for §60.564(j).

(44) ASTM D2986–71, 78, 95a, Standard Method for Evaluation of Air, Assay Media by the Monodisperse DOP (Dioctyl Phthalate) Smoke Test, IBR approved for Appendix A: Method 5, Section 7.1.1; Method 12, Section 7.1.1; and Method 13A, Section 7.1.1.2.

(45) ASTM D3173–73, 87, Standard Test Method for Moisture in the Analysis Sample of Coal and Coke, IBR approved for Appendix A: Method 19, Section 12.5.2.1.3.

(46) ASTM D3176–74, 89, Standard Method for Ultimate Analysis of Coal and Coke, IBR approved for §60.45(f)(5)(i) and Appendix A: Method 19, Section 12.3.2.3.

(47) ASTM D3177–75, 89, Standard Test Method for Total Sulfur in the Analysis Sample of Coal and Coke, IBR approved for Appendix A: Method 19, Section 12.5.2.1.3.

(48) ASTM D3178–73 (Reapproved 1979), 89, Standard Test Methods for Carbon and Hydrogen in the Analysis Sample of Coal and Coke, IBR approved for §60.45(f)(5)(i).

(49) ASTM D3246–81, 92, 96, Standard Test Method for Sulfur in Petroleum Gas by Oxidative Microcoulometry, IBR approved for §60.335(b)(10)(ii).

(50) ASTM D3246–05, Standard Test Method for Sulfur in Petroleum Gas by Oxidative Microcoulometry, IBR approved for §60.4415(a)(1)(ii).

(51) ASTM D3270–73T, 80, 91, 95, Standard Test Methods for Analysis for Fluoride Content of the Atmosphere and Plant Tissues (Semiautomated Method), IBR approved for Appendix A: Method 13A, Section 16.1.

(52) ASTM D3286–85, 96, Standard Test Method for Gross Calorific Value of Coal and Coke by the Isoperibol Bomb Calorimeter, IBR approved for Appendix A: Method 19, Section 12.5.2.1.3.

(53) ASTM D3370–76, 95a, Standard Practices for Sampling Water, IBR approved for §60.564(j).

(54) ASTM D3792–79, 91, Standard Test Method for Water Content of Water-Reducible Paints by Direct Injection into a Gas Chromatograph, IBR approved for Appendix A: Method 24, Section 6.3.

(55) ASTM D4017–81, 90, 96a, Standard Test Method for Water in Paints and Paint Materials by the Karl Fischer Titration Method, IBR approved for Appendix A: Method 24, Section 6.4.

(56) ASTM D4057–81, 95, Standard Practice for Manual Sampling of Petroleum and Petroleum Products, IBR approved for Appendix A: Method 19, Section 12.5.2.2.3.

(57) ASTM D4057–95 (Reapproved 2000), Standard Practice for Manual Sampling of Petroleum and Petroleum Products, IBR approved for §60.4415(a)(1).

(58) ASTM D4084–82, 94, Standard Test Method for Analysis of Hydrogen Sulfide in Gaseous Fuels (Lead Acetate Reaction Rate Method), IBR approved for §60.334(h)(1).

(59) ASTM D4084–05, Standard Test Method for Analysis of Hydrogen Sulfide in Gaseous Fuels (Lead Acetate Reaction Rate Method), IBR approved for §§60.4360 and 60.4415(a)(1)(ii).

(60) ASTM D4177–95, Standard Practice for Automatic Sampling of Petroleum and Petroleum Products, IBR approved for Appendix A: Method 19, Section 12.5.2.2.1.

(61) ASTM D4177–95 (Reapproved 2000), Standard Practice for Automatic Sampling of Petroleum and Petroleum Products, IBR approved for §60.4415(a)(1).

(62) ASTM D4239–85, 94, 97, Standard Test Methods for Sulfur in the Analysis Sample of Coal and Coke Using High Temperature Tube Furnace Combustion Methods, IBR approved for Appendix A: Method 19, Section 125.2.1.3.

(63) ASTM D4294–02, Standard Test Method for Sulfur in Petroleum and Petroleum Products by Energy-Dispersive X-Ray Fluorescence Spectrometry, IBR approved for §60.335(b)(10)(i).

(64) ASTM D4294–03, Standard Test Method for Sulfur in Petroleum and Petroleum Products by Energy-Dispersive X-Ray Fluorescence Spectrometry, IBR approved for §60.4415(a)(1)(i).

(65) ASTM D4442–84, 92, Standard Test Methods for Direct Moisture Content Measurement in Wood and Wood-base Materials, IBR approved for Appendix A: Method 28, Section 16.1.1.

(66) ASTM D4444–92, Standard Test Methods for Use and Calibration of Hand-Held Moisture Meters, IBR approved for Appendix A: Method 28, Section 16.1.1.

(67) ASTM D4457–85 (Reapproved 1991), Test Method for Determination of Dichloromethane and 1, 1, 1-Trichloroethane in Paints and Coatings by Direct Injection into a Gas Chromatograph, IBR approved for Appendix A: Method 24, Section 6.5.

(68) ASTM D4468–85 (Reapproved 2000), Standard Test Method for Total Sulfur in Gaseous Fuels by Hydrogenolysis and Rateometric Colorimetry, IBR approved for §§60.335(b)(10)(ii) and 60.4415(a)(1)(ii).

(69) ASTM D4629–02, Standard Test Method for Trace Nitrogen in Liquid Petroleum Hydrocarbons by Syringe/Inlet Oxidative Combustion and Chemiluminescence Detection, IBR approved for §§60.49b(e) and 60.335(b)(9)(i).

(70) ASTM D4809–95, Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter (Precision Method), IBR approved for §§60.18(f)(3), 60.485(g)(6), 60.485a(g)(6), 60.564(f)(3), 60.614(d)(4), 60.664(e)(4), and 60.704(d)(4).

(71) ASTM D4810–88 (Reapproved 1999), Standard Test Method for Hydrogen Sulfide in Natural Gas Using Length of Stain Detector Tubes, IBR approved for §§60.4360 and 60.4415(a)(1)(ii).

(72) ASTM D5287–97 (Reapproved 2002), Standard Practice for Automatic Sampling of Gaseous Fuels, IBR approved for §60.4415(a)(1).

(73) ASTM D5403–93, Standard Test Methods for Volatile Content of Radiation Curable Materials, IBR approved for Appendix A: Method 24, Section 6.6.

(74) ASTM D5453–00, Standard Test Method for Determination of Total Sulfur in Light Hydrocarbons, Motor Fuels and Oils by Ultraviolet Fluorescence, IBR approved for §60.335(b)(10)(i).

(75) ASTM D5453–05, Standard Test Method for Determination of Total Sulfur in Light Hydrocarbons, Motor Fuels and Oils by Ultraviolet Fluorescence, IBR approved for §60.4415(a)(1)(i).

(76) ASTM D5504–01, Standard Test Method for Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Chemiluminescence, IBR approved for §§60.334(h)(1) and 60.4360.

(77) ASTM D5762–02, Standard Test Method for Nitrogen in Petroleum and Petroleum Products by Boat-Inlet Chemiluminescence, IBR approved for §60.335(b)(9)(i).

(78) ASTM D5865–98, Standard Test Method for Gross Calorific Value of Coal and Coke, IBR approved for §60.45(f)(5)(ii), 60.46(c)(2), and Appendix A: Method 19, Section 12.5.2.1.3.

(79) ASTM D6216–98, Standard Practice for Opacity Monitor Manufacturers to Certify Conformance with Designand Performance Specifications, IBR approved for Appendix B, Performance Specification 1.

(80) ASTM D6228–98, Standard Test Method for Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Flame Photometric Detection, IBR approved for §60.334(h)(1).

(81) ASTM D6228–98 (Reapproved 2003), Standard Test Method for Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Flame Photometric Detection, IBR approved for §§60.4360 and 60.4415.

(82) ASTM D6348–03, Standard Test Method for Determination of Gaseous Compounds by Extractive Direct Interface Fourier Transform Infrared (FTIR) Spectroscopy, IBR approved for table 7 of Subpart IIII of this part and table 2 of subpart JJJJ of this part.

(83) ASTM D6366–99, Standard Test Method for Total Trace Nitrogen and Its Derivatives in Liquid Aromatic Hydrocarbons by Oxidative Combustion and Electrochemical Detection, IBR approved for §60.335(b)(9)(i).

(84) ASTM D6420–99 (Reapproved 2004) Standard Test Method for Determination of Gaseous Organic Compounds by Direct Interface Gas Chromatography-Mass Spectrometry, IBR approved for table 2 of subpart JJJJ of this part.

(85) ASTM D6522–00, Standard Test Method for Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Concentrations in Emissions from Natural Gas-Fired Reciprocating Engines, Combustion Turbines, Boilers, and Process Heaters Using Portable Analyzers, IBR approved for §60.335(a).

(86) ASTM D6522–00 (Reapproved 2005), Standard Test Method for Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Concentrations in Emissions from Natural Gas-Fired Reciprocating Engines, Combustion

Turbines, Boilers, and Process Heaters Using Portable Analyzers, IBR approved for table 2 of subpart JJJJ of this part.

(87) ASTM D6667–01, Standard Test Method for Determination of Total Volatile Sulfur in Gaseous Hydrocarbons and Liquefied Petroleum Gases by Ultraviolet Fluorescence, IBR approved for §60.335(b)(10)(ii).

(88) ASTM D6667–04, Standard Test Method for Determination of Total Volatile Sulfur in Gaseous Hydrocarbons and Liquefied Petroleum Gases by Ultraviolet Fluorescence, IBR approved for §60.4415(a)(1)(ii).

(89) ASTM D6784–02, Standard Test Method for Elemental, Oxidized, Particle-Bound and Total Mercury in Flue Gas Generated from Coal-Fired Stationary Sources (Ontario Hydro Method), IBR approved for Appendix B to part 60, Performance Specification 12A, Section 8.6.2.

(90) ASTM E168–67, 77, 92, General Techniques of Infrared Quantitative Analysis, IBR approved for §§60.485a(d)(1), 60.593(b)(2), 60.593a(b)(2), and 60.632(f).

(91) ASTM E169–63, 77, 93, General Techniques of Ultraviolet Quantitative Analysis, IBR approved for §§60.485a(d)(1), 60.593(b)(2), 60.593a(b)(2), and 60.632(f).

(92) ASTM E260–73, 91, 96, General Gas Chromatography Procedures, IBR approved for §§60.485a(d)(1), 60.593(b)(2), 60.593a(b)(2), and 60.632(f).

(b) The following material is available for purchase from the Association of Official Analytical Chemists, 1111 North 19th Street, Suite 210, Arlington, VA 22209.

(1) AOAC Method 9, Official Methods of Analysis of the Association of Official Analytical Chemists, 11th edition, 1970, pp. 11–12, IBR approved January 27, 1983 for §§60.204(b)(3), 60.214(b)(3), 60.224(b)(3), 60.234(b)(3).

(c) The following material is available for purchase from the American Petroleum Institute, 1220 L Street NW., Washington, DC 20005.

(1) API Publication 2517, Evaporation Loss from External Floating Roof Tanks, Second Edition, February 1980, IBR approved January 27, 1983, for §§60.111(i), 60.111a(f), 60.111a(f)(1) and 60.116b(e)(2)(i).

(d) The following material is available for purchase from the Technical Association of the Pulp and Paper Industry (TAPPI), Dunwoody Park, Atlanta, GA 30341.

(1) TAPPI Method T624 os–68, IBR approved January 27, 1983 for §60.285(d)(3).

(e) The following material is available for purchase from the Water Pollution Control Federation (WPCF), 2626 Pennsylvania Avenue NW., Washington, DC 20037.

(1) Method 209A, Total Residue Dried at 103–105 °C, in Standard Methods for the Examination of Water and Wastewater, 15th Edition, 1980, IBR approved February 25, 1985 for §60.683(b).

(f) The following material is available for purchase from the following address: Underwriter's Laboratories, Inc. (UL), 333 Pfingsten Road, Northbrook, IL 60062.

(1) UL 103, Sixth Edition revised as of September 3, 1986, Standard for Chimneys, Factory-built, Residential Type and Building Heating Appliance.

(g) The following material is available for purchase from the following address: West Coast Lumber Inspection Bureau, 6980 SW. Barnes Road, Portland, OR 97223.

(1) West Coast Lumber Standard Grading Rules No. 16, pages 5–21 and 90 and 91, September 3, 1970, revised 1984.

(h) The following material is available for purchase from the American Society of Mechanical Engineers (ASME), Three Park Avenue, New York, NY 10016–5990.

(1) ASME QRO–1–1994, Standard for the Qualification and Certification of Resource Recovery Facility Operators, IBR approved for §§60.56a, 60.54b(a), 60.54b(b), 60.1185(a), 60.1185(c)(2), 60.1675(a), and 60.1675(c)(2).

(2) ASME PTC 4.1–1964 (Reaffirmed 1991), Power Test Codes: Test Code for Steam Generating Units (with 1968 and 1969 Addenda), IBR approved for §§60.46b of subpart Db of this part, 60.58a(h)(6)(ii), 60.58b(i)(6)(ii), 60.1320(a)(3) and 60.1810(a)(3).

(3) ASME Interim Supplement 19.5 on Instruments and Apparatus: Application, Part II of Fluid Meters, 6th Edition (1971), IBR approved for §§60.58a(h)(6)(ii), 60.58b(i)(6)(ii), 60.1320(a)4), and 60.1810(a)(4).

(4) ANSI/ASME PTC 19.10–1981, Flue and Exhaust Gas Analyses [Part 10, Instruments and Apparatus], IBR approved for Tables 1 and 3 of subpart EEEE, Tables 2 and 4 of subpart FFFF, Table 2 of subpart JJJJ, and §§60.4415(a)(2) and 60.4415(a)(3) of subpart KKKK of this part.

(i) Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW–846 Third Edition (November 1986), as amended by Updates I (July 1992), II (September 1994), IIA (August, 1993), IIB (January 1995), and III (December 1996). This document may be obtained from the U.S. EPA, Office of Solid Waste and Emergency Response, Waste Characterization Branch, Washington, DC 20460, and is incorporated by reference for appendix A to part 60, Method 29, Sections 7.5.34; 9.2.1; 9.2.3; 10.2; 10.3; 11.1.1; 11.1.3; 13.2.1; 13.2.2; 13.3.1; and Table 29–3.

(j) "Standard Methods for the Examination of Water and Wastewater," 16th edition, 1985. Method 303F: "Determination of Mercury by the Cold Vapor Technique." This document may be obtained from the American Public Health Association, 1015 18th Street, NW., Washington, DC 20036, and is incorporated by reference for appendix A to part 60, Method 29, Sections 9.2.3; 10.3; and 11.1.3.

(k) This material is available for purchase from the American Hospital Association (AHA) Service, Inc., Post Office Box 92683, Chicago, Illinois 60675–2683. You may inspect a copy at EPA's Air and Radiation Docket and Information Center (Docket A–91–61, Item IV–J–124), Room M–1500, 1200 Pennsylvania Ave., NW., Washington, DC.

(1) An Ounce of Prevention: Waste Reduction Strategies for Health Care Facilities. American Society for Health Care Environmental Services of the American Hospital Association. Chicago, Illinois. 1993. AHA Catalog No. 057007. ISBN 0–87258–673–5. IBR approved for §60.35e and §60.55c.

(l) This material is available for purchase from the National Technical Information Services, 5285 Port Royal Road, Springfield, Virginia 22161. You may inspect a copy at EPA's Air andRadiation Docket and Information Center (Docket A–91–61, Item IV–J–125), Room M–1500, 1200 Pennsylvania Ave., NW., Washington, DC.

(1) OMB Bulletin No. 93–17: Revised Statistical Definitions for Metropolitan Areas. Office of Management and Budget, June 30, 1993. NTIS No. PB 93–192–664. IBR approved for §60.31e.

(m) This material is available for purchase from at least one of the following addresses: The Gas Processors Association, 6526 East 60th Street, Tulsa, OK, 74145; or Information Handling Services, 15 Inverness Way East, PO Box 1154, Englewood, CO 80150–1154. You may inspect a copy at EPA's Air and Radiation Docket and Information Center, Room B108, 1301 Constitution Ave., NW., Washington, DC 20460.

(1) Gas Processors Association Method 2377–86, Test for Hydrogen Sulfide and Carbon Dioxide in Natural Gas Using Length of Stain Tubes, IBR approved for §§60.334(h)(1), 60.4360, and 60.4415(a)(1)(ii).

(2) [Reserved]

(n) This material is available for purchase from IHS Inc., 15 Inverness Way East, Englewood,CO 80112.

(1) International Organization for Standards 8178–4: 1996(E), Reciprocating Internal Combustion Engines—Exhaust Emission Measurement—Part 4: Test Cycles for Different Engine Applications, IBR approved for §60.4241(b).

(2) [Reserved]

[48 FR 3735, Jan. 27, 1983]

Editorial Note: For Federal Register citations affecting §60.17, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and on GPO Access.

§ 60.18 GENERAL CONTROL DEVICE REQUIREMENTS.

(a) *Introduction.* This section contains requirements for control devices used to comply with applicable subparts of parts 60 and 61. The requirements are placed here for administrative convenience and only apply to facilities covered by subparts referring to this section.

(b) *Flares.* Paragraphs (c) through (f) apply to flares.

(c)

(1) Flares shall be designed for and operated with no visible emissions as determined by the methods specified in paragraph (f), except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.

(2) Flares shall be operated with a flame present at all times, as determined by the methods specified in paragraph (f).

(3) An owner/operator has the choice of adhering to either the heat content specifications in paragraph(c)(3)(ii) of this section and the maximum tip velocity specifications in paragraph (c)(4) of this section, or adhering to the requirements in paragraph (c)(3)(i) of this section.

(i)

(A) Flares shall be used that have a diameter of 3 inches or greater, are nonassisted, have a hydrogen content of 8.0 percent (by volume), or greater, and are designed for and operated with an exit velocity less than 37.2 m/sec (122 ft/sec) and less than the velocity, V_{max}, as determined by the following equation:

$$V_{max}=(X_{H2}-K_1)* K_2$$

Where:

V_{max} = Maximum permitted velocity, m/sec.

K_1 = Constant, 6.0 volume-percent hydrogen.

K_2 = Constant, 3.9(m/sec)/volume-percent hydrogen.

X_{H2} = The volume-percent of hydrogen, on a wet basis, as calculated by using the American Society for Testing and Materials (ASTM) Method D1946–77. (Incorporated by reference as specified in §60.17).

(B) The actual exit velocity of a flare shall be determined by the method specified in paragraph (f)(4) of this section.

(ii) Flares shall be used only with the net heating value of the gas being combusted being 11.2 MJ/scm (300 Btu/scf) or greater if the flare is steam-assisted or air-assisted; or with the net heating value of the gas being combusted being 7.45 MJ/scm (200 Btu/scf) or greater if the flare is nonassisted. The net heating value of the gas being combusted shall be determined by the methods specified in paragraph (f)(3) of this section.

(4)

(i) Steam-assisted and nonassisted flares shall be designed for and operated with an exit velocity, as determined by the methods specified in paragraph (f)(4) of this section, less than 18.3 m/sec (60 ft/sec), except as provided in paragraphs (c)(4) (ii) and (iii) of this section.

(ii) Steam-assisted and nonassisted flares designed for and operated with an exit velocity, as determined by the methods specified in paragraph (f)(4), equal to or greater than 18.3 m/sec (60 ft/sec) but less than 122 m/sec (400 ft/sec) are allowed if the net heating value of the gas being combusted is greater than 37.3 MJ/scm (1000 Btu/scf).

(iii) Steam-assisted and nonassisted flares designed for and operated with an exit velocity, as determined by the methods specified in paragraph (f)(4), less than the velocity, V_{max}, as determined by the method specified in paragraph (f)(5), and less than 122 m/sec (400 ft/sec) are allowed.

(5) Air-assisted flares shall be designed and operated with an exit velocity less than the velocity, V_{max}, as determined by the method specified in paragraph (f)(6).

(6) Flares used to comply with this section shall be steam-assisted, air-assisted, or nonassisted.

(d) Owners or operators of flares used to comply with the provisions of this subpart shall monitor these control devices to ensure that they are operated and maintained in conformance with their designs. Applicable subparts will provide provisions stating how owners or operators of flares shall monitor these control devices.

(e) Flares used to comply with provisions of this subpart shall be operated at all times when emissions may be vented to them.

(f)

(1) Method 22 of appendix A to this part shall be used to determine the compliance of flares with the visible emission provisions of this subpart. The observation period is 2 hours and shall be used according to Method 22.

(2) The presence of a flare pilot flame shall be monitored using a thermocouple or any other equivalent device to detect the presence of a flame.

(3) The net heating value of the gas being combusted in a flare shall be calculated using the following equation:

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

View or download PDF

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;

$$K = \text{Constant, } 1.740 \times 10^{-7} \left(\frac{1}{ppm}\right) \left(\frac{g\ mole}{scm}\right) \left(\frac{MJ}{kcal}\right)$$

where the standard temperature for $\left(\frac{g\ mole}{scm}\right)$ is 20°C;

View or download PDF

C_i = Concentration of sample component i in ppm on a wet basis, as measured for organics by Reference Method 18 and measured for hydrogen and carbon monoxide by ASTM D1946-77 or 90 (Reapproved 1994) (Incorporated by reference as specified in §60.17); 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.

(4) The actual exit velocity of a 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 2Das appropriate; by the unobstructed (free) cross sectional area of the flare tip.

(5) The maximum permitted velocity, V_{max}, for flares complying with paragraph (c)(4)(iii) shall be determined by the following equation.

$$Log_{10}(V_{max})=(H_T+28.8)/31.7$$

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

28.8 = Constant

31.7 = Constant

H_T = The net heating value as determined in paragraph (f)(3).

(6) The maximum permitted velocity, V_{max}, for air-assisted flares shall be determined by the following equation.

$$V_{max} = 8.706+0.7084 (H_T)$$

V_{max} = Maximum permitted velocity, m/sec

8.706 = Constant

0.7084 = Constant

H_T = The net heating value as determined in paragraph (f)(3).

[51 FR 2701, Jan. 21, 1986, as amended at 63 FR 24444, May 4, 1998; 65 FR 61752, Oct. 17, 2000]

§ 60.19 GENERAL NOTIFICATION AND REPORTING REQUIREMENTS.

(a) For the purposes of this part, time periods specified in days shall be measured in calendar days, even if the word "calendar" is absent, unless otherwise specified in an applicable requirement.

(b) For the purposes of this part, if an explicit postmark deadline is not specified in an applicable requirement for the submittal of a notification, application, report, or other written communication to the Administrator, the owner or operator shall postmark the submittal on or before the number of days specified in the applicable requirement. For example, if a notification must be submitted 15 days before a particular event is scheduled to take place, the notification shall be postmarked on or before 15 days preceding the event; likewise, if a notification must be submitted 15 days after a particular event takes place, the notification shall be delivered or postmarked on or before 15 days following the end of the event. The use of reliable non-Government mail carriers that provide indications of verifiable delivery of information required to be submitted to the Administrator, similar to the postmark provided by the U.S. Postal Service, or alternative means of delivery, including the use of electronicmedia, agreed to by the permitting authority, is acceptable.

(c) Notwithstanding time periods or postmark deadlines specified in this part for the submittal of information to the Administrator by an owner or operator, or the review of such information by he Administrator, such time periods or deadlines may be changed by mutual agreement between the owner or operator and the Administrator. Procedures governing the implementation of this provision are specified in paragraph (f) of this section.

(d) If an owner or operator of an affected facility in a State with delegated authority is required to submit periodic reports under this part to the State, and if the State has an established timeline for the submission of periodic reports that is consistent with the reporting frequency(ies) specified for such facility under this part, the owner or operator may change the dates by which periodic reports under this part shall be submitted (without changing the frequency of reporting) to be consistent with the State's schedule by mutual agreement between the owner or operator and the State. The allowance in the previous sentence applies in each State beginning 1 year after the affected facility is required to be in compliance with the applicable subpart in this part. Procedures governing the implementation of this provision are specified in paragraph (f) of this section.

(e) If an owner or operator supervises one or more stationary sources affected by standards set under this part and standards set under part 61, part 63, or both such parts of this chapter, he/she may arrange by mutual agreement between the owner or operator and the Administrator (or the State with an approved permit program) a common schedule on which periodic reports required by each applicable standard shall be submitted throughout the year. The

allowance in the previous sentence applies in each State beginning 1 year after the stationary source is required to be in compliance with the applicable subpart in this part, or 1 year after the stationary sourceis required to be in compliance with the applicable 40 CFR part 61 or part 63 of this chapter standard, whichever is latest. Procedures governing the implementation of this provision are specified in paragraph (f) of this section.

(f)

(1)

(i) Until an adjustment of a time period or postmark deadline has been approved by the Administrator under paragraphs (f)(2) and (f)(3) of this section, the owner or operator of an affected facility remains strictly subject to the requirements of this part.

(ii) An owner or operator shall request the adjustment provided for in paragraphs (f)(2) and (f)(3) of this section each time he or she wishes to change an applicable time period or postmark deadline specified in this part.

(2) Notwithstanding time periods or postmark deadlines specified in this part for the submittal of information to the Administrator by an owner or operator, or the review of such information by the Administrator, such time periods or deadlines may be changed by mutual agreement between the owner or operator and the Administrator. An owner or operator who wishes to request a change in a time period or postmark deadline for a particular requirement shall request the adjustment in writing as soon as practicable before the subject activity is required to take place. The owner or operator shall include in the request whatever information he or she considers useful to convince the Administrator that an adjustment is warranted.

(3) If, in the Administrator's judgment, an owner or operator's request for an adjustment to a particular time period or postmark deadline is warranted, the Administrator will approve the adjustment. The Administrator will notify the owner or operator in writing of approval or disapproval of the request for an adjustment within 15 calendar days of receiving sufficient information to evaluate therequest.

(4) If the Administrator is unable to meet a specified deadline, he or she will notify the owner or operator of any significant delay and inform the owner or operator of the amended schedule.

[59 FR 12428, Mar. 16, 1994, as amended at 64 FR 7463, Feb. 12, 1998]

Title 40: Protection of Environment

Part 63 – National Emission Standards for Hazardous Air Pollutants for source Categories

SUBPART A—GENERAL PROVISIONS

Source: 59 FR 12430, Mar. 16, 1994, unless otherwise noted.

§ 63.1 APPLICABILITY.

(a) *General.* (1) Terms used throughout this part are defined in §63.2 or in the Clean Air Act (Act) as amended in 1990, except that individual subparts of this part may include specific definitions in addition to or that supersede definitions in §63.2.

(2) This part contains national emission standards for hazardous air pollutants (NESHAP) established pursuant to section 112 of the Act as amended November 15, 1990. These standards regulate specific categories of stationary sources that emit (or have the potential to emit) one or more hazardous air pollutants listed in this part pursuant to section 112(b) of the Act. This section explains the applicability of such standards to sources affected by them. The standards in this part are independent of NESHAP contained in 40 CFR part 61. The NESHAP in part 61 promulgated by signature of the Administrator before November 15, 1990 (i.e., the date of enactment of the Clean Air Act Amendments of 1990) remain in effect until they are amended, if appropriate, and added to this part.

(3) No emission standard or other requirement established under this part shall be interpreted, construed, or applied to diminish or replace the requirements of a more stringent emission limitation or other applicable requirement established by the Administrator pursuant to other authority of the Act (section 111, part C or D or any other authority of this Act), or a standard issued under State authority. The Administrator may specify in a specific standard under this part that facilities subject to other provisions under the Act need only comply with the provisions of that standard.

(4)(i) Each relevant standard in this part 63 must identify explicitly whether each provision in this subpart A is or is not included in such relevant standard.

(ii) If a relevant part 63 standard incorporates the requirements of 40 CFR part 60, part 61 or other part 63 standards, the relevant part 63 standard must identify explicitly the applicability of each corresponding part 60, part 61, or other part 63 subpart A (General) provision.

(iii) The General Provisions in this subpart A do not apply to regulations developed pursuant to section 112(r) of the amended Act, unless otherwise specified in those regulations.

(5) [Reserved]

(6) To obtain the most current list of categories of sources to be regulated under section 112 of the Act, or to obtain the most recent regulation promulgation schedule established pursuant to section 112(e) of the Act, contact the Office of the Director, Emission Standards Division, Office of Air Quality Planning and Standards, U.S. EPA (MD–13), Research Triangle Park, North Carolina 27711.

(7)–(9) [Reserved]

(10) For the purposes of this part, time periods specified in days shall be measured in calendar days, even if the word "calendar" is absent, unless otherwise specified in an applicable requirement.

(11) For the purposes of this part, if an explicit postmark deadline is not specified in an applicable requirement for the submittal of a notification, application, test plan, report, or other written communication to the Administrator, the owner or operator shall postmark the submittal on or before the number of days specified in the applicable requirement. For example, if a notification must be submitted 15 days before a particular event is scheduled to take place, the notification shall be postmarked on or before 15 days preceding the event; likewise, if a notification must be submitted 15 days after a particular event takes place, the notification shall be postmarked on or before 15 days following the end of the event. The use of reliable non-Government mail carriers that provide indications of verifiable delivery of information required to be submitted to the Administrator, similar to the postmark provided by the U.S. Postal Service, or alternative means of delivery agreed to by the permitting authority, is acceptable.

(12) Notwithstanding time periods or postmark deadlines specified in this part for the submittal of information to the Administrator by an owner or operator, or the review of such information by the Administrator, such time periods or deadlines may be changed by mutual agreement between the owner or operator and the Administrator. Procedures governing the implementation of this provision are specified in §63.9(i).

(b) *Initial applicability determination for this part.* (1) The provisions of this part apply to the owner or operator of any stationary source that—

(i) Emits or has the potential to emit any hazardous air pollutant listed in or pursuant to section 112(b) of the Act; and

(ii) Is subject to any standard, limitation, prohibition, or other federally enforceable requirement established pursuant to this part.

(2) [Reserved]

(3) An owner or operator of a stationary source who is in the relevant source category and who determines that the source is not subject to a relevant standard or other requirement established under this part must keep a record as specified in §63.10(b)(3).

(c) *Applicability of this part after a relevant standard has been set under this part.* (1) If a relevant standard has been established under this part, the owner or operator of an affected source must comply with the provisions of that standard and of this subpart as provided in paragraph (a)(4) of this section.

(2) Except as provided in §63.10(b)(3), if a relevant standard has been established under this part, the owner or operator of an affected source may be required to obtain a title V permit from a permitting authority in the State in which the source is located. Emission standards promulgated in this part for area sources pursuant to section 112(c)(3) of the Act will specify whether—

(i) States will have the option to exclude area sources affected by that standard from the requirement to obtain a title V permit (i.e., the standard will exempt the category of area sources altogether from the permitting requirement);

(ii) States will have the option to defer permitting of area sources in that category until the Administrator takes rulemaking action to determine applicability of the permitting requirements; or

(iii) If a standard fails to specify what the permitting requirements will be for area sources affected by such a standard, then area sources that are subject to the standard will be subject to the requirement to obtain a title V permit without any deferral.

(3)–(4) [Reserved]

(5) If an area source that otherwise would be subject to an emission standard or other requirement established under this part if it were a major source subsequently increases its emissions of hazardous air pollutants (or its potential to emit hazardous air pollutants) such that the source is a major source that is subject to the emission standard or other requirement, such source also shall be subject to the notification requirements of this subpart.

(d) [Reserved]

(e) If the Administrator promulgates an emission standard under section 112(d) or (h) of the Act that is applicable to a source subject to an emission limitation by permit established under section 112(j) of the Act, and the requirements under the section 112(j) emission limitation are substantially as effective as the promulgated emission standard, the owner or operator may request the permitting authority to revise the source's title V permit to reflect that the emission limitation in the permit satisfies the requirements of the promulgated emission standard. The process by which the permitting authority determines whether the section 112(j) emission limitation is substantially as effective as the promulgated emission standard must include, consistent with part 70 or 71 of this chapter, the opportunity for full public, EPA, and affected State review (including the opportunity for EPA's objection) prior to the permit revision being finalized. A negative determination by the permitting authority constitutes final action for purposes of review and appeal under the applicable title V operating permit program.

[59 FR 12430, Mar. 16, 1994, as amended at 67 FR 16595, Apr. 5, 2002]

§ 63.2 DEFINITIONS.

The terms used in this part are defined in the Act or in this section as follows:

Act means the Clean Air Act (42 U.S.C. 7401 *et seq* ., as amended by Pub. L. 101–549, 104 Stat. 2399).

Actual emissions is defined in subpart D of this part for the purpose of granting a compliance extension for an early reduction of hazardous air pollutants.

Administrator means the Administrator of the United States Environmental Protection Agency or his or her authorized representative (e.g., a State that has been delegated the authority to implement the provisions of this part).

Affected source, for the purposes of this part, means the collection of equipment, activities, or both within a single contiguous area and under common control that is included in a section 112(c) source category or subcategory for which a section 112(d) standard or other relevant standard is established pursuant to section 112 of the Act. Each relevant standard will define the "affected source," as defined in this paragraph unless a different definition is warranted based on a published justification as to why this definition would result in significant administrative, practical, or implementation problems and why the different definition would resolve those problems. The term "affected source," as used in this part, is separate and distinct from any other use of that term in EPA regulations such as those

implementing title IV of the Act. Affected source may be defined differently for part 63 than affected facility and stationary source in parts 60 and 61, respectively. This definition of "affected source," and the procedures for adopting an alternative definition of "affected source," shall apply to each section 112(d) standard for which the initial proposed rule is signed by the Administrator after June 30, 2002.

Alternative emission limitation means conditions established pursuant to sections 112(i)(5) or 112(i)(6) of the Act by the Administrator or by a State with an approved permit program.

Alternative emission standard means an alternative means of emission limitation that, after notice and opportunity for public comment, has been demonstrated by an owner or operator to the Administrator's satisfaction to achieve a reduction in emissions of any air pollutant at least equivalent to the reduction in emissions of such pollutant achieved under a relevant design, equipment, work practice, or operational emission standard, or combination thereof, established under this part pursuant to section 112(h) of the Act.

Alternative test method means any method of sampling and analyzing for an air pollutant that is not a test method in this chapter and that has been demonstrated to the Administrator's satisfaction, using Method 301 in Appendix A of this part, to produce results adequate for the Administrator's determination that it may be used in place of a test method specified in this part.

Approved permit program means a State permit program approved by the Administrator as meeting the requirements of part 70 of this chapter or a Federal permit program established in this chapter pursuant to title V of the Act (42 U.S.C. 7661).

Area source means any stationary source of hazardous air pollutants that is not a major source as defined in this part.

Commenced means, with respect to construction or reconstruction of an affected source, that an owner or operator has undertaken a continuous program of construction or reconstruction or that an owner or operator has entered into a contractual obligation to undertake and complete, within a reasonable time, a continuous program of construction or reconstruction.

Compliance date means the date by which an affected source is required to be in compliance with a relevant standard, limitation, prohibition, or any federally enforceable requirement established by the Administrator (or a State with an approved permit program) pursuant to section 112 of the Act.

Compliance schedule means: (1) In the case of an affected source that is in compliance with all applicable requirements established under this part, a statement that the source will continue to comply with such requirements; or

(2) In the case of an affected source that is required to comply with applicable requirements by a future date, a statement that the source will meet such requirements on a timely basis and, if required by an applicable requirement, a detailed schedule of the dates by which each step toward compliance will be reached; or

(3) In the case of an affected source not in compliance with all applicable requirements established under this part, a schedule of remedial measures, including an enforceable sequence of actions or operations with milestones and a schedule for the submission of certified progress reports, where applicable, leading to compliance with a relevant standard, limitation, prohibition, or any federally enforceable requirement established pursuant to section 112 of the Act for which the affected source is not in compliance. This compliance schedule shall resemble and be at least as stringent as that contained in any judicial consent decree or administrative order to which the source is subject. Any such schedule of compliance shall be supplemental to, and shall not sanction noncompliance with, the applicable requirements on which it is based.

Construction means the on-site fabrication, erection, or installation of an affected source. Construction does not include the removal of all equipment comprising an affected source from an existing location and reinstallation of such equipment at a new location. The owner or operator of an existing affected source that is relocated may elect not to reinstall minor ancillary equipment including, but not limited to, piping, ductwork, and valves. However, removal and reinstallation of an affected source will be construed as reconstruction if it satisfies the criteria for reconstruction as defined in this section. The costs of replacing minor ancillary equipment must be considered in determining whether the existing affected source is reconstructed.

Continuous emission monitoring system (CEMS) means the total equipment that may be required to meet the data acquisition and availability requirements of this part, used to sample, condition (if applicable), analyze, and provide a record of emissions.

Continuous monitoring system (CMS) is a comprehensive term that may include, but is not limited to, continuous emission monitoring systems, continuous opacity monitoring systems, continuous parameter monitoring systems, or other manual or automatic monitoring that is used for demonstrating compliance with an applicable regulation on a continuous basis as defined by the regulation.

Continuous opacity monitoring system (COMS) means a continuous monitoring system that measures the opacity of emissions.

Continuous parameter monitoring system means the total equipment that may be required to meet the data acquisition and availability requirements of this part, used to sample, condition (if applicable), analyze, and provide a record of process or control system parameters.

Effective date means:

(1) With regard to an emission standard established under this part, the date of promulgation in theFederal Registerof such standard; or

(2) With regard to an alternative emission limitation or equivalent emission limitation determined by the Administrator (or a State with an approved permit program), the date that the alternative emission limitation or equivalent emission limitation becomes effective according to the provisions of this part.

Emission standard means a national standard, limitation, prohibition, or other regulation promulgated in a subpart of this part pursuant to sections 112(d), 112(h), or 112(f) of the Act.

Emissions averaging is a way to comply with the emission limitations specified in a relevant standard, whereby an affected source, if allowed under a subpart of this part, may create emission credits by reducing emissions from specific points to a level below that required by the relevant standard, and those credits are used to offset emissions from points that are not controlled to the level required by the relevant standard.

EPA means the United States Environmental Protection Agency.

Equivalent emission limitation means any maximum achievable control technology emission limitation or requirements which are applicable to a major source of hazardous air pollutants and are adopted by the Administrator (or a State with an approved permit program) on a case-by-case basis, pursuant to section 112(g) or (j) of the Act.

Excess emissions and continuous monitoring system performance report is a report that must be submitted periodically by an affected source in order to provide data on its compliance with relevant emission limits, operating parameters, and the performance of its continuous parameter monitoring systems.

Existing source means any affected source that is not a new source.

Federally enforceable means all limitations and conditions that are enforceable by the Administrator and citizens under the Act or that are enforceable under other statutes administered by the Administrator. Examples of federally enforceable limitations and conditions include, but are not limited to:

(1) Emission standards, alternative emission standards, alternative emission limitations, and equivalent emission limitations established pursuant to section 112 of the Act as amended in 1990;

(2) New source performance standards established pursuant to section 111 of the Act, and emission standards established pursuant to section 112 of the Act before it was amended in 1990;

(3) All terms and conditions in a title V permit, including any provisions that limit a source's potential to emit, unless expressly designated as not federally enforceable;

(4) Limitations and conditions that are part of an approved State Implementation Plan (SIP) or a Federal Implementation Plan (FIP);

(5) Limitations and conditions that are part of a Federal construction permit issued under 40 CFR 52.21 or any construction permit issued under regulations approved by the EPA in accordance with 40 CFR part 51;

(6) Limitations and conditions that are part of an operating permit where the permit and the permitting program pursuant to which it was issued meet all of the following criteria:

(i) The operating permit program has been submitted to and approved by EPA into a State implementation plan (SIP) under section 110 of the CAA;

(ii) The SIP imposes a legal obligation that operating permit holders adhere to the terms and limitations of such permits and provides that permits which do not conform to the operating permit program requirements and the requirements of EPA's underlying regulations may be deemed not "federally enforceable" by EPA;

(iii) The operating permit program requires that all emission limitations, controls, and other requirements imposed by such permits will be at least as stringent as any other applicable limitations and requirements contained in the SIP or enforceable under the SIP, and that the program may not issue permits that waive, or make less stringent, any limitations or requirements contained in or issued pursuant to the SIP, or that are otherwise "federally enforceable";

(iv) The limitations, controls, and requirements in the permit in question are permanent, quantifiable, and otherwise enforceable as a practical matter; and

(v) The permit in question was issued only after adequate and timely notice and opportunity for comment for EPA and the public.

(7) Limitations and conditions in a State rule or program that has been approved by the EPA under subpart E of this part for the purposes of implementing and enforcing section 112; and

(8) Individual consent agreements that the EPA has legal authority to create.

Fixed capital cost means the capital needed to provide all the depreciable components of an existing source.

Force majeure means, for purposes of §63.7, an event that will be or has been caused by circumstances beyond the control of the affected facility, its contractors, or any entity controlled by the affected facility that prevents the owner or operator from complying with the regulatory requirement to conduct performance tests within the specified timeframe despite the affected facility's best efforts to fulfill the obligation. Examples of such events are acts of nature, acts of war or terrorism, or equipment failure or safety hazard beyond the control of the affected facility.

Fugitive emissions means those emissions from a stationary source that could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening. Under section 112 of the Act, all fugitive emissions are to be considered in determining whether a stationary source is a major source.

Hazardous air pollutant means any air pollutant listed in or pursuant to section 112(b) of the Act.

Issuance of a part 70 permit will occur, if the State is the permitting authority, in accordance with the requirements of part 70 of this chapter and the applicable, approved State permit program. When the EPA is the permitting authority, issuance of a title V permit occurs immediately after the EPA takes final action on the final permit.

Major source means any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit considering controls, in the aggregate, 10 tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants, unless the Administrator establishes a lesser quantity, or in the case of radionuclides, different criteria from those specified in this sentence.

Malfunction means any sudden, infrequent, and not reasonably preventable failure of air pollution control and monitoring equipment, process equipment, or a process to operate in a normal or usual manner which causes, or has the potential to cause, the emission limitations in an applicable standard to be exceeded. Failures that are caused in part by poor maintenance or careless operation are not malfunctions.

Monitoring means the collection and use of measurement data or other information to control the operation of a process or pollution control device or to verify a work practice standard relative to assuring compliance with applicable requirements. Monitoring is composed of four elements:

(1) Indicator(s) of performance—the parameter or parameters you measure or observe for demonstrating proper operation of the pollution control measures or compliance with the applicable emissions limitation or standard. Indicators of performance may include direct or predicted emissions measurements (including opacity), operational parametric values that correspond to process or control device (and capture system) efficiencies or emissions rates, and recorded findings of inspection of work practice activities, materials tracking, or design characteristics. Indicators may be expressed as a single maximum or minimum value, a function of process variables (for example, within a range of pressure drops), a particular operational or work practice status (for example, a damper position, completion of a waste recovery task, materials tracking), or an interdependency between two or among more than two variables.

(2) Measurement techniques—the means by which you gather and record information of or about the indicators of performance. The components of the measurement technique include the detector type, location and installation specifications, inspection procedures, and quality assurance and quality control measures. Examples of measurement techniques include continuous emission monitoring systems, continuous opacity monitoring systems, continuous parametric monitoring systems, and manual inspections that include making records of process conditions or work practices.

(3) Monitoring frequency—the number of times you obtain and record monitoring data over a specified time interval. Examples of monitoring frequencies include at least four points equally spaced for each hour for continuous emissions or parametric monitoring systems, at least every 10 seconds for continuous opacity monitoring systems, and at least once per operating day (or week, month, etc.) for work practice or design inspections.

(4) Averaging time—the period over which you average and use data to verify proper operation of the pollution control approach or compliance with the emissions limitation or standard. Examples of averaging time include a 3-hour average in units of the emissions limitation, a 30-day rolling average emissions value, a daily average of a control device operational parametric range, and an instantaneous alarm.

New affected source means the collection of equipment, activities, or both within a single contiguous area and under common control

that is included in a section 112(c) source category or subcategory that is subject to a section 112(d) or other relevant standard for new sources. This definition of "new affected source," and the criteria to be utilized in implementing it, shall apply to each section 112(d) standard for which the initial proposed rule is signed by the Administrator after June 30, 2002. Each relevant standard will define the term "new affected source," which will be the same as the "affected source" unless a different collection is warranted based on consideration of factors including:

(1) Emission reduction impacts of controlling individual sources versus groups of sources;

(2) Cost effectiveness of controlling individual equipment;

(3) Flexibility to accommodate common control strategies;

(4) Cost/benefits of emissions averaging;

(5) Incentives for pollution prevention;

(6) Feasibility and cost of controlling processes that share common equipment (e.g., product recovery devices);

(7) Feasibility and cost of monitoring; and

(8) Other relevant factors.

New source means any affected source the construction or reconstruction of which is commenced after the Administrator first proposes a relevant emission standard under this part establishing an emission standard applicable to such source.

One-hour period, unless otherwise defined in an applicable subpart, means any 60-minute period commencing on the hour.

Opacity means the degree to which emissions reduce the transmission of light and obscure the view of an object in the background. For continuous opacity monitoring systems, opacity means the fraction of incident light that is attenuated by an optical medium.

Owner or operator means any person who owns, leases, operates, controls, or supervises a stationary source.

Performance audit means a procedure to analyze blind samples, the content of which is known by the Administrator, simultaneously with the analysis of performance test samples in order to provide a measure of test data quality.

Performance evaluation means the conduct of relative accuracy testing, calibration error testing, and other measurements used in validating the continuous monitoring system data.

Performance test means the collection of data resulting from the execution of a test method (usually three emission test runs) used to demonstrate compliance with a relevant emission standard as specified in the performance test section of the relevant standard.

Permit modification means a change to a title V permit as defined in regulations codified in this chapter to implement title V of the Act (42 U.S.C. 7661).

Permit program means a comprehensive State operating permit system established pursuant to title V of the Act (42 U.S.C. 7661) and regulations codified in part 70 of this chapter and applicable State regulations, or a comprehensive Federal operating permit system established pursuant to title V of the Act and regulations codified in this chapter.

Permit revision means any permit modification or administrative permit amendment to a title V permit as defined in regulations codified in this chapter to implement title V of the Act (42 U.S.C. 7661).

Permitting authority means: (1) The State air pollution control agency, local agency, other State agency, or other agency authorized by the Administrator to carry out a permit program under part 70 of this chapter; or

(2) The Administrator, in the case of EPA-implemented permit programs under title V of the Act (42 U.S.C. 7661).

Pollution Prevention means *source reduction* as defined under the Pollution Prevention Act (42 U.S.C. 13101–13109). The definition is as follows:

(1) *Source reduction* is any practice that:

(i) Reduces the amount of any hazardous substance, pollutant, or contaminant entering any waste stream or otherwise released into the environment (including fugitive emissions) prior to recycling, treatment, or disposal; and

(ii) Reduces the hazards to public health and the environment associated with the release of such substances, pollutants, or contaminants.

(2) The term *source reduction* includes equipment or technology modifications, process or procedure modifications, reformulation or redesign of products, substitution of raw materials, and improvements in housekeeping, maintenance, training, or inventory control.

(3) The term *source reduction* does not include any practice that alters the physical, chemical, or biological characteristics or the volume of a hazardous substance, pollutant, or contaminant through a process or activity which itself is not integral to and necessary for the production of a product or the providing of a service.

Potential to emit means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the stationary source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable.

Reconstruction, unless otherwise defined in a relevant standard, means the replacement of components of an affected or a previously nonaffected source to such an extent that:

(1) The fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable new source; and

(2) It is technologically and economically feasible for the reconstructed source to meet the relevant standard(s) established by the Administrator (or a State) pursuant to section 112 of the Act. Upon reconstruction, an affected source, or a stationary source that becomes an affected source, is subject to relevant standards for new sources, including compliance dates, irrespective of any change in emissions of hazardous air pollutants from that source.

Regulation promulgation schedule means the schedule for the promulgation of emission standards under this part, established by the Administrator pursuant to section 112(e) of the Act and published in theFederal Register.

Relevant standard means:

(1) An emission standard;

(2) An alternative emission standard;

(3) An alternative emission limitation; or

(4) An equivalent emission limitation established pursuant to section 112 of the Act that applies to the collection of equipment, activities, or both regulated by such standard or limitation. A relevant standard may include or consist of a design, equipment, work practice, or operational requirement, or other measure, process, method, system, or technique (including prohibition of emissions) that the Administrator (or a State) establishes for new or existing sources to which such standard or limitation applies. Every relevant standard established pursuant to section 112 of the Act includes subpart A of this part, as provided by §63.1(a)(4), and all applicable appendices of this part or of other parts of this chapter that are referenced in that standard.

Responsible official means one of the following:

(1) For a corporation: A president, secretary, treasurer, or vice president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities and either:

(i) The facilities employ more than 250 persons or have gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars); or

(ii) The delegation of authority to such representative is approved in advance by the Administrator.

(2) For a partnership or sole proprietorship: a general partner or the proprietor, respectively.

(3) For a municipality, State, Federal, or other public agency: either a principal executive officer or ranking elected official. For the purposes of this part, a principal executive officer of a Federal agency includes the chief executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., a Regional Administrator of the EPA).

(4) For affected sources (as defined in this part) applying for or subject to a title V permit: "responsible official" shall have the same meaning as defined in part 70 or Federal title V regulations in this chapter (42 U.S.C. 7661), whichever is applicable.

Run means one of a series of emission or other measurements needed to determine emissions for a representative operating period or cycle as specified in this part.

Shutdown means the cessation of operation of an affected source or portion of an affected source for any purpose.

Six-minute period means, with respect to opacity determinations, any one of the 10 equal parts of a 1-hour period.

Source at a Performance Track member facility means a major or area source located at a facility which has been accepted by EPA for membership in the Performance Track Program (as described at *www.epa.gov/PerformanceTrack*) and is still a member of the Program. The Performance Track Program is a voluntary program that encourages continuous environmental improvement through the use of environmental management systems, local community outreach, and measurable results.

Standard conditions means a temperature of 293 K (68 °F) and a pressure of 101.3 kilopascals (29.92 in. Hg).

Startup means the setting in operation of an affected source or portion of an affected source for any purpose.

State means all non-Federal authorities, including local agencies, interstate associations, and State-wide programs, that have delegated authority to implement: (1) The provisions of this part and/or (2) the permit program established under part 70 of this chapter. The term State shall have its conventional meaning where clear from the context.

Stationary source means any building, structure, facility, or installation which emits or may emit any air pollutant.

Test method means the validated procedure for sampling, preparing, and analyzing for an air pollutant specified in a relevant standard as the performance test procedure. The test method may include methods described in an appendix of this chapter, test methods incorporated by reference in this part, or methods validated for an application through procedures in Method 301 of appendix A of this part.

Title V permit means any permit issued, renewed, or revised pursuant to Federal or State regulations established to implement title V of the Act (42 U.S.C. 7661). A title V permit issued by a State permitting authority is called a part 70 permit in this part.

Visible emission means the observation of an emission of opacity or optical density above the threshold of vision.

Working day means any day on which Federal Government offices (or State government offices for a State that has obtained delegation under section 112(l)) are open for normal business. Saturdays, Sundays, and official Federal (or where delegated, State) holidays are not working days.

[59 FR 12430, Mar. 16, 1994, as amended at 67 FR 16596, Apr. 5, 2002; 68 FR 32600, May 30, 2003; 69 FR 21752, Apr. 22, 2004; 72 FR 27443, May 16, 2007]

§ 63.3 UNITS AND ABBREVIATIONS.

Used in this part are abbreviations and symbols of units of measure. These are defined as follows:

(a) *System International (SI) units of measure:*

A = ampere

g = gram

Hz = hertz

J = joule

°K = degree Kelvin

kg = kilogram

l = liter

m = meter

m^3 = cubic meter

mg = milligram = 10^{-3}gram

ml = milliliter = 10^{-3}liter

mm = millimeter = 10^{-3}meter

Mg = megagram = 10^6 gram = metric ton

MJ = megajoule

mol = mole

N = newton

ng = nanogram = 10^{-9}gram

nm = nanometer = 10^{-9}meter

Pa = pascal

s = second

V = volt

W = watt

Ω = ohm

µg = microgram = 10^{-6}gram

µl = microliter = 10^{-6}liter

(b) *Other units of measure:*

Btu = British thermal unit

°C = degree Celsius (centigrade)

cal = calorie

cfm = cubic feet per minute

cc = cubic centimeter

cu ft = cubic feet

d = day

dcf = dry cubic feet

dcm = dry cubic meter

dscf = dry cubic feet at standard conditions

dscm = dry cubic meter at standard conditions

eq = equivalent

°F degree Fahrenheit

ft = feet

ft^2 = square feet

ft^3 = cubic feet

gal = gallon

gr = grain

g-eq = gram equivalent

g-mole = gram mole

hr = hour

in. = inch

in. H_2O = inches of water

K = 1,000

kcal = kilocalorie

lb = pound

lpm = liter per minute

meq = milliequivalent

min = minute

MW = molecular weight

oz = ounces

ppb = parts per billion

ppbw = parts per billion by weight

ppbv = parts per billion by volume

ppm = parts per million

ppmw = parts per million by weight

ppmv = parts per million by volume

psia = pounds per square inch absolute

psig = pounds per square inch gage

°R = degree Rankine

scf = cubic feet at standard conditions

scfh = cubic feet at standard conditions per hour

scm = cubic meter at standard conditions

scmm = cubic meter at standard conditions per minute

sec = second

sq ft = square feet

std = at standard conditions

v/v = volume per volume

yd^2 = square yards

yr = year

(c) *Miscellaneous:*

act = actual

avg = average

I.D. = inside diameter

M = molar

N = normal

O.D. = outside diameter

% = percent

[59 FR 12430, Mar. 16, 1994, as amended at 67 FR 16598, Apr. 5, 2002]

§ 63.4 PROHIBITED ACTIVITIES AND CIRCUMVENTION.

(a) *Prohibited activities.* (1) No owner or operator subject to the provisions of this part must operate any affected source in violation of the requirements of this part. Affected sources subject to and in compliance with either an extension of compliance or an exemption

from compliance are not in violation of the requirements of this part. An extension of compliance can be granted by the Administrator under this part; by a State with an approved permit program; or by the President under section 112(i)(4) of the Act.

(2) No owner or operator subject to the provisions of this part shall fail to keep records, notify, report, or revise reports as required under this part.

(3)–(5) [Reserved]

(b) *Circumvention.* No owner or operator subject to the provisions of this part shall build, erect, install, or use any article, machine, equipment, or process to conceal an emission that would otherwise constitute noncompliance with a relevant standard. Such concealment includes, but is not limited to—

(1) The use of diluents to achieve compliance with a relevant standard based on the concentration of a pollutant in the effluent discharged to the atmosphere;

(2) The use of gaseous diluents to achieve compliance with a relevant standard for visible emissions; and

(c) *Fragmentation.* Fragmentation after November 15, 1990 which divides ownership of an operation, within the same facility among various owners where there is no real change in control, will not affect applicability. The owner and operator must not use fragmentation or phasing of reconstruction activities (i.e., intentionally dividing reconstruction into multiple parts for purposes of avoiding new source requirements) to avoid becoming subject to new source requirements.

[59 FR 12430, Mar. 16, 1994, as amended at 67 FR 16598, Apr. 5, 2002]

§ 63.5 PRECONSTRUCTION REVIEW AND NOTIFICATION REQUIREMENTS.

(a) *Applicability.* (1) This section implements the preconstruction review requirements of section 112(i)(1). After the effective date of a relevant standard, promulgated pursuant to section 112(d), (f), or (h) of the Act, under this part, the preconstruction review requirements in this section apply to the owner or operator of new affected sources and reconstructed affected sources that are major-emitting as specified in this section. New and reconstructed affected sources that commence construction or reconstruction before the effective date of a relevant standard are not subject to the preconstruction review requirements specified in paragraphs (b)(3), (d), and (e) of this section.

(2) This section includes notification requirements for new affected sources and reconstructed affected sources that are not major-emitting affected sources and that are or become subject to a relevant promulgated emission standard after the effective date of a relevant standard promulgated under this part.

(b) *Requirements for existing, newly constructed, and reconstructed sources.* (1) A new affected source for which construction commences after proposal of a relevant standard is subject to relevant standards for new affected sources, including compliance dates. An affected source for which reconstruction commences after proposal of a relevant standard is subject to relevant standards for new sources, including compliance dates, irrespective of any change in emissions of hazardous air pollutants from that source.

(2) [Reserved]

(3) After the effective date of any relevant standard promulgated by the Administrator under this part, no person may, without obtaining written approval in advance from the Administrator in accordance with the procedures specified in paragraphs (d) and (e) of this section, do any of the following:

(i) Construct a new affected source that is major-emitting and subject to such standard;

(ii) Reconstruct an affected source that is major-emitting and subject to such standard; or

(iii) Reconstruct a major source such that the source becomes an affected source that is major-emitting and subject to the standard.

(4) After the effective date of any relevant standard promulgated by the Administrator under this part, an owner or operator who constructs a new affected source that is not major-emitting or reconstructs an affected source that is not major-emitting that is subject to such standard, or reconstructs a source such that the source becomes an affected source subject to the standard, must notify the Administrator of the intended construction or reconstruction. The notification must be submitted in accordance with the procedures in §63.9(b).

(5) [Reserved]

(6) After the effective date of any relevant standard promulgated by the Administrator under this part, equipment added (or a process change) to an affected source that is within the scope of the definition of affected source under the relevant standard must be considered part of the affected source and subject to all provisions of the relevant standard established for that affected source.

(c) [Reserved]

(d) *Application for approval of construction or reconstruction.* The provisions of this paragraph implement section 112(i)(1) of the Act.

(1) *General application requirements.* (i) An owner or operator who is subject to the requirements of paragraph (b)(3) of this section must submit to the Administrator an application for approval of the construction or reconstruction. The application must be submitted as soon as practicable before actual construction or reconstruction begins. The application for approval of construction or reconstruction may be used to fulfill the initial notification requirements of §63.9(b)(5). The owner or operator may submit the application for approval well in advance of the date actual construction or reconstruction begins in order to ensure a timely review by the Administrator and that the planned date to begin will not be delayed.

(ii) A separate application shall be submitted for each construction or reconstruction. Each application for approval of construction or reconstruction shall include at a minimum:

(A) The applicant's name and address;

(B) A notification of intention to construct a new major affected source or make any physical or operational change to a major affected source that may meet or has been determined to meet the criteria for a reconstruction, as defined in §63.2 or in the relevant standard;

(C) The address (i.e., physical location) or proposed address of the source;

(D) An identification of the relevant standard that is the basis of the application;

(E) The expected date of the beginning of actual construction or reconstruction;

(F) The expected completion date of the construction or reconstruction;

(G) [Reserved]

(H) The type and quantity of hazardous air pollutants emitted by the source, reported in units and averaging times and in accordance with the test methods specified in the relevant standard, or if actual emissions data are not yet available, an estimate of the type and quantity of hazardous air pollutants expected to be emitted by the source reported in units and averaging times specified in the relevant standard. The owner or operator may submit percent reduction information if a relevant standard is established in terms of percent reduction. However, operating parameters, such as flow rate, shall be included in the submission to the extent that they demonstrate performance and compliance; and

(I) [Reserved]

(J) Other information as specified in paragraphs (d)(2) and (d)(3) of this section.

(iii) An owner or operator who submits estimates or preliminary information in place of the actual emissions data and analysis required in paragraphs (d)(1)(ii)(H) and (d)(2) of this section shall submit the actual, measured emissions data and other correct information as soon as available but no later than with the notification of compliance status required in §63.9(h) (see §63.9(h)(5)).

(2) *Application for approval of construction.* Each application for approval of construction must include, in addition to the information required in paragraph (d)(1)(ii) of this section, technical information describing the proposed nature, size, design, operating design capacity, and method of operation of the source, including an identification of each type of emission point for each type of hazardous air pollutant that is emitted (or could reasonably be anticipated to be emitted) and a description of the planned air pollution control system (equipment or method) for each emission point. The description of the equipment to be used for the control of emissions must include each control device for each hazardous air pollutant and the estimated control efficiency (percent) for each control device. The description of the method to be used for the control of emissions must include an estimated control efficiency (percent) for that method. Such technical information must include calculations of emission estimates in sufficient detail to permit assessment of the validity of the calculations.

(3) *Application for approval of reconstruction.* Each application for approval of reconstruction shall include, in addition to the information required in paragraph (d)(1)(ii) of this section—

(i) A brief description of the affected source and the components that are to be replaced;

(ii) A description of present and proposed emission control systems (i.e., equipment or methods). The description of the equipment to be used for the control of emissions shall include each control device for each hazardous air pollutant and the estimated control efficiency (percent) for each control device. The description of the method to be used for the control of emissions shall include an estimated control efficiency (percent) for that method. Such technical information shall include calculations of emission estimates in sufficient detail to permit assessment of the validity of the calculations;

(iii) An estimate of the fixed capital cost of the replacements and of constructing a comparable entirely new source;

(iv) The estimated life of the affected source after the replacements; and

(v) A discussion of any economic or technical limitations the source may have in complying with relevant standards or other requirements after the proposed replacements. The discussion shall be sufficiently detailed to demonstrate to the Administrator's satisfaction that the technical or economic limitations affect the source's ability to comply with the relevant standard and how they do so.

(vi) If in the application for approval of reconstruction the owner or operator designates the affected source as a reconstructed source and declares that there are no economic or technical limitations to prevent the source from complying with all relevant standards or other requirements, the owner or operator need not submit the information required in paragraphs (d)(3)(iii) through (d)(3)(v) of this section.

(4) *Additional information.* The Administrator may request additional relevant information after the submittal of an application for approval of construction or reconstruction.

(e) *Approval of construction or reconstruction.* (1)(i) If the Administrator determines that, if properly constructed, or reconstructed, and operated, a new or existing source for which an application under paragraph (d) of this section was submitted will not cause emissions in violation of the relevant standard(s) and any other federally enforceable requirements, the Administrator will approve the construction or reconstruction.

(ii) In addition, in the case of reconstruction, the Administrator's determination under this paragraph will be based on:

(A) The fixed capital cost of the replacements in comparison to the fixed capital cost that would be required to construct a comparable entirely new source;

(B) The estimated life of the source after the replacements compared to the life of a comparable entirely new source;

(C) The extent to which the components being replaced cause or contribute to the emissions from the source; and

(D) Any economic or technical limitations on compliance with relevant standards that are inherent in the proposed replacements.

(2)(i) The Administrator will notify the owner or operator in writing of approval or intention to deny approval of construction or reconstruction within 60 calendar days after receipt of sufficient information to evaluate an application submitted under paragraph (d) of this section. The 60-day approval or denial period will begin after the owner or operator has been notified in writing that his/her application is complete. The Administrator will notify the owner or operator in writing of the status of his/her application, that is, whether the application contains sufficient information to make a determination, within 30 calendar days after receipt of the original application and within 30 calendar days after receipt of any supplementary information that is submitted.

(ii) When notifying the owner or operator that his/her application is not complete, the Administrator will specify the information needed to complete the application and provide notice of opportunity for the applicant to present, in writing, within 30 calendar days after he/she is notified of the incomplete application, additional information or arguments to the Administrator to enable further action on the application.

(3) Before denying any application for approval of construction or reconstruction, the Administrator will notify the applicant of the Administrator's intention to issue the denial together with—

(i) Notice of the information and findings on which the intended denial is based; and

(ii) Notice of opportunity for the applicant to present, in writing, within 30 calendar days after he/she is notified of the intended denial, additional information or arguments to the Administrator to enable further action on the application.

(4) A final determination to deny any application for approval will be in writing and will specify the grounds on which the denial is based. The final determination will be made within 60 calendar days of presentation of additional information or arguments (if the application is complete), or within 60 calendar days after the final date specified for presentation if no presentation is made.

(5) Neither the submission of an application for approval nor the Administrator's approval of construction or reconstruction shall—

(i) Relieve an owner or operator of legal responsibility for compliance with any applicable provisions of this part or with any other applicable Federal, State, or local requirement; or

(ii) Prevent the Administrator from implementing or enforcing this part or taking any other action under the Act.

(f) *Approval of construction or reconstruction based on prior State preconstruction review.* (1) Preconstruction review procedures that a State utilizes for other purposes may also be utilized for purposes of this section if the procedures are substantially equivalent to those specified in this section. The Administrator will approve an application for construction or reconstruction specified in paragraphs (b)(3) and (d) of this section if the owner or operator of a new affected source or reconstructed affected source, who is subject to such requirement meets the following conditions:

(i) The owner or operator of the new affected source or reconstructed affected source has undergone a preconstruction review and approval process in the State in which the source is (or would be) located and has received a federally enforceable construction permit that contains a finding that the source will meet the relevant promulgated emission standard, if the source is properly built and operated.

(ii) Provide a statement from the State or other evidence (such as State regulations) that it considered the factors specified in paragraph (e)(1) of this section.

(2) The owner or operator must submit to the Administrator the request for approval of construction or reconstruction under this paragraph (f)(2) no later than the application deadline specified in paragraph (d)(1) of this section (see also §63.9(b)(2)). The owner or operator must include in the request information sufficient for the Administrator's determination. The Administrator will evaluate the owner or operator's request in accordance with the procedures specified in paragraph (e) of this section. The Administrator may request additional relevant information after the submittal of a request for approval of construction or reconstruction under this paragraph (f)(2).

[59 FR 12430, Mar. 16, 1994, as amended at 67 FR 16598, Apr. 5, 2002]

§ 63.6 COMPLIANCE WITH STANDARDS AND MAINTENANCE REQUIREMENTS.

(a) *Applicability.* (1) The requirements in this section apply to the owner or operator of affected sources for which any relevant standard has been established pursuant to section 112 of the Act and the applicability of such requirements is set out in accordance with §63.1(a)(4) unless—

(i) The Administrator (or a State with an approved permit program) has granted an extension of compliance consistent with paragraph (i) of this section; or

(ii) The President has granted an exemption from compliance with any relevant standard in accordance with section 112(i)(4) of the Act.

(2) If an area source that otherwise would be subject to an emission standard or other requirement established under this part if it were a major source subsequently increases its emissions of hazardous air pollutants (or its potential to emit hazardous air pollutants) such that the source is a major source, such source shall be subject to the relevant emission standard or other requirement.

(b) *Compliance dates for new and reconstructed sources.* (1) Except as specified in paragraphs (b)(3) and (4) of this section, the owner or operator of a new or reconstructed affected source for which construction or reconstruction commences after proposal of a relevant standard that has an initial startup before the effective date of a relevant standard established under this part pursuant to section 112(d), (f), or (h) of the Act must comply with such standard not later than the standard's effective date.

(2) Except as specified in paragraphs (b)(3) and (4) of this section, the owner or operator of a new or reconstructed affected source that has an initial startup after the effective date of a relevant standard established under this part pursuant to section 112(d), (f), or (h) of the Act must comply with such standard upon startup of the source.

(3) The owner or operator of an affected source for which construction or reconstruction is commenced after the proposal date of a relevant standard established under this part pursuant to section 112(d), 112(f), or 112(h) of the Act but before the effective date (that is, promulgation) of such standard shall comply with the relevant emission standard not later than the date 3 years after the effective date if:

(i) The promulgated standard (that is, the relevant standard) is more stringent than the proposed standard; for purposes of this paragraph, a finding that controls or compliance methods are "more stringent" must include control technologies or performance criteria and compliance or compliance assurance methods that are different but are substantially equivalent to those required by the promulgated rule, as determined by the Administrator (or his or her authorized representative); and

(ii) The owner or operator complies with the standard as proposed during the 3-year period immediately after the effective date.

(4) The owner or operator of an affected source for which construction or reconstruction is commenced after the proposal date of a relevant standard established pursuant to section 112(d) of the Act but before the proposal date of a relevant standard established pursuant to section 112(f) shall not be required to comply with the section 112(f) emission standard until the date 10 years after the date construction or reconstruction is commenced, except that, if the section 112(f) standard is promulgated more than 10 years after construction or reconstruction is commenced, the owner or operator must comply with the standard as provided in paragraphs (b)(1)

and (2) of this section.

(5) The owner or operator of a new source that is subject to the compliance requirements of paragraph (b)(3) or (4) of this section must notify the Administrator in accordance with §63.9(d)

(6) [Reserved]

(7) When an area source becomes a major source by the addition of equipment or operations that meet the definition of new affected source in the relevant standard, the portion of the existing facility that is a new affected source must comply with all requirements of that standard applicable to new sources. The source owner or operator must comply with the relevant standard upon startup.

(c) *Compliance dates for existing sources.* (1) After the effective date of a relevant standard established under this part pursuant to section 112(d) or 112(h) of the Act, the owner or operator of an existing source shall comply with such standard by the compliance date established by the Administrator in the applicable subpart(s) of this part. Except as otherwise provided for in section 112 of the Act, in no case will the compliance date established for an existing source in an applicable subpart of this part exceed 3 years after the effective date of such standard.

(2) If an existing source is subject to a standard established under this part pursuant to section 112(f) of the Act, the owner or operator must comply with the standard by the date 90 days after the standard's effective date, or by the date specified in an extension granted to the source by the Administrator under paragraph (i)(4)(ii) of this section, whichever is later.

(3)–(4) [Reserved]

(5) Except as provided in paragraph (b)(7) of this section, the owner or operator of an area source that increases its emissions of (or its potential to emit) hazardous air pollutants such that the source becomes a major source shall be subject to relevant standards for existing sources. Such sources must comply by the date specified in the standards for existing area sources that become major sources. If no such compliance date is specified in the standards, the source shall have a period of time to comply with the relevant emission standard that is equivalent to the compliance period specified in the relevant standard for existing sources in existence at the time the standard becomes effective.

(d) [Reserved]

(e) *Operation and maintenance requirements.* (1)(i) At all times, including periods of startup, shutdown, and malfunction, the owner or operator must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. During a period of startup, shutdown, or malfunction, this general duty to minimize emissions requires that the owner or operator reduce emissions from the affected source to the greatest extent which is consistent with safety and good air pollution control practices. The general duty to minimize emissions during a period of startup, shutdown, or malfunction does not require the owner or operator to achieve emission levels that would be required by the applicable standard at other times if this is not consistent with safety and good air pollution control practices, nor does it require the owner or operator to make any further efforts to reduce emissions if levels required by the applicable standard have been achieved. Determination of whether such operation 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, review of operation and maintenance procedures (including the startup, shutdown, and malfunction plan required in paragraph (e)(3) of this section), review of operation and maintenance records, and inspection of the source.

(ii) Malfunctions must be corrected as soon as practicable after their occurrence. To the extent that an unexpected event arises during a startup, shutdown, or malfunction, an owner or operator must comply by minimizing emissions during such a startup, shutdown, and malfunction event consistent with safety and good air pollution control practices.

(iii) Operation and maintenance requirements established pursuant to section 112 of the Act are enforceable independent of emissions limitations or other requirements in relevant standards.

(2) [Reserved]

(3) *Startup, shutdown, and malfunction plan.* (i) The owner or operator of an affected source must develop a written startup, shutdown, and malfunction plan that describes, in detail, procedures for operating and maintaining the source during periods of startup, shutdown, and malfunction; and a program of corrective action for malfunctioning process, air pollution control, and monitoring equipment used to comply with the relevant standard. The startup, shutdown, and malfunction plan does not need to address any scenario that would not cause the source to exceed an applicable emission limitation in the relevant standard. This plan must be developed by the owner or operator by the source's compliance date for that relevant standard. The purpose of the startup, shutdown, and malfunction plan is to—

(A) Ensure that, at all times, the owner or operator operates and maintains each affected source, including associated air pollution control and monitoring equipment, in a manner which satisfies the general duty to minimize emissions established by paragraph (e)(1)(i) of this section;

(B) Ensure that owners or operators are prepared to correct malfunctions as soon as practicable after their occurrence in order to

minimize excess emissions of hazardous air pollutants; and

(C) Reduce the reporting burden associated with periods of startup, shutdown, and malfunction (including corrective action taken to restore malfunctioning process and air pollution control equipment to its normal or usual manner of operation).

(ii) [Reserved]

(iii) When actions taken by the owner or operator during a startup or shutdown (and the startup or shutdown causes the source to exceed any applicable emission limitation in the relevant emission standards), or malfunction (including actions taken to correct a malfunction) are consistent with the procedures specified in the affected source's startup, shutdown, and malfunction plan, the owner or operator must keep records for that event which demonstrate that the procedures specified in the plan were followed. These records may take the form of a "checklist," or other effective form of recordkeeping that confirms conformance with the startup, shutdown, and malfunction plan and describes the actions taken for that event. In addition, the owner or operator must keep records of these events as specified in paragraph 63.10(b), including records of the occurrence and duration of each startup or shutdown (if the startup or shutdown causes the source to exceed any applicable emission limitation in the relevant emission standards), or malfunction of operation and each malfunction of the air pollution control and monitoring equipment. Furthermore, the owner or operator shall confirm that actions taken during the relevant reporting period during periods of startup, shutdown, and malfunction were consistent with the affected source's startup, shutdown and malfunction plan in the semiannual (or more frequent) startup, shutdown, and malfunction report required in §63.10(d)(5).

(iv) If an action taken by the owner or operator during a startup, shutdown, or malfunction (including an action taken to correct a malfunction) is not consistent with the procedures specified in the affected source's startup, shutdown, and malfunction plan, and the source exceeds any applicable emission limitation in the relevant emission standard, then the owner or operator must record the actions taken for that event and must report such actions within 2 working days after commencing actions inconsistent with the plan, followed by a letter within 7 working days after the end of the event, in accordance with §63.10(d)(5) (unless the owner or operator makes alternative reporting arrangements, in advance, with the Administrator).

(v) The owner or operator must maintain at the affected source a current startup, shutdown, and malfunction plan and must make the plan available upon request for inspection and copying by the Administrator. In addition, if the startup, shutdown, and malfunction plan is subsequently revised as provided in paragraph (e)(3)(viii) of this section, the owner or operator must maintain at the affected source each previous (i.e., superseded) version of the startup, shutdown, and malfunction plan, and must make each such previous version available for inspection and copying by the Administrator for a period of 5 years after revision of the plan. If at any time after adoption of a startup, shutdown, and malfunction plan the affected source ceases operation or is otherwise no longer subject to the provisions of this part, the owner or operator must retain a copy of the most recent plan for 5 years from the date the source ceases operation or is no longer subject to this part and must make the plan available upon request for inspection and copying by the Administrator. The Administrator may at any time request in writing that the owner or operator submit a copy of any startup, shutdown, and malfunction plan (or a portion thereof) which is maintained at the affected source or in the possession of the owner or operator. Upon receipt of such a request, the owner or operator must promptly submit a copy of the requested plan (or a portion thereof) to the Administrator. The owner or operator may elect to submit the required copy of any startup, shutdown, and malfunction plan to the Administrator in an electronic format. If the owner or operator claims that any portion of such a startup, shutdown, and malfunction plan is confidential business information entitled to protection from disclosure under section 114(c) of the Act or 40 CFR 2.301, the material which is claimed as confidential must be clearly designated in the submission.

(vi) To satisfy the requirements of this section to develop a startup, shutdown, and malfunction plan, the owner or operator may use the affected source's standard operating procedures (SOP) manual, or an Occupational Safety and Health Administration (OSHA) or other plan, provided the alternative plans meet all the requirements of this section and are made available for inspection or submitted when requested by the Administrator.

(vii) Based on the results of a determination made under paragraph (e)(1)(i) of this section, the Administrator may require that an owner or operator of an affected source make changes to the startup, shutdown, and malfunction plan for that source. The Administrator must require appropriate revisions to a startup, shutdown, and malfunction plan, if the Administrator finds that the plan:

(A) Does not address a startup, shutdown, or malfunction event that has occurred;

(B) Fails to provide for the operation of the source (including associated air pollution control and monitoring equipment) during a startup, shutdown, or malfunction event in a manner consistent with the general duty to minimize emissions established by paragraph (e)(1)(i) of this section;

(C) Does not provide adequate procedures for correcting malfunctioning process and/or air pollution control and monitoring equipment as quickly as practicable; or

(D) Includes an event that does not meet the definition of startup, shutdown, or malfunction listed in §63.2.

(viii) The owner or operator may periodically revise the startup, shutdown, and malfunction plan for the affected source as necessary to satisfy the requirements of this part or to reflect changes in equipment or procedures at the affected source. Unless the permitting authority provides otherwise, the owner or operator may make such revisions to the startup, shutdown, and malfunction plan without prior approval by the Administrator or the permitting authority. However, each such revision to a startup, shutdown, and malfunction

plan must be reported in the semiannual report required by §63.10(d)(5). If the startup, shutdown, and malfunction plan fails to address or inadequately addresses an event that meets the characteristics of a malfunction but was not included in the startup, shutdown, and malfunction plan at the time the owner or operator developed the plan, the owner or operator must revise the startup, shutdown, and malfunction plan within 45 days after the event to include detailed procedures for operating and maintaining the source during similar malfunction events and a program of corrective action for similar malfunctions of process or air pollution control and monitoring equipment. In the event that the owner or operator makes any revision to the startup, shutdown, and malfunction plan which alters the scope of the activities at the source which are deemed to be a startup, shutdown, or malfunction, or otherwise modifies the applicability of any emission limit, work practice requirement, or other requirement in a standard established under this part, the revised plan shall not take effect until after the owner or operator has provided a written notice describing the revision to the permitting authority.

(ix) The title V permit for an affected source must require that the owner or operator develop a startup, shutdown, and malfunction plan which conforms to the provisions of this part, but may do so by citing to the relevant subpart or subparagraphs of paragraph (e) of this section. However, any revisions made to the startup, shutdown, and malfunction plan in accordance with the procedures established by this part shall not be deemed to constitute permit revisions under part 70 or part 71 of this chapter and the elements of the startup, shutdown, and malfunction plan shall not be considered an applicable requirement as defined in §70.2 and §71.2 of this chapter. 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 provision in section 504(f) of the Act.

(f) *Compliance with nonopacity emission standards*—(1) *Applicability.* The non-opacity emission standards set forth in this part shall apply at all times except during periods of startup, shutdown, and malfunction, and as otherwise specified in an applicable subpart. If a startup, shutdown, or malfunction of one portion of an affected source does not affect the ability of particular emission points within other portions of the affected source to comply with the non-opacity emission standards set forth in this part, then that emission point must still be required to comply with the non-opacity emission standards and other applicable requirements.

(2) *Methods for determining compliance.* (i) The Administrator will determine compliance with nonopacity emission standards in this part based on the results of performance tests conducted according to the procedures in §63.7, unless otherwise specified in an applicable subpart of this part.

(ii) The Administrator will determine compliance with nonopacity emission standards in this part by evaluation of an owner or operator's conformance with operation and maintenance requirements, including the evaluation of monitoring data, as specified in §63.6(e) and applicable subparts of this part.

(iii) If an affected source conducts performance testing at startup to obtain an operating permit in the State in which the source is located, the results of such testing may be used to demonstrate compliance with a relevant standard if—

(A) The performance test was conducted within a reasonable amount of time before an initial performance test is required to be conducted under the relevant standard;

(B) The performance test was conducted under representative operating conditions for the source;

(C) The performance test was conducted and the resulting data were reduced using EPA-approved test methods and procedures, as specified in §63.7(e) of this subpart; and

(D) The performance test was appropriately quality-assured, as specified in §63.7(c).

(iv) The Administrator will determine compliance with design, equipment, work practice, or operational emission standards in this part by review of records, inspection of the source, and other procedures specified in applicable subparts of this part.

(v) The Administrator will determine compliance with design, equipment, work practice, or operational emission standards in this part by evaluation of an owner or operator's conformance with operation and maintenance requirements, as specified in paragraph (e) of this section and applicable subparts of this part.

(3) *Finding of compliance.* The Administrator will make a finding concerning an affected source's compliance with a non-opacity emission standard, as specified in paragraphs (f)(1) and (2) of this section, upon obtaining all the compliance information required by the relevant standard (including the written reports of performance test results, monitoring results, and other information, if applicable), and information available to the Administrator pursuant to paragraph (e)(1)(i) of this section.

(g) *Use of an alternative nonopacity emission standard.* (1) If, in the Administrator's judgment, an owner or operator of an affected source has established that an alternative means of emission limitation will achieve a reduction in emissions of a hazardous air pollutant from an affected source at least equivalent to the reduction in emissions of that pollutant from that source achieved under any design, equipment, work practice, or operational emission standard, or combination thereof, established under this part pursuant to section 112(h) of the Act, the Administrator will publish in theFederal Registera notice permitting the use of the alternative emission standard for purposes of compliance with the promulgated standard. AnyFederal Registernotice under this paragraph shall be published only after the public is notified and given the opportunity to comment. Such notice will restrict the permission to the stationary source(s) or category(ies) of sources from which the alternative emission standard will achieve equivalent emission reductions. The Administrator will condition permission in such notice on requirements to assure the proper operation and maintenance of equipment

and practices required for compliance with the alternative emission standard and other requirements, including appropriate quality assurance and quality control requirements, that are deemed necessary.

(2) An owner or operator requesting permission under this paragraph shall, unless otherwise specified in an applicable subpart, submit a proposed test plan or the results of testing and monitoring in accordance with §63.7 and §63.8, a description of the procedures followed in testing or monitoring, and a description of pertinent conditions during testing or monitoring. Any testing or monitoring conducted to request permission to use an alternative nonopacity emission standard shall be appropriately quality assured and quality controlled, as specified in §63.7 and §63.8.

(3) The Administrator may establish general procedures in an applicable subpart that accomplish the requirements of paragraphs (g)(1) and (g)(2) of this section.

(h) *Compliance with opacity and visible emission standards*—(1) *Applicability.* The opacity and visible emission standards set forth in this part must apply at all times except during periods of startup, shutdown, and malfunction, and as otherwise specified in an applicable subpart. If a startup, shutdown, or malfunction of one portion of an affected source does not affect the ability of particular emission points within other portions of the affected source to comply with the opacity and visible emission standards set forth in this part, then that emission point shall still be required to comply with the opacity and visible emission standards and other applicable requirements.

(2) *Methods for determining compliance.* (i) The Administrator will determine compliance with opacity and visible emission standards in this part based on the results of the test method specified in an applicable subpart. Whenever a continuous opacity monitoring system (COMS) is required to be installed to determine compliance with numerical opacity emission standards in this part, compliance with opacity emission standards in this part shall be determined by using the results from the COMS. Whenever an opacity emission test method is not specified, compliance with opacity emission standards in this part shall be determined by conducting observations in accordance with Test Method 9 in appendix A of part 60 of this chapter or the method specified in paragraph (h)(7)(ii) of this section. Whenever a visible emission test method is not specified, compliance with visible emission standards in this part shall be determined by conducting observations in accordance with Test Method 22 in appendix A of part 60 of this chapter.

(ii) [Reserved]

(iii) If an affected source undergoes opacity or visible emission testing at startup to obtain an operating permit in the State in which the source is located, the results of such testing may be used to demonstrate compliance with a relevant standard if—

(A) The opacity or visible emission test was conducted within a reasonable amount of time before a performance test is required to be conducted under the relevant standard;

(B) The opacity or visible emission test was conducted under representative operating conditions for the source;

(C) The opacity or visible emission test was conducted and the resulting data were reduced using EPA-approved test methods and procedures, as specified in §63.7(e); and

(D) The opacity or visible emission test was appropriately quality-assured, as specified in §63.7(c) of this section.

(3) [Reserved]

(4) *Notification of opacity or visible emission observations.* The owner or operator of an affected source shall notify the Administrator in writing of the anticipated date for conducting opacity or visible emission observations in accordance with §63.9(f), if such observations are required for the source by a relevant standard.

(5) *Conduct of opacity or visible emission observations.* When a relevant standard under this part includes an opacity or visible emission standard, the owner or operator of an affected source shall comply with the following:

(i) For the purpose of demonstrating initial compliance, opacity or visible emission observations shall be conducted concurrently with the initial performance test required in §63.7 unless one of the following conditions applies:

(A) If no performance test under §63.7 is required, opacity or visible emission observations shall be conducted within 60 days after achieving the maximum production rate at which a new or reconstructed source will be operated, but not later than 120 days after initial startup of the source, or within 120 days after the effective date of the relevant standard in the case of new sources that start up before the standard's effective date. If no performance test under §63.7 is required, opacity or visible emission observations shall be conducted within 120 days after the compliance date for an existing or modified source; or

(B) If visibility or other conditions prevent the opacity or visible emission observations from being conducted concurrently with the initial performance test required under §63.7, or within the time period specified in paragraph (h)(5)(i)(A) of this section, the source's owner or operator shall reschedule the opacity or visible emission observations as soon after the initial performance test, or time period, as possible, but not later than 30 days thereafter, and shall advise the Administrator of the rescheduled date. The rescheduled opacity or visible emission observations shall be conducted (to the extent possible) under the same operating conditions that existed during the

initial performance test conducted under §63.7. The visible emissions observer shall determine whether visibility or other conditions prevent the opacity or visible emission observations from being made concurrently with the initial performance test in accordance with procedures contained in Test Method 9 or Test Method 22 in appendix A of part 60 of this chapter.

(ii) For the purpose of demonstrating initial compliance, the minimum total time of opacity observations shall be 3 hours (30 6-minute averages) for the performance test or other required set of observations (e.g., for fugitive-type emission sources subject only to an opacity emission standard).

(iii) The owner or operator of an affected source to which an opacity or visible emission standard in this part applies shall conduct opacity or visible emission observations in accordance with the provisions of this section, record the results of the evaluation of emissions, and report to the Administrator the opacity or visible emission results in accordance with the provisions of §63.10(d).

(iv) [Reserved]

(v) Opacity readings of portions of plumes that contain condensed, uncombined water vapor shall not be used for purposes of determining compliance with opacity emission standards.

(6) *Availability of records.* The owner or operator of an affected source shall make available, upon request by the Administrator, such records that the Administrator deems necessary to determine the conditions under which the visual observations were made and shall provide evidence indicating proof of current visible observer emission certification.

(7) *Use of a continuous opacity monitoring system.* (i) The owner or operator of an affected source required to use a continuous opacity monitoring system (COMS) shall record the monitoring data produced during a performance test required under §63.7 and shall furnish the Administrator a written report of the monitoring results in accordance with the provisions of §63.10(e)(4).

(ii) Whenever an opacity emission test method has not been specified in an applicable subpart, or an owner or operator of an affected source is required to conduct Test Method 9 observations (see appendix A of part 60 of this chapter), the owner or operator may submit, for compliance purposes, COMS data results produced during any performance test required under §63.7 in lieu of Method 9 data. If the owner or operator elects to submit COMS data for compliance with the opacity emission standard, he or she shall notify the Administrator of that decision, in writing, simultaneously with the notification under §63.7(b) of the date the performance test is scheduled to begin. Once the owner or operator of an affected source has notified the Administrator to that effect, the COMS data results will be used to determine opacity compliance during subsequent performance tests required under §63.7, unless the owner or operator notifies the Administrator in writing to the contrary not later than with the notification under §63.7(b) of the date the subsequent performance test is scheduled to begin.

(iii) For the purposes of determining compliance with the opacity emission standard during a performance test required under §63.7 using COMS data, the COMS data shall be reduced to 6-minute averages over the duration of the mass emission performance test.

(iv) The owner or operator of an affected source using a COMS for compliance purposes is responsible for demonstrating that he/she has complied with the performance evaluation requirements of §63.8(e), that the COMS has been properly maintained, operated, and data quality-assured, as specified in §63.8(c) and §63.8(d), and that the resulting data have not been altered in any way.

(v) Except as provided in paragraph (h)(7)(ii) of this section, the results of continuous monitoring by a COMS that indicate that the opacity at the time visual observations were made was not in excess of the emission standard are probative but not conclusive evidence of the actual opacity of an emission, provided that the affected source proves that, at the time of the alleged violation, the instrument used was properly maintained, as specified in §63.8(c), and met Performance Specification 1 in appendix B of part 60 of this chapter, and that the resulting data have not been altered in any way.

(8) *Finding of compliance.* The Administrator will make a finding concerning an affected source's compliance with an opacity or visible emission standard upon obtaining all the compliance information required by the relevant standard (including the written reports of the results of the performance tests required by §63.7, the results of Test Method 9 or another required opacity or visible emission test method, the observer certification required by paragraph (h)(6) of this section, and the continuous opacity monitoring system results, whichever is/are applicable) and any information available to the Administrator needed to determine whether proper operation and maintenance practices are being used.

(9) *Adjustment to an opacity emission standard.* (i) If the Administrator finds under paragraph (h)(8) of this section that an affected source is in compliance with all relevant standards for which initial performance tests were conducted under §63.7, but during the time such performance tests were conducted fails to meet any relevant opacity emission standard, the owner or operator of such source may petition the Administrator to make appropriate adjustment to the opacity emission standard for the affected source. Until the Administrator notifies the owner or operator of the appropriate adjustment, the relevant opacity emission standard remains applicable.

(ii) The Administrator may grant such a petition upon a demonstration by the owner or operator that—

(A) The affected source and its associated air pollution control equipment were operated and maintained in a manner to minimize the opacity of emissions during the performance tests;

(B) The performance tests were performed under the conditions established by the Administrator; and

(C) The affected source and its associated air pollution control equipment were incapable of being adjusted or operated to meet the relevant opacity emission standard.

(iii) The Administrator will establish an adjusted opacity emission standard for the affected source meeting the above requirements at a level at which the source will be able, as indicated by the performance and opacity tests, to meet the opacity emission standard at all times during which the source is meeting the mass or concentration emission standard. The Administrator will promulgate the new opacity emission standard in theFederal Register.

(iv) After the Administrator promulgates an adjusted opacity emission standard for an affected source, the owner or operator of such source shall be subject to the new opacity emission standard, and the new opacity emission standard shall apply to such source during any subsequent performance tests.

(i) *Extension of compliance with emission standards.* (1) Until an extension of compliance has been granted by the Administrator (or a State with an approved permit program) under this paragraph, the owner or operator of an affected source subject to the requirements of this section shall comply with all applicable requirements of this part.

(2) *Extension of compliance for early reductions and other reductions*—(i) *Early reductions.* Pursuant to section 112(i)(5) of the Act, if the owner or operator of an existing source demonstrates that the source has achieved a reduction in emissions of hazardous air pollutants in accordance with the provisions of subpart D of this part, the Administrator (or the State with an approved permit program) will grant the owner or operator an extension of compliance with specific requirements of this part, as specified in subpart D.

(ii) *Other reductions.* Pursuant to section 112(i)(6) of the Act, if the owner or operator of an existing source has installed best available control technology (BACT) (as defined in section 169(3) of the Act) or technology required to meet a lowest achievable emission rate (LAER) (as defined in section 171 of the Act) prior to the promulgation of an emission standard in this part applicable to such source and the same pollutant (or stream of pollutants) controlled pursuant to the BACT or LAER installation, the Administrator will grant the owner or operator an extension of compliance with such emission standard that will apply until the date 5 years after the date on which such installation was achieved, as determined by the Administrator.

(3) *Request for extension of compliance.* Paragraphs (i)(4) through (i)(7) of this section concern requests for an extension of compliance with a relevant standard under this part (except requests for an extension of compliance under paragraph (i)(2)(i) of this section will be handled through procedures specified in subpart D of this part).

(4)(i)(A) The owner or operator of an existing source who is unable to comply with a relevant standard established under this part pursuant to section 112(d) of the Act may request that the Administrator (or a State, when the State has an approved part 70 permit program and the source is required to obtain a part 70 permit under that program, or a State, when the State has been delegated the authority to implement and enforce the emission standard for that source) grant an extension allowing the source up to 1 additional year to comply with the standard, if such additional period is necessary for the installation of controls. An additional extension of up to 3 years may be added for mining waste operations, if the 1-year extension of compliance is insufficient to dry and cover mining waste in order to reduce emissions of any hazardous air pollutant. The owner or operator of an affected source who has requested an extension of compliance under this paragraph and who is otherwise required to obtain a title V permit shall apply for such permit or apply to have the source's title V permit revised to incorporate the conditions of the extension of compliance. The conditions of an extension of compliance granted under this paragraph will be incorporated into the affected source's title V permit according to the provisions of part 70 or Federal title V regulations in this chapter (42 U.S.C. 7661), whichever are applicable.

(B) Any request under this paragraph for an extension of compliance with a relevant standard must be submitted in writing to the appropriate authority no later than 120 days prior to the affected source's compliance date (as specified in paragraphs (b) and (c) of this section), except as provided for in paragraph (i)(4)(i)(C) of this section. Nonfrivolous requests submitted under this paragraph will stay the applicability of the rule as to the emission points in question until such time as the request is granted or denied. A denial will be effective as of the date of denial. Emission standards established under this part may specify alternative dates for the submittal of requests for an extension of compliance if alternatives are appropriate for the source categories affected by those standards.

(C) An owner or operator may submit a compliance extension request after the date specified in paragraph (i)(4)(i)(B) of this section provided the need for the compliance extension arose after that date, and before the otherwise applicable compliance date and the need arose due to circumstances beyond reasonable control of the owner or operator. This request must include, in addition to the information required in paragraph (i)(6)(i) of this section, a statement of the reasons additional time is needed and the date when the owner or operator first learned of the problems. Nonfrivolous requests submitted under this paragraph will stay the applicability of the rule as to the emission points in question until such time as the request is granted or denied. A denial will be effective as of the original compliance date.

(ii) The owner or operator of an existing source unable to comply with a relevant standard established under this part pursuant to section 112(f) of the Act may request that the Administrator grant an extension allowing the source up to 2 years after the standard's effective date to comply with the standard. The Administrator may grant such an extension if he/she finds that such additional period is necessary for the installation of controls and that steps will be taken during the period of the extension to assure that the health of persons will be protected from imminent endangerment. Any request for an extension of compliance with a relevant standard under this

paragraph must be submitted in writing to the Administrator not later than 90 calendar days after the effective date of the relevant standard.

(5) The owner or operator of an existing source that has installed BACT or technology required to meet LAER [as specified in paragraph (i)(2)(ii) of this section] prior to the promulgation of a relevant emission standard in this part may request that the Administrator grant an extension allowing the source 5 years from the date on which such installation was achieved, as determined by the Administrator, to comply with the standard. Any request for an extension of compliance with a relevant standard under this paragraph shall be submitted in writing to the Administrator not later than 120 days after the promulgation date of the standard. The Administrator may grant such an extension if he or she finds that the installation of BACT or technology to meet LAER controls the same pollutant (or stream of pollutants) that would be controlled at that source by the relevant emission standard.

(6)(i) The request for a compliance extension under paragraph (i)(4) of this section shall include the following information:

(A) A description of the controls to be installed to comply with the standard;

(B) A compliance schedule, including the date by which each step toward compliance will be reached. At a minimum, the list of dates shall include:

(*1*) The date by which on-site construction, installation of emission control equipment, or a process change is planned to be initiated; and

(*2*) The date by which final compliance is to be achieved.

(*3*) The date by which on-site construction, installation of emission control equipment, or a process change is to be completed; and

(*4*) The date by which final compliance is to be achieved;

(C)—(D)

(ii) The request for a compliance extension under paragraph (i)(5) of this section shall include all information needed to demonstrate to the Administrator's satisfaction that the installation of BACT or technology to meet LAER controls the same pollutant (or stream of pollutants) that would be controlled at that source by the relevant emission standard.

(7) Advice on requesting an extension of compliance may be obtained from the Administrator (or the State with an approved permit program).

(8) *Approval of request for extension of compliance.* Paragraphs (i)(9) through (i)(14) of this section concern approval of an extension of compliance requested under paragraphs (i)(4) through (i)(6) of this section.

(9) Based on the information provided in any request made under paragraphs (i)(4) through (i)(6) of this section, or other information, the Administrator (or the State with an approved permit program) may grant an extension of compliance with an emission standard, as specified in paragraphs (i)(4) and (i)(5) of this section.

(10) The extension will be in writing and will—

(i) Identify each affected source covered by the extension;

(ii) Specify the termination date of the extension;

(iii) Specify the dates by which steps toward compliance are to be taken, if appropriate;

(iv) Specify other applicable requirements to which the compliance extension applies (e.g., performance tests); and

(v)(A) Under paragraph (i)(4), specify any additional conditions that the Administrator (or the State) deems necessary to assure installation of the necessary controls and protection of the health of persons during the extension period; or

(B) Under paragraph (i)(5), specify any additional conditions that the Administrator deems necessary to assure the proper operation and maintenance of the installed controls during the extension period.

(11) The owner or operator of an existing source that has been granted an extension of compliance under paragraph (i)(10) of this section may be required to submit to the Administrator (or the State with an approved permit program) progress reports indicating whether the steps toward compliance outlined in the compliance schedule have been reached. The contents of the progress reports and the dates by which they shall be submitted will be specified in the written extension of compliance granted under paragraph (i)(10) of this section.

(12)(i) The Administrator (or the State with an approved permit program) will notify the owner or operator in writing of approval or intention to deny approval of a request for an extension of compliance within 30 calendar days after receipt of sufficient information to evaluate a request submitted under paragraph (i)(4)(i) or (i)(5) of this section. The Administrator (or the State) will notify the owner or operator in writing of the status of his/her application, that is, whether the application contains sufficient information to make a determination, within 30 calendar days after receipt of the original application and within 30 calendar days after receipt of any supplementary information that is submitted. The 30-day approval or denial period will begin after the owner or operator has been notified in writing that his/her application is complete.

(ii) When notifying the owner or operator that his/her application is not complete, the Administrator will specify the information needed to complete the application and provide notice of opportunity for the applicant to present, in writing, within 30 calendar days after he/she is notified of the incomplete application, additional information or arguments to the Administrator to enable further action on the application.

(iii) Before denying any request for an extension of compliance, the Administrator (or the State with an approved permit program) will notify the owner or operator in writing of the Administrator's (or the State's) intention to issue the denial, together with—

(A) Notice of the information and findings on which the intended denial is based; and

(B) Notice of opportunity for the owner or operator to present in writing, within 15 calendar days after he/she is notified of the intended denial, additional information or arguments to the Administrator (or the State) before further action on the request.

(iv) The Administrator's final determination to deny any request for an extension will be in writing and will set forth the specific grounds on which the denial is based. The final determination will be made within 30 calendar days after presentation of additional information or argument (if the application is complete), or within 30 calendar days after the final date specified for the presentation if no presentation is made.

(13)(i) The Administrator will notify the owner or operator in writing of approval or intention to deny approval of a request for an extension of compliance within 30 calendar days after receipt of sufficient information to evaluate a request submitted under paragraph (i)(4)(ii) of this section. The 30-day approval or denial period will begin after the owner or operator has been notified in writing that his/her application is complete. The Administrator (or the State) will notify the owner or operator in writing of the status of his/her application, that is, whether the application contains sufficient information to make a determination, within 15 calendar days after receipt of the original application and within 15 calendar days after receipt of any supplementary information that is submitted.

(ii) When notifying the owner or operator that his/her application is not complete, the Administrator will specify the information needed to complete the application and provide notice of opportunity for the applicant to present, in writing, within 15 calendar days after he/she is notified of the incomplete application, additional information or arguments to the Administrator to enable further action on the application.

(iii) Before denying any request for an extension of compliance, the Administrator will notify the owner or operator in writing of the Administrator's intention to issue the denial, together with—

(A) Notice of the information and findings on which the intended denial is based; and

(B) Notice of opportunity for the owner or operator to present in writing, within 15 calendar days after he/she is notified of the intended denial, additional information or arguments to the Administrator before further action on the request.

(iv) A final determination to deny any request for an extension will be in writing and will set forth the specific grounds on which the denial is based. The final determination will be made within 30 calendar days after presentation of additional information or argument (if the application is complete), or within 30 calendar days after the final date specified for the presentation if no presentation is made.

(14) The Administrator (or the State with an approved permit program) may terminate an extension of compliance at an earlier date than specified if any specification under paragraph (i)(10)(iii) or (iv) of this section is not met. Upon a determination to terminate, the Administrator will notify, in writing, the owner or operator of the Administrator's determination to terminate, together with:

(i) Notice of the reason for termination; and

(ii) Notice of opportunity for the owner or operator to present in writing, within 15 calendar days after he/she is notified of the determination to terminate, additional information or arguments to the Administrator before further action on the termination.

(iii) A final determination to terminate an extension of compliance will be in writing and will set forth the specific grounds on which the termination is based. The final determination will be made within 30 calendar days after presentation of additional information or arguments, or within 30 calendar days after the final date specified for the presentation if no presentation is made.

(15) [Reserved]

(16) The granting of an extension under this section shall not abrogate the Administrator's authority under section 114 of the Act.

(j) *Exemption from compliance with emission standards.* The President may exempt any stationary source from compliance with any relevant standard established pursuant to section 112 of the Act for a period of not more than 2 years if the President determines that the technology to implement such standard is not available and that it is in the national security interests of the United States to do so. An exemption under this paragraph may be extended for 1 or more additional periods, each period not to exceed 2 years.

[59 FR 12430, Mar. 16, 1994, as amended at 67 FR 16599, Apr. 5, 2002; 68 FR 32600, May 30, 2003; 71 FR 20454, Apr. 20, 2006]

§ 63.7 PERFORMANCE TESTING REQUIREMENTS.

(a) *Applicability and performance test dates.* (1) The applicability of this section is set out in §63.1(a)(4).

(2) Except as provided in paragraph (a)(4) of this section, if required to do performance testing by a relevant standard, and unless a waiver of performance testing is obtained under this section or the conditions of paragraph (c)(3)(ii)(B) of this section apply, the owner or operator of the affected source must perform such tests within 180 days of the compliance date for such source.

(i)–(viii) [Reserved]

(ix) Except as provided in paragraph (a)(4) of this section, when an emission standard promulgated under this part is more stringent than the standard proposed (see §63.6(b)(3)), the owner or operator of a new or reconstructed source subject to that standard for which construction or reconstruction is commenced between the proposal and promulgation dates of the standard shall comply with performance testing requirements within 180 days after the standard's effective date, or within 180 days after startup of the source, whichever is later. If the promulgated standard is more stringent than the proposed standard, the owner or operator may choose to demonstrate compliance with either the proposed or the promulgated standard. If the owner or operator chooses to comply with the proposed standard initially, the owner or operator shall conduct a second performance test within 3 years and 180 days after the effective date of the standard, or after startup of the source, whichever is later, to demonstrate compliance with the promulgated standard.

(3) The Administrator may require an owner or operator to conduct performance tests at the affected source at any other time when the action is authorized by section 114 of the Act.

(4) If a force majeure is about to occur, occurs, or has occurred for which the affected owner or operator intends to assert a claim of force majeure:

(i) The owner or operator shall notify the Administrator, in writing as soon as practicable following the date the owner or operator first knew, or through due diligence should have known that the event may cause or caused a delay in testing beyond the regulatory deadline specified in paragraph (a)(2) or (a)(3) of this section, or elsewhere in this part, but the notification must occur before the performance test deadline unless the initial force majeure or a subsequent force majeure event delays the notice, and in such cases, the notification shall occur as soon as practicable.

(ii) The owner or operator shall provide to the Administrator a written description of the force majeure event and a rationale for attributing the delay in testing beyond the regulatory deadline to the force majeure; describe the measures taken or to be taken to minimize the delay; and identify a date by which the owner or operator proposes to conduct the performance test. The performance test shall be conducted as soon as practicable after the force majeure occurs.

(iii) The decision as to whether or not to grant an extension to the performance test deadline is solely within the discretion of the Administrator. The Administrator will notify the owner or operator in writing of approval or disapproval of the request for an extension as soon as practicable.

(iv) Until an extension of the performance test deadline has been approved by the Administrator under paragraphs (a)(4)(i), (a)(4)(ii), and (a)(4)(iii) of this section, the owner or operator of the affected facility remains strictly subject to the requirements of this part.

(b) *Notification of performance test.* (1) The owner or operator of an affected source must notify the Administrator in writing of his or her intention to conduct a performance test at least 60 calendar days before the performance test is initially scheduled to begin to allow the Administrator, upon request, to review an approve the site-specific test plan required under paragraph (c) of this section and to have an observer present during the test.

(2) In the event the owner or operator is unable to conduct the performance test on the date specified in the notification requirement specified in paragraph (b)(1) of this section due to unforeseeable circumstances beyond his or her control, the owner or operator must notify the Administrator as soon as practicable and without delay prior to the scheduled performance test date and specify the date when the performance test is rescheduled. This notification of delay in conducting the performance test shall not relieve the owner or operator of legal responsibility for compliance with any other applicable provisions of this part or with any other applicable Federal, State, or local requirement, nor will it prevent the Administrator from implementing or enforcing this part or taking any other action under the Act.

(c) *Quality assurance program.* (1) The results of the quality assurance program required in this paragraph will be considered by the Administrator when he/she determines the validity of a performance test.

(2)(i) *Submission of site-specific test plan.* Before conducting a required performance test, the owner or operator of an affected source shall develop and, if requested by the Administrator, shall submit a site-specific test plan to the Administrator for approval. The test plan shall include a test program summary, the test schedule, data quality objectives, and both an internal and external quality assurance (QA) program. Data quality objectives are the pretest expectations of precision, accuracy, and completeness of data.

(ii) The internal QA program shall include, at a minimum, the activities planned by routine operators and analysts to provide an assessment of test data precision; an example of internal QA is the sampling and analysis of replicate samples.

(iii) The external QA program shall include, at a minimum, application of plans for a test method performance audit (PA) during the performance test. The PA's consist of blind audit samples provided by the Administrator and analyzed during the performance test in order to provide a measure of test data bias. The external QA program may also include systems audits that include the opportunity for on-site evaluation by the Administrator of instrument calibration, data validation, sample logging, and documentation of quality control data and field maintenance activities.

(iv) The owner or operator of an affected source shall submit the site-specific test plan to the Administrator upon the Administrator's request at least 60 calendar days before the performance test is scheduled to take place, that is, simultaneously with the notification of intention to conduct a performance test required under paragraph (b) of this section, or on a mutually agreed upon date.

(v) The Administrator may request additional relevant information after the submittal of a site-specific test plan.

(3) *Approval of site-specific test plan.* (i) The Administrator will notify the owner or operator of approval or intention to deny approval of the site-specific test plan (if review of the site-specific test plan is requested) within 30 calendar days after receipt of the original plan and within 30 calendar days after receipt of any supplementary information that is submitted under paragraph (c)(3)(i)(B) of this section. Before disapproving any site-specific test plan, the Administrator will notify the applicant of the Administrator's intention to disapprove the plan together with—

(A) Notice of the information and findings on which the intended disapproval is based; and

(B) Notice of opportunity for the owner or operator to present, within 30 calendar days after he/she is notified of the intended disapproval, additional information to the Administrator before final action on the plan.

(ii) In the event that the Administrator fails to approve or disapprove the site-specific test plan within the time period specified in paragraph (c)(3)(i) of this section, the following conditions shall apply:

(A) If the owner or operator intends to demonstrate compliance using the test method(s) specified in the relevant standard or with only minor changes to those tests methods (see paragraph (e)(2)(i) of this section), the owner or operator must conduct the performance test within the time specified in this section using the specified method(s);

(B) If the owner or operator intends to demonstrate compliance by using an alternative to any test method specified in the relevant standard, the owner or operator is authorized to conduct the performance test using an alternative test method after the Administrator approves the use of the alternative method when the Administrator approves the site-specific test plan (if review of the site-specific test plan is requested) or after the alternative method is approved (see paragraph (f) of this section). However, the owner or operator is authorized to conduct the performance test using an alternative method in the absence of notification of approval 45 days after submission of the site-specific test plan or request to use an alternative method. The owner or operator is authorized to conduct the performance test within 60 calendar days after he/she is authorized to demonstrate compliance using an alternative test method. Notwithstanding the requirements in the preceding three sentences, the owner or operator may proceed to conduct the performance test as required in this section (without the Administrator's prior approval of the site-specific test plan) if he/she subsequently chooses to use the specified testing and monitoring methods instead of an alternative.

(iii) Neither the submission of a site-specific test plan for approval, nor the Administrator's approval or disapproval of a plan, nor the Administrator's failure to approve or disapprove a plan in a timely manner shall—

(A) Relieve an owner or operator of legal responsibility for compliance with any applicable provisions of this part or with any other applicable Federal, State, or local requirement; or

(B) Prevent the Administrator from implementing or enforcing this part or taking any other action under the Act.

(4)(i) *Performance test method audit program.* The owner or operator must analyze performance audit (PA) samples during each performance test. The owner or operator must request performance audit materials 30 days prior to the test date. Audit materials including cylinder audit gases may be obtained by contacting the appropriate EPA Regional Office or the responsible enforcement authority.

(ii) The Administrator will have sole discretion to require any subsequent remedial actions of the owner or operator based on the PA results.

(iii) If the Administrator fails to provide required PA materials to an owner or operator of an affected source in time to analyze the PA samples during a performance test, the requirement to conduct a PA under this paragraph shall be waived for such source for that performance test. Waiver under this paragraph of the requirement to conduct a PA for a particular performance test does not constitute a waiver of the requirement to conduct a PA for future required performance tests.

(d) *Performance testing facilities.* If required to do performance testing, the owner or operator of each new source and, at the request of the Administrator, the owner or operator of each existing source, shall provide performance testing facilities as follows:

(1) Sampling ports adequate for test methods applicable to such source. This includes:

(i) Constructing the air pollution control system such that volumetric flow rates and pollutant emission rates can be accurately determined by applicable test methods and procedures; and

(ii) Providing a stack or duct free of cyclonic flow during performance tests, as demonstrated by applicable test methods and procedures;

(2) Safe sampling platform(s);

(3) Safe access to sampling platform(s);

(4) Utilities for sampling and testing equipment; and

(5) Any other facilities that the Administrator deems necessary for safe and adequate testing of a source.

(e) *Conduct of performance tests.* (1) Performance tests shall be conducted under such conditions as the Administrator specifies to the owner or operator based on representative performance (i.e., performance based on normal operating conditions) of the affected source. Operations during periods of startup, shutdown, and malfunction shall not constitute representative conditions for the purpose of a performance test, nor shall emissions in excess of the level of the relevant standard during periods of startup, shutdown, and malfunction be considered a violation of the relevant standard unless otherwise specified in the relevant standard or a determination of noncompliance is made under §63.6(e). Upon request, the owner or operator shall make available to the Administrator such records as may be necessary to determine the conditions of performance tests.

(2) Performance tests shall be conducted and data shall be reduced in accordance with the test methods and procedures set forth in this section, in each relevant standard, and, if required, in applicable appendices of parts 51, 60, 61, and 63 of this chapter unless the Administrator—

(i) Specifies or approves, in specific cases, the use of a test method with minor changes in methodology (see definition in §63.90(a)). Such changes may be approved in conjunction with approval of the site-specific test plan (see paragraph (c) of this section); or

(ii) Approves the use of an intermediate or major change or alternative to a test method (see definitions in §63.90(a)), the results of which the Administrator has determined to be adequate for indicating whether a specific affected source is in compliance; or

(iii) Approves shorter sampling times or smaller sample volumes when necessitated by process variables or other factors; or

(iv) Waives the requirement for performance tests because the owner or operator of an affected source has demonstrated by other means to the Administrator's satisfaction that the affected source is in compliance with the relevant standard.

(3) Unless otherwise specified in a relevant standard or test method, each performance test shall consist of three separate runs using the applicable test method. Each run shall be conducted for the time and under the conditions specified in the relevant standard. For the purpose of determining compliance with a relevant standard, the arithmetic mean of the results of the three runs shall apply. Upon receiving approval from the Administrator, results of a test run may be replaced with results of an additional test run in the event that—

(i) A sample is accidentally lost after the testing team leaves the site; or

(ii) Conditions occur in which one of the three runs must be discontinued because of forced shutdown; or

(iii) Extreme meteorological conditions occur; or

(iv) Other circumstances occur that are beyond the owner or operator's control.

(4) Nothing in paragraphs (e)(1) through (e)(3) of this section shall be construed to abrogate the Administrator's authority to require

testing under section 114 of the Act.

(f) *Use of an alternative test method* —(1) *General.* Until authorized to use an intermediate or major change or alternative to a test method, the owner or operator of an affected source remains subject to the requirements of this section and the relevant standard.

(2) The owner or operator of an affected source required to do performance testing by a relevant standard may use an alternative test method from that specified in the standard provided that the owner or operator—

(i) Notifies the Administrator of his or her intention to use an alternative test method at least 60 days before the performance test is scheduled to begin;

(ii) Uses Method 301 in appendix A of this part to validate the alternative test method. This may include the use of specific procedures of Method 301 if use of such procedures are sufficient to validate the alternative test method; and

(iii) Submits the results of the Method 301 validation process along with thnotification of intention and the justification for not using the specified test method. The owner or operator may submit the information required in this paragraph well in advance of the deadline specified in paragraph (f)(2)(i) of this section to ensure a timely review by the Administrator in order to meet the performance test date specified in this section or the relevant standard.

(3) The Administrator will determine whether the owner or operator's validation of the proposed alternative test method is adequate and issue an approval or disapproval of the alternative test method. If the owner or operator intends to demonstrate compliance by using an alternative to any test method specified in the relevant standard, the owner or operator is authorized to conduct the performance test using an alternative test method after the Administrator approves the use of the alternative method. However, the owner or operator is authorized to conduct the performance test using an alternative method in the absence of notification of approval/disapproval 45 days after submission of the request to use an alternative method and the request satisfies the requirements in paragraph (f)(2) of this section. The owner or operator is authorized to conduct the performance test within 60 calendar days after he/she is authorized to demonstrate compliance using an alternative test method. Notwithstanding the requirements in the preceding three sentences, the owner or operator may proceed to conduct the performance test as required in this section (without the Administrator's prior approval of the site-specific test plan) if he/she subsequently chooses to use the specified testing and monitoring methods instead of an alternative.

(4) If the Administrator finds reasonable grounds to dispute the results obtained by an alternative test method for the purposes of demonstrating compliance with a relevant standard, the Administrator may require the use of a test method specified in a relevant standard.

(5) If the owner or operator uses an alternative test method for an affected source during a required performance test, the owner or operator of such source shall continue to use the alternative test method for subsequent performance tests at that affected source until he or she receives approval from the Administrator to use another test method as allowed under §63.7(f).

(6) Neither the validation and approval process nor the failure to validate an alternative test method shall abrogate the owner or operator's responsibility to comply with the requirements of this part.

(g) *Data analysis, recordkeeping, and reporting.* (1) Unless otherwise specified in a relevant standard or test method, or as otherwise approved by the Administrator in writing, results of a performance test shall include the analysis of samples, determination of emissions, and raw data. A performance test is "completed" when field sample collection is terminated. The owner or operator of an affected source shall report the results of the performance test to the Administrator before the close of business on the 60th day following the completion of the performance test, unless specified otherwise in a relevant standard or as approved otherwise in writing by the Administrator (see §63.9(i)). The results of the performance test shall be submitted as part of the notification of compliance status required under §63.9(h). Before a title V permit has been issued to the owner or operator of an affected source, the owner or operator shall send the results of the performance test to the Administrator. After a title V permit has been issued to the owner or operator of an affected source, the owner or operator shall send the results of the performance test to the appropriate permitting authority.

(2) [Reserved]

(3) For a minimum of 5 years after a performance test is conducted, the owner or operator shall retain and make available, upon request, for inspection by the Administrator the records or results of such performance test and other data needed to determine emissions from an affected source.

(h) *Waiver of performance tests.* (1) Until a waiver of a performance testing requirement has been granted by the Administrator under this paragraph, the owner or operator of an affected source remains subject to the requirements of this section.

(2) Individual performance tests may be waived upon written application to the Administrator if, in the Administrator's judgment, the source is meeting the relevant standard(s) on a continuous basis, or the source is being operated under an extension of compliance, or the owner or operator has requested an extension of compliance and the Administrator is still considering that request.

(3) *Request to waive a performance test.* (i) If a request is made for an extension of compliance under §63.6(i), the application for a

waiver of an initial performance test shall accompany the information required for the request for an extension of compliance. If no extension of compliance is requested or if the owner or operator has requested an extension of compliance and the Administrator is still considering that request, the application for a waiver of an initial performance test shall be submitted at least 60 days before the performance test if the site-specific test plan under paragraph (c) of this section is not submitted.

(ii) If an application for a waiver of a subsequent performance test is made, the application may accompany any required compliance progress report, compliance status report, or excess emissions and continuous monitoring system performance report [such as those required under §63.6(i), §63.9(h), and §63.10(e) or specified in a relevant standard or in the source's title V permit], but it shall be submitted at least 60 days before the performance test if the site-specific test plan required under paragraph (c) of this section is not submitted.

(iii) Any application for a waiver of a performance test shall include information justifying the owner or operator's request for a waiver, such as the technical or economic infeasibility, or the impracticality, of the affected source performing the required test.

(4) *Approval of request to waive performance test.* The Administrator will approve or deny a request for a waiver of a performance test made under paragraph (h)(3) of this section when he/she—

(i) Approves or denies an extension of compliance under §63.6(i)(8); or

(ii) Approves or disapproves a site-specific test plan under §63.7(c)(3); or

(iii) Makes a determination of compliance following the submission of a required compliance status report or excess emissions and continuous monitoring systems performance report; or

(iv) Makes a determination of suitable progress towards compliance following the submission of a compliance progress report, whichever is applicable.

(5) Approval of any waiver granted under this section shall not abrogate the Administrator's authority under the Act or in any way prohibit the Administrator from later canceling the waiver. The cancellation will be made only after notice is given to the owner or operator of the affected source.

[59 FR 12430, Mar. 16, 1994, as amended at 65 FR 62215, Oct. 17, 2000; 67 FR 16602, Apr. 5, 2002; 72 FR 27443, May 16, 2007]

§ 63.8 MONITORING REQUIREMENTS.

(a) *Applicability.* (1) The applicability of this section is set out in §63.1(a)(4).

(2) For the purposes of this part, all CMS required under relevant standards shall be subject to the provisions of this section upon promulgation of performance specifications for CMS as specified in the relevant standard or otherwise by the Administrator.

(3) [Reserved]

(4) Additional monitoring requirements for control devices used to comply with provisions in relevant standards of this part are specified in §63.11.

(b) *Conduct of monitoring.* (1) Monitoring shall be conducted as set forth in this section and the relevant standard(s) unless the Administrator—

(i) Specifies or approves the use of minor changes in methodology for the specified monitoring requirements and procedures (see §63.90(a) for definition); or

(ii) Approves the use of an intermediate or major change or alternative to any monitoring requirements or procedures (see §63.90(a) for definition).

(iii) Owners or operators with flares subject to §63.11(b) are not subject to the requirements of this section unless otherwise specified in the relevant standard.

(2)(i) When the emissions from two or more affected sources are combined before being released to the atmosphere, the owner or operator may install an applicable CMS for each emission stream or for the combined emissions streams, provided the monitoring is sufficient to demonstrate compliance with the relevant standard.

(ii) If the relevant standard is a mass emission standard and the emissions from one affected source are released to the atmosphere through more than one point, the owner or operator must install an applicable CMS at each emission point unless the installation of fewer systems is—

(A) Approved by the Administrator; or

(B) Provided for in a relevant standard (e.g., instead of requiring that a CMS be installed at each emission point before the effluents from those points are channeled to a common control device, the standard specifies that only one CMS is required to be installed at the vent of the control device).

(3) When more than one CMS is used to measure the emissions from one affected source (e.g., multiple breechings, multiple outlets), the owner or operator shall report the results as required for each CMS. However, when one CMS is used as a backup to another CMS, the owner or operator shall report the results from the CMS used to meet the monitoring requirements of this part. If both such CMS are used during a particular reporting period to meet the monitoring requirements of this part, then the owner or operator shall report the results from each CMS for the relevant compliance period.

(c) *Operation and maintenance of continuous monitoring systems.* (1) The owner or operator of an affected source shall maintain and operate each CMS as specified in this section, or in a relevant standard, and in a manner consistent with good air pollution control practices. (i) The owner or operator of an affected source must maintain and operate each CMS as specified in §63.6(e)(1).

(ii) The owner or operator must keep the necessary parts for routine repairs of the affected CMS equipment readily available.

(iii) The owner or operator of an affected source must develop a written startup, shutdown, and malfunction plan for CMS as specified in §63.6(e)(3).

(2)(i) All CMS must be installed such that representative measures of emissions or process parameters from the affected source are obtained. In addition, CEMS must be located according to procedures contained in the applicable performance specification(s).

(ii) Unless the individual subpart states otherwise, the owner or operator must ensure the read out (that portion of the CMS that provides a visual display or record), or other indication of operation, from any CMS required for compliance with the emission standard is readily accessible on site for operational control or inspection by the operator of the equipment.

(3) All CMS shall be installed, operational, and the data verified as specified in the relevant standard either prior to or in conjunction with conducting performance tests under §63.7. Verification of operational status shall, at a minimum, include completion of the manufacturer's written specifications or recommendations for installation, operation, and calibration of the system.

(4) Except for system breakdowns, out-of-control periods, repairs, maintenance periods, calibration checks, and zero (low-level) and high-level calibration drift adjustments, all CMS, including COMS and CEMS, shall be in continuous operation and shall meet minimum frequency of operation requirements as follows:

(i) All COMS shall complete a minimum of one cycle of sampling and analyzing for each successive 10-second period and one cycle of data recording for each successive 6-minute period.

(ii) All CEMS for measuring emissions other than opacity shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period.

(5) Unless otherwise approved by the Administrator, minimum procedures for COMS shall include a method for producing a simulated zero opacity condition and an upscale (high-level) opacity condition using a certified neutral density filter or other related technique to produce a known obscuration of the light beam. Such procedures shall provide a system check of all the analyzer's internal optical surfaces and all electronic circuitry, including the lamp and photodetector assembly normally used in the measurement of opacity.

(6) The owner or operator of a CMS that is not a CPMS, which is installed in accordance with the provisions of this part and the applicable CMS performance specification(s), must check the zero (low-level) and high-level calibration drifts at least once daily in accordance with the written procedure specified in the performance evaluation plan developed under paragraphs (e)(3)(i) and (ii) of this section. The zero (low-level) and high-level calibration drifts must be adjusted, at a minimum, whenever the 24-hour zero (low-level) drift exceeds two times the limits of the applicable performance specification(s) specified in the relevant standard. The system shall allow the amount of excess zero (low-level) and high-level drift measured at the 24-hour interval checks to be recorded and quantified whenever specified. For COMS, all optical and instrumental surfaces exposed to the effluent gases must be cleaned prior to performing the zero (low-level) and high-level drift adjustments; the optical surfaces and instrumental surfaces must be cleaned when the cumulative automatic zero compensation, if applicable, exceeds 4 percent opacity. The CPMS must be calibrated prior to use for the purposes of complying with this section. The CPMS must be checked daily for indication that the system is responding. If the CPMS system includes an internal system check, results must be recorded and checked daily for proper operation.

(7)(i) A CMS is out of control if—

(A) The zero (low-level), mid-level (if applicable), or high-level calibration drift (CD) exceeds two times the applicable CD specification in the applicable performance specification or in the relevant standard; or

(B) The CMS fails a performance test audit (e.g., cylinder gas audit), relative accuracy audit, relative accuracy test audit, or linearity test

audit; or

(C) The COMS CD exceeds two times the limit in the applicable performance specification in the relevant standard.

(ii) When the CMS is out of control, the owner or operator of the affected source shall take the necessary corrective action and shall repeat all necessary tests which indicate that the system is out of control. The owner or operator shall take corrective action and conduct retesting until the performance requirements are below the applicable limits. The beginning of the out-of-control period is the hour the owner or operator conducts a performance check (e.g., calibration drift) that indicates an exceedance of the performance requirements established under this part. The end of the out-of-control period is the hour following the completion of corrective action and successful demonstration that the system is within the allowable limits. During the period the CMS is out of control, recorded data shall not be used in data averages and calculations, or to meet any data availability requirement established under this part.

(8) The owner or operator of a CMS that is out of control as defined in paragraph (c)(7) of this section shall submit all information concerning out-of-control periods, including start and end dates and hours and descriptions of corrective actions taken, in the excess emissions and continuous monitoring system performance report required in §63.10(e)(3).

(d) *Quality control program.* (1) The results of the quality control program required in this paragraph will be considered by the Administrator when he/she determines the validity of monitoring data.

(2) The owner or operator of an affected source that is required to use a CMS and is subject to the monitoring requirements of this section and a relevant standard shall develop and implement a CMS quality control program. As part of the quality control program, the owner or operator shall develop and submit to the Administrator for approval upon request a site-specific performance evaluation test plan for the CMS performance evaluation required in paragraph (e)(3)(i) of this section, according to the procedures specified in paragraph (e). In addition, each quality control program shall include, at a minimum, a written protocol that describes procedures for each of the following operations:

(i) Initial and any subsequent calibration of the CMS;

(ii) Determination and adjustment of the calibration drift of the CMS;

(iii) Preventive maintenance of the CMS, including spare parts inventory;

(iv) Data recording, calculations, and reporting;

(v) Accuracy audit procedures, including sampling and analysis methods; and

(vi) Program of corrective action for a malfunctioning CMS.

(3) The owner or operator shall keep these written procedures on record for the life of the affected source or until the affected source is no longer subject to the provisions of this part, to be made available for inspection, upon request, by the Administrator. If the performance evaluation plan is revised, the owner or operator shall keep previous (i.e., superseded) versions of the performance evaluation plan on record to be made available for inspection, upon request, by the Administrator, for a period of 5 years after each revision to the plan. Where relevant, e.g., program of corrective action for a malfunctioning CMS, these written procedures may be incorporated as part of the affected source's startup, shutdown, and malfunction plan to avoid duplication of planning and recordkeeping efforts.

(e) *Performance evaluation of continuous monitoring systems*—(1) *General.* When required by a relevant standard, and at any other time the Administrator may require under section 114 of the Act, the owner or operator of an affected source being monitored shall conduct a performance evaluation of the CMS. Such performance evaluation shall be conducted according to the applicable specifications and procedures described in this section or in the relevant standard.

(2) *Notification of performance evaluation.* The owner or operator shall notify the Administrator in writing of the date of the performance evaluation simultaneously with the notification of the performance test date required under §63.7(b) or at least 60 days prior to the date the performance evaluation is scheduled to begin if no performance test is required.

(3)(i) *Submission of site-specific performance evaluation test plan.* Before conducting a required CMS performance evaluation, the owner or operator of an affected source shall develop and submit a site-specific performance evaluation test plan to the Administrator for approval upon request. The performance evaluation test plan shall include the evaluation program objectives, an evaluation program summary, the performance evaluation schedule, data quality objectives, and both an internal and external QA program. Data quality objectives are the pre-evaluation expectations of precision, accuracy, and completeness of data.

(ii) The internal QA program shall include, at a minimum, the activities planned by routine operators and analysts to provide an assessment of CMS performance. The external QA program shall include, at a minimum, systems audits that include the opportunity for on-site evaluation by the Administrator of instrument calibration, data validation, sample logging, and documentation of quality control data and field maintenance activities.

(iii) The owner or operator of an affected source shall submit the site-specific performance evaluation test plan to the Administrator (if requested) at least 60 days before the performance test or performance evaluation is scheduled to begin, or on a mutually agreed upon date, and review and approval of the performance evaluation test plan by the Administrator will occur with the review and approval of the site-specific test plan (if review of the site-specific test plan is requested).

(iv) The Administrator may request additional relevant information after the submittal of a site-specific performance evaluation test plan.

(v) In the event that the Administrator fails to approve or disapprove the site-specific performance evaluation test plan within the time period specified in §63.7(c)(3), the following conditions shall apply:

(A) If the owner or operator intends to demonstrate compliance using the monitoring method(s) specified in the relevant standard, the owner or operator shall conduct the performance evaluation within the time specified in this subpart using the specified method(s);

(B) If the owner or operator intends to demonstrate compliance by using an alternative to a monitoring method specified in the relevant standard, the owner or operator shall refrain from conducting the performance evaluation until the Administrator approves the use of the alternative method. If the Administrator does not approve the use of the alternative method within 30 days before the performance evaluation is scheduled to begin, the performance evaluation deadlines specified in paragraph (e)(4) of this section may be extended such that the owner or operator shall conduct the performance evaluation within 60 calendar days after the Administrator approves the use of the alternative method. Notwithstanding the requirements in the preceding two sentences, the owner or operator may proceed to conduct the performance evaluation as required in this section (without the Administrator's prior approval of the site-specific performance evaluation test plan) if he/she subsequently chooses to use the specified monitoring method(s) instead of an alternative.

(vi) Neither the submission of a site-specific performance evaluation test plan for approval, nor the Administrator's approval or disapproval of a plan, nor the Administrator's failure to approve or disapprove a plan in a timely manner shall—

(A) Relieve an owner or operator of legal responsibility for compliance with any applicable provisions of this part or with any other applicable Federal, State, or local requirement; or

(B) Prevent the Administrator from implementing or enforcing this part or taking any other action under the Act.

(4) *Conduct of performance evaluation and performance evaluation dates.* The owner or operator of an affected source shall conduct a performance evaluation of a required CMS during any performance test required under §63.7 in accordance with the applicable performance specification as specified in the relevant standard. Notwithstanding the requirement in the previous sentence, if the owner or operator of an affected source elects to submit COMS data for compliance with a relevant opacity emission standard as provided under §63.6(h)(7), he/she shall conduct a performance evaluation of the COMS as specified in the relevant standard, before the performance test required under §63.7 is conducted in time to submit the results of the performance evaluation as specified in paragraph (e)(5)(ii) of this section. If a performance test is not required, or the requirement for a performance test has been waived under §63.7(h), the owner or operator of an affected source shall conduct the performance evaluation not later than 180 days after the appropriate compliance date for the affected source, as specified in §63.7(a), or as otherwise specified in the relevant standard.

(5) *Reporting performance evaluation results.* (i) The owner or operator shall furnish the Administrator a copy of a written report of the results of the performance evaluation simultaneously with the results of the performance test required under §63.7 or within 60 days of completion of the performance evaluation if no test is required, unless otherwise specified in a relevant standard. The Administrator may request that the owner or operator submit the raw data from a performance evaluation in the report of the performance evaluation results.

(ii) The owner or operator of an affected source using a COMS to determine opacity compliance during any performance test required under §63.7 and described in §63.6(d)(6) shall furnish the Administrator two or, upon request, three copies of a written report of the results of the COMS performance evaluation under this paragraph. The copies shall be provided at least 15 calendar days before the performance test required under §63.7 is conducted.

(f) *Use of an alternative monitoring method.* —(1) *General.* Until permission to use an alternative monitoring procedure (minor, intermediate, or major changes; see definition in §63.90(a)) has been granted by the Administrator under this paragraph (f)(1), the owner or operator of an affected source remains subject to the requirements of this section and the relevant standard.

(2) After receipt and consideration of written application, the Administrator may approve alternatives to any monitoring methods or procedures of this part including, but not limited to, the following:

(i) Alternative monitoring requirements when installation of a CMS specified by a relevant standard would not provide accurate measurements due to liquid water or other interferences caused by substances within the effluent gases;

(ii) Alternative monitoring requirements when the affected source is infrequently operated;

(iii) Alternative monitoring requirements to accommodate CEMS that require additional measurements to correct for stack moisture conditions;

(iv) Alternative locations for installing CMS when the owner or operator can demonstrate that installation at alternate locations will enable accurate and representative measurements;

(v) Alternate methods for converting pollutant concentration measurements to units of the relevant standard;

(vi) Alternate procedures for performing daily checks of zero (low-level) and high-level drift that do not involve use of high-level gases or test cells;

(vii) Alternatives to the American Society for Testing and Materials (ASTM) test methods or sampling procedures specified by any relevant standard;

(viii) Alternative CMS that do not meet the design or performance requirements in this part, but adequately demonstrate a definite and consistent relationship between their measurements and the measurements of opacity by a system complying with the requirements as specified in the relevant standard. The Administrator may require that such demonstration be performed for each affected source; or

(ix) Alternative monitoring requirements when the effluent from a single affected source or the combined effluent from two or more affected sources is released to the atmosphere through more than one point.

(3) If the Administrator finds reasonable grounds to dispute the results obtained by an alternative monitoring method, requirement, or procedure, the Administrator may require the use of a method, requirement, or procedure specified in this section or in the relevant standard. If the results of the specified and alternative method, requirement, or procedure do not agree, the results obtained by the specified method, requirement, or procedure shall prevail.

(4)(i) *Request to use alternative monitoring procedure.* An owner or operator who wishes to use an alternative monitoring procedure must submit an application to the Administrator as described in paragraph (f)(4)(ii) of this section. The application may be submitted at any time provided that the monitoring procedure is not the performance test method used to demonstrate compliance with a relevant standard or other requirement. If the alternative monitoring procedure will serve as the performance test method that is to be used to demonstrate compliance with a relevant standard, the application must be submitted at least 60 days before the performance evaluation is scheduled to begin and must meet the requirements for an alternative test method under §63.7(f).

(ii) The application must contain a description of the proposed alternative monitoring system which addresses the four elements contained in the definition of monitoring in §63.2 and a performance evaluation test plan, if required, as specified in paragraph (e)(3) of this section. In addition, the application must include information justifying the owner or operator's request for an alternative monitoring method, such as the technical or economic infeasibility, or the impracticality, of the affected source using the required method.

(iii) The owner or operator may submit the information required in this paragraph well in advance of the submittal dates specified in paragraph (f)(4)(i) above to ensure a timely review by the Administrator in order to meet the compliance demonstration date specified in this section or the relevant standard.

(iv) Application for minor changes to monitoring procedures, as specified in paragraph (b)(1) of this section, may be made in the site-specific performance evaluation plan.

(5) *Approval of request to use alternative monitoring procedure.* (i) The Administrator will notify the owner or operator of approval or intention to deny approval of the request to use an alternative monitoring method within 30 calendar days after receipt of the original request and within 30 calendar days after receipt of any supplementary information that is submitted. If a request for a minor change is made in conjunction with site-specific performance evaluation plan, then approval of the plan will constitute approval of the minor change. Before disapproving any request to use an alternative monitoring method, the Administrator will notify the applicant of the Administrator's intention to disapprove the request together with—

(A) Notice of the information and findings on which the intended disapproval is based; and

(B) Notice of opportunity for the owner or operator to present additional information to the Administrator before final action on the request. At the time the Administrator notifies the applicant of his or her intention to disapprove the request, the Administrator will specify how much time the owner or operator will have after being notified of the intended disapproval to submit the additional information.

(ii) The Administrator may establish general procedures and criteria in a relevant standard to accomplish the requirements of paragraph (f)(5)(i) of this section.

(iii) If the Administrator approves the use of an alternative monitoring method for an affected source under paragraph (f)(5)(i) of this section, the owner or operator of such source shall continue to use the alternative monitoring method until he or she receives approval from the Administrator to use another monitoring method as allowed by §63.8(f).

(6) *Alternative to the relative accuracy test.* An alternative to the relative accuracy test for CEMS specified in a relevant standard may

be requested as follows:

(i) *Criteria for approval of alternative procedures.* An alternative to the test method for determining relative accuracy is available for affected sources with emission rates demonstrated to be less than 50 percent of the relevant standard. The owner or operator of an affected source may petition the Administrator under paragraph (f)(6)(ii) of this section to substitute the relative accuracy test in section 7 of Performance Specification 2 with the procedures in section 10 if the results of a performance test conducted according to the requirements in §63.7, or other tests performed following the criteria in §63.7, demonstrate that the emission rate of the pollutant of interest in the units of the relevant standard is less than 50 percent of the relevant standard. For affected sources subject to emission limitations expressed as control efficiency levels, the owner or operator may petition the Administrator to substitute the relative accuracy test with the procedures in section 10 of Performance Specification 2 if the control device exhaust emission rate is less than 50 percent of the level needed to meet the control efficiency requirement. The alternative procedures do not apply if the CEMS is used continuously to determine compliance with the relevant standard.

(ii) *Petition to use alternative to relative accuracy test.* The petition to use an alternative to the relative accuracy test shall include a detailed description of the procedures to be applied, the location and the procedure for conducting the alternative, the concentration or response levels of the alternative relative accuracy materials, and the other equipment checks included in the alternative procedure(s). The Administrator will review the petition for completeness and applicability. The Administrator's determination to approve an alternative will depend on the intended use of the CEMS data and may require specifications more stringent than in Performance Specification 2.

(iii) *Rescission of approval to use alternative to relative accuracy test.* The Administrator will review the permission to use an alternative to the CEMS relative accuracy test and may rescind such permission if the CEMS data from a successful completion of the alternative relative accuracy procedure indicate that the affected source's emissions are approaching the level of the relevant standard. The criterion for reviewing the permission is that the collection of CEMS data shows that emissions have exceeded 70 percent of the relevant standard for any averaging period, as specified in the relevant standard. For affected sources subject to emission limitations expressed as control efficiency levels, the criterion for reviewing the permission is that the collection of CEMS data shows that exhaust emissions have exceeded 70 percent of the level needed to meet the control efficiency requirement for any averaging period, as specified in the relevant standard. The owner or operator of the affected source shall maintain records and determine the level of emissions relative to the criterion for permission to use an alternative for relative accuracy testing. If this criterion is exceeded, the owner or operator shall notify the Administrator within 10 days of such occurrence and include a description of the nature and cause of the increased emissions. The Administrator will review the notification and may rescind permission to use an alternative and require the owner or operator to conduct a relative accuracy test of the CEMS as specified in section 7 of Performance Specification 2.

(g) *Reduction of monitoring data.* (1) The owner or operator of each CMS must reduce the monitoring data as specified in paragraphs (g)(1) through (5) of this section.

(2) The owner or operator of each COMS shall reduce all data to 6-minute averages calculated from 36 or more data points equally spaced over each 6-minute period. Data from CEMS for measurement other than opacity, unless otherwise specified in the relevant standard, shall be reduced to 1-hour averages computed from four or more data points equally spaced over each 1-hour period, except during periods when calibration, quality assurance, or maintenance activities pursuant to provisions of this part are being performed. During these periods, a valid hourly average shall consist of at least two data points with each representing a 15-minute period. Alternatively, an arithmetic or integrated 1-hour average of CEMS data may be used. Time periods for averaging are defined in §63.2.

(3) The data may be recorded in reduced or nonreduced form (e.g., ppm pollutant and percent O_2or ng/J of pollutant).

(4) All emission data shall be converted into units of the relevant standard for reporting purposes using the conversion procedures specified in that standard. After conversion into units of the relevant standard, the data may be rounded to the same number of significant digits as used in that standard to specify the emission limit (e.g., rounded to the nearest 1 percent opacity).

(5) Monitoring data recorded during periods of unavoidable CMS breakdowns, out-of-control periods, repairs, maintenance periods, calibration checks, and zero (low-level) and high-level adjustments must not be included in any data average computed under this part. For the owner or operator complying with the requirements of §63.10(b)(2)(vii)(A) or (B), data averages must include any data recorded during periods of monitor breakdown or malfunction.

[59 FR 12430, Mar. 16, 1994, as amended at 64 FR 7468, Feb. 12, 1999; 67 FR 16603, Apr. 5, 2002; 71 FR 20455, Apr. 20, 2006]

§ 63.9 NOTIFICATION REQUIREMENTS.

(a) *Applicability and general information.* (1) The applicability of this section is set out in §63.1(a)(4).

(2) For affected sources that have been granted an extension of compliance under subpart D of this part, the requirements of this section do not apply to those sources while they are operating under such compliance extensions.

(3) If any State requires a notice that contains all the information required in a notification listed in this section, the owner or operator may send the Administrator a copy of the notice sent to the State to satisfy the requirements of this section for that notification.

(4)(i) Before a State has been delegated the authority to implement and enforce notification requirements established under this part,

the owner or operator of an affected source in such State subject to such requirements shall submit notifications to the appropriate Regional Office of the EPA (to the attention of the Director of the Division indicated in the list of the EPA Regional Offices in §63.13).

(ii) After a State has been delegated the authority to implement and enforce notification requirements established under this part, the owner or operator of an affected source in such State subject to such requirements shall submit notifications to the delegated State authority (which may be the same as the permitting authority). In addition, if the delegated (permitting) authority is the State, the owner or operator shall send a copy of each notification submitted to the State to the appropriate Regional Office of the EPA, as specified in paragraph (a)(4)(i) of this section. The Regional Office may waive this requirement for any notifications at its discretion.

(b) *Initial notifications.* (1)(i) The requirements of this paragraph apply to the owner or operator of an affected source when such source becomes subject to a relevant standard.

(ii) If an area source that otherwise would be subject to an emission standard or other requirement established under this part if it were a major source subsequently increases its emissions of hazardous air pollutants (or its potential to emit hazardous air pollutants) such that the source is a major source that is subject to the emission standard or other requirement, such source shall be subject to the notification requirements of this section.

(iii) Affected sources that are required under this paragraph to submit an initial notification may use the application for approval of construction or reconstruction under §63.5(d) of this subpart, if relevant, to fulfill the initial notification requirements of this paragraph.

(2) The owner or operator of an affected source that has an initial startup before the effective date of a relevant standard under this part shall notify the Administrator in writing that the source is subject to the relevant standard. The notification, which shall be submitted not later than 120 calendar days after the effective date of the relevant standard (or within 120 calendar days after the source becomes subject to the relevant standard), shall provide the following information:

(i) The name and address of the owner or operator;

(ii) The address (i.e., physical location) of the affected source;

(iii) An identification of the relevant standard, or other requirement, that is the basis of the notification and the source's compliance date;

(iv) A brief description of the nature, size, design, and method of operation of the source and an identification of the types of emission points within the affected source subject to the relevant standard and types of hazardous air pollutants emitted; and

(v) A statement of whether the affected source is a major source or an area source.

(3) [Reserved]

(4) The owner or operator of a new or reconstructed major affected source for which an application for approval of construction or reconstruction is required under §63.5(d) must provide the following information in writing to the Administrator:

(i) A notification of intention to construct a new major-emitting affected source, reconstruct a major-emitting affected source, or reconstruct a major source such that the source becomes a major-emitting affected source with the application for approval of construction or reconstruction as specified in §63.5(d)(1)(i); and

(ii)–(iv) [Reserved]

(v) A notification of the actual date of startup of the source, delivered or postmarked within 15 calendar days after that date.

(5) The owner or operator of a new or reconstructed affected source for which an application for approval of construction or reconstruction is not required under §63.5(d) must provide the following information in writing to the Administrator:

(i) A notification of intention to construct a new affected source, reconstruct an affected source, or reconstruct a source such that the source becomes an affected source, and

(ii) A notification of the actual date of startup of the source, delivered or postmarked within 15 calendar days after that date.

(iii) Unless the owner or operator has requested and received prior permission from the Administrator to submit less than the information in §63.5(d), the notification must include the information required on the application for approval of construction or reconstruction as specified in §63.5(d)(1)(i).

(c) *Request for extension of compliance.* If the owner or operator of an affected source cannot comply with a relevant standard by the applicable compliance date for that source, or if the owner or operator has installed BACT or technology to meet LAER consistent with §63.6(i)(5) of this subpart, he/she may submit to the Administrator (or the State with an approved permit program) a request for an

extension of compliance as specified in §63.6(i)(4) through §63.6(i)(6).

(d) *Notification that source is subject to special compliance requirements.* An owner or operator of a new source that is subject to special compliance requirements as specified in §63.6(b)(3) and §63.6(b)(4) shall notify the Administrator of his/her compliance obligations not later than the notification dates established in paragraph (b) of this section for new sources that are not subject to the special provisions.

(e) *Notification of performance test.* The owner or operator of an affected source shall notify the Administrator in writing of his or her intention to conduct a performance test at least 60 calendar days before the performance test is scheduled to begin to allow the Administrator to review and approve the site-specific test plan required under §63.7(c), if requested by the Administrator, and to have an observer present during the test.

(f) *Notification of opacity and visible emission observations.* The owner or operator of an affected source shall notify the Administrator in writing of the anticipated date for conducting the opacity or visible emission observations specified in §63.6(h)(5), if such observations are required for the source by a relevant standard. The notification shall be submitted with the notification of the performance test date, as specified in paragraph (e) of this section, or if no performance test is required or visibility or other conditions prevent the opacity or visible emission observations from being conducted concurrently with the initial performance test required under §63.7, the owner or operator shall deliver or postmark the notification not less than 30 days before the opacity or visible emission observations are scheduled to take place.

(g) *Additional notification requirements for sources with continuous monitoring systems.* The owner or operator of an affected source required to use a CMS by a relevant standard shall furnish the Administrator written notification as follows:

(1) A notification of the date the CMS performance evaluation under §63.8(e) is scheduled to begin, submitted simultaneously with the notification of the performance test date required under §63.7(b). If no performance test is required, or if the requirement to conduct a performance test has been waived for an affected source under §63.7(h), the owner or operator shall notify the Administrator in writing of the date of the performance evaluation at least 60 calendar days before the evaluation is scheduled to begin;

(2) A notification that COMS data results will be used to determine compliance with the applicable opacity emission standard during a performance test required by §63.7 in lieu of Method 9 or other opacity emissions test method data, as allowed by §63.6(h)(7)(ii), if compliance with an opacity emission standard is required for the source by a relevant standard. The notification shall be submitted at least 60 calendar days before the performance test is scheduled to begin; and

(3) A notification that the criterion necessary to continue use of an alternative to relative accuracy testing, as provided by §63.8(f)(6), has been exceeded. The notification shall be delivered or postmarked not later than 10 days after the occurrence of such exceedance, and it shall include a description of the nature and cause of the increased emissions.

(h) *Notification of compliance status.* (1) The requirements of paragraphs (h)(2) through (h)(4) of this section apply when an affected source becomes subject to a relevant standard.

(2)(i) Before a title V permit has been issued to the owner or operator of an affected source, and each time a notification of compliance status is required under this part, the owner or operator of such source shall submit to the Administrator a notification of compliance status, signed by the responsible official who shall certify its accuracy, attesting to whether the source has complied with the relevant standard. The notification shall list—

(A) The methods that were used to determine compliance;

(B) The results of any performance tests, opacity or visible emission observations, continuous monitoring system (CMS) performance evaluations, and/or other monitoring procedures or methods that were conducted;

(C) The methods that will be used for determining continuing compliance, including a description of monitoring and reporting requirements and test methods;

(D) The type and quantity of hazardous air pollutants emitted by the source (or surrogate pollutants if specified in the relevant standard), reported in units and averaging times and in accordance with the test methods specified in the relevant standard;

(E) If the relevant standard applies to both major and area sources, an analysis demonstrating whether the affected source is a major source (using the emissions data generated for this notification);

(F) A description of the air pollution control equipment (or method) for each emission point, including each control device (or method) for each hazardous air pollutant and the control efficiency (percent) for each control device (or method); and

(G) A statement by the owner or operator of the affected existing, new, or reconstructed source as to whether the source has complied with the relevant standard or other requirements.

(ii) The notification must be sent before the close of business on the 60th day following the completion of the relevant compliance demonstration activity specified in the relevant standard (unless a different reporting period is specified in the standard, in which case the letter must be sent before the close of business on the day the report of the relevant testing or monitoring results is required to be delivered or postmarked). For example, the notification shall be sent before close of business on the 60th (or other required) day following completion of the initial performance test and again before the close of business on the 60th (or other required) day following the completion of any subsequent required performance test. If no performance test is required but opacity or visible emission observations are required to demonstrate compliance with an opacity or visible emission standard under this part, the notification of compliance status shall be sent before close of business on the 30th day following the completion of opacity or visible emission observations. Notifications may be combined as long as the due date requirement for each notification is met.

(3) After a title V permit has been issued to the owner or operator of an affected source, the owner or operator of such source shall comply with all requirements for compliance status reports contained in the source's title V permit, including reports required under this part. After a title V permit has been issued to the owner or operator of an affected source, and each time a notification of compliance status is required under this part, the owner or operator of such source shall submit the notification of compliance status to the appropriate permitting authority following completion of the relevant compliance demonstration activity specified in the relevant standard.

(4) [Reserved]

(5) If an owner or operator of an affected source submits estimates or preliminary information in the application for approval of construction or reconstruction required in §63.5(d) in place of the actual emissions data or control efficiencies required in paragraphs (d)(1)(ii)(H) and (d)(2) of §63.5, the owner or operator shall submit the actual emissions data and other correct information as soon as available but no later than with the initial notification of compliance status required in this section.

(6) Advice on a notification of compliance status may be obtained from the Administrator.

(i) *Adjustment to time periods or postmark deadlines for submittal and review of required communications.* (1)(i) Until an adjustment of a time period or postmark deadline has been approved by the Administrator under paragraphs (i)(2) and (i)(3) of this section, the owner or operator of an affected source remains strictly subject to the requirements of this part.

(ii) An owner or operator shall request the adjustment provided for in paragraphs (i)(2) and (i)(3) of this section each time he or she wishes to change an applicable time period or postmark deadline specified in this part.

(2) Notwithstanding time periods or postmark deadlines specified in this part for the submittal of information to the Administrator by an owner or operator, or the review of such information by the Administrator, such time periods or deadlines may be changed by mutual agreement between the owner or operator and the Administrator. An owner or operator who wishes to request a change in a time period or postmark deadline for a particular requirement shall request the adjustment in writing as soon as practicable before the subject activity is required to take place. The owner or operator shall include in the request whatever information he or she considers useful to convince the Administrator that an adjustment is warranted.

(3) If, in the Administrator's judgment, an owner or operator's request for an adjustment to a particular time period or postmark deadline is warranted, the Administrator will approve the adjustment. The Administrator will notify the owner or operator in writing of approval or disapproval of the request for an adjustment within 15 calendar days of receiving sufficient information to evaluate the request.

(4) If the Administrator is unable to meet a specified deadline, he or she will notify the owner or operator of any significant delay and inform the owner or operator of the amended schedule.

(j) *Change in information already provided.* Any change in the information already provided under this section shall be provided to the Administrator in writing within 15 calendar days after the change.

[59 FR 12430, Mar. 16, 1994, as amended at 64 FR 7468, Feb. 12, 1999; 67 FR 16604, Apr. 5, 2002; 68 FR 32601, May 30, 2003]

§ 63.10 RECORDKEEPING AND REPORTING REQUIREMENTS.

(a) *Applicability and general information.* (1) The applicability of this section is set out in §63.1(a)(4).

(2) For affected sources that have been granted an extension of compliance under subpart D of this part, the requirements of this section do not apply to those sources while they are operating under such compliance extensions.

(3) If any State requires a report that contains all the information required in a report listed in this section, an owner or operator may send the Administrator a copy of the report sent to the State to satisfy the requirements of this section for that report.

(4)(i) Before a State has been delegated the authority to implement and enforce recordkeeping and reporting requirements established under this part, the owner or operator of an affected source in such State subject to such requirements shall submit reports to the appropriate Regional Office of the EPA (to the attention of the Director of the Division indicated in the list of the EPA Regional Offices

in §63.13).

(ii) After a State has been delegated the authority to implement and enforce recordkeeping and reporting requirements established under this part, the owner or operator of an affected source in such State subject to such requirements shall submit reports to the delegated State authority (which may be the same as the permitting authority). In addition, if the delegated (permitting) authority is the State, the owner or operator shall send a copy of each report submitted to the State to the appropriate Regional Office of the EPA, as specified in paragraph (a)(4)(i) of this section. The Regional Office may waive this requirement for any reports at its discretion.

(5) If an owner or operator of an affected source in a State with delegated authority is required to submit periodic reports under this part to the State, and if the State has an established timeline for the submission of periodic reports that is consistent with the reporting frequency(ies) specified for such source under this part, the owner or operator may change the dates by which periodic reports under this part shall be submitted (without changing the frequency of reporting) to be consistent with the State's schedule by mutual agreement between the owner or operator and the State. For each relevant standard established pursuant to section 112 of the Act, the allowance in the previous sentence applies in each State beginning 1 year after the affected source's compliance date for that standard. Procedures governing the implementation of this provision are specified in §63.9(i).

(6) If an owner or operator supervises one or more stationary sources affected by more than one standard established pursuant to section 112 of the Act, he/she may arrange by mutual agreement between the owner or operator and the Administrator (or the State permitting authority) a common schedule on which periodic reports required for each source shall be submitted throughout the year. The allowance in the previous sentence applies in each State beginning 1 year after the latest compliance date for any relevant standard established pursuant to section 112 of the Act for any such affected source(s). Procedures governing the implementation of this provision are specified in §63.9(i).

(7) If an owner or operator supervises one or more stationary sources affected by standards established pursuant to section 112 of the Act (as amended November 15, 1990) and standards set under part 60, part 61, or both such parts of this chapter, he/she may arrange by mutual agreement between the owner or operator and the Administrator (or the State permitting authority) a common schedule on which periodic reports required by each relevant (i.e., applicable) standard shall be submitted throughout the year. The allowance in the previous sentence applies in each State beginning 1 year after the stationary source is required to be in compliance with the relevant section 112 standard, or 1 year after the stationary source is required to be in compliance with the applicable part 60 or part 61 standard, whichever is latest. Procedures governing the implementation of this provision are specified in §63.9(i).

(b) *General recordkeeping requirements.* (1) The owner or operator of an affected source subject to the provisions of this part shall maintain files of all information (including all reports and notifications) required by this part recorded in a form suitable and readily available for expeditious inspection and review. The files shall be retained for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. At a minimum, the most recent 2 years of data shall be retained on site. The remaining 3 years of data may be retained off site. Such files may be maintained on microfilm, on a computer, on computer floppy disks, on magnetic tape disks, or on microfiche.

(2) The owner or operator of an affected source subject to the provisions of this part shall maintain relevant records for such source of—

(i) The occurrence and duration of each startup or shutdown when the startup or shutdown causes the source to exceed any applicable emission limitation in the relevant emission standards;

(ii) The occurrence and duration of each malfunction of operation (*i.e.* , process equipment) or the required air pollution control and monitoring equipment;

(iii) All required maintenance performed on the air pollution control and monitoring equipment;

(iv)(A) Actions taken during periods of startup or shutdown when the source exceeded applicable emission limitations in a relevant standard and when the actions taken are different from the procedures specified in the affected source's startup, shutdown, and malfunction plan (see §63.6(e)(3)); or

(B) Actions taken during periods of malfunction (including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation) when the actions taken are different from the procedures specified in the affected source's startup, shutdown, and malfunction plan (see §63.6(e)(3));

(v) All information necessary, including actions taken, to demonstrate conformance with the affected source's startup, shutdown, and malfunction plan (see §63.6(e)(3)) when all actions taken during periods of startup or shutdown (and the startup or shutdown causes the source to exceed any applicable emission limitation in the relevant emission standards), and malfunction (including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation) are consistent with the procedures specified in such plan. (The information needed to demonstrate conformance with the startup, shutdown, and malfunction plan may be recorded using a "checklist," or some other effective form of recordkeeping, in order to minimize the recordkeeping burden for conforming events);

(vi) Each period during which a CMS is malfunctioning or inoperative (including out-of-control periods);

(vii) All required measurements needed to demonstrate compliance with a relevant standard (including, but not limited to, 15-minute averages of CMS data, raw performance testing measurements, and raw performance evaluation measurements, that support data that the source is required to report);

(A) This paragraph applies to owners or operators required to install a continuous emissions monitoring system (CEMS) where the CEMS installed is automated, and where the calculated data averages do not exclude periods of CEMS breakdown or malfunction. An automated CEMS records and reduces the measured data to the form of the pollutant emission standard through the use of a computerized data acquisition system. In lieu of maintaining a file of all CEMS subhourly measurements as required under paragraph (b)(2)(vii) of this section, the owner or operator shall retain the most recent consecutive three averaging periods of subhourly measurements and a file that contains a hard copy of the data acquisition system algorithm used to reduce the measured data into the reportable form of the standard.

(B) This paragraph applies to owners or operators required to install a CEMS where the measured data is manually reduced to obtain the reportable form of the standard, and where the calculated data averages do not exclude periods of CEMS breakdown or malfunction. In lieu of maintaining a file of all CEMS subhourly measurements as required under paragraph (b)(2)(vii) of this section, the owner or operator shall retain all subhourly measurements for the most recent reporting period. The subhourly measurements shall be retained for 120 days from the date of the most recent summary or excess emission report submitted to the Administrator.

(C) The Administrator or delegated authority, upon notification to the source, may require the owner or operator to maintain all measurements as required by paragraph (b)(2)(vii), if the administrator or the delegated authority determines these records are required to more accurately assess the compliance status of the affected source.

(viii) All results of performance tests, CMS performance evaluations, and opacity and visible emission observations;

(ix) All measurements as may be necessary to determine the conditions of performance tests and performance evaluations;

(x) All CMS calibration checks;

(xi) All adjustments and maintenance performed on CMS;

(xii) Any information demonstrating whether a source is meeting the requirements for a waiver of recordkeeping or reporting requirements under this part, if the source has been granted a waiver under paragraph (f) of this section;

(xiii) All emission levels relative to the criterion for obtaining permission to use an alternative to the relative accuracy test, if the source has been granted such permission under §63.8(f)(6); and

(xiv) All documentation supporting initial notifications and notifications of compliance status under §63.9.

(3) *Recordkeeping requirement for applicability determinations.* If an owner or operator determines that his or her stationary source that emits (or has the potential to emit, without considering controls) one or more hazardous air pollutants regulated by any standard established pursuant to section 112(d) or (f), and that stationary source is in the source category regulated by the relevant standard, but that source is not subject to the relevant standard (or other requirement established under this part) because of limitations on the source's potential to emit or an exclusion, the owner or operator must keep a record of the applicability determination on site at the source for a period of 5 years after the determination, or until the source changes its operations to become an affected source, whichever comes first. The record of the applicability determination must be signed by the person making the determination and include an analysis (or other information) that demonstrates why the owner or operator believes the source is unaffected (e.g., because the source is an area source). The analysis (or other information) must be sufficiently detailed to allow the Administrator to make a finding about the source's applicability status with regard to the relevant standard or other requirement. If relevant, the analysis must be performed in accordance with requirements established in relevant subparts of this part for this purpose for particular categories of stationary sources. If relevant, the analysis should be performed in accordance with EPA guidance materials published to assist sources in making applicability determinations under section 112, if any. The requirements to determine applicability of a standard under §63.1(b)(3) and to record the results of that determination under paragraph (b)(3) of this section shall not by themselves create an obligation for the owner or operator to obtain a title V permit.

(c) *Additional recordkeeping requirements for sources with continuous monitoring systems.* In addition to complying with the requirements specified in paragraphs (b)(1) and (b)(2) of this section, the owner or operator of an affected source required to install a CMS by a relevant standard shall maintain records for such source of—

(1) All required CMS measurements (including monitoring data recorded during unavoidable CMS breakdowns and out-of-control periods);

(2)–(4) [Reserved]

(5) The date and time identifying each period during which the CMS was inoperative except for zero (low-level) and high-level checks;

(6) The date and time identifying each period during which the CMS was out of control, as defined in §63.8(c)(7);

(7) The specific identification (i.e., the date and time of commencement and completion) of each period of excess emissions and parameter monitoring exceedances, as defined in the relevant standard(s), that occurs during startups, shutdowns, and malfunctions of the affected source;

(8) The specific identification (i.e., the date and time of commencement and completion) of each time period of excess emissions and parameter monitoring exceedances, as defined in the relevant standard(s), that occurs during periods other than startups, shutdowns, and malfunctions of the affected source;

(9) [Reserved]

(10) The nature and cause of any malfunction (if known);

(11) The corrective action taken or preventive measures adopted;

(12) The nature of the repairs or adjustments to the CMS that was inoperative or out of control;

(13) The total process operating time during the reporting period; and

(14) All procedures that are part of a quality control program developed and implemented for CMS under §63.8(d).

(15) In order to satisfy the requirements of paragraphs (c)(10) through (c)(12) of this section and to avoid duplicative recordkeeping efforts, the owner or operator may use the affected source's startup, shutdown, and malfunction plan or records kept to satisfy the recordkeeping requirements of the startup, shutdown, and malfunction plan specified in §63.6(e), provided that such plan and records adequately address the requirements of paragraphs (c)(10) through (c)(12).

(d) *General reporting requirements.* (1) Notwithstanding the requirements in this paragraph or paragraph (e) of this section, and except as provided in §63.16, the owner or operator of an affected source subject to reporting requirements under this part shall submit reports to the Administrator in accordance with the reporting requirements in the relevant standard(s).

(2) *Reporting results of performance tests.* Before a title V permit has been issued to the owner or operator of an affected source, the owner or operator shall report the results of any performance test under §63.7 to the Administrator. After a title V permit has been issued to the owner or operator of an affected source, the owner or operator shall report the results of a required performance test to the appropriate permitting authority. The owner or operator of an affected source shall report the results of the performance test to the Administrator (or the State with an approved permit program) before the close of business on the 60th day following the completion of the performance test, unless specified otherwise in a relevant standard or as approved otherwise in writing by the Administrator. The results of the performance test shall be submitted as part of the notification of compliance status required under §63.9(h).

(3) *Reporting results of opacity or visible emission observations.* The owner or operator of an affected source required to conduct opacity or visible emission observations by a relevant standard shall report the opacity or visible emission results (produced using Test Method 9 or Test Method 22, or an alternative to these test methods) along with the results of the performance test required under §63.7. If no performance test is required, or if visibility or other conditions prevent the opacity or visible emission observations from being conducted concurrently with the performance test required under §63.7, the owner or operator shall report the opacity or visible emission results before the close of business on the 30th day following the completion of the opacity or visible emission observations.

(4) *Progress reports.* The owner or operator of an affected source who is required to submit progress reports as a condition of receiving an extension of compliance under §63.6(i) shall submit such reports to the Administrator (or the State with an approved permit program) by the dates specified in the written extension of compliance.

(5)(i) *Periodic startup, shutdown, and malfunction reports.* If actions taken by an owner or operator during a startup or shutdown (and the startup or shutdown causes the source to exceed any applicable emission limitation in the relevant emission standards), or malfunction of an affected source (including actions taken to correct a malfunction) are consistent with the procedures specified in the source's startup, shutdown, and malfunction plan (see §63.6(e)(3)), the owner or operator shall state such information in a startup, shutdown, and malfunction report. Actions taken to minimize emissions during such startups, shutdowns, and malfunctions shall be summarized in the report and may be done in checklist form; if actions taken are the same for each event, only one checklist is necessary. Such a report shall also include the number, duration, and a brief description for each type of malfunction which occurred during the reporting period and which caused or may have caused any applicable emission limitation to be exceeded. Reports shall only be required if a startup or shutdown caused the source to exceed any applicable emission limitation in the relevant emission standards, or if a malfunction occurred during the reporting period. The startup, shutdown, and malfunction report shall consist of a letter, containing the name, title, and signature of the owner or operator or other responsible official who is certifying its accuracy, that shall be submitted to the Administrator semiannually (or on a more frequent basis if specified otherwise in a relevant standard or as established otherwise by the permitting authority in the source's title V permit). The startup, shutdown, and malfunction report shall be delivered or postmarked by the 30th day following the end of each calendar half (or other calendar reporting period, as appropriate). If the owner or operator is required to submit excess emissions and continuous monitoring system performance (or other periodic) reports under this part, the startup, shutdown, and malfunction reports required under this paragraph may be submitted simultaneously with the

excess emissions and continuous monitoring system performance (or other) reports. If startup, shutdown, and malfunction reports are submitted with excess emissions and continuous monitoring system performance (or other periodic) reports, and the owner or operator receives approval to reduce the frequency of reporting for the latter under paragraph (e) of this section, the frequency of reporting for the startup, shutdown, and malfunction reports also may be reduced if the Administrator does not object to the intended change. The procedures to implement the allowance in the preceding sentence shall be the same as the procedures specified in paragraph (e)(3) of this section.

(ii) *Immediate startup, shutdown, and malfunction reports.* Notwithstanding the allowance to reduce the frequency of reporting for periodic startup, shutdown, and malfunction reports under paragraph (d)(5)(i) of this section, any time an action taken by an owner or operator during a startup or shutdown that caused the source to exceed any applicable emission limitation in the relevant emission standards, or malfunction (including actions taken to correct a malfunction) is not consistent with the procedures specified in the affected source's startup, shutdown, and malfunction plan, the owner or operator shall report the actions taken for that event within 2 working days after commencing actions inconsistent with the plan followed by a letter within 7 working days after the end of the event. The immediate report required under this paragraph (d)(5)(ii) shall consist of a telephone call (or facsimile (FAX) transmission) to the Administrator within 2 working days after commencing actions inconsistent with the plan, and it shall be followed by a letter, delivered or postmarked within 7 working days after the end of the event, that contains the name, title, and signature of the owner or operator or other responsible official who is certifying its accuracy, explaining the circumstances of the event, the reasons for not following the startup, shutdown, and malfunction plan, describing all excess emissions and/or parameter monitoring exceedances which are believed to have occurred (or could have occurred in the case of malfunctions), and actions taken to minimize emissions in conformance with §63.6(e)(1)(i). Notwithstanding the requirements of the previous sentence, after the effective date of an approved permit program in the State in which an affected source is located, the owner or operator may make alternative reporting arrangements, in advance, with the permitting authority in that State. Procedures governing the arrangement of alternative reporting requirements under this paragraph (d)(5)(ii) are specified in §63.9(i).

(e) *Additional reporting requirements for sources with continuous monitoring systems*—(1) *General.* When more than one CEMS is used to measure the emissions from one affected source (e.g., multiple breechings, multiple outlets), the owner or operator shall report the results as required for each CEMS.

(2) *Reporting results of continuous monitoring system performance evaluations.* (i) The owner or operator of an affected source required to install a CMS by a relevant standard shall furnish the Administrator a copy of a written report of the results of the CMS performance evaluation, as required under §63.8(e), simultaneously with the results of the performance test required under §63.7, unless otherwise specified in the relevant standard.

(ii) The owner or operator of an affected source using a COMS to determine opacity compliance during any performance test required under §63.7 and described in §63.6(d)(6) shall furnish the Administrator two or, upon request, three copies of a written report of the results of the COMS performance evaluation conducted under §63.8(e). The copies shall be furnished at least 15 calendar days before the performance test required under §63.7 is conducted.

(3) *Excess emissions and continuous monitoring system performance report and summary report.* (i) Excess emissions and parameter monitoring exceedances are defined in relevant standards. The owner or operator of an affected source required to install a CMS by a relevant standard shall submit an excess emissions and continuous monitoring system performance report and/or a summary report to the Administrator semiannually, except when—

(A) More frequent reporting is specifically required by a relevant standard;

(B) The Administrator determines on a case-by-case basis that more frequent reporting is necessary to accurately assess the compliance status of the source; or

(C) [Reserved]

(D) The affected source is complying with the Performance Track Provisions of §63.16, which allows less frequent reporting.

(ii) *Request to reduce frequency of excess emissions and continuous monitoring system performance reports.* Notwithstanding the frequency of reporting requirements specified in paragraph (e)(3)(i) of this section, an owner or operator who is required by a relevant standard to submit excess emissions and continuous monitoring system performance (and summary) reports on a quarterly (or more frequent) basis may reduce the frequency of reporting for that standard to semiannual if the following conditions are met:

(A) For 1 full year (e.g., 4 quarterly or 12 monthly reporting periods) the affected source's excess emissions and continuous monitoring system performance reports continually demonstrate that the source is in compliance with the relevant standard;

(B) The owner or operator continues to comply with all recordkeeping and monitoring requirements specified in this subpart and the relevant standard; and

(C) The Administrator does not object to a reduced frequency of reporting for the affected source, as provided in paragraph (e)(3)(iii) of this section.

(iii) The frequency of reporting of excess emissions and continuous monitoring system performance (and summary) reports required to comply with a relevant standard may be reduced only after the owner or operator notifies the Administrator in writing of his or her intention to make such a change and the Administrator does not object to the intended change. In deciding whether to approve a reduced frequency of reporting, the Administrator may review information concerning the source's entire previous performance history during the 5-year recordkeeping period prior to the intended change, including performance test results, monitoring data, and evaluations of an owner or operator's conformance with operation and maintenance requirements. Such information may be used by the Administrator to make a judgment about the source's potential for noncompliance in the future. If the Administrator disapproves the owner or operator's request to reduce the frequency of reporting, the Administrator will notify the owner or operator in writing within 45 days after receiving notice of the owner or operator's intention. The notification from the Administrator to the owner or operator will specify the grounds on which the disapproval is based. In the absence of a notice of disapproval within 45 days, approval is automatically granted.

(iv) As soon as CMS data indicate that the source is not in compliance with any emission limitation or operating parameter specified in the relevant standard, the frequency of reporting shall revert to the frequency specified in the relevant standard, and the owner or operator shall submit an excess emissions and continuous monitoring system performance (and summary) report for the noncomplying emission points at the next appropriate reporting period following the noncomplying event. After demonstrating ongoing compliance with the relevant standard for another full year, the owner or operator may again request approval from the Administrator to reduce the frequency of reporting for that standard, as provided for in paragraphs (e)(3)(ii) and (e)(3)(iii) of this section.

(v) *Content and submittal dates for excess emissions and monitoring system performance reports.* All excess emissions and monitoring system performance reports and all summary reports, if required, shall be delivered or postmarked by the 30th day following the end of each calendar half or quarter, as appropriate. Written reports of excess emissions or exceedances of process or control system parameters shall include all the information required in paragraphs (c)(5) through (c)(13) of this section, in §63.8(c)(7) and §63.8(c)(8), and in the relevant standard, and they shall contain the name, title, and signature of the responsible official who is certifying the accuracy of the report. When no excess emissions or exceedances of a parameter have occurred, or a CMS has not been inoperative, out of control, repaired, or adjusted, such information shall be stated in the report.

(vi) *Summary report.* As required under paragraphs (e)(3)(vii) and (e)(3)(viii) of this section, one summary report shall be submitted for the hazardous air pollutants monitored at each affected source (unless the relevant standard specifies that more than one summary report is required, e.g., one summary report for each hazardous air pollutant monitored). The summary report shall be entitled "Summary Report—Gaseous and Opacity Excess Emission and Continuous Monitoring System Performance" and shall contain the following information:

(A) The company name and address of the affected source;

(B) An identification of each hazardous air pollutant monitored at the affected source;

(C) The beginning and ending dates of the reporting period;

(D) A brief description of the process units;

(E) The emission and operating parameter limitations specified in the relevant standard(s);

(F) The monitoring equipment manufacturer(s) and model number(s);

(G) The date of the latest CMS certification or audit;

(H) The total operating time of the affected source during the reporting period;

(I) An emission data summary (or similar summary if the owner or operator monitors control system parameters), including the total duration of excess emissions during the reporting period (recorded in minutes for opacity and hours for gases), the total duration of excess emissions expressed as a percent of the total source operating time during that reporting period, and a breakdown of the total duration of excess emissions during the reporting period into those that are due to startup/shutdown, control equipment problems, process problems, other known causes, and other unknown causes;

(J) A CMS performance summary (or similar summary if the owner or operator monitors control system parameters), including the total CMS downtime during the reporting period (recorded in minutes for opacity and hours for gases), the total duration of CMS downtime expressed as a percent of the total source operating time during that reporting period, and a breakdown of the total CMS downtime during the reporting period into periods that are due to monitoring equipment malfunctions, nonmonitoring equipment malfunctions, quality assurance/quality control calibrations, other known causes, and other unknown causes;

(K) A description of any changes in CMS, processes, or controls since the last reporting period;

(L) The name, title, and signature of the responsible official who is certifying the accuracy of the report; and

(M) The date of the report.

(vii) If the total duration of excess emissions or process or control system parameter exceedances for the reporting period is less than 1 percent of the total operating time for the reporting period, and CMS downtime for the reporting period is less than 5 percent of the total operating time for the reporting period, only the summary report shall be submitted, and the full excess emissions and continuous monitoring system performance report need not be submitted unless required by the Administrator.

(viii) If the total duration of excess emissions or process or control system parameter exceedances for the reporting period is 1 percent or greater of the total operating time for the reporting period, or the total CMS downtime for the reporting period is 5 percent or greater of the total operating time for the reporting period, both the summary report and the excess emissions and continuous monitoring system performance report shall be submitted.

(4) *Reporting continuous opacity monitoring system data produced during a performance test.* The owner or operator of an affected source required to use a COMS shall record the monitoring data produced during a performance test required under §63.7 and shall furnish the Administrator a written report of the monitoring results. The report of COMS data shall be submitted simultaneously with the report of the performance test results required in paragraph (d)(2) of this section.

(f) *Waiver of recordkeeping or reporting requirements.* (1) Until a waiver of a recordkeeping or reporting requirement has been granted by the Administrator under this paragraph, the owner or operator of an affected source remains subject to the requirements of this section.

(2) Recordkeeping or reporting requirements may be waived upon written application to the Administrator if, in the Administrator's judgment, the affected source is achieving the relevant standard(s), or the source is operating under an extension of compliance, or the owner or operator has requested an extension of compliance and the Administrator is still considering that request.

(3) If an application for a waiver of recordkeeping or reporting is made, the application shall accompany the request for an extension of compliance under §63.6(i), any required compliance progress report or compliance status report required under this part (such as under §63.6(i) and §63.9(h)) or in the source's title V permit, or an excess emissions and continuous monitoring system performance report required under paragraph (e) of this section, whichever is applicable. The application shall include whatever information the owner or operator considers useful to convince the Administrator that a waiver of recordkeeping or reporting is warranted.

(4) The Administrator will approve or deny a request for a waiver of recordkeeping or reporting requirements under this paragraph when he/she—

(i) Approves or denies an extension of compliance; or

(ii) Makes a determination of compliance following the submission of a required compliance status report or excess emissions and continuous monitoring systems performance report; or

(iii) Makes a determination of suitable progress towards compliance following the submission of a compliance progress report, whichever is applicable.

(5) A waiver of any recordkeeping or reporting requirement granted under this paragraph may be conditioned on other recordkeeping or reporting requirements deemed necessary by the Administrator.

(6) Approval of any waiver granted under this section shall not abrogate the Administrator's authority under the Act or in any way prohibit the Administrator from later canceling the waiver. The cancellation will be made only after notice is given to the owner or operator of the affected source.

[59 FR 12430, Mar. 16, 1994, as amended at 64 FR 7468, Feb. 12, 1999; 67 FR 16604, Apr. 5, 2002; 68 FR 32601, May 30, 2003; 69 FR 21752, Apr. 22, 2004; 71 FR 20455, Apr. 20, 2006]

§ 63.11 CONTROL DEVICE AND WORK PRACTICE REQUIREMENTS.

(a) *Applicability.* (1) The applicability of this section is set out in §63.1(a)(4).

(2) This section contains requirements for control devices used to comply with applicable subparts of this part. The requirements are placed here for administrative convenience and apply only to facilities covered by subparts referring to this section.

(3) This section also contains requirements for an alternative work practice used to identify leaking equipment. This alternative work practice is placed here for administrative convenience and is available to all subparts in 40 CFR parts 60, 61, 63, and 65 that require monitoring of equipment with a 40 CFR part 60, appendix A–7, Method 21 monitor.

(b) *Flares.* (1) Owners or operators using flares to comply with the provisions of this part shall monitor these control devices to assure that they are operated and maintained in conformance with their designs. Applicable subparts will provide provisions stating how

owners or operators using flares shall monitor these control devices.

(2) Flares shall be steam-assisted, air-assisted, or non-assisted.

(3) Flares shall be operated at all times when emissions may be vented to them.

(4) Flares shall be designed for and operated with no visible emissions, except for periods not to exceed a total of 5 minutes during any 2 consecutive hours. Test Method 22 in appendix A of part 60 of this chapter shall be used to determine the compliance of flares with the visible emission provisions of this part. The observation period is 2 hours and shall be used according to Method 22.

(5) Flares shall be operated with a flame present at all times. The presence of a flare pilot flame shall be monitored using a thermocouple or any other equivalent device to detect the presence of a flame.

(6) An owner/operator has the choice of adhering to the heat content specifications in paragraph (b)(6)(ii) of this section, and the maximum tip velocity specifications in paragraph (b)(7) or (b)(8) of this section, or adhering to the requirements in paragraph (b)(6)(i) of this section.

(i)(A) Flares shall be used that have a diameter of 3 inches or greater, are nonassisted, have a hydrogen content of 8.0 percent (by volume) or greater, and are designed for and operated with an exit velocity less than 37.2 m/sec (122 ft/sec) and less than the velocity V_{max}, as determined by the following equation:

$V_{max}=(X_{H2}-K_1)* K_2$

Where:

V_{max}=Maximum permitted velocity, m/sec.

K_1=Constant, 6.0 volume-percent hydrogen.

K_2=Constant, 3.9(m/sec)/volume-percent hydrogen.

X_{H2}=The volume-percent of hydrogen, on a wet basis, as calculated by using the American Society for Testing and Materials (ASTM) Method D1946–77. (Incorporated by reference as specified in §63.14).

(B) The actual exit velocity of a flare shall be determined by the method specified in paragraph (b)(7)(i) of this section.

(ii) Flares shall be used only with the net heating value of the gas being combusted at 11.2 MJ/scm (300 Btu/scf) or greater if the flare is steam-assisted or air-assisted; or with the net heating value of the gas being combusted at 7.45 M/scm (200 Btu/scf) or greater if the flares is non-assisted. 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=

$$1.740\times10^{-7}\left(\frac{1}{ppmv}\right)\left(\frac{\text{g-mole}}{\text{scm}}\right)\left(\frac{\text{MJ}}{\text{kcal}}\right)$$

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

C_i=Concentration of sample component i in ppmv on a wet basis, as measured for organics by Test Method 18 and measured for hydrogen and carbon monoxide by American Society for Testing and Materials (ASTM) D1946–77 or 90 (Reapproved 1994) (incorporated by reference as specified in §63.14).

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 §63.14) if published values are not available or cannot be calculated.

n=Number of sample components.

(7)(i) Steam-assisted and nonassisted flares shall be designed for and operated with an exit velocity less than 18.3 m/sec (60 ft/sec), except as provided in paragraphs (b)(7)(ii) and (b)(7)(iii) of this section. The actual exit velocity of a flare shall be determined by dividing by the volumetric flow rate of gas being combusted (in units of emission standard temperature and pressure), as determined by Test Method 2, 2A, 2C, or 2D in appendix A to 40 CFR part 60 of this chapter, as appropriate, by the unobstructed (free) cross-sectional area of the flare tip.

(ii) Steam-assisted and nonassisted flares designed for and operated with an exit velocity, as determined by the method specified in paragraph (b)(7)(i) of this section, equal to or greater than 18.3 m/sec (60 ft/sec) but less than 122 m/sec (400 ft/sec), are allowed if the net heating value of the gas being combusted is greater than 37.3 MJ/scm (1,000 Btu/scf).

(iii) Steam-assisted and nonassisted flares designed for and operated with an exit velocity, as determined by the method specified in paragraph (b)(7)(i) of this section, less than the velocity V_{max}, as determined by the method specified in this paragraph, but less than 122 m/sec (400 ft/sec) are allowed. The maximum permitted velocity, V_{max}, for flares complying with this paragraph shall be determined by the following equation:

$Log_{10}(V_{max})=(H_T+28.8)/31.7$

Where:

V_{max}=Maximum permitted velocity, m/sec.

28.8=Constant.

31.7=Constant.

H_T=The net heating value as determined in paragraph (b)(6) of this section.

(8) Air-assisted flares shall be designed and operated with an exit velocity less than the velocity V_{max}. The maximum permitted velocity, V_{max}, for air-assisted flares shall be determined by the following equation:

$V_{max}=8.71+0.708(H_T)$

Where:

V_{max}=Maximum permitted velocity, m/sec.

8.71=Constant.

0.708=Constant.

H_T=The net heating value as determined in paragraph (b)(6)(ii) of this section.

(c) *Alternative work practice for monitoring equipment for leaks.* Paragraphs (c), (d), and (e) of this section apply to all equipment for which the applicable subpart requires monitoring with a 40 CFR part 60, appendix A–7, Method 21 monitor, except for closed vent systems, equipment designated as leakless, and equipment identified in the applicable subpart as having no detectable emissions, as

indicated by an instrument reading of less than 500 ppm above background. An owner or operator may use an optical gas imaging instrument instead of a 40 CFR part 60, sppendix A–7, Method 21 monitor. Requirements in the existing subparts that are specific to the Method 21 instrument do not apply under this section. All other requirements in the applicable subpart that are not addressed in paragraphs (c), (d), and (e) of this section continue to apply. For example, equipment specification requirements, and non-Method 21 instrument recordkeeping and reporting requirements in the applicable subpart continue to apply. The terms defined in paragraphs (c)(1) through (5) of this section have meanings that are specific to the alternative work practice standard in paragraphs (c), (d), and (e) of this section.

(1) *Applicable subpart* means the subpart in 40 CFR parts 60, 61, 63, and 65 that requires monitoring of equipment with a 40 CFR part 60, appendix A–7, Method 21 monitor.

(2) *Equipment* means pumps, valves, pressure relief valves, compressors, open-ended lines, flanges, connectors, and other equipment covered by the applicable subpart that require monitoring with a 40 CFR part 60, appendix A–7, Method 21 monitor.

(3) *Imaging* means making visible emissions that may otherwise be invisible to the naked eye.

(4) *Optical gas imaging instrument* means an instrument that makes visible emissions that may otherwise be invisible to the naked eye.

(5) *Repair* means that equipment is adjusted, or otherwise altered, in order to eliminate a leak.

(6) *Leak* means:

(i) Any emissions imaged by the optical gas instrument;

(ii) Indications of liquids dripping;

(iii) Indications by a sensor that a seal or barrier fluid system has failed; or

(iv) Screening results using a 40 CFR part 60, appendix A–7, Method 21 monitor that exceed the leak definition in the applicable subpart to which the equipment is subject.

(d) The alternative work practice standard for monitoring equipment for leaks is available to all subparts in 40 CFR parts 60, 61, 63, and 65 that require monitoring of equipment with a 40 CFR part 60, appendix A–7, Method 21 monitor.

(1) An owner or operator of an affected source subject to 40 CFR parts 60, 61, 63, or 65 can choose to comply with the alternative work practice requirements in paragraph (e) of this section instead of using the 40 CFR part 60, appendix A–7, Method 21 monitor to identify leaking equipment. The owner or operator must document the equipment, process units, and facilities for which the alternative work practice will be used to identify leaks.

(2) Any leak detected when following the leak survey procedure in paragraph (e)(3) of this section must be identified for repair as required in the applicable subpart.

(3) If the alternative work practice is used to identify leaks, re-screening after an attempted repair of leaking equipment must be conducted using either the alternative work practice or the 40 CFR part 60, Appendix A–7, Method 21 monitor at the leak definition required in the applicable subparts to which the equipment is subject.

(4) The schedule for repair is as required in the applicable subpart.

(5) When this alternative work practice is used for detecting leaking equipment, choose one of the monitoring frequencies listed in Table 1 to subpart A of this part in lieu of the monitoring frequency specified for regulated equipment in the applicable subpart. Reduced monitoring frequencies for good performance are not applicable when using the alternative work practice.

(6) When this alternative work practice is used for detecting leaking equipment, the following are not applicable for the equipment being monitored:

(i) Skip period leak detection and repair;

(ii) Quality improvement plans; or

(iii) Complying with standards for allowable percentage of valves and pumps to leak.

(7) When the alternative work practice is used to detect leaking equipment, the regulated equipment in paragraph (d)(1)(i) of this section must also be monitored annually using a 40 CFR part 60, Appendix A–7, Method 21 monitor at the leak definition required in the applicable subpart. The owner or operator may choose the specific monitoring period (for example, first quarter) to conduct the annual monitoring. Subsequent monitoring must be conducted every 12 months from the initial period. Owners or operators must keep

records of the annual Method 21 screening results, as specified in paragraph (i)(4)(vii) of this section.

(e) An owner or operator of an affected source who chooses to use the alternative work practice must comply with the requirements of paragraphs (e)(1) through (e)(5) of this section.

(1) *Instrument specifications.* The optical gas imaging instrument must comply with the requirements specified in paragraphs (e)(1)(i) and (e)(1)(ii) of this section.

(i) Provide the operator with an image of the potential leak points for each piece of equipment at both the detection sensitivity level and within the distance used in the daily instrument check described in paragraph (e)(2) of this section. The detection sensitivity level depends upon the frequency at which leak monitoring is to be performed.

(ii) Provide a date and time stamp for video records of every monitoring event.

(2) *Daily instrument check.* On a daily basis, and prior to beginning any leak monitoring work, test the optical gas imaging instrument at the mass flow rate determined in paragraph (e)(2)(i) of this section in accordance with the procedure specified in paragraphs (e)(2)(ii) through (e)(2)(iv) of this section for each camera configuration used during monitoring (for example, different lenses used), unless an alternative method to demonstrate daily instrument checks has been approved in accordance with paragraph (e)(2)(v) of this section.

(i) Calculate the mass flow rate to be used in the daily instrument check by following the procedures in paragraphs (e)(2)(i)(A) and (e)(2)(i)(B) of this section.

(A) For a specified population of equipment to be imaged by the instrument, determine the piece of equipment in contact with the lowest mass fraction of chemicals that are detectable, within the distance to be used in paragraph (e)(2)(iv)(B) of this section, at or below the standard detection sensitivity level.

(B) Multiply the standard detection sensitivity level, corresponding to the selected monitoring frequency in Table 1 of subpart A of this part, by the mass fraction of detectable chemicals from the stream identified in paragraph (e)(2)(i)(A) of this section to determine the mass flow rate to be used in the daily instrument check, using the following equation.

$$E_{dic} = (E_{sds}) \sum_{i=1}^{k} x_i$$

Where:

E_{dic}= Mass flow rate for the daily instrument check, grams per hour

x_i= Mass fraction of detectable chemical(s) i seen by the optical gas imaging instrument, within the distance to be used in paragraph (e)(2)(iv)(B) of this section, at or below the standard detection sensitivity level, E_{sds}.

E_{sds}= Standard detection sensitivity level from Table 1 to subpart A, grams per hour

k = Total number of detectable chemicals emitted from the leaking equipment and seen by the optical gas imaging instrument.

(ii) Start the optical gas imaging instrument according to the manufacturer's instructions, ensuring that all appropriate settings conform to the manufacturer's instructions.

(iii) Use any gas chosen by the user that can be viewed by the optical gas imaging instrument and that has a purity of no less than 98 percent.

(iv) Establish a mass flow rate by using the following procedures:

(A) Provide a source of gas where it will be in the field of view of the optical gas imaging instrument.

(B) Set up the optical gas imaging instrument at a recorded distance from the outlet or leak orifice of the flow meter that will not be exceeded in the actual performance of the leak survey. Do not exceed the operating parameters of the flow meter.

(C) Open the valve on the flow meter to set a flow rate that will create a mass emission rate equal to the mass rate calculated in paragraph (e)(2)(i) of this section while observing the gas flow through the optical gas imaging instrument viewfinder. When an image

of the gas emission is seen through the viewfinder at the required emission rate, make a record of the reading on the flow meter.

(v) Repeat the procedures specified in paragraphs (e)(2)(ii) through (e)(2)(iv) of this section for each configuration of the optical gas imaging instrument used during the leak survey.

(vi) To use an alternative method to demonstrate daily instrument checks, apply to the Administrator for approval of the alternative under §63.177 or §63.178, whichever is applicable.

(3) *Leak survey procedure.* Operate the optical gas imaging instrument to image every regulated piece of equipment selected for this work practice in accordance with the instrument manufacturer's operating parameters. All emissions imaged by the optical gas imaging instrument are considered to be leaks and are subject to repair. All emissions visible to the naked eye are also considered to be leaks and are subject to repair.

(4) *Recordkeeping.* Keep the records described in paragraphs (e)(4)(i) through (e)(4)(vii) of this section:

(i) The equipment, processes, and facilities for which the owner or operator chooses to use the alternative work practice.

(ii) The detection sensitivity level selected from Table 1 to subpart A of this part for the optical gas imaging instrument.

(iii) The analysis to determine the piece of equipment in contact with the lowest mass fraction of chemicals that are detectable, as specified in paragraph (e)(2)(i)(A) of this section.

(iv) The technical basis for the mass fraction of detectable chemicals used in the equation in paragraph (e)(2)(i)(B) of this section.

(v) The daily instrument check. Record the distance, per paragraph (e)(2)(iv)(B) of this section, and the flow meter reading, per paragraph (e)(2)(iv)(C) of this section, at which the leak was imaged. Keep a video record of the daily instrument check for each configuration of the optical gas imaging instrument used during the leak survey (for example, the daily instrument check must be conducted for each lens used). The video record must include a time and date stamp for each daily instrument check. The video record must be kept for 5 years.

(vi) *Recordkeeping requirements in the applicable subpart.* A video record must be used to document the leak survey results. The video record must include a time and date stamp for each monitoring event. A video record can be used to meet the recordkeeping requirements of the applicable subparts if each piece of regulated equipment selected for this work practice can be identified in the video record. The video record must be kept for 5 years.

(vii) The results of the annual Method 21 screening required in paragraph (h)(7) of this section. Records must be kept for all regulated equipment specified in paragraph (h)(1) of this section. Records must identify the equipment screened, the screening value measured by Method 21, the time and date of the screening, and calibration information required in the existing applicable subparts.

(5) *Reporting.* Submit the reports required in the applicable subpart. Submit the records of the annual Method 21 screening required in paragraph (h)(7) of this section to the Administrator via e-mail to *CCG-AWP@EPA.GOV.*

[59 FR 12430, Mar. 16, 1994, as amended at 63 FR 24444, May 4, 1998; 65 FR 62215, Oct. 17, 2000; 67 FR 16605, Apr. 5, 2002; 73 FR 78211, Dec. 22, 2008]

§ 63.12 STATE AUTHORITY AND DELEGATIONS.

(a) The provisions of this part shall not be construed in any manner to preclude any State or political subdivision thereof from—

(1) Adopting and enforcing any standard, limitation, prohibition, or other regulation applicable to an affected source subject to the requirements of this part, provided that such standard, limitation, prohibition, or regulation is not less stringent than any requirement applicable to such source established under this part;

(2) Requiring the owner or operator of an affected source to obtain permits, licenses, or approvals prior to initiating construction, reconstruction, modification, or operation of such source; or

(3) Requiring emission reductions in excess of those specified in subpart D of this part as a condition for granting the extension of compliance authorized by section 112(i)(5) of the Act.

(b)(1) Section 112(l) of the Act directs the Administrator to delegate to each State, when appropriate, the authority to implement and enforce standards and other requirements pursuant to section 112 for stationary sources located in that State. Because of the unique nature of radioactive material, delegation of authority to implement and enforce standards that control radionuclides may require separate approval.

(2) Subpart E of this part establishes procedures consistent with section 112(l) for the approval of State rules or programs to implement

and enforce applicable Federal rules promulgated under the authority of section 112. Subpart E also establishes procedures for the review and withdrawal of section 112 implementation and enforcement authorities granted through a section 112(l) approval.

(c) All information required to be submitted to the EPA under this part also shall be submitted to the appropriate State agency of any State to which authority has been delegated under section 112(l) of the Act, provided that each specific delegation may exempt sources from a certain Federal or State reporting requirement. The Administrator may permit all or some of the information to be submitted to the appropriate State agency only, instead of to the EPA and the State agency.

§ 63.13 ADDRESSES OF STATE AIR POLLUTION CONTROL AGENCIES AND EPA REGIONAL OFFICES.

(a) All requests, reports, applications, submittals, and other communications to the Administrator pursuant to this part shall be submitted to the appropriate Regional Office of the U.S. Environmental Protection Agency indicated in the following list of EPA Regional Offices.

EPA Region I (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont), Director, Air, Pesticides and Toxics Division, J.F.K. Federal Building, Boston, MA 02203–2211.

EPA Region II (New Jersey, New York, Puerto Rico, Virgin Islands), Director, Air and Waste Management Division, 26 Federal Plaza, New York, NY 10278.

EPA Region III (Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia), Director, Air Protection Division, 1650 Arch Street, Philadelphia, PA 19103.

EPA Region IV (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee). Director, Air, Pesticides and Toxics Management Division, Atlanta Federal Center, 61 Forsyth Street, Atlanta, GA 30303–3104.

EPA Region V (Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin), Director, Air and Radiation Division, 77 West Jackson Blvd., Chicago, IL 60604–3507.

EPA Region VI (Arkansas, Louisiana, New Mexico, Oklahoma, Texas), Director, Air, Pesticides and Toxics, 1445 Ross Avenue, Dallas, TX 75202–2733.

EPA Region VII (Iowa, Kansas, Missouri, Nebraska), Director, Air, RCRA, and Toxics Division, U.S. Environmental Protection Agency, 901 N. 5th Street, Kansas City, KS 66101.

EPA Region VIII (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming) Director, Air and Toxics Technical Enforcement Program, Office of Enforcement, Compliance and Environmental Justice, Mail Code 8ENF–AT, 1595 Wynkoop Street, Denver, CO 80202–1129.

EPA Region IX (Arizona, California, Hawaii, Nevada, American Samoa, Guam), Director, Air and Toxics Division, 75 Hawthorne Street, San Francisco, CA 94105.

EPA Region X (Alaska, Idaho, Oregon, Washington), Director, Office of Air Quality, 1200 Sixth Avenue (OAQ–107), Seattle, WA 98101.

(b) All information required to be submitted to the Administrator under this part also shall be submitted to the appropriate State agency of any State to which authority has been delegated under section 112(l) of the Act. The owner or operator of an affected source may contact the appropriate EPA Regional Office for the mailing addresses for those States whose delegation requests have been approved.

(c) If any State requires a submittal that contains all the information required in an application, notification, request, report, statement, or other communication required in this part, an owner or operator may send the appropriate Regional Office of the EPA a copy of that

submittal to satisfy the requirements of this part for that communication.

[59 FR 12430, Mar. 16, 1994, as amended at 63 FR 66061, Dec. 1, 1998; 67 FR 4184, Jan. 29, 2002; 68 FR 32601, May 30, 2003; 68 FR 35792, June 17, 2003; 73 FR 24871, May 6, 2008]

§ 63.14 INCORPORATIONS BY REFERENCE.

(a) The materials listed in this section are incorporated by reference in the corresponding sections noted. These incorporations by reference were approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. These materials are incorporated as they exist on the date of the approval, and notice of any change in these materials will be published in theFederal Register.The materials are available for purchase at the corresponding addresses noted below, and all are available for inspection at the National Archives and Records Administration (NARA), at the Air and Radiation Docket and Information Center, U.S. EPA, 401 M St., SW., Washington, DC, and at the EPA Library (MD–35), U.S. EPA, Research Triangle Park, North Carolina. For information on the availability of this material at NARA, call 202–741–6030, or go to: *http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.*

(b) The following materials are available for purchase from at least one of the following addresses: American Society for Testing and Materials (ASTM), 100 Barr Harbor Drive, Post Office Box C700, West Conshohocken, PA 19428–2959; or ProQuest, 300 North Zeeb Road, Ann Arbor, MI 48106.

(1) ASTM D523–89, Standard Test Method for Specular Gloss, IBR approved for §63.782.

(2) ASTM D1193–77, 91, Standard Specification for Reagent Water, IBR approved for appendix A: Method 306, Sections 7.1.1 and 7.4.2.

(3) ASTM D1331–89, Standard Test Methods for Surface and Interfacial Tension of Solutions of Surface Active Agents, IBR approved for appendix A: Method 306B, Sections 6.2, 11.1, and 12.2.2.

(4) ASTM D1475–90, Standard Test Method for Density of Paint, Varnish Lacquer, and Related Products, IBR approved for §63.788, appendix A.

(5) ASTM D1946–77, 90, 94, Standard Method for Analysis of Reformed Gas by Gas Chromatography, IBR approved for §63.11(b)(6).

(6) ASTM D2369–93, 95, Standard Test Method for Volatile Content of Coatings, IBR approved for §63.788, appendix A.

(7) ASTM D2382–76, 88, Heat of Combustion of Hydrocarbon Fuels by Bomb Calorimeter (High-Precision Method), IBR approved for §63.11(b)(6).

(8) ASTM D2879–83, 96, Test Method for Vapor Pressure-Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope, IBR approved for §63.111 and §63.2406.

(9) ASTM D3257–93, Standard Test Methods for Aromatics in Mineral Spirits by Gas Chromatography, IBR approved for §63.786(b).

(10) ASTM 3695–88, Standard Test Method for Volatile Alcohols in Water by Direct Aqueous-Injection Gas Chromatography, IBR approved for §63.365(e)(1) of subpart O.

(11) ASTM D3792–91, Standard Method for Water Content of Water-Reducible Paints by Direct Injection into a Gas Chromatograph, IBR approved for §63.788, appendix A.

(12) ASTM D3912–80, Standard Test Method for Chemical Resistance of Coatings Used in Light-Water Nuclear Power Plants, IBR approved for §63.782.

(13) ASTM D4017–90, 96a, Standard Test Method for Water in Paints and Paint Materials by the Karl Fischer Titration Method, IBR approved for §63.788, appendix A.

(14) ASTM D4082–89, Standard Test Method for Effects of Gamma Radiation on Coatings for Use in Light-Water Nuclear Power Plants, IBR approved for §63.782.

(15) ASTM D4256–89, 94, Standard Test Method for Determination of the Decontaminability of Coatings Used in Light-Water Nuclear Power Plants, IBR approved for §63.782.

(16) ASTM D4809–95, Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter (Precision Method), IBR approved for §63.11(b)(6).

(17) ASTM E180–93, Standard Practice for Determining the Precision of ASTM Methods for Analysis and Testing of Industrial

Chemicals, IBR approved for §63.786(b).

(18) ASTM E260–91, 96, General Practice for Packed Column Gas Chromatography, IBR approved for §§63.750(b)(2) and 63.786(b)(5).

(19)–(20) [Reserved]

(21) ASTM D2099–00, Standard Test Method for Dynamic Water Resistance of Shoe Upper Leather by the Maeser Water Penetration Tester, IBR approved for §63.5350.

(22)–(23) [Reserved]

(24) ASTM D2697–86 (Reapproved 1998), "Standard Test Method for Volume Nonvolatile Matter in Clear or Pigmented Coatings," IBR approved for §§63.3161(f)(1), 63.3521(b)(1), 63.3941(b)(1), 63.4141(b)(1), 63.4741(b)(1), 63.4941(b)(1), and 63.5160(c).

(25) ASTM D6093–97 (Reapproved 2003), "Standard Test Method for Percent Volume Nonvolatile Matter in Clear or Pigmented Coatings Using a Helium Gas Pycnometer," IBR approved for §§63.3161(f)(1), 63.3521(b)(1), 63.3941(b)(1), 63.4141(b)(1), 63.4741(b)(1), 63.4941(b)(1), and 63.5160(c).

(26) ASTM D1475–98 (Reapproved 2003), "Standard Test Method for Density of Liquid Coatings, Inks, and Related Products," IBR approved for §§63.3151(b), 63.3941(b)(4), 63.3941(c), 63.3951(c), 63.4141(b)(3), 63.4141(c), and 63.4551(c).

(27) ASTM D6522–00, Standard Test Method for Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Concentrations in Emissions from Natural Gas Fired Reciprocating Engines, Combustion Turbines, Boilers, and Process Heaters Using Portable Analyzers,[1] IBR approved for §63.9307(c)(2) and table 5 to subpart DDDDD of this part.

(28) ASTM D6420–99 (Reapproved 2004), Standards Test Method for Determination of Gaseous Organic Compounds by Direct Interface Gas Chromatography-Mass Spectometry, IBR approved for §§60.485(g)(5), 60.485a(g)(5), 63.772(a)(1)(ii), 63.2354(b)(3)(i), 63.2354(b)(3)(ii), 63.2354(b)(3)(ii)(A), and 63.2351(b)(3)(ii)(B).

(29) ASTM D6420–99, Standard Test Method for Determination of Gaseous Organic Compounds by Direct Interface Gas Chromatography-Mass Spectrometry, IBR approved for §§63.5799 and 63.5850.

(30) ASTM E 515–95 (Reapproved 2000), Standard Test Method for Leaks Using Bubble Emission Techniques, IBR approved for §63.425(i)(2).

(31) ASTM D5291–02, Standard Test Methods for Instrumental Determination of Carbon, Hydrogen, and Nitrogen in Petroleum Products and Lubricants, IBR approved for §63.3981, appendix A.

(32) ASTM D5965–02, "Standard Test Methods for Specific Gravity of Coating Powders," IBR approved for §§63.3151(b) and 63.3951(c).

(33) ASTM D6053–00, Standard Test Method for Determination of Volatile Organic Compound (VOC) Content of Electrical Insulating Varnishes, IBR approved for §63.3981, appendix A.

(34) E145–94 (Reapproved 2001), Standard Specification for Gravity-Convection and Forced-Ventilation Ovens, IBR approved for §63.4581, appendix A.

(35) ASTM D6784–02, Standard Test Method for Elemental, Oxidized, Particle-Bound and Total Mercury in Flue Gas Generated from Coal-Fired Stationary Sources (Ontario Hydro Method),[1] IBR approved for table 5 to subpart DDDDD of this part.

(36) ASTM D5066–91 (Reapproved 2001), "Standard Test Method for Determination of the Transfer Efficiency Under Production Conditions for Spray Application of Automotive Paints-Weight Basis," IBR approved for §63.3161(g).

(37) ASTM D5087–02, "Standard Test Method for Determining Amount of Volatile Organic Compound (VOC) Released from Solventborne Automotive Coatings and Available for Removal in a VOC Control Device (Abatement)," IBR approved for §§63.3165(e) and 63.3176, appendix A.

(38) ASTM D6266–00a, "Test Method for Determining the Amount of Volatile Organic Compound (VOC) Released from Waterborne Automotive Coatings and Available for Removal in a VOC Control Device (Abatement)," IBR approved for §63.3165(e).

(39) ASTM Method D388–99,.[1] Standard Classification of Coals by Rank,[1] IBR approved for §63.7575.

(40) ASTM D396–02a, Standard Specification for Fuel Oils,[1] IBR approved for §63.7575.

(41) ASTM D1835–03a, Standard Specification for Liquified Petroleum (LP) Gases,[1] IBR approved for §63.7575.

(42) ASTM D2013–01, Standard Practice for Preparing Coal Samples for Analysis,[1] IBR approved for table 6 to subpart DDDDD of this part.

(43) ASTM D2234–00,.[1] Standard Practice for Collection of a Gross Sample of Coal,[1] IBR approved for table 6 to subpart DDDDD of this part.

(44) ASTM D3173–02, Standard Test Method for Moisture in the Analysis Sample of Coal and Coke,[1] IBR approved for table 6 to subpart DDDDD of this part.

(45) ASTM D3683–94 (Reapproved 2000), Standard Test Method for Trace Elements in Coal and Coke Ash Absorption,[1] IBR approved for table 6 to subpart DDDDD of this part.

(46) ASTM D3684–01, Standard Test Method for Total Mercury in Coal by the Oxygen Bomb Combustion/Atomic Absorption Method,[1] IBR approved for table 6 to subpart DDDDD of this part.

(47) ASTM D5198–92 (Reapproved 2003), Standard Practice for Nitric Acid Digestion of Solid Waste,[1] IBR approved for table 6 to subpart DDDDD of this part.

(48) ASTM D5865–03a, Standard Test Method for Gross Calorific Value of Coal and Coke,[1] IBR approved for table 6 to subpart DDDDD of this part.

(49) ASTM D6323–98 (Reapproved 2003), Standard Guide for Laboratory Subsampling of Media Related to Waste Management Activities,[1] IBR approved for table 6 to subpart DDDDD of this part.

(50) ASTM E711–87 (Reapproved 1996), Standard Test Method for Gross Calorific Value of Refuse-Derived Fuel by the Bomb Calorimeter,[1] IBR approved for table 6 to subpart DDDDD of this part.

(51) ASTM E776–87 (Reapproved 1996), Standard Test Method for Forms of Chlorine in Refuse-Derived Fuel,[1] IBR approved for table 6 to subpart DDDDD of this part.

(52) ASTM E871–82 (Reapproved 1998), Standard Method of Moisture Analysis of Particulate Wood Fuels,[1] IBR approved for table 6 to subpart DDDDD of this part.

(53) ASTM E885–88 (Reapproved 1996), Standard Test Methods for Analyses of Metals in Refuse-Derived Fuel by Atomic Absorption Spectroscopy,[1] IBR approved for table 6 to subpart DDDDD of this part 63.

(54) ASTM D6348–03, Standard Test Method for Determination of Gaseous Compounds by Extractive Direct Interface Fourier Transform Infrared (FTIR) Spectroscopy, incorporation by reference (IBR) approved for table 4 to subpart DDDD of this part as specified in the subpart.

(55) ASTM D2013–04, Standard Practice for Preparing Coal Samples for Analysis, IBR approved for table 6 to subpart DDDDD of this part.

(56) ASTM D2234–D2234M–03, Standard Practice for Collection of a Gross Sample of Coal, IBR approved for table 6 to subpart DDDDD of this part.

(57) ASTM D6721–01, Standard Test Method for Determination of Chlorine in Coal by Oxidative Hydrolysis Microcoulometry, IBR approved for table 6 to subpart DDDDD of this part.

(58) ASTM D3173–03, Standard Test Method for Moisture in the Analysis Sample of Coal and Coke, IBR approved for table 6 to subpart DDDDD of this part.

(59) ASTM D4606–03, Standard Test Method for Determination of Arsenic and Selenium in Coal by the Hydride Generation/Atomic Absorption Method, IBR approved for table 6 to subpart DDDDD of this part.

(60) ASTM D6357–04, Standard Test Methods for Determination of Trace Elements in Coal, Coke, and Combustion Residues from Coal Utilization Processes by Inductively Coupled Plasma Atomic Emission Spectrometry, Inductively Coupled Plasma Mass Spectrometry, and Graphite Furnace Atomic Absorption Spectrometry, IBR approved for table 6 to subpart DDDDD of this part.

(61) ASTM D6722–01, Standard Test Method for Total Mercury in Coal and Coal Combustion Residues by the Direct Combustion Analysis, IBR approved for table 6 to subpart DDDDD of this part.

(62) ASTM D5865–04, Standard Test Method for Gross Calorific Value of Coal and Coke, IBR approved for table 6 to subpart DDDDD of this part.

(63) ASTM D2216–05, "Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass," IBR approved for the definition of "Free organic liquids" in §63.10692.

(64) ASTM D6522–00 (Reapproved 2005), Standard Test Method for Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Concentrations in Emissions from Natural Gas Fired Reciprocating Engines, Combustion Turbines, Boilers, and Process Heaters Using Portable Analyzers,[1] IBR approved for table 4 to subpart ZZZZ of this part.

(65) ASTM D 5228–92—"Standard Test Method for Determination of Butane Working Capacity of Activated Carbon," reapproved 2005, IBR approved for §63.11092(b)(1)(i)(B)(*1*)(*ii*).

(c) The materials listed below are available for purchase from the American Petroleum Institute (API), 1220 L Street, NW., Washington, DC 20005.

(1) API Publication 2517, Evaporative Loss from External Floating-Roof Tanks, Third Edition, February 1989, IBR approved for §63.111 and §63.2406.

(2) API Publication 2518, Evaporative Loss from Fixed-roof Tanks, Second Edition, October 1991, IBR approved for §63.150(g)(3)(i)(C) of subpart G of this part.

(3) API Manual of Petroleum Measurement Specifications (MPMS) Chapter 19.2, Evaporative Loss From Floating-Roof Tanks (formerly API Publications 2517 and 2519), First Edition, April 1997, IBR approved for §63.1251 of subpart GGG of this part.

(d) The materials listed below are available at the Air and Radiation Docket and Information Center, U.S. EPA, 401 M St., SW., Washington, DC. Additionally, the California South Coast Air Quality Management District materials are available at *http://www.aqmd.gov/permit/spraytransferefficiency.html.*

(1) *California Regulatory Requirements Applicable to the Air Toxics Program,* January 5, 1999, IBR approved for §63.99(a)(5)(ii) of subpart E of this part.

(2) New Jersey's *Toxic Catastrophe Prevention Act Program,* (July 20, 1998), Incorporation By Reference approved for §63.99 (a)(30)(i) of subpart E of this part.

(3)(i) Letter of June 7, 1999 to the U.S. Environmental Protection Agency Region 3 from the Delaware Department of Natural Resources and Environmental Control requesting formal full delegation to take over primary responsibility for implementation and enforcement of the Chemical Accident Prevention Program under Section 112(r) of the Clean Air Act Amendments of 1990.

(ii) Delaware Department of Natural Resources and Environmental Control, Division of Air and Waste Management, Accidental Release Prevention Regulation, sections 1 through 5 and sections 7 through 14, effective January 11, 1999, IBR approved for §63.99(a)(8)(i) of subpart E of this part.

(iii) State of Delaware Regulations Governing the Control of Air Pollution (October 2000), IBR approved for §63.99(a)(8)(ii)–(v) of subpart E of this part.

(4) Massachusetts Regulations Applicable to Hazardous Air Pollutants (July 2002). Incorporation By Reference approved for §63.99(a)(21)(ii) of subpart E of this part.

(5)(i) New Hampshire Regulations Applicable to Hazardous Air Pollutants, March, 2003. Incorporation by Reference approved for §63.99(a)(29)(iii) of subpart E of this part.

(ii) New Hampshire Regulations Applicable to Hazardous Air Pollutants, September 2006. Incorporation by Reference approved for §63.99(a)(29)(iv) of subpart E of this part.

(6) Maine Regulations Applicable to Hazardous Air Pollutants (March 2006). Incorporation By Reference approved for §63.99(a)(19)(iii) of subpart E of this part.

(7) California South Coast Air Quality Management District's "Spray Equipment Transfer Efficiency Test Procedure for Equipment User, May 24, 1989," IBR approved for §63.11173(e) and §63.11516(d).

(8) California South Coast Air Quality Management District's "Guidelines for Demonstrating Equivalency with District Approved Transfer Efficient Spray Guns, September 26, 2002," Revision 0, IBR approved for §§63.11173(e) and 63.11516(d).

(e) The materials listed below are available for purchase from the National Institute of Standards and Technology, Springfield, VA 22161, (800) 553–6847.

(1) Handbook 44, Specificiations, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices 1998, IBR approved for §63.1303(e)(3).

(2) [Reserved]

(f) The following material is available from the National Council of the Paper Industry for Air and Stream Improvement, Inc. (NCASI), P.O. Box 133318, Research Triangle Park, NC 27709–3318 or at *http://www.ncasi.org.*

(1) NCASI Method DI/MEOH–94.02, Methanol in Process Liquids GC/FID (Gas Chromatography/Flame Ionization Detection), August 1998, Methods Manual, NCASI, Research Triangle Park, NC, IBR approved for §63.457(c)(3)(ii) of subpart S of this part.

(2) NCASI Method CI/WP–98.01, Chilled Impinger Method For Use At Wood Products Mills to Measure Formaldehyde, Methanol, and Phenol, 1998, Methods Manual, NCASI, Research Triangle Park, NC, IBR approved for table 4 to subpart DDDD of this part.

(3) NCASI Method IM/CAN/WP–99.02, Impinger/Canister Source Sampling Method for Selected HAPs and Other Compounds at Wood Products Facilities, January 2004, Methods Manual, NCASI, Research Triangle Park, NC, IBR approved for table 4 to subpart DDDD of this part.

(4) NCASI Method ISS/FP A105.01, Impinger Source Sampling Method for Selected Aldehydes, Ketones, and Polar Compounds, December 2005, Methods Manual, NCASI, Research Triangle Park, NC, IBR approved for table 4 to subpart DDDD of this part.

(g) The materials listed below are available for purchase from AOAC International, Customer Services, Suite 400, 2200 Wilson Boulevard, Arlington, Virginia, 22201–3301, Telephone (703) 522–3032, Fax (703) 522–5468.

(1) AOAC Official Method 978.01 Phosphorus (Total) in Fertilizers, Automated Method, Sixteenth edition, 1995, IBR approved for §63.626(d)(3)(vi).

(2) AOAC Official Method 969.02 Phosphorus (Total) in Fertilizers, Alkalimetric Quinolinium Molybdophosphate Method, Sixteenth edition, 1995, IBR approved for §63.626(d)(3)(vi).

(3) AOAC Official Method 962.02 Phosphorus (Total) in Fertilizers, Gravimetric Quinolinium Molybdophosphate Method, Sixteenth edition, 1995, IBR approved for §63.626(d)(3)(vi).

(4) AOAC Official Method 957.02 Phosphorus (Total) in Fertilizers, Preparation of Sample Solution, Sixteenth edition, 1995, IBR approved for §63.626(d)(3)(vi).

(5) AOAC Official Method 929.01 Sampling of Solid Fertilizers, Sixteenth edition, 1995, IBR approved for §63.626(d)(3)(vi).

(6) AOAC Official Method 929.02 Preparation of Fertilizer Sample, Sixteenth edition, 1995, IBR approved for §63.626(d)(3)(vi).

(7) AOAC Official Method 958.01 Phosphorus (Total) in Fertilizers, Spectrophotometric Molybdovanadophosphate Method, Sixteenth edition, 1995, IBR approved for §63.626(d)(3)(vi).

(h) The materials listed below are available for purchase from The Association of Florida Phosphate Chemists, P.O. Box 1645, Bartow, Florida, 33830, Book of Methods Used and Adopted By The Association of Florida Phosphate Chemists, Seventh Edition 1991, IBR.

(1) Section IX, Methods of Analysis for Phosphate Rock, No. 1 Preparation of Sample, IBR approved for §63.606(c)(3)(ii) and §63.626(c)(3)(ii).

(2) Section IX, Methods of Analysis for Phosphate Rock, No. 3 Phosphorus—P_2O_5or $Ca_3(PO_4)_2$, Method A-Volumetric Method, IBR approved for §63.606(c)(3)(ii) and §63.626(c)(3)(ii).

(3) Section IX, Methods of Analysis for Phosphate Rock, No. 3 Phosphorus-P_2O_5or $Ca_3(PO_4)_2$, Method B—Gravimetric Quimociac Method, IBR approved for §63.606(c)(3)(ii) and §63.626(c)(3)(ii).

(4) Section IX, Methods of Analysis For Phosphate Rock, No. 3 Phosphorus-P_2O_5or $Ca_3(PO_4)_2$, Method C—Spectrophotometric Method, IBR approved for §63.606(c)(3)(ii) and §63.626(c)(3)(ii).

(5) Section XI, Methods of Analysis for Phosphoric Acid, Superphosphate, Triple Superphosphate, and Ammonium Phosphates, No. 3 Total Phosphorus-P_2O_5, Method A—Volumetric Method, IBR approved for §63.606(c)(3)(ii), §63.626(c)(3)(ii), and §63.626(d)(3)(v).

(6) Section XI, Methods of Analysis for Phosphoric Acid, Superphosphate, Triple Superphosphate, and Ammonium Phosphates, No. 3 Total Phosphorus-P_2O_5, Method B—Gravimetric Quimociac Method, IBR approved for §63.606(c)(3)(ii), §63.626(c)(3)(ii), and §63.626(d)(3)(v).

(7) Section XI, Methods of Analysis for Phosphoric Acid, Superphosphate, Triple Superphosphate, and Ammonium Phosphates, No. 3 Total Phosphorus-P_2O_5, Method C—Spectrophotometric Method, IBR approved for §63.606(c)(3)(ii), §63.626(c)(3)(ii), and §63.626(d)(3)(v).

(i) The following materials are available for purchase from at least one of the following addresses: ASME International, Orders/Inquiries, P.O. Box 2900, Fairfield, NJ 07007–2900; or Global Engineering Documents, Sales Department, 15 Inverness Way East, Englewood, CO 80112.

(1) ANSI/ASME PTC 19.10–1981, "Flue and Exhaust Gas Analyses [Part 10, Instruments and Apparatus]," IBR approved for §§63.309(k)(1)(iii), 63.865(b), 63.3166(a)(3), 63.3360(e)(1)(iii), 63.3545(a)(3), 63.3555(a)(3), 63.4166(a)(3), 63.4362(a)(3), 63.4766(a)(3), 63.4965(a)(3), 63.5160(d)(1)(iii), 63.9307(c)(2), 63.9323(a)(3), 63.11148(e)(3)(iii), 63.11155(e)(3), 63.11162(f)(3)(iii) and (f)(4), 63.11163(g)(1)(iii) and (g)(2), 63.11410(j)(1)(iii), table 5 to subpart DDDDD of this part, and table 1 to subpart ZZZZZ of this part.

(2) [Reserved]

(j) The following material is available for purchase from: British Standards Institute, 389 Chiswick High Road, London W4 4AL, United Kingdom.

(1) BS EN 1593:1999, Non-destructive Testing: Leak Testing—Bubble Emission Techniques, IBR approved for §63.425(i)(2).

(2) [Reserved]

(k) The following materials are available for purchase from the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, (703) 605–6000 or (800) 553–6847; or for purchase from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402, (202) 512–1800:

(1) The following methods as published in the test methods compendium known as "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW–846, Third Edition. A suffix of "A" in the method number indicates revision one (the method has been revised once). A suffix of "B" in the method number indicates revision two (the method has been revised twice).

(i) Method 0023A, "Sampling Method for Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofuran Emissions from Stationary Sources," dated December 1996, IBR approved for §63.1208(b)(1) of subpart EEE of this part.

(ii) Method 9071B, "n-Hexane Extractable Material (HEM) for Sludge, Sediment, and Solid Samples," dated April 1998, IBR approved for §63.7824(e) of subpart FFFFF of this part.

(iii) Method 9095A, "Paint Filter Liquids Test," dated December 1996, IBR approved for §§63.7700(b) and 63.7765 of subpart EEEEE of this part.

(iv) Method 9095B, "Paint Filter Liquids Test," (revision 2), dated November 2004, IBR approved for the definition of "Free organic liquids" in §63.10692, §63.10885(a)(1), and the definition of "Free liquids" in §63.10906.

(2) The following method as published in the National Institute of Occupational Safety and Health (NIOSH) test method compendium, "NIOSH Manual of Analytical Methods", NIOSH publication no. 94-113, Fourth Edition, August 15, 1994.

(i) NIOSH Method 2010, "Amines, Aliphatic," Issue 2, August 15, 1994, IBR approved for §63.7732(g)(1)(v) of subpart EEEEE of this part.

(ii) [Reserved]

(l) The following materials are available for purchase from the American Society of Heating, Refrigerating, and Air-Conditioning Engineers at 1791 Tullie Circle, NE., Atlanta, GA 30329 or by electronic mail at *orders@ashrae.org:*

(1) American Society of Heating, Refrigerating, and Air Conditioning Engineers Method 52.1, "Gravimetric and Dust-Spot Procedures for Testing Air-Cleaning Devices Used in General Ventilation for Removing Particulate Matter, June 4, 1992," IBR approved for §§63.11173(e) and 63.11516(d).

(2) [Reserved]

(m) The following materials are available from the California Air Resources Board, Engineering and Certification Branch, 1001 I Street,

P.O. Box 2815, Sacramento, CA 95812–2815, Telephone (916) 327–0900 and are also available at the following Web site: *http://www.arb.ca.gov/vapor/vapor.htm.*

(1) California Air Resources Board Vapor Recovery Test Procedure TP–201.1.—"Volumetric Efficiency for Phase I Vapor Recovery Systems," adopted April 12, 1996, and amended February 1, 2001 and October 8, 2003, IBR approved for §63.11120(b)(1).

(2) California Air Resources Board Vapor Recovery Test Procedure TP–201.1E—"Leak Rate and Cracking Pressure of Pressure/Vacuum Vent Valves," adopted October 8, 2003, IBR approved for §63.11120(a)(1)(i).

(3) California Air Resources Board Vapor Recovery Test Procedure TP–201.3—"Determination of 2-Inch WC Static Pressure Performance of Vapor Recovery Systems of Dispensing Facilities," adopted April 12, 1996 and amended March 17, 1999, IBR approved for §63.11120(a)(2)(i).

[59 FR 12430, Mar. 16, 1994]

Editorial Note: ForFederal Registercitations affecting §63.14, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and on GPO Access.

§ 63.15 AVAILABILITY OF INFORMATION AND CONFIDENTIALITY.

(a) *Availability of information.* (1) With the exception of information protected through part 2 of this chapter, all reports, records, and other information collected by the Administrator under this part are available to the public. In addition, a copy of each permit application, compliance plan (including the schedule of compliance), notification of compliance status, excess emissions and continuous monitoring systems performance report, and title V permit is available to the public, consistent with protections recognized in section 503(e) of the Act.

(2) The availability to the public of information provided to or otherwise obtained by the Administrator under this part shall be governed by part 2 of this chapter.

(b) *Confidentiality.* (1) If an owner or operator is required to submit information entitled to protection from disclosure under section 114(c) of the Act, the owner or operator may submit such information separately. The requirements of section 114(c) shall apply to such information.

(2) The contents of a title V permit shall not be entitled to protection under section 114(c) of the Act; however, information submitted as part of an application for a title V permit may be entitled to protection from disclosure.

§ 63.16 PERFORMANCE TRACK PROVISIONS.

(a) Notwithstanding any other requirements in this part, an affected source at any major source or any area source at a Performance Track member facility, which is subject to regular periodic reporting under any subpart of this part, may submit such periodic reports at an interval that is twice the length of the regular period specified in the applicable subparts; provided, that for sources subject to permits under 40 CFR part 70 or 71 no interval so calculated for any report of the results of any required monitoring may be less frequent than once in every six months.

(b) Notwithstanding any other requirements in this part, the modifications of reporting requirements in paragraph (c) of this section apply to any major source at a Performance Track member facility which is subject to requirements under any of the subparts of this part and which has:

(1) Reduced its total HAP emissions to less than 25 tons per year;

(2) Reduced its emissions of each individual HAP to less than 10 tons per year; and

(3) Reduced emissions of all HAPs covered by each MACT standard to at least the level required for full compliance with the applicable emission standard.

(c) For affected sources at any area source at a Performance Track member facility and which meet the requirements of paragraph (b)(3) of this section, or for affected sources at any major source that meet the requirements of paragraph (b) of this section:

(1) If the emission standard to which the affected source is subject is based on add-on control technology, and the affected source complies by using add-on control technology, then all required reporting elements in the periodic report may be met through an annual certification that the affected source is meeting the emission standard by continuing to use that control technology. The affected source must continue to meet all relevant monitoring and recordkeeping requirements. The compliance certification must meet the requirements delineated in Clean Air Act section 114(a)(3).

(2) If the emission standard to which the affected source is subject is based on add-on control technology, and the affected source complies by using pollution prevention, then all required reporting elements in the periodic report may be met through an annual

certification that the affected source is continuing to use pollution prevention to reduce HAP emissions to levels at or below those required by the applicable emission standard. The affected source must maintain records of all calculations that demonstrate the level of HAP emissions required by the emission standard as well as the level of HAP emissions achieved by the affected source. The affected source must continue to meet all relevant monitoring and recordkeeping requirements. The compliance certification must meet the requirements delineated in Clean Air Act section 114(a)(3).

(3) If the emission standard to which the affected source is subject is based on pollution prevention, and the affected source complies by using pollution prevention and reduces emissions by an additional 50 percent or greater than required by the applicable emission standard, then all required reporting elements in the periodic report may be met through an annual certification that the affected source is continuing to use pollution prevention to reduce HAP emissions by an additional 50 percent or greater than required by the applicable emission standard. The affected source must maintain records of all calculations that demonstrate the level of HAP emissions required by the emission standard as well as the level of HAP emissions achieved by the affected source. The affected source must continue to meet all relevant monitoring and recordkeeping requirements. The compliance certification must meet the requirements delineated in Clean Air Act section 114(a)(3).

(4) Notwithstanding the provisions of paragraphs (c)(1) through (3), of this section, for sources subject to permits under 40 CFR part 70 or 71, the results of any required monitoring and recordkeeping must be reported not less frequently than once in every six months.

[69 FR 21753, Apr. 22, 2004]

TABLE 1 TO SUBPART A OF PART 63—DETECTION SENSITIVITY LEVELS (GRAMS PER HOUR)

Monitoring frequency per subpart[a]	Detection sensitivity level
Bi-Monthly	60
Semi-Quarterly	85
Monthly	100

[a]When this alternative work practice is used to identify leaking equipment, the owner or operator must choose one of the monitoring frequencies listed in this table, in lieu of the monitoring frequency specified in the applicable subpart. Bi-monthly means every other month. Semi-quarterly means twice per quarter. Monthly means once per month. [73 FR 78213, Dec. 22, 2008]

Updated 12/11/08

40 CFR 61 - NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS

Subpart A - General Provisions

§ 61.01 Lists of pollutants and applicability of part 61.

a) The following list presents the substances that, pursuant to section 112 of the Act, have been designated as hazardous air pollutants. TheFederal Registercitations and dates refer to the publication in which the listing decision was originally published.

Asbestos (36 FR 5931; Mar. 31, 1971)
Benzene (42 FR 29332; June 8, 1977)
Beryllium (36 FR 5931; Mar. 31, 1971)
Coke Oven Emissions (49 FR 36560; Sept. 18, 1984)
Inorganic Arsenic (45 FR 37886; June 5, 1980)
Mercury (36 FR 5931; Mar. 31, 1971)
Radionuclides (44 FR 76738; Dec. 27, 1979)
Vinyl Chloride (40 FR 59532; Dec. 24, 1975)

(b) The following list presents other substances for which aFederal Registernotice has been published that included consideration of the serious health effects, including cancer, from ambient air exposure to the substance.

Acrylonitrile (50 FR 24319; June 10, 1985)
1,3-Butadiene (50 FR 41466; Oct. 10, 1985)
Cadmium (50 FR 42000; Oct. 16, 1985)
Carbon Tetrachloride (50 FR 32621; Aug. 13, 1985)
Chlorinated Benzenes (50 FR 32628; Aug. 13, 1985)
Chlorofluorocarbon—113 (50 FR 24313; June 10, 1985)
Chloroform (50 FR 39626; Sept. 27, 1985)
Chloroprene (50 FR 39632; Sept. 27, 1985)
Chromium (50 FR 24317; June 10, 1985)
Copper (52 FR 5496; Feb. 23, 1987)
Epichlorohydrin (50 FR 24575; June 11, 1985)
Ethylene Dichloride (50 FR 41994; Oct. 16, 1985)
Ethylene Oxide (50 FR 40286; Oct. 2, 1985)
Hexachlorocyclopentadiene (50 FR 40154; Oct. 1, 1985)
Manganese (50 FR 32627; Aug. 13, 1985)
Methyl Chloroform (50 FR 24314; June 10, 1985)
Methylene Chloride (50 FR 42037; Oct. 17, 1985)
Nickel (51 FR 34135; Sept. 25, 1986)
Perchloroethylene (50 FR 52800; Dec. 26, 1985)
Phenol (51 FR 22854; June 23, 1986)
Polycyclic Organic Matter (49 FR 31680; Aug. 8, 1984)
Toluene (49 FR 22195; May 25, 1984)
Trichloroethylene (50 FR 52422; Dec. 23, 1985)

Vinylidene Chloride (50 FR 32632; Aug. 13, 1985)
Zinc and Zinc Oxide (52 FR 32597, Aug. 28, 1987)

(c) This part applies to the owner or operator of any stationary source for which a standard is prescribed under this part.

(d) In addition to complying with the provisions of this part, the owner or operator of a stationary source subject to a standard in this part may be required to obtain an operating permit issued to stationary sources by an authorized State air pollution control agency or by the Administrator of the U.S. Environmental Protection Agency (EPA) pursuant to title V of the Clean Air Act (Act) as amended November 15, 1990 (42 U.S.C. 7661). For more information about obtaining an operating permit see part 70 of this chapter.

§ 61.02 Definitions.

The terms used in this part are defined in the Act or in this section as follows:

Act means the Clean Air Act (42 U.S.C. 7401 *et seq.*).
Administrator means the Administrator of the Environmental Protection Agency or his authorized representative.
Alternative method means any method of sampling and analyzing for an air pollutant which is not a reference method but which has been demonstrated to the Administrator's satisfaction to produce results adequate for the Administrator's determination of compliance.
Approved permit program means a State permit program approved by the Administrator as meeting the requirements of part 70 of this chapter or a Federal permit program established in this chapter pursuant to title V of the Act (42 U.S.C. 7661).
Capital expenditure means an expenditure for a physical or operational change to a stationary source which exceeds the product of the applicable "annual asset guideline repair allowance percentage" specified in the latest edition of Internal Revenue Service (IRS) Publication 534 and the stationary source's basis, as defined by section 1012 of the Internal Revenue Code. However, the total expenditure for a physical or operational change to a stationary source must not be reduced by any "excluded additions" as defined for stationary sources constructed after December 31, 1981, in IRS Publication 534, as would be done for tax purposes. In addition, "annual asset guideline repair allowance" may be used even though it is excluded for tax purposes in IRS Publication 534.
Commenced means, with respect to the definition of "new source" in section 111(a)(2) of the Act, that an owner or operator has undertaken a continuous program of construction or modification or that an owner or operator has entered into a contractual obligation to undertake and complete, within a reasonable time, a continuous program of construction or modification.
Compliance schedule means the date or dates by which a source or category of sources is required to comply with the standards of this part and with any steps toward such compliance which are set forth in a waiver of compliance under §61.11.
Construction means fabrication, erection, or installation of an affected facility.

Effective date is the date of promulgation in theFederal Registerof an applicable standard or other regulation under this part.
Existing source means any stationary source which is not a new source.
Force majeure means, for purposes of §61.13, an event that will be or has been caused by circumstances beyond the control of the affected facility, its contractors, or any entity controlled by the affected facility that prevents the owner or operator from complying with the regulatory requirement to conduct performance tests within the specified timeframe despite the affected facility's best efforts to fulfill the obligation. Examples of such events are acts of nature, acts of war or terrorism, or equipment failure or safety hazard beyond the control of the affected facility.
Issuance of a part 70 permit will occur, if the State is the permitting authority, in accordance with the requirements of part 70 of this chapter and the applicable, approved State permit program. When the EPA is the permitting authority, issuance of a title V permit occurs immediately after the EPA takes final action on the final permit.
Monitoring system means any system, required under the monitoring sections in applicable subparts, used to sample and condition (if applicable), to analyze, and to provide a record of emissions or process parameters.
New source means any stationary source, the construction or modification of which is commenced after the publication in theFederal Registerof proposed national emission standards for hazardous air pollutants which will be applicable to such source.
Owner or operator means any person who owns, leases, operates, controls, or supervises a stationary source.
Part 70 permit means any permit issued, renewed, or revised pursuant to part 70 of this chapter.
Permit program means a comprehensive State operating permit system established pursuant to title V of the Act (42 U.S.C. 7661) and regulations codified in part 70 of this chapter and applicable State regulations, or a comprehensive Federal operating permit system established pursuant to title V of the Act and regulations codified in this chapter.
Permitting authority means:
(1) The State air pollution control agency, local agency, other State agency, or other agency authorized by the Administrator to carry out a permit program under part 70 of this chapter; or
(2) The Administrator, in the case of EPA-implemented permit programs under title V of the Act (42 U.S.C. 7661).
Reference method means any method of sampling and analyzing for an air pollutant, as described in appendix B to this part.
Run means the net period of time during which an emission sample is collected. Unless otherwise specified, a run may be either intermittent or continuous within the limits of good engineering practice.
Standard means a national emission standard including a design, equipment, work practice or operational standard for a hazardous air pollutant proposed or promulgated under this part.
Startup means the setting in operation of a stationary source for any purpose.
State means all non-Federal authorities, including local agencies, interstate associations, and State-wide programs, that have delegated authority to implement:
(1) The provisions of this part; and/or
(2) The permit program established under part 70 of this chapter. The term State shall have its conventional meaning where clear from the context.

Stationary source means any building, structure, facility, or installation which emits or may emit any air pollutant which has been designated as hazardous by the Administrator.
Title V permit means any permit issued, renewed, or revised pursuant to Federal or State regulations established to implement title V of the Act (42 U.S.C. 7661). A title V permit issued by a State permitting authority is called a part 70 permit in this part.

§ 61.03 Units and abbreviations.

Used in this part are abbreviations and symbols of units of measure. These are defined as follows:

a) System International (SI) units of measure:
A=ampere
g=gram
Hz=hertz
J=joule
K=degree Kelvin
kg=kilogram
m=meter
m^2 =square meter
m^3 =cubic meter
mg=milligram=10^{-3}gram
mm=millimeter=10^{-3}meter
Mg=megagram=10^6 gram
mol=mole
N=newton
ng=nanogram=10^{-9}gram
nm=nanometer=10^{-9}meter
Pa=pascal
s=second
V=volt
W=watt
Ω=ohm
µg=microgram=10^{-6}gram
(b) Other units of measure:
°C=degree Celsius (centigrade)
cfm=cubic feet per minute
cc=cubic centimeter
Ci=curie
d=day
°F=degree Fahrenheit
ft^2 =square feet
ft^3 =cubic feet
gal=gallon
in=inch
in Hg=inches of mercury
in H_2O=inches of water

l=liter
lb=pound
lpm=liter per minute
min=minute
ml=milliliter=10^{-3}liter
mrem=millirem=10^{-3}rem
oz=ounces
pCi=picocurie=10^{-12}curie
psig=pounds per square inch gage
°R=degree Rankine
µl=microliter=10^{-6}liter
v/v=volume per volume
yd^2 =square yards
yr=year
(c) Chemical nomenclature:
Be=beryllium
Hg=mercury
H_2O=water
(d) Miscellaneous:
act=actual
avg=average
I.D.=inside diameter
M=molar
N=normal
O.D.=outside diameter
%=percent
std=standard

§ 61.05 Prohibited activities.

a) After the effective date of any standard, no owner or operator shall construct or modify any stationary source subject to that standard without first obtaining written approval from the Administrator in accordance with this subpart, except under an exemption granted by the President under section 112(c)(2) of the Act. Sources, the construction or modification of which commenced after the publication date of the standards proposed to be applicable to the sources, are subject to this prohibition.

(b) After the effective date of any standard, no owner or operator shall operate a new stationary source subject to that standard in violation of the standard, except under an exemption granted by the President under section 112(c)(2) of the Act.

(c) Ninety days after the effective date of any standard, no owner or operator shall operate any existing source subject to that standard in violation of the standard, except under a waiver granted by the Administrator under this part or under an exemption granted by the President under section 112(c)(2) of the Act.

(d) No owner or operator subject to the provisions of this part shall fail to report, revise reports, or report source test results as required under this part.

§ 61.06 Determination of construction or modification.

An owner or operator may submit to the Administrator a written application for a determination of whether actions intended to be taken by the owner or operator constitute construction or modification, or commencement thereof, of a source subject to a standard. The Administrator will notify the owner or operator of his determination within 30 days after receiving sufficient information to evaluate the application.

§ 61.07 Application for approval of construction or modification.

(a) The owner or operator shall submit to the Administrator an application for approval of the construction of any new source or modification of any existing source. The application shall be submitted before the construction or modification is planned to commence, or within 30 days after the effective date if the construction or modification had commenced before the effective date and initial startup has not occurred. A separate application shall be submitted for each stationary source.

(b) Each application for approval of construction shall include-

(1) The name and address of the applicant;

(2) The location or proposed location of the source; and

(3) Technical information describing the proposed nature, size, design, operating design capacity, and method of operation of the source, including a description of any equipment to be used for control of emissions. Such technical information shall
include calculations of emission estimates in sufficient detail to permit assessment of the validity of the calculations.

(c) Each application for approval of modification shall include, in addition to the information required in paragraph (b) of this section-

(1) The precise nature of the proposed changes;

(2) The productive capacity of the source before and after the changes are completed; and

(3) Calculations of estimates of emissions before and after the changes are completed, in sufficient detail to permit assessment of the validity of the calculations.

§ 61.08 Approval of construction or modification.

(a) The Administrator will notify the owner or operator of approval or intention to deny approval of construction or modification within 60 days after receipt of sufficient information to evaluate an application under 40 CFR 61.07.

(b) If the Administrator determines that a stationary source for which an application under 40 CFR 61.07 was submitted will not cause emissions in violation of a standard if properly operated, the Administrator will approve the construction or modification.

(c) Before denying any application for approval of construction or modification, the Administrator will notify the applicant of the Administrator's intention to issue the denial together with-

(1) Notice of the information and findings on which the intended denial is based; and

(2) Notice of opportunity for the applicant to present, within such time limit as the Administrator shall specify, additional information or arguments to the Administrator before final action on the application.

(d) A final determination to deny any application for approval will be in writing and will specify the grounds on which the denial is based. The final determination will be made within 60 days of presentation of additional information or arguments, or 60 days after the final date specified for presentation if no presentation is made.

(e) Neither the submission of an application for approval nor the Administrator's approval of construction or modification shall-

(1) Relieve an owner or operator of legal responsibility for compliance with any applicable provisions of this part or of any other applicable Federal, State, or local requirement; or

(2) Prevent the Administrator from implementing or enforcing this part or taking any other action under the Act.

§ 61.09 Notification of startup.

(a) The owner or operator of each stationary source which has an initial startup after the effective date of a standard shall furnish the Administrator with written notification as follows:

(1) A notification of the anticipated date of initial startup of the source not more than 60 days nor less than 30 days before that date.

(2) A notification of the actual date of initial startup of the source within 15 days after that date.

(b) If any State or local agency requires a notice which contains all the information required in the notification in 40 CFR 61.09(a), sending the Administrator a copy of that notification will satisfy 40 CFR 61.09(a).

§ 61.10 Source reporting and waiver request.

(a) The owner or operator of each existing source or each new source which had an initial startup before the effective date shall provide the following information in writing to the Administrator within 90 days after the effective date:

(1) Name and address of the owner or operator.

(2) The location of the source.

(3) The type of hazardous pollutants emitted by the stationary source.

(4) A brief description of the nature, size, design, and method of operation of the stationary source including the operating design capacity of the source. Identify each point of emission for each hazardous pollutant.

(5) The average weight per month of the hazardous materials being processed by the source, over the last 12 months preceding the date of the report.

(6) A description of the existing control equipment for each emission point including-

(i) Each control device for each hazardous pollutant; and

(ii) Estimated control efficiency (percent) for each control device.

(7) A statement by the owner or operator of the source as to whether the source can comply with the standards within 90 days after the effective date.

(b) The owner or operator of an existing source unable to comply with an applicable standard may request a waiver of compliance with that standard for a period not exceeding 2 years after the effective date. Any request shall be in writing and shall include the following information:

(1) A description of the controls to be installed to comply with the standard.

(2) A compliance schedule, including the date each step toward compliance will be reached. The list shall include as a minimum the following dates:

(i) Date by which contracts for emission control systems or process changes for emission control will be awarded, or date by which orders will be issued for the purchase of component parts to accomplish emission control or process changes;

(ii) Date of initiation of onsite construction or installation of emission control equipment or process change;

(iii) Date by which onsite construction or installation of emission control equipment or process change is to be completed; and

(iv) Date by which final compliance is to be achieved.

(3) A description of interim emission control steps which will be taken during the waiver period.

(c) Any change in the information provided under 40 CFR 61.10(a) or 40 CFR 61.07(b) shall be provided to the Administrator within 30 days after the change. However, if any change will result from modification of the source, 40 CFR 61.07(c) and 40 CFR 61.08 apply.

(d) A possible format for reporting under this section is included as appendix A of this part. Advice on reporting the status of compliance may be obtained from the Administrator.

§ 61.11 Waiver of compliance.

(a) Based on the information provided in any request under 40 CFR 61.10, or other information, the Administrator may grant a waiver of compliance with a standard for a period not exceeding 2 years after the effective date of the standard.

(b) The waiver will be in writing and will-

(1) Identify the stationary source covered;

(2) Specify the termination date of the waiver;

(3) Specify dates by which steps toward compliance are to be taken; and

(4) Specify any additional conditions which the Administrator determines necessary to assure installation of the necessary controls within the waiver period and to assure protection of the health of persons during the waiver period.

(c) The Administrator may terminate the waiver at an earlier date than specified if any specification under 40 CFR 61.11(b)(3) and 40 CFR 61.11(b)(4) are not met.

(d) Before denying any request for a waiver, the Administrator will notify the owner or operator making the request of the Administrator's intention to issue the denial, together with-

(1) Notice of the information and findings on which the intended denial is based; and

(2) Notice of opportunity for the owner or operator to present, within the time limit the Administrator specifies, additional information or arguments to the Administrator before final action on the request.

(e) A final determination to deny any request for a waiver will be in writing and will set forth the specific grounds on which the denial is based. The final determination will be made within 60 days after presentation of additional information or argument; or within 60 days after the final date specified for the presentation if no presentation is made.

(f) The granting of a waiver under this section shall not abrogate the Administrator's authority under section 114 of the Act.

§ 61.12 Compliance with standards and maintenance requirements.

(a) Compliance with numerical emission limits shall be determined by emission tests established in 40 CFR 61.13 unless otherwise specified in an individual subpart.

(b) Compliance with design, equipment, work practice or operational standards shall be determined as specified in an individual subpart.

(c) The owner or operator of each stationary source shall maintain and operate the source, including associated equipment for air pollution control, 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, review of operating and maintenance procedures, and inspection of the source.

(d) (1) If, in the Administrator's judgment, an alternative means of emission limitation will achieve a reduction in emissions of a pollutant from a source at least equivalent to the reduction in emissions of that pollutant from that source achieved under any design, equipment, work practice or operational standard, the Administrator will publish in the Federal Register a notice permitting the use of the alternative means for purposes of

compliance with the standard. The notice will restrict the permission to the source(s) or category(ies) of sources on which the alternative means will achieve equivalent emission reductions. The notice may condition permission on requirements related to the operation and maintenance of the alternative means.

(2) Any notice under 40 CFR 61.12(d)(1) shall be published only after notice and an opportunity for a hearing.

(3) Any person seeking permission under this subsection shall, unless otherwise specified in the applicable subpart, submit a proposed test plan or the results of testing and monitoring, a description of the procedures followed in testing or monitoring, and a description of pertinent conditions during testing or monitoring.

(e) For the purpose of submitting compliance certifications or establishing whether or not a person has violated or is in violation of any standard in this part, nothing in this part shall preclude the use, including the exclusive use, of any credible evidence or information, relevant to whether a source would have been in compliance with applicable requirements if the appropriate performance or compliance test had been performed.

§ 61.13 Emission tests and waiver of emission tests.

a) Except as provided in paragraphs (a)(3), (a)(4), (a)(5), and (a)(6) of this section, if required to do emission testing by an applicable subpart and unless a waiver of emission testing is obtained under this section, the owner or operator shall test emissions from the source:

(1) Within 90 days after the effective date, for an existing source or a new source which has an initial startup date before the effective date.

(2) Within 90 days after initial startup, for a new source which has an initial startup date after the effective date.

(3) If a force majeure is about to occur, occurs, or has occurred for which the affected owner or operator intends to assert a claim of force majeure, the owner or operator shall notify the Administrator, in writing as soon as practicable following the date the owner or operator first knew, or through due diligence should have known that the event may cause or caused a delay in testing beyond the regulatory deadline specified in paragraphs (a)(1) or (a)(2) of this section or beyond a deadline established pursuant to the requirements under paragraph (b) of this section, but the notification must occur before the performance test deadline unless the initial force majeure or a subsequent force majeure event delays the notice, and in such cases, the notification shall occur as soon as practicable.

(4) The owner or operator shall provide to the Administrator a written description of the force majeure event and a rationale for attributing the delay in testing beyond the regulatory deadline to the force majeure; describe the measures taken or to be taken to minimize the delay; and identify a date by which the owner or operator proposes to conduct the performance test. The performance test shall be conducted as soon as practicable after the force majeure occurs.

(5) The decision as to whether or not to grant an extension to the performance test deadline is solely within the discretion of the Administrator. The Administrator will notify the owner or operator in writing of approval or disapproval of the request for an extension as soon as practicable.

(6) Until an extension of the performance test deadline has been approved by the Administrator under paragraphs (a)(3), (a)(4), and (a)(5) of this section, the owner or operator of the affected facility remains strictly subject to the requirements of this part.

(b) The Administrator may require an owner or operator to test emissions from the source at any other time when the action is authorized by section 114 of the Act.

(c) The owner or operator shall notify the Administrator of the emission test at least 30 days before the emission test to allow the Administrator the opportunity to have an observer present during the test.

(d) If required to do emission testing, the owner or operator of each new source and, at the request of the Administrator, the owner or operator of each existing source shall provide emission testing facilities as follows:

(1) Sampling ports adequate for test methods applicable to each source.

(2) Safe sampling platform(s).

(3) Safe access to sampling platform(s).

(4) Utilities for sampling and testing equipment.

(5) Any other facilities that the Administrator needs to safely and properly test a source.

(e) Each emission test shall be conducted under such conditions as the Administrator shall specify based on design and operational characteristics of the source.

(f) Unless otherwise specified in an applicable subpart, samples shall be analyzed and emissions determined within 30 days after each emission test has been completed. The owner or operator shall report the determinations of the emission test to the Administrator by a registered letter sent before the close of business on the 31st day following the completion of the emission test.

(g) The owner or operator shall retain at the source and make available, upon request, for inspection by the Administrator, for a minimum of 2 years, records of emission test results and other data needed to determine emissions.

(h)(1) Emission tests shall be conducted as set forth in this section, the applicable subpart and appendix B unless the Administrator—

(i) Specifies or approves the use of a reference method with minor changes in methodology; or

(ii) Approves the use of an alternative method; or

(iii) Waives the requirement for emission testing because the owner or operator of a source has demonstrated by other means to the Administrator's satisfaction that the source is in compliance with the standard.

(2) If the Administrator finds reasonable grounds to dispute the results obtained by an alternative method, he may require the use of a reference method. If the results of the reference and alternative methods do not agree, the results obtained by the reference method prevail.

(3) The owner or operator may request approval for the use of an alternative method at any time, except—

(i) For an existing source or a new source that had an initial startup before the effective date, any request for use of an alternative method during the initial emission test shall be submitted to the Administrator within 30 days after the effective date, or with the request for a waiver of compliance if one is submitted under §60.10(b); or

(ii) For a new source that has an initial startup after the effective date, any request for use of an alternative method during the initial emission test shall be submitted to the Administrator no later than with the notification of anticipated startup required under §60.09.

(i)(1) Emission tests may be waived upon written application to the Administrator if, in the Administrator's judgment, the source is meeting the standard, or the source is being operated under a waiver or compliance, or the owner or operator has requested a waiver of compliance and the Administrator is still considering that request.

(2) If application for waiver of the emission test is made, the application shall accompany the information required by §61.10 or the notification of startup required by §61.09, whichever is applicable. A possible format is contained in appendix A to this part.

(3) Approval of any waiver granted under this section shall not abrogate the Administrator's authority under the Act or in any way prohibit the Administrator from later cancelling the waiver. The cancellation will be made only after notice is given to the owner or operator of the source.

§ 61.14 Monitoring requirements.

(a) Unless otherwise specified, this section applies to each monitoring system required under each subpart which requires monitoring.

(b) Each owner or operator shall maintain and operate each monitoring system as specified in the applicable subpart and in a manner consistent with good air pollution control practice for minimizing emissions. Any unavoidable breakdown or malfunction of the monitoring system should be repaired or adjusted as soon as practicable after its occurrence. The Administrator's determination of whether acceptable operating and maintenance procedures are being used will be based on information which may include, but not be limited to, review of operating and maintenance procedures,

manufacturer recommendations and specifications, and inspection of the monitoring system.

(c) When required by the applicable subpart, and at any other time the Administrator may require, the owner or operator of a source being monitored shall conduct a performance evaluation of the monitoring system and furnish the Administrator with a copy of a written report of the results within 60 days of the evaluation. Such a performance evaluation shall be conducted according to the applicable specifications and procedures described in the applicable subpart. The owner or operator of the source shall furnish the Administrator with written notification of the date of the performance evaluation at least 30 days before the evaluation is to begin.

(d) When the effluents from a single source, or from two or more sources subject to the same emission standards, are combined before being released to the atmosphere, the owner or operator shall install a monitoring system on each effluent or on the combined effluent. If two or more sources are not subject to the same emission standards, the owner or operator shall install a separate monitoring system on each effluent, unless otherwise specified. If the applicable standard is a mass emission standard and the effluent from one source is released to the atmosphere through more than one point, the owner or operator shall install a monitoring system at each emission point unless the installation of fewer systems is approved by the Administrator.

(e) The owner or operator of each monitoring system shall reduce the monitoring data as specified in each applicable subpart. Monitoring data recorded during periods of unavoidable monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments shall not be included in any data average.

(f) The owner or operator shall maintain records of monitoring data, monitoring system calibration checks, and the occurrence and duration of any period during which the monitoring system is malfunctioning or inoperative. These records shall be maintained at the source for a minimum of 2 years and made available, upon request, for inspection by the Administrator.

(g) (1) Monitoring shall be conducted as set forth in this section and the applicable subpart unless the Administrator-

(i) Specifies or approves the use of the specified monitoring requirements and procedures with minor changes in methodology;
or

(ii) Approves the use of alternatives to any monitoring requirements or procedures.

(2) If the Administrator finds reasonable grounds to dispute the results obtained by an alternative monitoring method, the Administrator may require the monitoring Requirements and procedures specified in this part.

§ 61.15 Modification.

(a) Except as provided under 40 CFR 61.15(d), any physical or operational change to a stationary source which results in an increase in the rate of emission to the atmosphere of a hazardous pollutant to which a standard applies shall be considered a modification.

(b) Upon modification, an existing source shall become a new source for each hazardous pollutant for which the rate of emission to the atmosphere increases and to which a standard applies.

(c) Emission rate shall be expressed as kg/hr of any hazardous pollutant discharged into the atmosphere for which a standard is applicable. The Administrator shall use the following to determine the emission rate:

(1) Emission factors as specified in the background information document (BID) for the applicable standard, or in the latest issue of "Compilation of Air Pollutant Emission Factors,"EPA Publication No. AP-42, or other emission factors determined by the Administrator to be superior to AP-42 emission factors, in cases where use of emission factors demonstrates that the emission rate will clearly increase or clearly not increase as a result of the physical or operational change.

(2) Material balances, monitoring data, or manual emission tests in cases where use of emission factors, as referenced in 40 CFR 61.15(c)(1), does not demonstrate to the Administrator's satisfaction that the emission rate will clearly increase or clearly not increase as a result of the physical or operational change, or where an interested person demonstrates to the Administrator's satisfaction that there are reasonable grounds to dispute the result obtained by the Administrator using emission factors. When the emission rate is based on results from manual emission tests or monitoring data, the procedures specified in appendix C of 40 CFR part 60 shall be used to determine whether an increase in emission rate has occurred. Tests shall be conducted under such conditions as the Administrator shall specify to the owner or operator. At least three test runs must be conducted before and at least three after the physical or operational change. If the Administrator approves, the results of the emission tests required in 40 CFR 61.13(a) may be used for the test runs to be conducted before the physical or operational change. All operating parameters which may affect emissions must be held constant to the maximum degree feasible for all test runs.

(d) The following shall not, by themselves, be considered modifications under this part:

(1) Maintenance, repair, and replacement which the Administrator determines to be routine for a source category.

(2) An increase in production rate of a stationary source, if that increase can be accomplished without a capital expenditure on the stationary source.

(3) An increase in the hours of operation.

(4) Any conversion to coal that meets the requirements specified in section 111(a)(8) of the Act.

(5) The relocation or change in ownership of a stationary source. However, such activities must be reported in accordance with 40 CFR 61.10(c).

§ 61.16 Availability of information.

The availability to the public of information provided to, or otherwise obtained by, the Administrator under this part shall be governed by part 2 of this chapter.

§ 61.17 State authority.

(a) This part shall not be construed to preclude any State or political subdivision thereof from --

(1) Adopting and enforcing any emission limiting regulation applicable to a stationary source, provided that such emission limiting regulation is not less stringent than the standards prescribed under this part; or

(2) Requiring the owner or operator of a stationary source to obtain permits, licenses, or approvals prior to initiating construction, modification, or operation of the source.

§ 61.18 Incorporations by reference.

The materials listed below are incorporated by reference in the corresponding sections noted. These incorporations by reference were approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. These materials are incorporated as they exist on the date of the approval, and a notice of any change in these materials will be published in the Federal Register. The materials are available for inspection at the corresponding address noted below, and at the Office of the Federal Register, 800 North Capitol Street, NW, Suite 700, Washington, DC and the Library (MD-35), or at U.S. EPA's Air Docket at 1200 Pennsylvania Avenue, NW, Washington, DC 20460.

(a) The following materials are available for purchase from at least one of the following addresses: American Society for Testing and Materials (ASTM) International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA, 19428-2959; or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106.

(1) ASTM D737-75, Standard Test Method for Air Permeability of Textile Fabrics, incorporation by reference (IBR) approved January 27, 1983 for § 61.23(a).

(2) ASTM D835-85, Standard Specification for Refined Benzene-485, IBR approved September 14, 1989 for § 61.270(a).

(3) ASTM D836-84, Standard Specification for Industrial Grade Benzene, IBR approved September 14, 1989 for § 61.270(a).

(4) ASTM D1193-77, 91, Standard Specification for Reagent Water, IBR approved for appendix B: Method 101, Section 7.1.1; Method 101A, Section 7.1.1; and Method 104, Section 7.1; Method 108, Section 7.1.3; Method 108A, Section 7.1.1; Method 108B, Section 7.1.1; Method 108C, Section 7.1.1; and Method 111, Section 7.3.

(5) ASTM D2267-68, 78, 88, Standard Test Method for Aromatics in Light Naphthas and Aviation Gasoline by Gas Chromatography, IBR approved September 30, 1986, for § 61.67(h)(1).

(6) ASTM D2359-85a, 93, Standard Specification for Refined Benzene-535, IBR approved September 14, 1989 for § 61.270(a).

(7) ASTM D2382-76, 88, Heat of Combustion of Hydrocarbon Fuels by Bomb Calorimeter (High-Precision Method), IBR approved June 6, 1984 for § 61.245(e)(3).

(8) ASTM D2504-67, 77, 88 (Reapproved 1993), Noncondensable Gases in C3 and Lighter Hydrocarbon Products by Gas Chromatography, IBR approved June 6, 1984 for § 61.245(e)(3).

(9) ASTM D2879-83, Standard Test Method for Vapor Pressure -- Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope, IBR approved December 14, 2000 for § 61.241.

(10) ASTM D2986-71, 78, 95a, Standard Method for Evaluation of Air, Assay Media by the Monodisperse DOP (Dioctyl Phthalate) Smoke Test, IBR approved for appendix B: Method 103, Section 6.1.3.

(11) ASTM D4420-94, Standard Test Method for Determination of Aromatics in Finished Gasoline by Gas Chromatography, IBR approved for § 61.67(h)(1).

(12) ASTM D4734-87, 96, Standard Specification for Refined Benzene-545, IBR approved September 14, 1989 for § 61.270(a).

(13) ASTM D4809-95, Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter (Precision Method), IBR approved for § 61.245(e)(3).

(14) ASTM E50-82, 86, 90 (Reapproved 1995), Standard Practices for Apparatus Reagents, and Safety Precautions for Chemical Analysis of Metals, IBR approved for appendix B: Method 108C, Section 6.1.4.

(b) The following material is available from the U.S. EPA Environmental Monitoring and Support Laboratory, Cincinnati, Ohio 45268.

(1) Method 601, Test Method for Purgeable Halocarbons, July 1982, IBR approved September 30, 1986, for § 61.67(g)(2).

(c) The following material is available for purchase from the American National Standards Institute, 25 West 43rd Street, 4th Floor, New York, New York 10036.

(1) ANSI N13.1-1969, "Guide to Sampling Airborne Radioactive Materials in Nuclear Facilities." IBR approved for 61.93(b)(2)(ii) and 61.107(b)(2)(ii).

(2) ANSI/HPS N13.1-1999 "Sampling and Monitoring Releases of Airborne Radioactive Substances from the Stacks and Ducts of Nuclear Facilities," IBR approved [insert date 30 days after date of publication in Federal Register] for §§ 61.93(c); 61.107(d) and Method 114, paragraph 2.1 of Appendix B to 40 CFR part 61.

(d) The following material is available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402-9325, telephone (202) 512-1800 or outside of Washington, DC area: 1-866-512-1800.

(1) Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA Publication SW-846, Third Edition, November 1986, as amended by Revision I, December 1987, Order Number 955-001-00000-1:

(i) Method 8020, Aromatic Volatile Organics, IBR approved March 7, 1990, for § 61.355(c)(2)(iv)(A).

(ii) Method 8021, Volatile Organic Compounds in Water by Purge and Trap Capillary Column Gas Chromatography with Photoionization and Electrolytic Conductivity Detectors in Series, IBR approved March 7, 1990, for § 61.355(c)(2)(iv)(B).

(iii) Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, IBR approved March 7, 1990, for § 61.355(c)(2)(iv)(C).

(iv) Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics: Capillary Column Technique, IBR approved March 7, 1990, for § 61.355(c)(2)(iv)(D).

(e) The materials listed in this paragraph (e) are available for purchase from the American Petroleum Institute (API), 1220 L Street, NW., Washington, DC 20005.

(1) API Publication 2517, Evaporative Loss from External Floating-Roof Tanks, Third Edition. February 1989. IBR approved December 14, 2000 for § 61.241.

(2) [Reserved]

§ 61.19 Circumvention.

No owner or operator shall build, erect, install, or use any article machine, equipment, process, or method, the use of which conceals an emission which would otherwise constitute a violation of an applicable standard. Such concealment includes, but is not limited to, the use of gaseous dilutants to achieve compliance with a visible emissions standard, and the piecemeal carrying out of an operation to avoid coverage by a standard that applies only to operations larger than a specified size.

Appendix LR-1, Local Rule Index

Jacksonville Environmental Protection Board

Rule 2

Part I-General Provisions

Part II-Air Pollution Control-General Provisions

Part III-Stationary Sources-General Requirements

Part IV-Stationary Sources-Preconstruction Review

Part V-Operation Permits for Major Sources of Air Pollution

Part VI-Gasoline Vapor Control

Part VII-Open Burning and Frost Protection Fires

Part IX-Air Pollution Episodes

2.901	Air Pollution Episodes-Local Rules

Part X-Stationary Sources Emission Standards

2.1001	Adopts 62-296 FAC by Reference

Part XI-Stationary Sources - Emission Monitoring

2.1101	Adopts 62-297 FAC by Reference

Part XII-Air Pollution Nuisance Rule

2.1201	General Standard for Volatile Organic Compounds
2.1202	Emissions from Ships and Locomotives
2.1203	Air Pollution Nuisances

Part XIII-Permits-General Provisions

2.1301	Adopts 62-4 FAC by Reference
2.1302	Adopts 120.57 FS and 62-103.150 FAC by Reference

RR1. Reporting Schedule. This table summarizes information for convenience purposes only. It does not supersede any of the terms or conditions of this permit.

Report	Reporting Deadline(s)	Related Condition(s)
Plant Problems/Permit Deviations	Immediately upon occurrence (See RR2.d.)	RR2, RR3
Malfunction Excess Emissions Report	Quarterly (if requested)	RR3
Semi-Annual Monitoring Report	Every 6 months	RR4
Annual Operating Report	April 1	RR5
Annual Emissions Fee Form and Fee	March 1	RR6
Annual Statement of Compliance	Within 60 days after the end of each calendar year (or more frequently if specified by Rule 62-213.440(2), F.A.C., or by any other applicable requirement); and Within 60 days after submittal of a written agreement for transfer of responsibility, or Within 60 days after permanent shutdown.	RR7
Notification of Administrative Permit Corrections	As needed	RR8
Notification of Startup after Shutdown for More than One Year	Minimum of 60 days prior to the intended startup date or, if emergency startup, as soon as possible after the startup date is ascertained	RR9
Permit Renewal Application	225 days prior to the expiration date of permit	TV17
Test Reports	Maximum 45 days following compliance tests	TR8

{Permitting Note: See permit Section III. Emissions Units and Specific Conditions, for any additional Emission Unit-specific reporting requirements.}

RR2. Reports of Problems.

a. Plant Operation-Problems. If the permittee is temporarily unable to comply with any of the conditions of the permit due to breakdown of equipment or destruction by hazard of fire, wind or by other cause, the permittee shall immediately notify the Department. Notification shall include pertinent information as to the cause of the problem, and what steps are being taken to correct the problem and to prevent its recurrence, and where applicable, the owner's intent toward reconstruction of destroyed facilities. Such notification does not release the permittee from any liability for failure to comply with Department rules.

b. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:
   (1) A description of and cause of noncompliance; and
   (2) The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance. The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

c. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes

aware the relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

d. "Immediately" shall mean the same day, if during a workday (i.e., 8:00 a.m. - 5:00 p.m.), or the first business day after the incident, excluding weekends and holidays; and, for purposes of Rule 62-4.160(15) and 40 CFR 70.6(a)(3)(iii)(B), "promptly" or "prompt" shall have the same meaning as "immediately".

[Rule 62-4.130, Rule 62-4.160(8), Rule 62-4.160(15), and Rule 62-213.440(1)(b), F.A.C.; 40 CFR 70.6(a)(3)(iii)(B)]

RR3. Reports of Deviations from Permit Requirements. The permittee shall report in accordance with the requirements of Rule 62-210.700(6), F.A.C. (below), and Rule 62-4.130, F.A.C. (condition RR2.), deviations from permit requirements, including those attributable to upset conditions as defined in the permit. Reports shall include the probable cause of such deviations, and any corrective actions or preventive measures taken. *Rule 62-210.700(6)*: In case of excess emissions resulting from malfunctions, each owner or operator shall notify the Department or the appropriate Local Program in accordance with Rule 62-4.130, F.A.C. (See condition RR2.). A full written report on the malfunctions shall be submitted in a quarterly report, if requested by the Department.

[Rules 62-213.440(1)(b)3.b., and 62-210.700(6)F.A.C.]

RR4. Semi-Annual Monitoring Reports. The permittee shall submit reports of any required monitoring at least every six (6) months. All instances of deviations from permit requirements must be clearly identified in such reports. [Rule 62-213.440(1)(b)3.a., F.A.C.]

RR5. Annual Operating Report.

a. The permittee shall submit to the Compliance Authority, each calendar year, on or before April 1, a completed DEP Form No 62-210.900(5), "Annual Operating Report for Air Pollutant Emitting Facility", for the preceding calendar year.

b. Emissions shall be computed in accordance with the provisions of Rule 62-210.370(2), F.A.C.

[Rules 62-210.370(2) & (3), and 62-213.440(3)(a)2., F.A.C.]

RR6. Annual Emissions Fee Form and Fee. Each Title V source permitted to operate in Florida must pay between January 15 and March 1 of each year, an annual emissions fee in an amount determined as set forth in Rule 62-213.205(1), F.A.C.

a. If the Department has not received the fee by February 15 of the year following the calendar year for which the fee is calculated, the Department will send the primary responsible official of the Title V source a written warning of the consequences for failing to pay the fee by March 1. If the fee is not postmarked by March 1 of the year due, the Department shall impose, in addition to the fee, a penalty of 50 percent of the amount of the fee unpaid plus interest on such amount computed in accordance with Section 220.807, F.S. If the Department determines that a submitted fee was inaccurately calculated, the Department shall either refund to the permittee any amount overpaid or notify the permittee of any amount underpaid. The Department shall not impose a penalty or interest on any amount underpaid, provided that the permittee has timely remitted payment of at least 90 percent of the amount determined to be due and remits full payment within 60 days after receipt of notice of the amount underpaid. The Department shall waive the collection of underpayment and shall not refund overpayment of the fee, if the amount is less than 1 percent of the fee due, up to $50.00. The Department shall make every effort to provide a timely assessment of the adequacy of the submitted fee. Failure to pay timely any required annual emissions fee, penalty, or interest constitutes grounds for permit revocation pursuant to Rule 62-4.100, F.A.C.

b. Any documentation of actual hours of operation, actual material or heat input, actual production amount, or actual emissions used to calculate the annual emissions fee shall be retained by the owner for a minimum of five (5) years and shall be made available to the Department upon request.

c. A completed DEP Form 62-213.900(1), "Major Air Pollution Source Annual Emissions Fee Form", must be submitted by a responsible official with the annual emissions fee.

[Rules 62-213.205(1), (1)(g), (1)(i) & (1)(j), F.A.C.]

RR7. Annual Statement of Compliance.

a. The permittee shall submit a Statement of Compliance with all terms and conditions of the permit that includes all the provisions of 40 CFR 70.6(c)(5)(iii), incorporated by reference at Rule 62-204.800, F.A.C., using DEP Form No. 62-213.900(7). Such statement shall be accompanied by a certification in accordance with Rule 62-213.420(4), F.A.C., for Title V requirements and with Rule 62-214.350, F.A.C., for Acid Rain requirements. Such statements shall be submitted (postmarked) to the Department and EPA:
   (1) Annually, within 60 days after the end of each calendar year during which the Title V permit was effective, or more frequently if specified by Rule 62-213.440(2), F.A.C., or by any other applicable requirement; and
   (2) Within 60 days after submittal of a written agreement for transfer of responsibility as required pursuant to 40 CFR 70.7(d)(1)(iv), adopted and incorporated by reference at Rule 62-204.800, F.A.C., or within 60 days after permanent shutdown of a facility permitted under Chapter 62-213, F.A.C.; provided that, in either such case, the reporting period shall be the portion of the calendar year the permit was effective up to the date of transfer of responsibility or permanent facility shutdown, as applicable.

b. In lieu of individually identifying all applicable requirements and specifying times of compliance with, non-compliance with, and deviation from each, the responsible official may use DEP Form No. 62-213.900(7) as such statement of compliance so long as the responsible official identifies all reportable deviations from and all instances of non-compliance with any applicable requirements and includes all information required by the federal regulation relating to each reportable deviation and instance of non-compliance.

c. The responsible official may treat compliance with all other applicable requirements as a surrogate for compliance with Rule 62-296.320(2), Objectionable Odor Prohibited.

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

RR8. Notification of Administrative Permit Corrections.

a. A facility owner shall notify the Department by letter of minor corrections to information contained in a permit. Such notifications shall include:
   (1) Typographical errors noted in the permit;
   (2) Name, address or phone number change from that in the permit;
   (3) A change requiring more frequent monitoring or reporting by the permittee;
   (4) A change in ownership or operational control of a facility, subject to the following provisions:
      (a) The Department determines that no other change in the permit is necessary;
      (b) The permittee and proposed new permittee have submitted an Application for Transfer of Air Permit, and the Department has approved the transfer pursuant to Rule 62-210.300(7), F.A.C.; and
      (c) The new permittee has notified the Department of the effective date of sale or legal transfer.
   (5) Changes listed at 40 CFR 72.83(a)(1), (2), (6), (9) and (10), adopted and incorporated by reference at Rule 62-204.800, F.A.C., and changes made pursuant to Rules 62-214.340(1) and (2), F.A.C., to Title V sources subject to emissions limitations or reductions pursuant to 42 USC ss. 7651-7651o;
   (6) Changes listed at 40 CFR 72.83(a)(11) and (12), adopted and incorporated by reference at Rule 62-204.800, F.A.C., to Title V sources subject to emissions limitations or reductions pursuant to 42 USC ss. 7651-7651o, provided the notification is accompanied by a copy of any EPA determination concerning the similarity of the change to those listed at Rule 62-210.360(1)(e), F.A.C.; and
   (7) Any other similar minor administrative change at the source.

b. Upon receipt of any such notification, the Department shall within 60 days correct the permit and provide a corrected copy to the owner.

c. After first notifying the owner, the Department shall correct any permit in which it discovers errors of the types listed at Rules 62-210.360(1)(a) and (b), F.A.C., and provide a corrected copy to the owner.

d. For Title V source permits, other than general permits, a copy of the corrected permit shall be provided to EPA and any approved local air program in the county where the facility or any part of the facility is located.

[Rule 62-210.360, F.A.C.]

RR9. Notification of Startup. The owners or operator of any emissions unit or facility which has a valid air operation permit which has been shut down more than one year, shall notify the Department in writing of the intent to start up such emissions unit or facility, a minimum of 60 days prior to the intended startup date.

a. The notification shall include information as to the startup date, anticipated emission rates or pollutants released, changes to processes or control devices which will result in changes to emission rates, and any other conditions which may differ from the valid outstanding operation permit.
b. If, due to an emergency, a startup date is not known 60 days prior thereto, the owner shall notify the Department as soon as possible after the date of such startup is ascertained.

[Rule 62-210.300(5), F.A.C.]

RR10. Report Submission. The permittee shall submit all compliance related notifications and reports required of this permit to the Compliance Authority. {See front of permit for address and phone number.}

RR11. EPA Report Submission. Any reports, data, notifications, certifications, and requests required to be sent to the United States Environmental Protection Agency, Region 4, should be sent to: Air, Pesticides & Toxics Management Division, United States Environmental Protection Agency, Region 4, Sam Nunn Atlanta Federal Center, 61 Forsyth Street SW, Atlanta, GA 30303-8960. Phone: 404/562-9077.

RR12. Acid Rain Report Submission. Acid Rain Program Information shall be submitted, as necessary, to: Department of Environmental Protection, 2600 Blair Stone Road, Mail Station #5510, Tallahassee, Florida 32399-2400. Phone: 850/488-6140. Fax: 850/922-6979.

RR13. Report Certification. All reports shall be accompanied by a certification by a responsible official, pursuant to Rule 62-213.420(4), F.A.C. [Rule 62-213.440(1)(b)3.c, F.A.C.]

RR14. 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.]

RR15. Confidential Information. Whenever an applicant submits information under a claim of confidentiality pursuant to Section 403.111, F.S., the applicant shall also submit a copy of all such information and claim directly to EPA. Any permittee may claim confidentiality of any data or other information by complying with this procedure. [Rules 62-213.420(2), and 62-213.440(1)(d)6., F.A.C.]

RR16. Forms and Instructions. The forms used by the Department in the Title V source operation program are adopted and incorporated by reference in Rule 62-213.900, F.A.C. The forms are listed by rule number, which is also the form number, and with the subject, title, and effective date. Copies of forms may be obtained by writing to the Department of Environmental Protection, Division of Air Resource Management, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, by contacting the appropriate permitting authority or by accessing the Department's web site at: http://www.dep.state.fl.us/air/rules/forms.htm.

a. Major Air Pollution Source Annual Emissions Fee Form (Effective 10/12/2008).
b. Statement of Compliance Form (Effective 06/02/2002).
c. Responsible Official Notification Form (Effective 06/02/2002).

[Rule 62-213.900, F.A.C.: Forms (1), (7) and (8)]

APPENDIX T
FACILITY-WIDE TESTING REQUIREMENTS
(version dated 9/12/2008)

Unless otherwise specified in the permit, the following testing requirements apply to each emissions unit for which testing is required. The terms "stack" and "duct" are used interchangeably in this appendix.

T1. Required Number of Test Runs. For mass emission limitations, a compliance test shall consist of three complete and separate determinations of the total air pollutant emission rate through the test section of the stack or duct and three complete and separate determinations of any applicable process variables corresponding to the three distinct time periods during which the stack emission rate was measured; provided, however, that three complete and separate determinations shall not be required if the process variables are not subject to variation during a compliance test, or if three determinations are not necessary in order to calculate the unit's emission rate. The three required test runs shall be completed within one consecutive five-day period. In the event that a sample is lost or one of the three runs must be discontinued because of circumstances beyond the control of the owner or operator, and a valid third run cannot be obtained within the five-day period allowed for the test, the Secretary or his or her designee may accept the results of two complete runs as proof of compliance, provided that the arithmetic mean of the two complete runs is at least 20% below the allowable emission limiting standard. [Rule 62-297.310(1), F.A.C.]

T2. Operating Rate During Testing. Testing of emissions shall be conducted with the emissions unit operating at permitted capacity. If it is impractical to test at permitted capacity, an emissions unit may be tested at less than the maximum permitted capacity; in this case, subsequent emissions unit operation is limited to 110 percent of the test rate until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days for the purpose of additional compliance testing to regain the authority to operate at the permitted capacity. Permitted capacity is defined as 90 to 100 percent of the maximum operation rate allowed by the permit. [Rule 62-297.310(2), F.A.C.]

T3. Calculation of Emission Rate. For each emissions performance test, the indicated emission rate or concentration shall be the arithmetic average of the emission rate or concentration determined by each of the three separate test runs unless otherwise specified in a particular test method or applicable rule. [Rule 62-297.310(3), F.A.C.]

T4. Applicable Test Procedures.

a. *Required Sampling Time.*

(1) Unless otherwise specified in the applicable rule, the required sampling time for each test run shall be no less than one hour and no greater than four hours, and the sampling time at each sampling point shall be of equal intervals of at least two minutes.

(2) Opacity Compliance Tests. When either EPA Method 9 or DEP Method 9 is specified as the applicable opacity test method, the required minimum period of observation for a compliance test shall be sixty (60) minutes for emissions units which emit or have the potential to emit 100 tons per year or more of particulate matter, and thirty (30) minutes for emissions units which have potential emissions less than 100 tons per year of particulate matter and are not subject to a multiple-valued opacity standard. The opacity test observation period shall include the period during which the highest opacity emissions can reasonably be expected to occur. Exceptions to these requirements are as follows:

(a) For batch, cyclical processes, or other operations which are normally completed within less than the minimum observation period and do not recur within that time, the period of observation shall be equal to the duration of the batch cycle or operation completion time.

(b) The observation period for special opacity tests that are conducted to provide data to establish a surrogate standard pursuant to Rule 62-297.310(5)(k), F.A.C., Waiver of Compliance Test Requirements, shall be established as necessary to properly establish the relationship between a

proposed surrogate standard and an existing mass emission limiting standard.

(c) The minimum observation period for opacity tests conducted by employees or agents of the Department to verify the day-to-day continuing compliance of a unit or activity with an applicable opacity standard shall be twelve minutes.

b. *Minimum Sample Volume.* Unless otherwise specified in the applicable rule or test method, the minimum sample volume per run shall be 25 dry standard cubic feet.

c. *Required Flow Rate Range.* For EPA Method 5 particulate sampling, acid mist/sulfur dioxide, and fluoride sampling which uses Greenburg Smith type impingers, the sampling nozzle and sampling time shall be selected such that the average sampling rate will be between 0.5 and 1.0 actual cubic feet per minute, and the required minimum sampling volume will be obtained.

d. *Calibration of Sampling Equipment.* Calibration of the sampling train equipment shall be conducted in accordance with the schedule shown in Table 297.310-1, F.A.C.

TABLE 297.310-1 CALIBRATION SCHEDULE

ITEM	MINIMUM CALIBRATION FREQUENCY	REFERENCE INSTRUMENT	TOLERANCE
Liquid in glass thermometer	Annually	ASTM Hg in glass ref. thermometer or equivalent or thermometric points	+/-2%
Bimetallic thermometer	Quarterly	Calib. liq. in glass	5° F
Thermocouple	Annually	ASTM Hg in glass ref. thermometer, NBS calibrated reference and potentiometer	5° F
Barometer	Monthly	Hg barometer or NOAA station	+/-1% scale
Pitot Tube	When required or when damaged	By construction or measurements in wind tunnel D greater than 16" and standard pitot tube	See EPA Method 2, Fig. 2-2 & 2-3
Probe Nozzles	Before each test or when nicked, dented, or corroded	Micrometer	+/- 0.001" mean of at least three readings; Max. deviation between readings, 0.004"
Dry Gas Meter and Orifice Meter	1. Full Scale: When received, when 5% change observed, annually	Spirometer or calibrated wet test or dry gas test meter	2%
	2. One Point: Semiannually		
	3. Check after each test series	Comparison check	5%

e. *Allowed Modification to EPA Method 5.* When EPA Method 5 is required, the following modification is allowed: the heated filter may be separated from the impingers by a flexible tube.

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

T5. Determination of Process Variables.

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

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

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

T6. Sampling Facilities. Permittees that are required to sample mass emissions from point sources shall install stack sampling ports and provide sampling facilities that meet the requirements of this condition. Sampling facilities include sampling ports, work platforms, access to work platforms, electrical power, and sampling equipment support. All stack sampling facilities must also comply with all applicable Occupational Safety and Health Administration (OSHA) Safety and Health Standards described in 29 CFR Part 1910, Subparts D and E.

a. *Permanent Test Facilities.* The owner or operator of an emissions unit for which a compliance test, other than a visible emissions test, is required on at least an annual basis, shall install and maintain permanent stack sampling facilities.

b. *Temporary Test Facilities.* The owner or operator of an emissions unit that is not required to conduct a compliance test on at least an annual basis may use permanent or temporary stack sampling facilities. If the owner chooses to use temporary sampling facilities on an emissions unit, and the Department elects to test the unit, such temporary facilities shall be installed on the emissions unit within 5 days of a request by the Department and remain on the emissions unit until the test is completed.

c. *Sampling Ports.*

(1) All sampling ports shall have a minimum inside diameter of 3 inches.

(2) The ports shall be capable of being sealed when not in use.

(3) The sampling ports shall be located in the stack at least 2 stack diameters or equivalent diameters downstream and at least 0.5 stack diameter or equivalent diameter upstream from any fan, bend, constriction or other flow disturbance.

(4) For emissions units for which a complete application to construct has been filed prior to December 1, 1980, at least two sampling ports, 90 degrees apart, shall be installed at each sampling location on all circular stacks that have an outside diameter of 15 feet or less. For stacks with a larger diameter, four sampling ports, each 90 degrees apart, shall be installed. For emissions units for which a complete application to construct is filed on or after December 1, 1980, at least two sampling ports, 90 degrees apart, shall be installed at each sampling location on all circular stacks that have an outside diameter of 10 feet or less. For stacks with larger diameters, four sampling ports, each 90 degrees apart, shall be installed. On horizontal circular ducts, the ports shall be located so that the probe can enter the stack vertically, horizontally or at a 45 degree angle.

(5) On rectangular ducts, the cross sectional area shall be divided into the number of equal areas in accordance with EPA Method 1. Sampling ports shall be provided which allow access to each sampling point. The ports shall be located so that the probe can be inserted perpendicular to the gas flow.

d. *Work Platforms.*

(1) Minimum size of the working platform shall be 24 square feet in area. Platforms shall be at least 3 feet wide.
(2) On circular stacks with 2 sampling ports, the platform shall extend at least 110 degrees around the stack.
(3) On circular stacks with more than two sampling ports, the work platform shall extend 360 degrees around the stack.
(4) All platforms shall be equipped with an adequate safety rail (ropes are not acceptable), toe board, and hinged floor-opening cover if ladder access is used to reach the platform. The safety rail directly in line with the sampling ports shall be removable so that no obstruction exists in an area 14 inches below each sample port and 6 inches on either side of the sampling port.

e. *Access to Work Platform.*
(1) Ladders to the work platform exceeding 15 feet in length shall have safety cages or fall arresters with a minimum of 3 compatible safety belts available for use by sampling personnel.
(2) Walkways over free-fall areas shall be equipped with safety rails and toe boards.

f. *Electrical Power.*
(1) A minimum of two 120-volt AC, 20-amp outlets shall be provided at the sampling platform within 20 feet of each sampling port.
(2) If extension cords are used to provide the electrical power, they shall be kept on the plant's property and be available immediately upon request by sampling personnel.

g. *Sampling Equipment Support.*
(1) A three-quarter inch eyebolt and an angle bracket shall be attached directly above each port on vertical stacks and above each row of sampling ports on the sides of horizontal ducts.
(a) The bracket shall be a standard 3 inch × 3 inch × one-quarter inch equal-legs bracket which is 1 and one-half inches wide. A hole that is one-half inch in diameter shall be drilled through the exact center of the horizontal portion of the bracket. The horizontal portion of the bracket shall be located 14 inches above the centerline of the sampling port.
(b) A three-eighth inch bolt which protrudes 2 inches from the stack may be substituted for the required bracket. The bolt shall be located 15 and one-half inches above the centerline of the sampling port.
(c) The three-quarter inch eyebolt shall be capable of supporting a 500 pound working load. For stacks that are less than 12 feet in diameter, the eyebolt shall be located 48 inches above the horizontal portion of the angle bracket. For stacks that are greater than or equal to 12 feet in diameter, the eyebolt shall be located 60 inches above the horizontal portion of the angle bracket. If the eyebolt is more than 120 inches above the platform, a length of chain shall be attached to it to bring the free end of the chain to within safe reach from the platform.
(2) A complete monorail or dual rail arrangement may be substituted for the eyebolt and bracket.
(3) When the sample ports are located in the top of a horizontal duct, a frame shall be provided above the port to allow the sample probe to be secured during the test.

[Rule 62-297.310(6), F.A.C.]

T7. Frequency of Compliance Tests. The following provisions apply only to those emissions units that are subject to an emissions limiting standard for which compliance testing is required.

a. *General Compliance Testing.*
(1) The owner or operator of a new or modified emissions unit that is subject to an emission limiting standard shall conduct a compliance test that demonstrates compliance with the applicable emission limiting standard prior to obtaining an operation permit for such emissions unit.
(2) For excess emission limitations for particulate matter specified in Rule 62-210.700, F.A.C., a compliance test shall be conducted annually while the emissions unit is operating under soot blowing conditions in each federal fiscal year during which soot blowing is part of normal emissions unit

operation, except that such test shall not be required in any federal fiscal year in which a fossil fuel steam generator does not burn liquid and/or solid fuel for more than 400 hours other than during startup.

(3) The owner or operator of an emissions unit that is subject to any emission limiting standard shall conduct a compliance test that demonstrates compliance with the applicable emission limiting standard prior to obtaining a renewed operation permit. Emissions units that are required to conduct an annual compliance test may submit the most recent annual compliance test to satisfy the requirements of this provision. In renewing an air operation permit pursuant to sub-subparagraph 62-210.300(2)(a)3.b., c., or d., F.A.C., the Department shall not require submission of emission compliance test results for any emissions unit that, during the year prior to renewal:
   (a) Did not operate; or
   (b) In the case of a fuel burning emissions unit, burned liquid and/or solid fuel for a total of no more than 400 hours.

(4) During each federal fiscal year (October 1 – September 30), unless otherwise specified by rule, order, or permit, the owner or operator of each emissions unit shall have a formal compliance test conducted for:
   (a) Visible emissions, if there is an applicable standard;
   (b) Each of the following pollutants, if there is an applicable standard, and if the emissions unit emits or has the potential to emit: 5 tons per year or more of lead or lead compounds measured as elemental lead; 30 tons per year or more of acrylonitrile; or 100 tons per year or more of any other regulated air pollutant; and
   (c) Each NESHAP pollutant, if there is an applicable emission standard.

(5) An annual compliance test for particulate matter emissions shall not be required for any fuel burning emissions unit that, in a federal fiscal year, does not burn liquid and/or solid fuel, other than during startup, for a total of more than 400 hours.

(6) For fossil fuel steam generators on a semi-annual particulate matter emission compliance testing schedule, a compliance test shall not be required for any six-month period in which liquid and/or solid fuel is not burned for more than 200 hours other than during startup.

(7) For emissions units electing to conduct particulate matter emission compliance testing quarterly pursuant to paragraph 62-296.405(2)(a), F.A.C., a compliance test shall not be required for any quarter in which liquid and/or solid fuel is not burned for more than 100 hours other than during startup.

(8) Any combustion turbine that does not operate for more than 400 hours per year shall conduct a visible emissions compliance test once per each five-year period, coinciding with the term of its air operation permit.

(9) The owner or operator shall notify the Department, at least 15 days prior to the date on which each formal compliance test is to begin, of the date, time, and place of each such test, and the test contact person who will be responsible for coordinating and having such test conducted for the owner or operator.

(10) An annual compliance test conducted for visible emissions shall not be required for units exempted from air permitting pursuant to subsection 62-210.300(3), F.A.C.; units determined to be insignificant pursuant to subparagraph 62-213.300(2)(a)1., A.C., or paragraph 62-213.430(6)(b), F.A.C.; or units permitted under the General Permit provisions in paragraph 62-210.300(4)(a) or Rule 62-213.300, F.A.C., unless the general permit specifically requires such testing.

b. *Special Compliance Tests.* When the Department, after investigation, has good reason (such as complaints, increased visible emissions or questionable maintenance of control equipment) to believe that any applicable emission standard contained Department rule or in a permit issued pursuant to those rules is being violated, it shall require the owner or operator of the emissions unit to conduct compliance tests

which identify the nature and quantity of pollutant emissions from the emissions unit and to provide a report on the results of said tests to the Department.

c. *Waiver of Compliance Test Requirements.* If the owner or operator of an emissions unit that is subject to a compliance test requirement demonstrates to the Department, pursuant to the procedure established in Rule 62-297.620, F.A.C., that the compliance the emissions unit with an applicable weight emission limiting standard can be adequately determined by means other than the designated test procedure, such as specifying a surrogate standard of no visible emissions for particulate matter sources equipped with a bag house or specifying a fuel analysis for sulfur dioxide emissions, the Department shall waive the compliance test requirements for such emissions units and order that the alternate means of determining compliance be used, provided, however, the provisions of paragraph 62-297.310(7)(b), F.A.C., shall apply.

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

T8. Test Reports.

a. The owner or operator of an emissions unit for which a compliance test is required shall file a report with the Department on the results of each such test.

b. 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.

c. 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 or DEP Method 9 test, shall provide the following information.

(1) The type, location, and designation of the emissions unit tested.
(2) The facility at which the emissions unit is located.
(3) The owner or operator of the emissions unit.
(4) The normal type and amount of fuels used and materials processed, and the types and amounts of fuels used and material processed during each test run.
(5) The means, raw data and computations used to determine the amount of fuels used and materials processed, if necessary to determine compliance with an applicable emission limiting standard.
(6) The type of air pollution control devices installed on the emissions unit, their general condition, their normal operating parameters (pressure drops, total operating current and GPM scrubber water), and their operating parameters during each test run.
(7) A sketch of the duct within 8 stack diameters upstream and 2 stack diameters downstream of the sampling ports, including the distance to any upstream and downstream bends or other flow disturbances.
(8) The date, starting time and duration of each sampling run.
(9) The test procedures used, including any alternative procedures authorized pursuant to Rule 62-297.620, F.A.C. Where optional procedures are authorized in this chapter, indicate which option was used.
(10) The number of points sampled and configuration and location of the sampling plane.
(11) For each sampling point for each run, the dry gas meter reading, velocity head, pressure drop across the stack, temperatures, average meter temperatures and sample time per point.
(12) The type, manufacturer and configuration of the sampling equipment used.
(13) Data related to the required calibration of the test equipment.
(14) Data on the identification, processing and weights of all filters used.
(15) Data on the types and amounts of any chemical solutions used.
(16) Data on the amount of pollutant collected from each sampling probe, the filters, and the impingers, are reported separately for the compliance test.
(17) The names of individuals who furnished the process variable data, conducted the test, analyzed the

samples and prepared the report.

(18) All measured and calculated data required to be determined by each applicable test procedure for each run.

(19) The detailed calculations for one run that relate the collected data to the calculated emission rate.

(20) The applicable emission standard and the resulting maximum allowable emission rate for the emissions unit plus the test result in the same form and unit of measure.

(21) A certification that, to the knowledge of the owner or his authorized agent, all data submitted are true and correct. When a compliance test is conducted for the Department or its agent, the person who conducts the test shall provide the certification with respect to the test procedures used. The owner or his authorized agent shall certify that all data required and provided to the person conducting the test are true and correct to his knowledge.

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

Operation

TV1. General Prohibition. A permitted installation may only be operated, maintained, constructed, expanded or modified in a manner that is consistent with the terms of the permit. [Rule 62-4.030, Florida Administrative Code (F.A.C.)]

TV2. Validity. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department. [Rule 62-4.160(2), F.A.C.]

TV3. Proper Operation and Maintenance. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed and used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules. [Rule 62-4.160(6), F.A.C.]

TV4. Not Federally Enforceable. Health, Safety and Welfare. To ensure protection of public health, safety, and welfare, any construction, modification, or operation of an installation which may be a source of pollution, shall be in accordance with sound professional engineering practices pursuant to Chapter 471, F.S. [Rule 62-4.050(3), F.A.C.]

TV5. Continued Operation. An applicant making timely and complete application for permit, or for permit renewal, shall continue to operate the source under the authority and provisions of any existing valid permit or Florida Electrical Power Plant Siting Certification, and in accordance with applicable requirements of the Acid Rain Program and applicable requirements of the CAIR Program, until the conclusion of proceedings associated with its permit application or until the new permit becomes effective, whichever is later, provided the applicant complies with all the provisions of subparagraphs 62-213.420(1)(b)3., F.A.C. [Rules 62-213.420(1)(b)2., F.A.C.]

TV6. Changes Without Permit Revision. Title V sources having a valid permit issued pursuant to Chapter 62-213, F.A.C., may make the following changes without permit revision, provided that sources shall maintain source logs or records to verify periods of operation:

a. Permitted sources may change among those alternative methods of operation allowed by the source's permit as provided by the terms of the permit;
b. A permitted source may implement operating changes, as defined in Rule 62-210.200, F.A.C., after the source submits any forms required by any applicable requirement and provides the Department and EPA with at least 7 days written notice prior to implementation. The source and the Department shall attach each notice to the relevant permit;
   (1) The written notice shall include the date on which the change will occur, and a description of the change within the permitted source, the pollutants emitted and any change in emissions, and any term or condition becoming applicable or no longer applicable as a result of the change;
   (2) The permit shield described in Rule 62-213.460, F.A.C., shall not apply to such changes;
c. Permitted sources may implement changes involving modes of operation only in accordance with Rule 62-213.415, F.A.C.

[Rule 62-213.410, F.A.C.]

TV7. Circumvention. No person shall circumvent any air pollution control device, or allow the emission of air pollutants without the applicable air pollution control device operating properly. [Rule 62-210.650, F.A.C.]

Compliance

TV8. Compliance with Chapter 403, F.S., and Department Rules. Except as provided at Rule 62-213.460, Permit Shield, F.A.C., the issuance of a permit does not relieve any person from complying with the requirements of Chapter 403, F.S., or Department rules. [Rule 62-4.070(7), F.A.C.]

TV9. Compliance with Federal, State and Local Rules. Except as provided at Rule 62-213.460, F.A.C., issuance of a permit does not relieve the owner or operator of a facility or an emissions unit from complying with any applicable requirements, any emission limiting standards or other requirements of the air pollution rules of the Department or any other such requirements under federal, state, or local law. [Rule 62-210.300, F.A.C.]

TV10. Binding and enforceable. The terms, conditions, requirements, limitations and restrictions set forth in this permit, are "permit conditions" and are binding and enforceable pursuant to Sections 403.141, 403.727, or 403.859 through 403.861, F.S. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions. [Rule 62-4.160(1), F.A.C.]

TV11. Timely information. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware the relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly. [Rule 62-4.160(15), F.A.C.]

TV12. Halting or reduction of source activity. It shall not be a defense for a permittee in an enforcement action that maintaining compliance with any permit condition would necessitate halting of or reduction of the source activity. [Rule 62-213.440(1)(d)3., F.A.C.]

TV13. Final permit action. Any Title V source shall comply with all the terms and conditions of the existing permit until the Department has taken final action on any permit renewal or any requested permit revision, except as provided at Rule 62-213.412(2), F.A.C. [Rule 62-213.440(1)(d)4., F.A.C.]

TV14. Sudden and unforeseeable events beyond the control of the source. A situation arising from sudden and unforeseeable events beyond the control of the source which causes an exceedance of a technology-based emissions limitation because of unavoidable increases in emissions attributable to the situation and which requires immediate corrective action to restore normal operation, shall be an affirmative defense to an enforcement action in accordance with the provisions and requirements of 40 CFR 70.6(g)(2) and (3), hereby adopted and incorporated by reference. [Rule 62-213.440(1)(d)5., F.A.C.]

TV15. Permit Shield. Except as provided in Chapter 62-213, F.A.C., compliance with the terms and conditions of a permit issued pursuant to Chapter 62-213, F.A.C., shall, as of the effective date of the permit, be deemed compliance with any applicable requirements in effect, provided that the source included such applicable requirements in the permit application. Nothing in this condition or in any permit shall alter or affect the ability of EPA or the Department to deal with an emergency, the liability of an owner or operator of a source for any violation of applicable requirements prior to or at the time of permit issuance, or the requirements of the Federal Acid Rain Program or the CAIR Program. [Rule 62-213.460, F.A.C.]

TV16. Compliance With Federal Rules. A facility or emissions unit subject to any standard or requirement of 40 CFR, Part 60, 61, 63 or 65, adopted and incorporated by reference at Rule 62-204.800, F.A.C., shall comply with such standard or requirement. Nothing in this chapter shall relieve a facility or emissions unit from complying with such standard or requirement, provided, however, that where a facility or emissions unit is subject to a standard established in Rule 62-296, F.A.C., such standard shall also apply. [Rule 62-296.100(3), F.A.C.]

Permit Procedures

TV17. Permit Revision Procedures. The permittee shall revise its permit as required by Rules 62-213.400, 62-213.412, 62-213.420, 62-213.430 & 62-4.080, F.A.C.; and, in addition, the Department shall revise permits as provided in Rule 62-4.080, F.A.C. & 40 CFR 70.7(f).

TV18. Permit Renewal. The permittee shall renew its permit as required by Rules 62-4.090, 62.213.420(1) and 62-213.430(3), F.A.C. Permits being renewed are subject to the same requirements that apply to permit

issuance at the time of application for renewal. Permit renewal applications shall contain that information identified in Rules 62-210.900(1) [Application for Air Permit - Long Form], 62-213.420(3) [Required Information], 62-213.420(6) [CAIR Part Form], F.A.C. Unless a Title V source submits a timely and complete application for permit renewal in accordance with the requirements this rule, the existing permit shall expire and the source's right to operate shall terminate. For purposes of a permit renewal, a timely application is one that is submitted 225 days before the expiration of a permit that expires on or after June 1, 2009. No Title V permit will be issued for a new term except through the renewal process. [Rules 62-213.420 & 62-213.430, F.A.C.]

TV19. Insignificant Emissions Units or Pollutant-Emitting Activities. The permittee shall identify and evaluate insignificant emissions units and activities as set forth in Rule 62-213.430(6), F.A.C.

TV20. Savings Clause. If any portion of the final permit is invalidated, the remainder of the permit shall remain in effect. [Rule 62-213.440(1)(d)1., F.A.C.]

TV21. Suspension and Revocation.

a. Permits shall be effective until suspended, revoked, surrendered, or expired and shall be subject to the provisions of Chapter 403, F.S., and rules of the Department.
b. Failure to comply with pollution control laws and rules shall be grounds for suspension or revocation.
c. A permit issued pursuant to Chapter 62-4, F.A.C., shall not become a vested property right in the permittee. The Department may revoke any permit issued by it if it finds that the permit holder or his agent:
   (1) Submitted false or inaccurate information in his application or operational reports.
   (2) Has violated law, Department orders, rules or permit conditions.
   (3) Has failed to submit operational reports or other information required by Department rules.
   (4) Has refused lawful inspection under Section 403.091, F.S.
d. No revocation shall become effective except after notice is served by personal services, certified mail, or newspaper notice pursuant to Section 120.60(5), F.S., upon the person or persons named therein and a hearing held if requested within the time specified in the notice. The notice shall specify the provision of the law, or rule alleged to be violated, or the permit condition or Department order alleged to be violated, and the facts alleged to constitute a violation thereof.

[Rule 62-4.100, F.A.C.]

TV22. Not federally enforceable. Financial Responsibility. The Department may require an applicant to submit proof of financial responsibility and may require the applicant to post an appropriate bond to guarantee compliance with the law and Department rules. [Rule 62-4.110, F.A.C.]

TV23. Emissions Unit Reclassification.

a. Any emissions unit whose operation permit has been revoked as provided for in Chapter 62-4, F.A.C., shall be deemed permanently shut down for purposes of Rule 62-212.500, F.A.C. Any emissions unit whose permit to operate has expired without timely renewal or transfer may be deemed permanently shut down, provided, however, that no such emissions unit shall be deemed permanently shut down if, within 20 days after receipt of written notice from the Department, the emissions unit owner or operator demonstrates that the permit expiration resulted from inadvertent failure to comply with the requirements of Rule 62-4.090, F.A.C., and that the owner or operator intends to continue the emissions unit in operation, and either submits an application for an air operation permit or complies with permit transfer requirements, if applicable.
b. If the owner or operator of an emissions unit which is so permanently shut down, applies to the Department for a permit to reactivate or operate such emissions unit, the emissions unit will be reviewed and permitted as a new emissions unit.

[Rule 62-210.300(6), F.A.C.]

TV24. Transfer of Permits. Per Rule 62-4.160(11), F.A.C., this permit is transferable only upon Department approval in accordance with Rule 62-4.120, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department. The permittee

transferring the permit shall remain liable for corrective actions that may be required as a result of any violations occurring prior to the sale or legal transfer of the facility. The permittee shall also comply with the requirements of Rule 62-210.300(7), F.A.C., and use DEP Form No. 62-210.900(7). [Rules 62-4.160(11), 62-4.120, and 62-210.300(7), F.A.C.]

Rights, Title, Liability, and Agreements

TV25. Rights. As provided in Subsections 403.987(6) and 403.722(5), F.S., the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations. This permit is not a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in this permit. [Rule 62-4.160(3), F.A.C.]

TV26. Title. This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title. [Rule 62-4.160(4), (F.A.C.]

TV27. Liability. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of F.S. and Department rules, unless specifically authorized by an order from the Department. [Rule 62-4.160(5), F.A.C.]

TV28. Agreements.

a. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at reasonable times, access to the premises where the permitted activity is located or conducted to:
   (1) Have access to and copy any records that must be kept under conditions of the permit;
   (2) Inspect the facility, equipment, practices, or operations regulated or required under this permit; and,
   (3) Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules. Reasonable time may depend on the nature of the concern being investigated.

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

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

[Rules 62-4.160(7), (9), and (10), F.A.C.]

Recordkeeping and Emissions Computation

TV29. Permit. The permittee shall keep this permit or a copy thereof at the work site of the permitted activity. [Rule 62-4.160(12), F.A.C.]

TV30. Recordkeeping.

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

b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit. These

materials shall be retained at least five (5) years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

c. Records of monitoring information shall include:
   (1) The date, exact place, and time of sampling or measurements, and the operating conditions at the time of sampling or measurement;
   (2) The person responsible for performing the sampling or measurements;
   (3) The dates analyses were performed;
   (4) The person and company that performed the analyses;
   (5) The analytical techniques or methods used;
   (6) The results of such analyses.

[Rules 62-4.160(14) and 62-213.440(1)(b)2., F.A.C.]

TV31. Emissions Computation. Pursuant to Rule 62-210.370, F.A.C., the following required methodologies are to be used by the owner or operator of a facility for computing actual emissions, baseline actual emissions, and net emissions increase, as defined at Rule 62-210.200, F.A.C., and for computing emissions for purposes of the reporting requirements of subsection 62-210.370(3) and paragraph 62-212.300(1)(e), F.A.C., or of any permit condition that requires emissions be computed in accordance with Rule 62-210.370, F.A.C. Rule 62-210.370, F.A.C., is not intended to establish methodologies for determining compliance with the emission limitations of any air permit.

For any of the purposes specified above, the owner or operator of a facility shall compute emissions in accordance with the requirements set forth in this subsection.

a. *Basic Approach.* The owner or operator shall employ, on a pollutant-specific basis, the most accurate of the approaches set forth below to compute the emissions of a pollutant from an emissions unit; provided, however, that nothing in this rule shall be construed to require installation and operation of any continuous emissions monitoring system (CEMS), continuous parameter monitoring system (CPMS), or predictive emissions monitoring system (PEMS) not otherwise required by rule or permit, nor shall anything in this rule be construed to require performance of any stack testing not otherwise required by rule or permit.
   (1) If the emissions unit is equipped with a CEMS meeting the requirements of paragraph 62-210.370(2)(b), F.A.C., the owner or operator shall use such CEMS to compute the emissions of the pollutant, unless the owner or operator demonstrates to the department that an alternative approach is more accurate because the CEMS represents still-emerging technology.
   (2) If a CEMS is not available or does not meet the requirements of paragraph 62-210.370(2)(b), F.A.C, but emissions of the pollutant can be computed pursuant to the mass balance methodology of paragraph 62-210.370(2)(c), F.A.C., the owner or operator shall use such methodology, unless the owner or operator demonstrates to the department that an alternative approach is more accurate.
   (3) If a CEMS is not available or does not meet the requirements of paragraph 62-210.370(2)(b), F.A.C., and emissions cannot be computed pursuant to the mass balance methodology, the owner or operator shall use an emission factor meeting the requirements of paragraph 62-210.370(2)(d), F.A.C., unless the owner or operator demonstrates to the department that an alternative approach is more accurate.

b. *Continuous Emissions Monitoring System (CEMS).*
   (1) An owner or operator may use a CEMS to compute emissions of a pollutant for purposes of this rule provided:
      (a) The CEMS complies with the applicable certification and quality assurance requirements of 40 CFR Part 60, Appendices B and F, or, for an acid rain unit, the certification and quality assurance requirements of 40 CFR Part 75, all adopted by reference at Rule 62-204.800, F.A.C.; or,
      (b) The owner or operator demonstrates that the CEMS otherwise represents the most accurate means of computing emissions for purposes of this rule.
   (2) Stack gas volumetric flow rates used with the CEMS to compute emissions shall be obtained by the most accurate of the following methods as demonstrated by the owner or operator:

(a) A calibrated flowmeter that records data on a continuous basis, if available; or
(b) The average flow rate of all valid stack tests conducted during a five-year period encompassing the period over which the emissions are being computed, provided all stack tests used shall represent the same operational and physical configuration of the unit.

(3) The owner or operator may use CEMS data in combination with an appropriate f-factor, heat input data, and any other necessary parameters to compute emissions if such method is demonstrated by the owner or operator to be more accurate than using a stack gas volumetric flow rate as set forth at subparagraph 62-210.370(2)(b)2., F.A.C., above.

c. *Mass Balance Calculations.*

(1) An owner or operator may use mass balance calculations to compute emissions of a pollutant for purposes of this rule provided the owner or operator:
(a) Demonstrates a means of validating the content of the pollutant that is contained in or created by all materials or fuels used in or at the emissions unit; and,
(b) Assumes that the emissions unit emits all of the pollutant that is contained in or created by any material or fuel used in or at the emissions unit if it cannot otherwise be accounted for in the process or in the capture and destruction of the pollutant by the unit's air pollution control equipment.

(2) Where the vendor of a raw material or fuel which is used in or at the emissions unit publishes a range of pollutant content from such material or fuel, the owner or operator shall use the highest value of the range to compute the emissions, unless the owner or operator demonstrates using site-specific data that another content within the range is more accurate.

(3) In the case of an emissions unit using coatings or solvents, the owner or operator shall document, through purchase receipts, records and sales receipts, the beginning and ending VOC inventories, the amount of VOC purchased during the computational period, and the amount of VOC disposed of in the liquid phase during such period.

d. *Emission Factors.*

(1) An owner or operator may use an emission factor to compute emissions of a pollutant for purposes of this rule provided the emission factor is based on site-specific data such as stack test data, where available, unless the owner or operator demonstrates to the department that an alternative emission factor is more accurate. An owner or operator using site-specific data to derive an emission factor, or set of factors, shall meet the following requirements.
(a) If stack test data are used, the emission factor shall be based on the average emissions per unit of input, output, or gas volume, whichever is appropriate, of all valid stack tests conducted during at least a five-year period encompassing the period over which the emissions are being computed, provided all stack tests used shall represent the same operational and physical configuration of the unit.
(b) Multiple emission factors shall be used as necessary to account for variations in emission rate associated with variations in the emissions unit's operating rate or operating conditions during the period over which emissions are computed.
(c) The owner or operator shall compute emissions by multiplying the appropriate emission factor by the appropriate input, output or gas volume value for the period over which the emissions are computed. The owner or operator shall not compute emissions by converting an emission factor to pounds per hour and then multiplying by hours of operation, unless the owner or operator demonstrates that such computation is the most accurate method available.

(2) If site-specific data are not available to derive an emission factor, the owner or operator may use a published emission factor directly applicable to the process for which emissions are computed. If no directly-applicable emission factor is available, the owner or operator may use a factor based on a similar, but different, process.

e. *Accounting for Emissions During Periods of Missing Data from CEMS, PEMS, or CPMS.* In computing the emissions of a pollutant, the owner or operator shall account for the emissions during periods of missing data from CEMS, PEMS, or CPMS using other site-specific data to generate a reasonable estimate of such emissions.
f. *Accounting for Emissions During Periods of Startup and Shutdown.* In computing the emissions of a pollutant, the owner or operator shall account for the emissions during periods of startup and shutdown of the emissions unit.
g. *Fugitive Emissions.* In computing the emissions of a pollutant from a facility or emissions unit, the owner or operator shall account for the fugitive emissions of the pollutant, to the extent quantifiable, associated with such facility or emissions unit.
h. *Recordkeeping.* The owner or operator shall retain a copy of all records used to compute emissions pursuant to this rule for a period of five years from the date on which such emissions information is submitted to the department for any regulatory purpose.

[Rule 62-210.370(1) & (2), F.A.C.]

Responsible Official

TV32. Designation and Update. The permittee shall designate and update a responsible official as required by Rule 62-213.202, F.A.C.

Prohibitions and Restrictions

TV33. Asbestos. This permit does not authorize any demolition or renovation of the facility or its parts or components which involves asbestos removal. This permit does not constitute a waiver of any of the requirements of Chapter 62-257, F.A.C., and 40 CFR 61, Subpart M, National Emission Standard for Asbestos, adopted and incorporated by reference in Rule 62-204.800, F.A.C. Compliance with Chapter 62-257, F.A.C., and 40 CFR 61, Subpart M, Section 61.145, is required for any asbestos demolition or renovation at the source. [40 CFR 61; Rule 62-204.800, F.A.C.; and, Chapter 62-257, F.A.C.]

TV34. Refrigerant Requirements. Any facility having refrigeration equipment, including air conditioning equipment, which uses a Class I or II substance (listed at 40 CFR 82, Subpart A, Appendices A and B), and any facility which maintains, services, or repairs motor vehicles using a Class I or Class II substance as refrigerant must comply with all requirements of 40 CFR 82, Subparts B and F, and with Chapter 62-281, F.A.C.

TV35. Open Burning Prohibited. Open burning is prohibited unless performed in accordance with the provisions of Rule 62-296.320(3) or Chapter 62-256, F.A.C.

TV36. Heavy-Duty Vehicle Idling Reduction. The permittee shall only allow idling of heavy-duty diesel engine powered motor vehicles in accordance with the following provisions:

a. *Applicability.* This rule applies to any heavy-duty diesel engine powered motor vehicle. For the purposes of this rule:
   (1) Heavy-duty diesel engine powered motor vehicle means a motor vehicle:
      (a) With a gross vehicle weight rating equal to or greater than 8,500 pounds;
      (b) Used on roads for the transportation of passengers or freight; and
      (c) Serving a commercial, governmental, or public purpose.
   (2) Gross vehicle weight rating means the value specified by the manufacturer as the maximum design loaded weight of a single vehicle.
b. *Requirement.* Owners or operators of heavy-duty diesel engine powered motor vehicles are prohibited from idling for more than five consecutive minutes. Idling is the continuous operation of a vehicle's main drive engine while the vehicle is stopped.
c. *Exemptions.* The idling restriction of subsection 62-285.420(2), F.A.C., shall not apply:

(1) To idling while stopped for traffic conditions over which the driver has no control, including being stopped for an official traffic control device or signal, in a line of traffic, at a railroad crossing, at a construction zone, or at the direction of law enforcement;
(2) To idling of buses 10 minutes prior to passenger loading and when passengers are onboard if needed for passenger comfort;
(3) To idling of an armored vehicle in which a person remains inside the vehicle while guarding the contents of the vehicle or while the vehicle is being loaded or unloaded.
(4) If idling is necessary for a police, fire, ambulance, public safety, military, or other vehicle being used in an emergency or training capacity;
(5) If idling is necessary to verify that the vehicle is in safe operating condition as required by law and that all equipment is in good working order, either as part of a daily vehicle inspection or as otherwise needed, provided that engine idling is mandatory for such verification;
(6) If idling is necessary to accomplish work for which the vehicle was designed, other than propulsion, for example: collecting solid waste or recyclable material; controlling cargo temperature; or operating a lift, crane, pump, drill, hoist, mixer, or other auxiliary equipment other than a heater or air conditioner;
(7) If idling is necessary to operate defrosters, heaters, air conditioners, or other equipment to prevent a safety or health emergency, but not solely for the comfort of the driver;
(8) To idling while the driver is sleeping or resting in a sleeper berth. This exemption expires at midnight September 30, 2013.

[Rule 62-285.420, F.A.C.]

APPENDIX U

LIST OF UNREGULATED EMISSIONS UNITS AND/OR ACTIVITIES.

Unregulated Emissions Units and/or Activities. An emissions unit which emits no "emissions-limited pollutant" and which is subject to no unit-specific work practice standard, though it may be subject to regulations applied on a facility-wide basis (e.g., unconfined emissions, odor, general opacity) or to regulations that require only that it be able to prove exemption from unit-specific emissions or work practice standards.

The below listed emissions units and/or activities are neither 'regulated emissions units' nor 'insignificant emissions units'.

E.U. ID No.	Brief Description of Emissions Units and/or Activity
N/A	A stand-alone fan-cooled radiator for each IC engine.
N/A	Drums for the engine radiator coolant.
N/A	One used lube oil tank (approximately 1,000 gallons) and moisture conditioning equipment.
N/A	One new lube oil tank (approximately 2,000 gallons) and moisture conditioning equipment.

WASTE MANAGEMENT

Operation and Maintenance Plan for Air Emissions

Dust Control

The following describes the general operation of dust control procedures for roads and landfill.

- 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.

- 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 periods of 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;

- Intermediate cover soil will be –seeded or sodded or mulched as soon as practical after application in order to minimize the blowing of dust on-site.

Landfill Gas Collection/Flare System

Operation and maintenance of the landfill gas collection and flare systems includes care of primarily the landfill gas extraction wells, the gas collection blower, and flares. The following describes the general operation and maintenances details involved with each system.

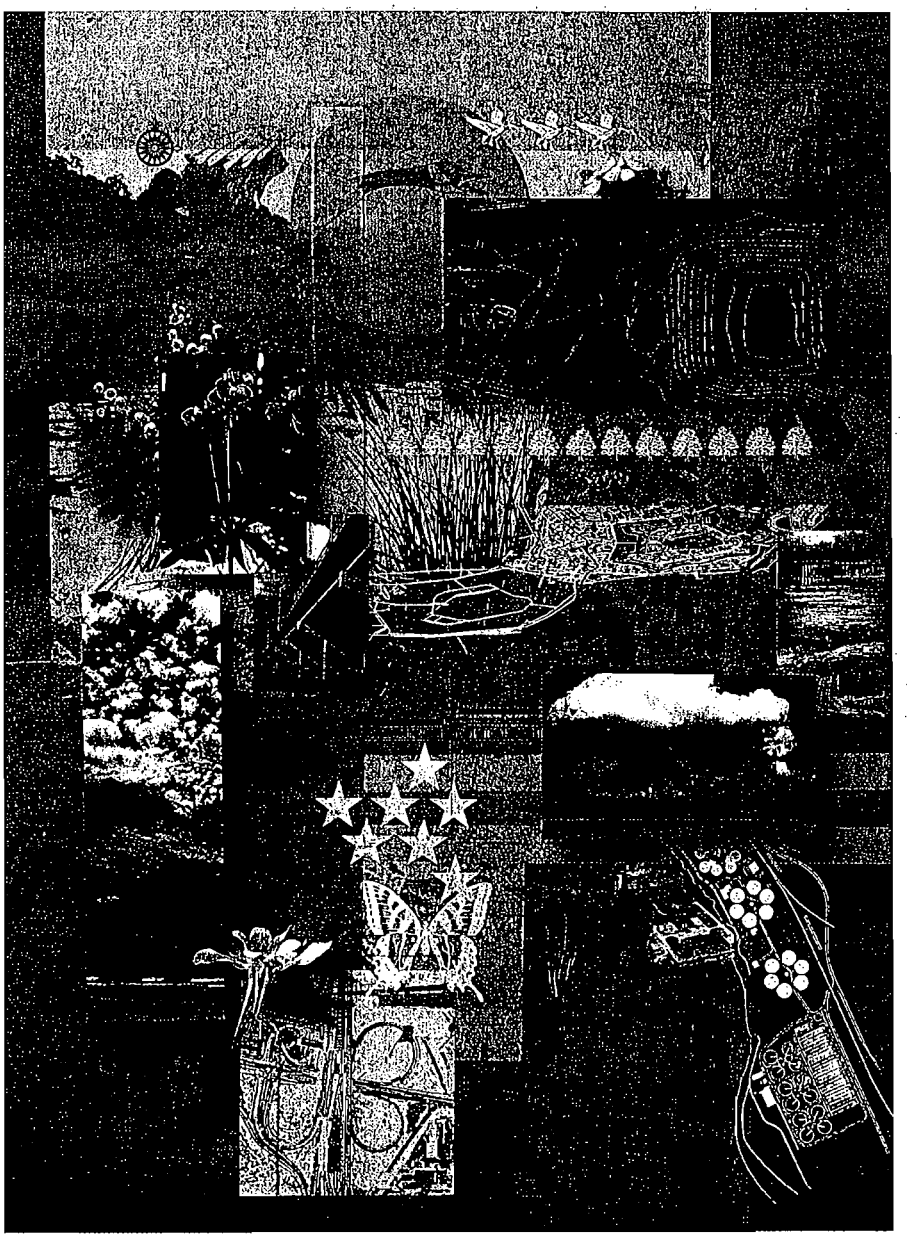
- Landfill Gas Extraction Wells: In order to ensure that the proper vacuum is being applied to each extraction well, the landfill gas quality is checked periodically for indicator parameters such as methane and oxygen. Adjustments to the applied vacuum are made as needed at each wellhead in order to minimize the occurrence of air intrusion. The wells are inspected periodically for deterioration of equipment such as the flex hose, sampling ports, gaskets, thermometers, etc. These are replaced as necessary.

- Landfill Gas Blower: The gas collection system in place at the Trail Ridge Landfill has a Siemens TEFC RGZPSD blower with full welds interior and exterior housing in

arrangement #1 belt drive. The unit is driven by a 25 HP, 3 phase, 460 VAC, 60 Hertz, TEFC electric motor with a fixed V-belt drive on a unitary base. The motor on the blower is equipped with sealed bearings and requires no maintenance. However, the manufacturer recommends that the belt tension on the V-belt drive is periodically inspected to ensure that the belts are adjusted or replaced when necessary. The blower motor's line current should be measured periodically to ensure that the motor is operating at the correct nameplate motor current. Incorrect motor current could be an indication that the motor is not operating properly, thereby reducing the life of the blower if not corrected.

- Flare System: The flare control panel is equipped with a number of indicating lights that assist the operator with startup of the flare and with operating conditions. On an annual basis, the flame arrestor leading to the flare should be inspected and cleaned if a high differential pressure exists. Thermocouples may need to be replaced occasionally. Pilot gas cylinders should be inspected periodically to insure that sufficient gas is present to relight the flare if it goes down.

Quality • Integrity • Creativity • Responsiveness



Quality through teamwork

Trail Ridge Landfill
Baldwin, Florida

Landfill Gas Collection and Control System Design Plan

Prepared in Accordance with the New Source Performance Standards for MSW Landfills

June 1997

Prepared By:

Rust Environment & Infrastructure, Inc.
Greenville, South Carolina

TABLE OF CONTENTS

TABLE OF CONTENTS (continued)

SECTION **PAGE NO.**

LIST OF APPENDICES

LIST OF ATTACHMENTS

1.0 INTRODUCTION

1.1 APPLICABILITY

The Trail Ridge Landfill (TRL) first began accepting waste in 1992. The landfill has an overall design capacity of 24,332,000 yd^3. The facility is therefore subject to the New Source Performance Standards (NSPS) for municipal solid waste landfills, promulgated March 12, 1996.

Calculations of NMOC emissions utilizing the Tier 1 defaults in the NSPS showed calculated facility emissions in excess of 50 Mg/year NMOC. Therefore, the site is required to submit a collection and control system design plan to the Administrator for approval within one year of submittal of the NMOC emissions calculations showing emissions greater than 50 Mg/year. The NMOC emission rate report was submitted on June 10, 1996, so the facility design plan is due by June 10, 1997.

The submittal of this document fulfills the requirement for the facility to prepare a collection and control system design plan in accordance with 40 CFR 60.752(b)(2). The design plan outlines the methodology employed to design a landfill gas management system that will collect, transport and dispose of the landfill gas generated in the entire permitted landfill at final grades. In addition, the facility's proposed alternative methods for complying with the monitoring record keeping and reporting requirements of the NSPS are presented for approval. A surface monitoring design plan is provided in Appendix A.

This NSPS required collection and control system design plan is based on the final grades of the current solid waste permitted facility, as shown in Appendix B. The facility is currently at interim grades. The evolution of the collection and control system as the landfill is filled will ultimately produce the design specified in this plan. Until the landfill has attained the final grades, the collection and control of landfill gas pursuant to the NSPS may be accomplished using various methods not specifically included as part of the final design. However, once the facility has reached the final grades, the collection and control system will meet the criteria specified within this design plan.

1.2 SITE BACKGROUND

The TRL is located in Duval County, Florida. The site began accepting waste in 1992. 147 acres are permitted for solid waste disposal. Of these 147 acres, 92 acres have been constructed, 74 acres have received waste, and approximately 8 acres are at final grade and closed. Final closure of the entire facility is projected for the year 2026. However, the actual closure date will depend on refuse acceptance rates.

1.3 SUMMARY OF CURRENT AND PROPOSED LANDFILL GAS CONTROLS

TRL currently does not have an existing gas collection system in place.

TRL has proposed a gas collection system which was submitted to the Florida Department of Environment Protection (FDEP) in November of 1996. This plan uses up to 73 vertical wells to extract the landfill gas. The collected landfill gas is directed through lateral piping to a header pipe which will run along the outer edge of the landfill. A blower located east of the landfill behind the

operations building will provide enough of a negative pressure (vacuum) to pull the collected landfill gas from the header pipe and send it to an open flare located adjacent to the blower.

2.0 ENGINEERING CALCULATIONS

2.1 CALCULATION OF MAXIMUM GAS FLOW RATE

The NSPS states that "an active collection system shall be designed 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" (40 CFR 60.752(b)(2)(ii)(A)(1)). A calculation to estimate this maximum gas generation flow rate must be performed in accordance with 40 CFR 60.755(a)(1).

40 CFR 60.755(a)(1)(ii) requires sites with known waste acceptance rates (such as TRL) to utilize the following equation for calculation of the maximum gas flow rate:

$$Q_M = \sum_{i=1}^{n} 2k\, L_o\, M_i\, (e^{-kt_i})$$

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 i^{th} section, megagrams
t_i = age of the i^{th} section, years

The NSPS states that 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."

TRL is requesting the ability to use kinetic factors from a database compiled by Waste Management, Inc. The database contains gas generation rates measured from over two dozen Waste Management landfills during gas extraction tests conducted in the mid to late 1980s. The landfills were sited across varying geographical regions of the United States in order to assess the effect of location and climate on gas generation rates. Data on these pump tests was provided to the EPA's Office of Air Quality Planning and Standards in 1988 and 1989 as background information for the development of the NSPS. The gas extraction tests conducted by Waste Management in the 1980s are very similar to the Tier III testing described in the NSPS.

A summary of the database is provided in Table 1. The selection of appropriate kinetic factors for TRL is discussed in the next subsection.

2.1.1 Selection of Equation Parameters

Methane Generation Rate Constant k:
In lieu of conducting Tier 3 testing at the facility, the database of gas generation rates measured at several Waste Management sites was utilized to select a k value (generation rate constant) suitable to TRL. Several characteristics of the site were compared to the landfill assessments in the database.

Since TRL is located in the southern United States, only sites of similar refuse volume capacity and waste stream characterization which have comparable precipitation amounts were utilized in the comparison. It is assumed that the methanogenic process is mesophilic with microbial activity generating landfill gas temperatures less than 110 degrees Fahrenheit. The type of microbial environment has an impact on design considerations as well as determining an appropriate gas generation rate.

Landfills that exhibit mesophilic characteristics have a slightly lower gas generation rate than the average thermophilic landfill environment. The lower gas generation rate noted at mesophilic sites is more than directly related, however, to the types of waste, lack of addition of wastewater sludge, and the quantity of rainfall and liquids in the landfill rather than the type of bacteria. As a result of this comparison and the data collected from the site, a gas generation rate of 0.105 cubic feet per pound of refuse per year most closely approximates the rate which is anticipated for the TRL. In order to convert the gas generation rate to the methane generation rate constant k, the gas generation rate is divided by the theoretical landfill gas yield per pound of refuse (as discussed in the next subsection). This results in a k value of 0.0233/year.

Methane Generation Potential L_o:

The next input into the gas flow rate equation is the theoretical maximum yield (expected volume of gas per unit mass of refuse). Determining the maximum theoretical yield of a unit mass of municipal solid waste is an arduous task. Either of two methods can be used: 1) stoichiometric, or 2) biodegradability, but both methods require extensive sampling, time-consuming lab analyses, and difficult concise analytical procedures. Both methods also rely extensively on a characteristic sample of the waste stream.

Most samples, however, are small in size relative to the composite waste stream and often are not very characteristic of the biodegradability of the waste. In an evaluation of this nature, it is not practical to place much emphasis on characterizing the organic fraction of the waste stream unless large samples are collected.

Based on past experience, which included an extensive literature review and a review of data available on the typical United States waste stream, a theoretical maximum yield of **4.5 cubic feet of landfill gas per pound of refuse** was derived for the TRL. This value closely approximates observed landfill gas production in sites of similar characteristics.

In order to utilize theoretical yield (or "methane generation potential") in the gas generation equation, the value must be reported in terms of cubic meters of methane per megagram of solid waste rather than cubic feet of landfill gas per pound of refuse. After converting from English to metric units, and assuming that approximately 50 percent of landfill gas is comprised of methane, an L_o value of 139.6 m^3 methane/megagram solid waste was derived.

Mass of Solid Waste M_i:

The gas production volumes for the TRL are based on historical records of gate receipts from the site's opening until the current year and an estimation of future gate receipts until the total designed air space volume is exhausted.

This data forms the foundation of the gas volume projection and is subject to change over the active lifetime of the landfill. This implies that the gas volume projection will vary accordingly. This variability does not pose a problem with gas management system design. The gas management system design at the TRL is based on the expected gas production from the planned volumetric space of the landfill, via an estimate of flow rates from the planned gas extraction wells. Therefore, even though gas volumes may fluctuate over a period of time because of varying disposal rates, the ultimate total volume of gas projected for the site will remain constant and the gas collection system components will be sized accordingly.

Table 2 provides a summary of historical and projected future waste receipts for the facility. Since the equation requires the refuse mass to be in megagrams, the annual gate receipts were converted from tons to megagrams.

Age of the "i^{th} section," t_i:
The maximum gas generation rate is projected to occur the year of site closure. The actual date of closure may vary from that projected in this design plan, depending on actual waste receipts in future years.

2.1.2 Calculation of Maximum Generation Rate

The EPA has simplified the gas generation rate calculation by providing a Windows-based program to the public that incorporates the NSPS landfill gas flow rate equation. Therefore, the EPA's Landfill Air Emissions Estimation Model (developed under EPA contract EPA-600/8-90-85a) was utilized to predict maximum landfill gas generation volumes. The model output tabulates the main constituents of landfill gas (i.e., methane and carbon dioxide) separately, so the two must be manually added together to provide an estimation of total gas production volume.

Based on the model output provided in Attachments 1 and 2, the following maximum gas generation flow rate was estimated for the year 2026:

Methane	=	37,540,000	m^3/year
Carbon Dioxide	=	37,540,000	m^3/year
Total LFG Production	=	75,080,000	m^3/year
	=	2,649,400,000	ft^3/year
	=	7,258,700	ft^3/day

Since equipment sizing/selection is typically measured in terms of cubic feet per minute (cfm), a final maximum gas generation flow of 5,040 cfm was estimated for the TRL.

Since the design was based on the calculated landfill gas flow from the Radius of Influence Calculation Table, Table 3 (5,945 scfm), the design meets this NSPS criteria.

TABLE 1: Database of Landfill Gas Generation Rates

Site ID	State	Measured Landfill Gas Generation Rate (ft^3/lb/yr)	Corresponding "k" Value (1/yr)*
A	Pennsylvania	.130	.029
B	Wisconsin	.126	.028
C	Wisconsin	.079	.018
D	Ohio	.116	.026
E	Michigan	.112	.025
F	Illinois	.130	.029
G	Colorado	.06	.013
H	Florida	.172	.038
I	New Jersey	.085	.019
J	New Jersey	.098	.022
K	New York	.147	.033
L	Texas	.112	.025
M	Colorado	.085	.019
N	Connecticut	.159	.035
O	Pennsylvania	.042	.009
P	Illinois	.124	.028
Q	California	.083	.018
R	Illinois	.142	.032
S	Texas	.095	.021
T	Kentucky	.108	.024
U	California	.065	.014
V	Maryland	.063	.014
W	New York	.094	.021
X	Ohio	.089	.02
Y	Ohio	.096	.021
Z	Ohio	.082	.018
AA	Massachusetts	.104	.023
BB	Ohio	.067	.015
CC	New Hampshire	.102	.023
DD	Illinois	.085	.019
EE	California	.109	.024
FF	Illinois	.075	.017

* k values were calculated by dividing the gas generation rate by the theoretical maximum gas production of 4.5 ft^3 landfill gas/lb of refuse.

TABLE 2: Trail Ridge Landfill
Past and Anticipated Future Annual Waste Acceptance

Year	(Tons)	(Mg)
1992	412,261	374,003
1993	618,382	560,996
1994	650,773	590,381
1995	601,128	545,343
1996	528,747	479,679
1997	528,747	479,679
1998	528,747	479,679
1999	528,747	479,679
2000	528,747	479,679
2001	528,747	479,679
2002	528,747	479,679
2003	528,747	479,679
2004	528,747	479,679
2005	528,747	528,747
2006	528,747	479,679
2007	528,747	479,679
2008	528,747	479,679
2009	528,747	479,679
2010	528,747	479,679
2011	528,747	479,679
2012	528,747	479,679
2013	528,747	479,679
2014	528,747	479,679
2015	528,747	479,679
2016	528,747	479,679
2017	528,747	479,679

TABLE 2 (Continued)

Year	(Tons)	(Mg)
2018	528,747	479,679
2019	528,747	479,679
2020	528,747	479,679
2021	528,747	479,679
2022	528,747	479,679
2023	528,747	479,679
2024	528,747	479,679
2025	528,747	479,679
2026	104,159	94,493
Total	18,249,113	16,555,595

Table 3: Radius of Influence Calculation Table

DATE: 10/01/96
PROJ. NO: 40153
PROJECT: Permit Modification Gas System Design
LOCATION: Trail Ridge Landfill
BY: DRH\

AVERAGE ASSUMPTIONS

			TYPICAL VALUES
GAS GENERATION RATE:	0.105	FT3/LBm*YR	0.102
PERMEABILITY FACTOR:	2.681	x 10E-11, FT2	2.681
REFUSE DENSITY:	55.56	LBm/FT3	44.44
GAS TEMPERATURE:	100	DEG. F	86
COVER DEPTH:	8	FT	4
DESIGN MAX. ROI:	179	FT	175
OVERLAP FACTOR:	13	%	20

For computer calculation, leave shaded data blank.

Assumes standard conditions are 14.7 psia, 60 Deg. F.

WELL NO.	WELL COORDINATES NORTH	WELL COORDINATES EAST	SURFACE ELEVATION (FASL)	BASE ELEVATION (FASL)	DEPTH OFF BASE (FT)	LIQUID LEVEL (FASL)	WELL DEPTH (FT)	LENGTH OF PIPE SOLID (FT)	LENGTH OF PIPE SLOTTED (FT)	(Hs/Ht) RATIO	APPLIED VACUUM (in WC)	ROI (FT)	GAS FLOW (SCFM)
W1	2045.1	3210.6	198.0	127.0	10	0	61	31	30	0.49	4.20	149	38.7
W2	2291.7	3262.4	187.0	130.0	10	0	47	24	23	0.49	2.80	122	20.8
W3	2515.4	3262.8	190.0	133.0	10	0	47	24	23	0.49	2.80	122	21.1
W4	2749.9	3239.1	200.0	135.0	10	0	55	28	27	0.49	3.60	138	31.0
W5	3004.5	3231.6	205.0	137.0	10	0	58	29	29	0.50	3.80	143	34.7
W6	3257.3	3223.3	207.0	139.0	10	0	58	29	29	0.50	3.80	143	33.4
W7	3512.3	3236.5	207.0	142.0	10	0	55	28	27	0.49	3.60	138	30.4
W8	3765.9	3244.4	207.0	144.0	10	0	53	27	26	0.49	3.40	134	26.8
W9	3984.7	3233.4	210.0	146.0	10	0	54	27	27	0.50	3.40	135	28.7
W10	4007.6	2999.3	210.0	149.0	10	0	51	26	25	0.49	3.20	130	22.8
W11	3780.2	2971.9	270.0	147.0	10	0	113	40	73	0.65	6.00	175	90.0
W12	3471.7	2969.4	279.0	144.0	10	0	125	40	85	0.68	6.00	175	99.8
W13	3157.2	2974.2	274.0	141.0	10	0	123	40	83	0.67	6.00	175	92.5
W14	2863.0	2967.3	274.0	139.0	10	0	125	40	85	0.68	6.00	175	95.4
W15	2563.1	2976.7	268.0	136.0	10	0	122	40	82	0.67	6.00	175	96.2
W16	2234.2	3005.9	251.0	133.0	10	0	108	40	68	0.63	6.00	175	85.1
W17	1953.2	2988.9	190.0	129.0	10	0	51	26	25	0.49	3.20	130	24.7
W18	1822.8	2804.3	190.0	130.0	10	0	50	25	25	0.50	3.00	127	23.8
W19	2100.9	2733.0	263.0	133.0	10	0	120	40	80	0.67	6.00	175	97.0
W20	2387.1	2753.7	318.0	137.0	10	0	171	40	131	0.77	6.00	175	122.4
W21	2715.3	2707.5	329.0	140.0	10	0	179	40	139	0.78	6.00	175	122.7
W22	3011.3	2703.5	329.0	142.0	10	0	177	40	137	0.77	6.00	175	128.8
W23	3317.1	2726.8	329.0	145.0	10	0	174	40	134	0.77	6.00	175	122.4
W24	3750.0	2662.2	276.0	147.0	10	0	119	40	79	0.66	6.00	175	86.9
W25	4009.2	2762.3	210.0	152.0	10	0	48	24	24	0.50	2.80	123	22.1
W26	4007.4	2518.6	210.0	151.0	10	0	49	25	24	0.49	3.00	126	23.8
W27	3980.8	2279.3	213.0	149.0	10	0	54	27	27	0.50	3.40	135	26.5
W28	3759.0	2354.7	273.0	147.0	10	0	116	40	76	0.66	6.00	175	89.8
W29	3481.4	2501.8	328.0	147.0	10	0	171	40	131	0.77	6.00	175	121.9
W30	3177.2	2404.9	340.0	144.0	10	0	186	40	146	0.78	6.00	225	256.3
W31	2810.0	2392.3	341.0	140.0	10	0	191	40	151	0.79	6.00	225	241.3
W32	2531.0	2441.6	334.0	138.0	10	0	186	40	146	0.78	6.00	225	232.8
W33	2297.4	2288.6	314.0	134.0	10	0	170	40	130	0.76	6.00	175	108.0
W34	2074.6	2399.4	254.0	132.0	10	0	112	40	72	0.64	6.00	175	86.3

Table 3: Radius of Influence Calculation Table

DATE: 10/01/96
PROJ. NO: 40153
PROJECT: Permit Modification Gas System Design
LOCATION: Trail Ridge Landfill
BY: DRH\

AVERAGE ASSUMPTIONS

			TYPICAL VALUES
GAS GENERATION RATE:	0.105	FT3/LBm*YR	0.102
PERMEABILITY FACTOR:	2.681	x 10E-11, FT2	2.681
REFUSE DENSITY:	55.56	LBm/FT3	44.44
GAS TEMPERATURE:	100	DEG. F	86
COVER DEPTH:	8	FT	4
DESIGN MAX. ROI:	179	FT	175
OVERLAP FACTOR:	13	%	20

For computer calculation, leave shaded data blank.

Assumes standard conditions are 14.7 psia, 60 Deg. F.

WELL NO.	WELL COORDINATES NORTH	WELL COORDINATES EAST	SURFACE ELEVATION (FASL)	BASE ELEVATION (FASL)	DEPTH OFF BASE (FT)	LIQUID LEVEL (FASL)	WELL DEPTH (FT)	LENGTH OF PIPE SOLID (FT)	LENGTH OF PIPE SLOTTED (FT)	(Hs/Ht) RATIO	APPLIED VACUUM (in WC)	ROI (FT)	GAS FLOW (SCFM)
W35	1824.2	2581.7	190.0	128.0	10	0	52	26	26	0.50	3.20	131	26.3
W36	1822.6	2359.4	190.0	128.0	10	0	52	26	26	0.50	3.20	131	24.1
W37	1851.0	2142.4	195.0	130.0	10	0	55	28	27	0.49	3.60	138	26.8
W38	1821.6	1923.1	190.0	130.0	10	0	50	25	25	0.50	3.00	127	22.8
W39	2081.2	2077.7	256.0	132.0	10	0	114	40	74	0.65	6.00	175	85.8
W40	2334.8	1972.3	328.0	135.0	10	0	183	40	143	0.78	6.00	175	127.4
W41	2617.9	1977.0	337.0	138.0	10	0	189	40	149	0.79	6.00	225	272.9
W42	3005.7	2052.1	344.0	141.0	10	0	193	40	153	0.79	6.00	225	269.6
W43	3328.3	2007.1	334.0	143.0	10	0	181	40	141	0.78	6.00	224	235.3
W44	3479.9	2204.6	328.0	147.0	10	0	171	40	131	0.77	6.00	175	103.8
W45	3725.1	2038.5	273.0	147.0	10	0	116	40	76	0.66	6.00	175	91.1
W46	3978.4	2034.3	217.0	149.0	10	0	58	29	29	0.50	3.80	143	32.7
W47	4010.0	1792.3	210.0	150.0	10	0	50	25	25	0.50	3.00	127	22.6
W48	4010.6	1583.5	210.0	150.0	10	0	50	25	25	0.50	3.00	127	24.0
W49	3749.1	1738.4	270.0	146.0	10	0	114	40	74	0.65	6.00	175	88.3
W50	3473.3	1698.6	328.0	144.0	10	0	174	40	134	0.77	6.00	175	117.5
W51	3234.3	1650.7	328.0	144.0	10	0	174	40	134	0.77	6.00	175	119.8
W52	2938.3	1661.1	328.0	140.0	10	0	178	40	138	0.78	6.00	175	133.7
W53	2640.9	1681.1	328.0	137.0	10	0	181	40	141	0.78	6.00	175	127.9
W54	2324.2	1653.7	316.0	134.0	10	0	172	40	132	0.77	6.00	175	125.9
W55	2053.9	1735.6	254.0	130.0	10	0	114	40	74	0.65	6.00	175	87.6
W56	1824.1	1713.9	190.0	127.0	10	0	53	27	26	0.49	3.40	134	24.1
W57	1937.1	1477.8	207.0	129.0	10	0	68	34	34	0.50	4.80	161	46.5
W58	2195.4	1426.8	254.0	130.0	10	0	114	40	74	0.65	6.00	175	80.7
W59	2517.8	1405.8	267.0	134.0	10	0	123	40	83	0.67	6.00	175	93.5
W60	2829.0	1419.1	274.0	137.0	10	0	127	40	87	0.69	6.00	175	96.0
W61	3147.7	1414.3	275.0	140.0	10	0	125	40	85	0.68	6.00	175	94.1
W62	3465.7	1407.8	276.0	142.0	10	0	124	40	84	0.68	6.00	175	91.8
W63	3721.2	1437.3	274.0	145.0	10	0	119	40	79	0.66	6.00	175	92.5
W64	3972.1	1344.3	210.0	148.0	10	0	52	26	26	0.50	3.20	131	25.5
W65	3977.6	1133.9	205.0	146.0	10	0	49	25	24	0.49	3.00	126	22.7
W66	3739.1	1140.9	210.0	144.0	10	0	56	28	28	0.50	3.60	139	31.5
W67	3503.4	1141.0	210.0	142.0	10	0	58	29	29	0.50	3.80	143	31.9
W68	3269.8	1148.1	208.0	140.0	10	0	58	29	29	0.50	3.80	143	33.2

Table 3: Radius of Influence Calculation Table

DATE: 10/01/96
PROJ. NO: 40153
PROJECT: Permit Modification Gas System Design
LOCATION: Trail Ridge Landfill
BY: DRH\

AVERAGE ASSUMPTIONS

			TYPICAL VALUES
GAS GENERATION RATE:	0.105	FT3/LBm*YR	0.102
PERMEABILITY FACTOR:	2.681	x 10E-11, FT2	2.681
REFUSE DENSITY:	55.56	LBm/FT3	44.44
GAS TEMPERATURE:	100	DEG. F	86
COVER DEPTH:	8	FT	4
DESIGN MAX. ROI:	179	FT	175
OVERLAP FACTOR:	13	%	20

For computer calculation, leave shaded data blank.

Assumes standard conditions are 14.7 psia, 60 Deg. F.

WELL NO.	WELL COORDINATES NORTH	WELL COORDINATES EAST	SURFACE ELEVATION (FASL)	BASE ELEVATION (FASL)	DEPTH OFF BASE (FT)	LIQUID LEVEL (FASL)	WELL DEPTH (FT)	LENGTH OF PIPE SOLID (FT)	LENGTH OF PIPE SLOTTED (FT)	(Hs/Ht) RATIO	APPLIED VACUUM (in WC)	ROI (FT)	GAS FLOW (SCFM)
W69	3025.1	1151.9	207.0	138.0	10	0	59	30	29	0.49	4.00	146	39.3
W70	2784.4	1154.0	207.0	136.0	10	0	61	31	30	0.49	4.20	149	55.2
W71	2536.2	1164.9	203.0	134.0	10	0	59	30	29	0.49	4.00	146	51.0
W72	2286.0	1193.3	205.0	132.0	10	0	63	32	31	0.49	4.40	153	59.4
W73	2016.7	1216.7	190.0	130.0	10	0	50	25	25	0.50	3.00	127	24.2
											Total Gas Flow =		5,944.6

2.2 WELL PLACEMENT (DARCY RADIUS OF INFLUENCE CALCULATIONS)

The initial step in performing a gas system design is to lay out the location of the vertical gas extraction wells. This is also the first design requirement listed under 40 CFR 60.759: Specifications for Active Collection Systems. Specifically, "Each owner or operator seeking to comply with §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..."

The spacing (or horizontal distance) between the wells is determined by a calculated "Radius of Influence" (ROI). The ROI defines an area from which gas can be extracted without inducing excessive air into the landfill.

General design criteria, the method for determining ROIs and well construction techniques are discussed in the following subsections. In addition, the following NSPS design plan requirements are addressed within this section, as required by 40 CFR 60.752(b)(2)(ii)(A)(4) and 60.759(a)(1):

- Minimization of off-site migration
- Depths of refuse
- Cover properties
- Compatibility with filling operations
- Integration with closure end use
- Air intrusion control
- Corrosion resistance
- Resistance to refuse decomposition heat

2.2.1 General Design Criteria

Well Depth:
The base of gas wells placed in areas of the landfill that contain a liner system is generally kept a minimum distance of 10 feet off the bottom of the landfill in order to avoid penetration of the liner during well drilling/installation. Exceptions exist for areas of a landfill which do not have liner systems or areas which the landfill owner/operator wishes to utilize for liquid extraction.

Slotting:
Gas wells are designed to have a minimum of 20 feet and a maximum of 40 feet of solid pipe from the landfill surface down. After this, the pipe is slotted to allow the gas to flow into the pipe for collection. If the slotted sections are placed at depths shallower than 20 feet from the landfill surface, the induced vacuum on the well can draw excessive amounts of air (specifically oxygen) into the refuse and potentially cause a condition of subsurface oxidation or landfill fire. If the slotted pipe is started deeper than 40 feet, the applied vacuum on the upper layers of refuse is minimized, which reduces gas collection efficiency.

Overlap:
The intersection of the ROIs of two adjacent wells is called the overlap. The degree to which the ROIs of the entire well field intersect is called the overlap factor. A target overlap range of 15-20

percent provides reasonable coverage of the landfill area requiring control without over-stressing the landfill by installing too many wells.

2.3 DESIGN METHODOLOGY: DARCY RADIUS OF INFLUENCE

2.3.1 Overview

The correct placement of vertical gas extraction wells is a critical component of the landfill gas control system design. Wells that are incorrectly spaced (i.e., too far apart) may cause the system operator to place too much vacuum on the wellfield in order to achieve gas control. If the vacuum is too high on a well, it may draw air in through the cover or sideslopes. Air intrusion is a major concern which can potentially lead to subsurface oxidation (landfill fires). It also creates an environment toxic to the anaerobic methanogenic bacteria, which slows down the rate of gas production and extends the length of time that a gas control system must be operated.

The goal of the designer is therefore to maximize the volume of gas extracted from the landfill without harming the landfill environment. Maximizing the volume of methane gas extracted will help minimize landfill emissions, reduce the occurrence of odors, minimize vegetative stress, and control potential subsurface gas migration.

When a well is placed under a vacuum, or negative pressure, the recoverable landfill gas in the immediate vicinity will begin to move towards it. This area of gas movement is called a well's "Radius of Influence", or ROI. For ease of calculation the area is assumed to be cylindrical with the vertical well in the center of the cylinder. The edge of the ROI is reached when the pull of vacuum exerted by the well is zero; i.e., landfill gas will no longer move towards the well from beyond a certain point. The actual extent of influence will vary from well to well and cannot be measured until the well is actually installed. However, for design purposes a theoretical ROI can be calculated based on certain assumptions made about the well and its surrounding refuse environment. The factors which influence a well's ROI include the depth of the well, the length of slotted pipe provided for gas collection, the rate of gas generation in the refuse, the refuse temperature, the amount of vacuum applied to the well, etc.

The movement of landfill gas through refuse is essentially the movement of a fluid through a porous media, which can be estimated using a modified form of Darcy's equation for radial fluid flow. The Rust Gas Recovery Group incorporates the Darcy equation in a Lotus® computer spreadsheet to calculate a theoretical ROI for each well.

The designer enters the site specific information for the conceptual gas extraction system into the spreadsheet. Based on the results of the spreadsheet calculations the designer can space the gas extraction wells with an optimum amount of overlap, so that all areas of the landfill are theoretically covered. The data for the TRL is provided in Table 3. Each column of the spreadsheet is explained in detail in the next section.

2.3.2 Description of Lotus® ROI Spreadsheet

2.3.2.1 Project Information

The top left hand corner of the spreadsheet contains general information about the landfill's name and location, as well as the date the spreadsheet was prepared and the name of the person who generated it.

2.3.2.2 Inputs for Site Specific Landfill Characteristics

The careful formulation of assumptions for the spreadsheet is critical to the accuracy of the program's output, and requires some knowledge of the landfill's characteristics. While typical values are provided in the spreadsheet in a comment section, these values should only be used if no site specific information is available.

Gas Generation Rate:
Landfill gas is the by-product of the anaerobic decomposition of organic material disposed of in a landfill, by methanogenic (methane producing) bacteria. Landfill gas production is assumed to have a first order reaction rate and is dependent upon the following:

- Age of the landfill
- Types of waste received
- Location (i.e., climate and precipitation)
- Moisture conditions within the refuse
- Landfill cover materials and thicknesses

Waste Management has an extensive landfill gas production assessment database with gas generation rates measured from over two dozen Waste Management landfills during gas extraction tests conducted in the mid to late 1980s. This database is utilized to select an appropriate gas generation rate for a landfill site by selecting landfills within the database sharing similar characteristics, i.e., location (climate), type of waste stream, age, etc.

Since the TRL is located in the southern United States (an area with above average rainfall), only sites of similar refuse volume capacity and waste stream characterization, which have comparable precipitation amounts, were utilized to estimate a gas generation rate for the site. A rate of 0.105 cubic feet of gas per pound of refuse per year was chosen for the TRL.

Permeability Factor:
Permeability is defined as a measure of the ability of a porous media to transmit fluids. While the permeability of refuse within a landfill can vary greatly, it is assumed to be a constant for ease of calculation in the spreadsheet. A reasonable absolute permeability value for refuse is 2.681×10^{-11} (ft^2). This number was calculated by the Rust Gas Recovery Group by applying Darcy's Law for Linear Compressible Fluid Flow to the movement of landfill gas through refuse and assuming the following:

(1) Steady state flow conditions exist.
(2) The pore space of the refuse is 100 percent saturated with the flowing fluid (landfill gas).

(3) The viscosity of the flowing fluid is constant.
(4) Isothermal conditions in the refuse prevail.
(5) Flow is laminar, horizontal and linear since refuse grain size is relatively small and the velocity of fluid flow is low.

Refuse Density:
Refuse density is a function of the types of waste received and the degree of compaction at the landfill site. A typical refuse density of 44.44 lbs/ft^3 (1200 lbs/yd^3) is often used for landfills receiving municipal waste. However, the value can range from 29.6 lb/ft^3 to 66.76 lb/ft^3 (800 to 1800 lb/yd^3). Sites receiving large volumes of soils and demolition materials would have densities in the higher range, while sites with poor compaction would have lower densities. For TRL, a refuse density of 55.56 lbs/ft^3 (1,500 lbs/yd^3) was used.

Refuse density has an inverse effect on a well's ROI. It becomes more difficult for the gas to move towards a well as the waste density increases, which will result in a lower ROI.

Gas Temperature:
The temperatures within a landfill can influence the movement of landfill gas in two ways. First, since landfill gas is a compressible fluid, its viscosity and flow characteristics must be corrected to standard temperature and pressure conditions prior to using the Darcy Equation for radial fluid flow. A discussion of this is included in Attachment 3, which presents the derivation of Darcy's equation for landfill gas flow.

Secondly, a landfill's interior temperature can affect the rate at which landfill gas is generated since different types of bacteria are present at different temperatures. Methanogens (or methane producing bacteria) that generate landfill gas at temperatures below 110°F are known as mesophilic bacteria, while those that generate gas at temperatures in excess of 110°F are called thermophilic bacteria. Although both types of bacteria produce approximately the same quality of gas, the gas generation rate is optimized in the thermophilic range.

Since TRL is located in the southern part of the country, landfill gas temperatures were assumed to be in the mesophilic range.

Average Cover Depth:
The average thickness of final or intermediate cover over the waste at the time of well installation is subtracted from the refuse depth available for gas production. Soil is inert and will not contribute to the formation of landfill gas.

The top layer of the final cover is one foot of top soil (5.2×10^{-4}). Below the top soil is a one foot soil layer (1×10^{-3}) and a one foot clay layer (1×10^{-7}). The bottom layer of the final cover is a one foot layer of intermediate cover. The final cover on the top of the landfill (section at a 5% slope) includes a synthetic liner. A description of the final cover is required in the design plan per 40 CFR 60.759(a)(1).

Average Maximum Radius of Influence:
Inputs to the spreadsheet may cause a large ROI to be calculated, which could lead the designer to have a large well spacing. Based on the Rust Gas Recovery Group's experience with monitoring gas

control systems, wells that are spaced too far apart need to have excessive applied vacuums in order to achieve the required coverage for gas control. Higher vacuums create a greater risk of air intrusion.

A default maximum ROI of 175 feet was entered into the spreadsheet for the majority of TRL. If the Darcy equation calculates a radius of influence greater than 175 feet, the default maximum is used. For the top section of the landfill whose final cover includes the synthetic liner layer, a maximum ROI of 225 feet was used.

Average Overlap Factor:
When the gas system designer plots the well locations on a landfill's topographic map and draws the calculated ROIs around each well, it is desirable to achieve a certain degree of overlap of the circular ROIs. Since the calculations are theoretical to begin with, the overlap provides a factor of safety to the gas control system design. If field conditions prevent gas from moving towards a particular well, an overlap helps insure that the gas can travel to more than one collection point.

The target range of overlap values is approximately 15 to 20 percent, unless the designer requires a denser well spacing. The program uses a 20% default value unless the designer actually measures the surface area of overlap on the landfill map and enters an alternate value. The overlap percentage is also used in the spreadsheet's gas production rate estimate for each well, to make sure the gas volumes aren't "double counted" in areas of overlap.

2.3.2.3 Inputs for ROI Calculations

After the designer lays out an initial well spacing on the landfill's topographic map, data from these proposed well locations is entered into the first seven columns on the spreadsheet as described in the following sub-section. The spreadsheet's other columns utilize this information to calculate ideal lengths for well slotting, applied vacuums, gas flows and the radius of influence.

Well Number:
A unique number is assigned to each well so that its location and characteristics can be easily identified.

Well Coordinates (North and East):
The horizontal coordinates of each well may be entered here for future reference, although they are not actually used in any of the spreadsheet's calculations.

Surface Elevation:
The surface elevation at the coordinates of the landfill where the well would be drilled is entered here, in units of FASL (feet above sea level). If a well system is to be installed at a site at an intermediate stage of the filling height, the most current topographic map would be used for the design surface elevations. Gas management systems designed for installation after closure would utilize a map showing the site's permitted final grade.

Base Elevation:
The elevation of the site's top of liner grades in FASL are input into this column. It is important to use an as-built map showing certified liner elevations and locations, so that the well is not accidentally drilled through the liner and leachate collection systems.

Depth Off Base:
The distance that the designer wishes to keep the bottom of the well from the liner is entered here. Typically a value of 10 feet is used.

Liquid Level:
An estimate of liquid head at the bottom of the landfill is entered into this column, if known. High levels of liquids within a landfill can rise to cover part of the slotted interval on the gas well, which reduces the extraction capability of the well to only those areas above the liquid line.

If this number is known ahead of time, the spreadsheet subtracts the liquid level from the well depth so that money is not wasted on drilling wells below the liquid table (unless liquid extraction is desired).

Well Depth:
The spreadsheet calculates the well depth automatically by subtracting the base elevation, the depth off base and the estimated liquid level (if any) from the surface elevation. Per 40 CFR 60.759(a)(1), the design plan is required to address refuse depths. A review of this column of the spreadsheet will provide information on refuse depths in all the landfill areas where wells are to be installed.

Length of Pipe (Solid and Slotted):
These columns refer to the length of vertical gas extraction piping below the ground surface which is either solid, or has pre-cut "slots" for the landfill gas to enter the pipe.

The spreadsheet assigns a minimum value of 20 feet to the solid pipe (from the ground surface down) if the well depth is less than 40 feet. This minimum solid pipe length reduces the potential for air to be drawn through the cover into the refuse by the vacuum placed on the extraction well. Air intrusion could cause a condition of subsurface oxidation (landfill fire).

If the well depth is greater than 80 feet, the spreadsheet assigns a maximum value of 40 feet for the solid pipe. Starting the slotted pipe at depths any further from the cap reduces the available vacuum on upper layers of refuse, which reduces the collection efficiency of the gas well.

For well depths between 40 and 80 feet, the spreadsheet divides the length of pipe equally between the solid and slotted sections of pipe.

Slotted pipe lengths are calculated by subtracting the solid pipe length in the previous column from the total well depth.

(Hs/Ht) Ratio:
This is the ratio of the height of slotted pipe to the total length of the well. The ratio of slotted to solid pipe has an impact on the collection efficiency of the well. Wells with high Hs/Ht ratios must apply the available vacuum over a greater vertical distance along the well, which could reduce the

vacuum available to the well horizontally (thus decreasing the well's ROI and gas flow rate). Wells with Hs/Ht ratios between 0.5 and 0.6 have optimum available vacuums, thus maximizing the ROIs.

Applied Vacuum:
The spreadsheet will estimate a desirable vacuum for a well (in inches of water column) unless a known vacuum is entered into the program. The Rust Gas Recovery Group's numerous wellfield assessments have shown that typical optimum values range from 1.0 in. w.c. to 5.5 in. w.c. vacuum. The higher the applied vacuum, the larger the area a well can influence.

ROI and Gas Flow (SCFM):
The radius of influence of the well and its flow are calculated using a modified form of the Darcy Equation for radial fluid flow. The derivations of the equation are provided in detail in Attachment 3. Both ROI and gas flows are theoretical calculations, and are highly dependent on the accuracy of the general assumptions.

The spreadsheet developed for the gas system design at the TRL is presented in Table 3. The spreadsheet was developed only for those wells which have not yet been installed.

2.4 WELL CONSTRUCTION

Description of Vertical Gas Wells:
The gas wells proposed for installation consist of Schedule 80 PVC pipe set into a 36-inch diameter borehole. The pipe is solid from the ground surface down to a distance of 20 to 40 feet, and is then slotted for the remainder of the well depth. Slot dimensions are 1/8" to 3/16" wide by 8" long, spaced approximately 45° apart.

The borehole is backfilled with gravel around the lower slotted portion of the well casing. A bentonite seal and general backfill isolate the permeable gravel layer from the ground surface in order to prevent air intrusion and surface water infiltration.

The wellhead design allows for system monitoring and control. An orifice plate and sampling ports allow for the measurement of differential pressure for the calculations of gas flow values from each individual well. The wellhead contains a valve which allows variable rates of vacuum to be applied to the system. Sampling ports are strategically located so that landfill gas quality from the well can be measured. A permanent temperature probe is also placed on the well to measure landfill gas temperatures. A flexible hose connects the well to the header in order to allow differential settlement between the well and header.

Materials:
The well pipe is constructed of Schedule 80 PVC. Schedule 80 PVC pipe maintains the rigid well structure in the midst of landfill settlement, and has good corrosion and chemical resistance. The gravel backfill layer consists of 1" to 3" uniform washed gravel.

Installation:
Surveying: Locations of the gas wells will be surveyed prior to installation. The existing elevations at these locations will also be verified in case settlement has occurred. If necessary, the depth of the

wells will be field adjusted based on the actual landfill elevation, so that the bottom of the well stays the required minimum distance above the base liner.

Well Drilling: Boreholes are typically drilled using a three foot diameter bucket auger, modified to penetrate through refuse. Alternative drilling methods may be required to drill gas wells that have design depths greater than 120 feet. The landfill spoils will be periodically removed from the side of the borehole and properly disposed of. The drilling will continue until the design depth is reached or until the auger reaches an obstruction that cannot be penetrated. In the event of an obstruction, the well may be relocated to an adjacent area.

Well Installation: After the design depth is reached, the borehole will be backfilled with six inches of clean gravel. The slotted sections of pipe will be lowered into the hole with each section attached by couplings, primer, glue and lagbolts. When the design slotted pipe length is reached, solid sections will be added until the pipe is raised to above the ground surface.

The pipe will be centered in the borehole, and gravel added around the outside until its depth is one and a half feet above the slotted pipe. A one foot sand pack will then be placed over the gravel, with a two foot hydrated bentonite seal above it. Sand will be backfilled over the bentonite until the base of the final cover is reached. A bentonite mat will then be placed within the recompacted final cover material which will be replaced to required density and moisture specifications.

Lastly, the well is temporarily capped off until the header line is installed. This prevents emissions of raw landfill gas to the atmosphere. After the header line has been brought to the well, the wellhead assembly is installed.

Record Drawings:
Well construction logs are prepared for each gas well to document installation. Information recorded on the log includes borehole and pipe sizes, bore depth, lengths of solid pipe above and below ground, slotted pipe length, depths of backfill materials and refuse temperatures (optional).

The record drawings will include the surveyed well locations. The drawings will show changes or field modifications to the original design, such as a well relocation due to obstructions encountered during drilling.

NSPS Compliance:
The gas collection wells described in this section will meet the following requirements listed in 40 CFR 60.759: minimization of air intrusion, waste depths, required materials of construction, corrosion resistance, sufficient density of extraction devices, avoidance of damage to underlying liners, occurrence of water within the landfill, gravel dimensions, and proper connector assembly (closing valves, sampling ports, etc.).

2.4.1 Additional System Compliance with the NSPS

Compatibility with Filling Operations
The site is operated in order to bring areas up to final grades as quickly as possible. Therefore, the majority of the wells will typically be installed in areas that are at final grades and thus out of the path of active filling. However, there will be a few wells in the center of the site that will be installed at

"interim" grades, in order to meet the requirements of collecting gas from areas where waste is at least five years old. These wells will be protected to the greatest extent possible by barriers. The wells will be raised with the lifts of refuse unless they are deemed to have reduced functionality, at which time replacement wells can be installed. Alternatively, horizontal trenches may be installed in areas where fill operations have not yet been completed. Since the trenches would be below grade, they would not be in the way of site equipment or refuse disposal trucks.

Integration with Closure End Use
Future land uses for the TRL will be determined upon closure of the facility. The end use plan shall comply with Department regulations and shall not disturb the integrity of the gas control system, final cover system, or any other components of the containment or monitoring system.

Minimization of Off-Site Migration
The installation of an active gas recovery system will cause an inward pressure gradient at the landfill, which will serve to minimize off-site migration of landfill gas. The facility's bottom and side liners will also serve to deter migration. The facility maintains a system of perimeter gas monitoring probes, which are monitored quarterly in accordance with Subtitle D. The probes will help to measure the effectiveness of the gas collection system at minimizing off-site migration.

2.5 HEADER PIPE SIZING

The next step in designing a gas collection system is to lay out a routing for the header line and laterals to connect each of the gas wells into the system, and convey the collected gas to a central location for destruction. After the design engineer has routed the most efficient header system for collecting gas from the extraction wells, the header pipe must be sized appropriately to convey the maximum, expected gas flow [40 CFR 60.752(b)(2)(ii)(A)(1)]. General design criteria, the method for sizing the header pipe and header construction are discussed in the following subsections.

2.5.1 General Design Criteria

Header Slope
The header line is typically sloped at minimum 3% grade (4% was used in the design) when installed within refuse to provide for gravity drainage of liquid gas condensate, and to minimize blockages resulting from differential settlement of the landfill. Header pipe placed outside of refuse limits is sloped a minimum of 1%.

Header Pipe Sizing
Three design criteria have been established for calculating the minimum acceptable size for the header pipe diameter:

1. The velocity of gas should not exceed 30 feet per second within the pipe.

2. The velocity of the gas should not exceed 20 feet per second within the pipe when there is countercurrent gas/liquid flow.

3. The maximum allowable pressure drop within the pipe should not be greater than one inch water column per 100 feet of header, or 0.01 inch water column per unit foot of header pipe.

Flow conditions within any segment of header line should not consistently exceed either the pressure loss or the velocity limitations. Undersizing the header pipe can cause excessive pressure losses throughout the system, which reduces gas collection efficiency.

Design Equations

Calculations for pressure losses in the header pipe are based on the Spitzglass equation for flow of compressible fluids:

$$Q = 3550K\left(\frac{h}{SL}\right)^{1/2}$$

Where: Q = Flow rate (ft^3/hour)
h = Pressure loss (in inches w.c.)
S = Specific gravity of the flowing fluid (i.e., landfill gas) (unitless)
L = Length of pipe (feet)
K = Spitzglass pipe constant

$$K = \left(\frac{d^5}{1 + (3.6/d) + (0.03)\,d}\right)$$

Where: d = Inside diameter of pipe

When the equation is rearranged and solved in terms of pressure drop, it becomes:

$$h = \left(\frac{Q\,(SL)^{1/2}}{3550\,K}\right)^2$$

Calculations for flow velocity are based on the following equation:

$$V = Q/A$$

Where: V = Velocity of the flowing fluid (ft/sec)
Q = Flow rate (ft^3/second)
A = Cross sectional area of the pipe (ft^2)

RUST E&I incorporates these equations into a computer spreadsheet formatted for Lotus®. The flow rate (in cubic feet per minute) is calculated in a Lotus® spreadsheet titled "Radius of Influence

Calculation Table (Sizing Header Pipe)". This spreadsheet is nearly identical to Table 3 Radius of Influence Calculation Table. The only difference in the latter ROI spreadsheet conservatively assumes that the overlap of each well does not exceed 20%. This conservatively estimates the potential landfill gas collected. This calculated flow rate along with the pipe length and diameter are input into the spreadsheet for each individual segment of header line. The spreadsheet will then calculate the flow velocity and pressure drop for the diameter of pipe selected.

2.5.2 Design Methodology

Introduction

The optimum diameter of the header pipe is determined after the design engineer has routed the most efficient header system for collecting gas flow from the individual extraction wells. The diameter of each segment of header pipe will vary in size, depending on the volume of landfill gas it will be expected to convey.

The header line that connects the gas wells furthest from the source of vacuum will carry the least amount of gas flow. As the header piping gets closer to the source of vacuum, more and more gas wells will "contribute" flow to the line which necessitates an increase in pipe size.

Header systems usually incorporate "loops" of piping in order to allow for partial or total loss of header function in one direction without losing gas management system functionality. Therefore, there may be several large diameter lines converging on the source of vacuum from different directions.

Procedures

The sizing of the header pipe begins by taking the proposed gas system design layout and dividing the main header line into individual segments, as shown in Attachment 4. Each segment is assigned a label (i.e., A1, B1, etc.) in order to identify the segment properties.

The segments are divided so that each one receives a flow contribution from a single lateral line. Laterals are short lengths of collection header which connect the extraction wells to the main loop of header pipe. Typically no more than 3 or 4 wells are connected to a lateral unless a loop is created. A loop typically consists of a maximum of 20 - 30 wells to allow sections to be shut down for troubleshooting or for maintenance of the system.

Next, a "zero point" for the main header loop is chosen. The zero point is the location in the header system in which the pressure drop is equal in both directions. Alternatively, it is the point at which a molecule of gas in the header line would be as likely to travel in one direction towards the source of vacuum as another, since the header layout incorporates several loops.

The designer starts from the zero point and chooses one of the two directions to travel along the header line towards the source of vacuum. The length of each segment of the header line along this direction of travel is measured in feet, and is input into a program which models the entire system.

A Kentucky University gas distribution model, KYGAS, was used to analyze pressure and flow rates in the Trail Ridge gas extraction system. The inputs and results from the KYGAS model are provided in Attachment 4. . .

The incremental increase in flow from the wells connected to each individual header segment is calculated; flow volumes from the wells are obtained from the ROI program as described in Section 2.3.2 of this document. There will be a cumulative increase in the flow volume as the gas moves from segment to segment towards the vacuum source.

Lastly, a pipe diameter (in inches inner diameter) is assumed for the pipe segment and entered into the program. The flow velocity and pressure drop per unit foot are calculated by the spreadsheet for the diameter of pipe selected. If the velocity is greater than 30 ft/sec. or the pressure loss is greater than 0.01 inch/unit foot, then a larger pipe diameter is chosen and is entered into the model. This continues until a pipe size is found that meets the pressure and velocity criteria.

2.5.3 Header Construction

Description of Header Collection Pipe Network

The header pipe proposed for installation is high density polyethylene (HDPE) pipe. HDPE pipe is ideal due to its compatibility with landfill gas and waste, its flexibility (if settlement occurs), its long term stability and its excellent chemical resistance. The pipe is set in a trench, and is surrounded by a compacted sand bedding.

Control valves are located throughout the collection header network. The valves can manually shut off the applied vacuum to a particular section of header pipe. This allows portions of the well field to be isolated for monitoring and maintenance purposes.

Header access risers are typically placed at system high points, or other areas of the collection network as selected by the design engineer. The access risers consist of a tee with a section of HDPE pipe extending above the landfill cover. The tee ends in a blind flange, and contains sample ports for pressure monitoring.

Header access risers are useful for several reasons. They provide immediate access to the header network when the blind flange is removed, without having to disturb the cover system by digging up the line. Cameras and/or hoses can be lowered into the header line to determine locations of suspected blockages/settlement. The sampling ports assist the well field technician during trouble shooting of the gas system. They allow pressure readings to be taken at areas between wells, which can help isolate a problem area.

Installation

The header line is installed several feet below the landfill cover by trenching into the refuse. A minimum depth of three (3) feet is required to protect the header line from landfill traffic and frost. The trench width is at least 1.5 times larger than the outside diameter of the header. Sand backfill is placed in the trench to a depth of six inches. Sections of header piping are fusion welded together outside the trench and are pressure tested. The header pipe is then laid in the trench, and the sections are welded together to complete the system. One final pressure test of the system is conducted, and

any detected leaks are repaired. Lastly, sand is backfilled around the line and the cover is replaced to original specifications.

In areas of the landfill where the header line must pass below an access road, a header casing is specified for installation. The casing consists of a corrugated metal pipe with a diameter two pipe sizes larger than the header pipe. This protects the header line from traffic loads.

Record Documentation
The record drawings will include the surveyed header line locations. Any major angles and grade changes of the header lines will be referenced. Locations of header access risers, control valves and condensate management structures will be recorded. The drawings will also show changes or field modifications to the original design.

NSPS Compliance
Blind flanges have been incorporated into the NSPS design in order to allow for future gas system expansions. The header system as described in this section is designed to address the following issues listed in 40 CFR 60.759: gas system expandability, accessibility, corrosion resistance, fill settlement, required materials of construction, and ability to withstand planned overburden or traffic loads.

2.6 CONDENSATE GENERATION CALCULATIONS/MANAGEMENT

Once the gas system wells and header line have been designed, the next step in the design process is to locate and size condensate management/storage structures. Gas condensate is produced during the collection and transportation of landfill gas. The condensate must be removed at engineered low points in the extraction system header piping, or it will eventually fill up the header lines and impede gas flow. Calculations for maximum condensate generation rates and proposed condensate management techniques are provided in the following subsections. A discussion of condensate and leachate management is required by 40 CFR 60.759.

2.6.1 Condensate Generation

Landfill gas is approximately one-hundred percent saturated with water vapor. Liquid condensate is generated when landfill gas experiences a temperature and/or pressure decrease when extracted, and the saturated water vapor condenses out of the vapor state. All condensate generated from the system must be collected and managed. The header collection system alignment is designed to utilize the vertical relief provided by the landfill contours for gravity flow of condensate.

Procedures for Calculating Condensate Generation

1. Utilize the maximum gas flow rate calculated previously, in cubic feet per minute.

2. Determine a maximum gas temperature. This maximum gas temperature can be measured directly if an existing system is present or must be assumed based on typical mesophilic or thermophilic temperatures published in scientific research journals. A typical maximum gas temperature is assumed to range from 90° F to 110° F based on mesophilic conditions.

3. Estimate a minimum gas temperature. Factors such as local climate, depth of frost line, cover soils, etc., should be considered. If minimum extracted gas temperatures are available, they should be used as a reference.

4. Obtain water vapor content of the landfill gas at specified temperatures from the attached "water vapor content of natural gas at saturation" table. The water vapor contents are given in terms of pounds ($_{lbM}$) of water per 1 million cubic feet of gas.

5. The chart is read by finding the desired temperature at the bottom of the chart. Follow the corresponding temperature line to the 14.6 (psia) saturation pressure curve. Read directly across to right or left at intersection of temperature and pressure lines to obtain the value for the water content of the gas.

6. Obtain the water vapor content of the saturated gas at both the minimum and maximum temperatures.

Site Specific Calculations for TRL

It is conservatively estimated that the maximum flow rate of landfill gas collected is 82% of the maximum gas flow previously calculated (82% of 5,945 cfm is 4,875 cfm).

Given:	q	= maximum anticipated gas flow rate	= 4,875
	$T\,(max)$	= maximum anticipated gas temperature	= 110° F
	$T\,(min)$	= minimum anticipated gas temperature	= 70° F
	P	= saturation pressure	= 14.7 psia

Therefore:

The water vapor content of saturated gas at 110°F and 14.7 psia = 4,500 $lb_m/1x10^6\ ft^3$

The water vapor content of saturated gas at 70°F and 14.7 psia = 1,300 $lb_m/1x10^6\ ft^3$

At a differential temperature drop of 40°F, 3,200 lb_m of water vapor will condense out as liquid per every million cubic feet of gas flow.

Therefore:

[4,875 ft^3/min] [gal/8.34 lb_m] [Δ 3,200 $lb_m/1x10^6\ ft^3$] [1,440 min/day] = 2,693 gal/day

It is anticipated that 2,693 gal/day would be the maximum volume of condensate generated from the proposed landfill gas management system.

2.6.2 Condensate Management

The proposed gas extraction system will collect the condensate at low points in the header system and gravity feed the condensate into the leachate riser pipes where it is handled with the leachate. There is a liquid knockout prior to the blower to the flare. Condensate collected in this knockout is pumped to the leachate holding tanks.

2.7 GAS EXTRACTION EQUIPMENT SIZING

Per 40 CFR 60.752(b)(2)(ii)(A)(1), the active gas extraction system must be designed 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 system equipment. 40 CFR 60.752(b)(2)(ii)(A)(3) requires that gas be collected at a sufficient extraction rate.

Since the blower is responsible for providing the vacuum that actually extracts the gas from the well field and moves it through the system, the sizing of the blower is crucial to demonstrating compliance with NSPS requirements. Other general design criteria and the method for determining the required blower size are discussed in the following section.

TRL has proposed a blower for the flare station. This discussion will demonstrate that the proposed blower meets the design criteria of the NSPS.

2.7.1 General Design Criteria

Flow Volumes:
The blower must provide a uniform source of vacuum over a wide range of flow rates, since gas flow volumes will vary over the life of the gas extraction system. Minimum system flows are those expected when only the initial phases of the system have been installed. Maximum flows will occur after the entire gas system is in place.

Pressure Requirements:
The blower must be capable of supplying sufficient negative pressure to overcome pressure drops and resistance through piping and equipment at the maximum gas flow rate, as well as supplying sufficient positive pressure for delivery of the collected gas to the flare for combustion.

Design Methodologies:

Flow Volumes:

TRL has proposed a gas system which will be constructed in phases. The initial phase is currently under construction. The volume of gas that will be extracted represents the minimum system volume, since flows will only increase as the gas system is expanded. Minimum system flows of 316 cfm have been estimated for the initial phase.

As referenced in the introduction, the blower is required to handle the maximum expected gas flow rate. This value was calculated earlier to be 4,875 cfm (82% of 5,945 cfm).

Pressure Requirements:

Gas System Pressure Losses: A discussion of the equation used for calculating pressure losses in the header piping was provided in the section on header pipe sizing. In order to calculate the maximum pressure drop in the system, P_H, the designer must assume a pressure drop across the system due to elbows, tees, and other fittings in the gas system as well as frictional losses from flow in the pipe itself. These losses can range from 5" w.c. to 15"' w.c. depending on the size of the gas collection system. Since the estimated pressure drops from the system were minor, a conservative estimate of 10" w.c. has been assumed.

Applied Well Vacuums: For design purposes, it is assumed that a minimum of 10.0" water column vacuum, P_W, should be available at the gas wells in order to provide sufficient vacuum for gas extraction. This is consistent with measured vacuums observed by the Rust Gas Recovery Group during routine gas system monitoring.

Pressure Loss Through Flare: A pressure loss, P_F, on the positive side of the blower is created by the blower discharge piping, the flame arrester, orifice plate and the flare itself. The designer typically assumes a maximum drop of 12" w.c. through these components, based on information supplied by flare manufacturers.

Required Vacuum: Based on these pressure losses for the gas management system, the blower must be capable of providing the following vacuum:

$$P_{total} = P_H + P_W + P_F$$

$$= 10" + 10" + 12"$$

$$= 32" \text{ w.c. total static pressure.}$$

From the manufacturer's literature for the blower proposed at TRL, the blower can accommodate flows ranging from approximately 100 cfm to 1,000 cfm. This is currently sufficient to handle the site's collected gas flow rates for several more years. Ultimately, the site will install a second blower when the collected gas volumes warrant the additional control.

2.8 CONTROL DEVICE SIZING

The last requirement in designing a gas collection system is to size and select a control device meeting the requirements of 40 CFR 60.752(b)(2)(iii). The control device must be capable of combusting a wide range of flow volumes.

The flare proposed for TRL will contain a heat sensing device to detect the presence of a continuous flame and an automatic relight system with a propane supply tank. The flare will also be equipped with a flame arrestor.

2.8.1 General Design Criteria

40 CFR 60.752(b)(2)(iii)(A) requires open flares to be designed and operated in accordance with 40 CFR 60.18. 40 CFR 60.18 contains the following requirements:

1. Flares shall be designed for and operated with no visible emissions.
2. Flares must be operated with a flame present at all times.
3. The net heating value of the gas being combusted must be 200 BTU/SCF or greater if the flare is non-assisted.
4. The exit velocity at the flare tip for a non-assisted flare must be less than 60 ft/sec.

2.8.2 Control Device Sizing

The minimum gas system flow expected with the initial phase at TRL was previously reported as 316 cfm. The maximum expected system flow rate is 4,875 cfm.

From the manufacturer's literature for the flare proposed at TRL, the flare can accommodate flows ranging from approximately 100 cfm to 1,000 cfm. This is currently sufficient to handle the site's collected gas flow rates for several more years. Ultimately, the site will install a second flare when the collected gas volumes warrant the additional control.

3.0 PROPOSED ALTERNATIVE MONITORING/RECORDKEEPING/RECORDING PROCEDURES

Per 40 CFR 60.752(b)(2)(i)(B), the design plan shall include alternatives to the monitoring, recordkeeping and reporting requirements in the NSPS. TheTrail Ridge Landfill is proposing the following alternatives:

Monitoring

Monitoring of Operations Section 60.756(c)(2)(i): "Install, calibrate, and maintain a gas flow rate measuring device that shall record the flow to the control device at least every 15 minutes..."

TRL is proposing to measure the gas flow rates to the flare(s) continuously, record an hourly average within the flow meter software, and report the data on a monthly basis using a monthly average calculated from the hourly averages by the flow meter. The proposed flow meter at the flare station will be configured to record gas flow rates as described above.

Record keeping

Record keeping Section 60.758(b)(4): "... continuous records of the flare pilot flame or flare flame monitoring and records of all periods of operations during which the pilot flame and the flare flame is absent."

60.758(c)(4): "Each owner or operator seeking to comply with the provisions of this subpart by use of an open flare shall keep up-to-date, readily accessible, continuous records of the flame or flare pilot flame monitoring specified under 60.756(c), and up-to-date, readily accessible records of all periods of operation in which the flame or flare pilot flame is absent."

The proposed open flare at the TRL is equipped with an ultraviolet flame scanner to continuously monitor the presence of a flare flame. Upon loss of the flame, the scanner automatically shuts down the blower so that raw gas ceases to be extracted from the landfill. In addition, the blower inlet control valve is closed to prevent uncontrolled discharge. The scanner also provides a lock-out on the start up of the blower until such time as a pilot flame is confirmed. Should the ultraviolet scanner fail to operate for any reason, a temperature controller is available, which will act as a back up to the system shut down. Upon a loss of temperature at the flare tip, the temperature controller can also shut down the system. In either case, the flare system will initiate automatic re-start procedures.

The intent of the regulation is to report periods of system "exceedances", i.e., those periods of time when raw landfill gas is emitted to the atmosphere without first being combusted. Since the system shuts itself down if the flare looses its flame there are no NMOC emissions through the flare stack. The facility, therefore, proposes to adopt an alternative record keeping schedule for flame presence. Rather than having a continuous recorder hooked up to the UV scanner, the facility is proposing to utilize the existing device that measures gas flow to the flare on a continuous basis. The records of flow will be reviewed on a monthly basis; any periods of flow that are measured as zero will be assumed to correspond to periods of time during which the flare was not operating. The time, date and duration of these periods of zero flow will be recorded as surrogates for "lack of flame".

Reporting

Reporting Requirements Section 40 CFR 60.757(f)(3): "Description and duration of all periods when the control device was not operating for a period exceeding one hour and length of time the control device was not operating."

A request was made in the record keeping section to utilize an alternative method of reporting control device downtime. The proposed method assumes that periods of time during which no flow is recorded on the continuous flow recorder corresponds to times during which a flame would not be present because the system was shut down. The records of flow will be reviewed on a monthly basis. Those periods of time which correspond to zero flow for more than one hour will be included in the site's annual compliance report.

4.0 PROFESSIONAL ENGINEERING CERTIFICATION OF DESIGN PLAN

I certify that the Trail Ridge Landfill Gas Collection and Control System Design Plan was prepared in general accordance with the requirements of 40 CFR 60 subpart WWW.

Signed,

Thomas M. Yanoschak 6/3/97

Thomas M. Yanoschak, P. E.

ATTACHMENT 1

Landfill Air Emissions Estimation Model
Estimated Methane Emissions

Model Parameters

Lo : 139.60 m^3 / Mg ***** User Mode Selection *****
k : 0.0233 1/yr ***** User Mode Selection *****
NMOC : 1,170.00 ppmv ***** User Mode Selection *****
Methane : 50.0000 % volume
Carbon Dioxide : 50.0000 % volume

Landfill Parameters

Year Opened : 1992 Current Year : 1997 Year Closed: 2026
Capacity : 16,555,595 Mg
Average Acceptance Rate Required from
Current Year to Closure Year : 482,937.69 Mg/year

Model Results

Year	Refuse In Place (Mg)	Methane Emission Rate (Mg/yr)	(Cubic m/yr)
1993	3.740E+05	8.116E+02	1.217E+06
1994	9.350E+05	2.010E+03	3.013E+06
1995	1.525E+06	3.245E+03	4.864E+06
1996	2.071E+06	4.354E+03	6.526E+06
1997	2.550E+06	5.294E+03	7.936E+06
1998	3.033E+06	6.220E+03	9.324E+06
1999	3.516E+06	7.125E+03	1.068E+07
2000	3.999E+06	8.009E+03	1.200E+07
2001	4.482E+06	8.873E+03	1.330E+07
2002	4.965E+06	9.716E+03	1.456E+07
2003	5.448E+06	1.054E+04	1.580E+07
2004	5.931E+06	1.135E+04	1.701E+07
2005	6.414E+06	1.213E+04	1.819E+07
2006	6.897E+06	1.290E+04	1.934E+07
2007	7.380E+06	1.365E+04	2.046E+07
2008	7.863E+06	1.439E+04	2.156E+07
2009	8.346E+06	1.510E+04	2.264E+07
2010	8.829E+06	1.580E+04	2.369E+07
2011	9.312E+06	1.649E+04	2.471E+07
2012	9.794E+06	1.715E+04	2.571E+07
2013	1.028E+07	1.781E+04	2.669E+07
2014	1.076E+07	1.845E+04	2.765E+07
2015	1.124E+07	1.907E+04	2.858E+07
2016	1.173E+07	1.968E+04	2.949E+07

2017	1.221E+07	2.027E+04	3.039E+07
2018	1.269E+07	2.085E+04	3.126E+07
2019	1.318E+07	2.142E+04	3.211E+07
2020	1.366E+07	2.198E+04	3.294E+07
2021	1.414E+07	2.252E+04	3.375E+07
2022	1.462E+07	2.305E+04	3.455E+07
2023	1.511E+07	2.356E+04	3.532E+07
2024	1.559E+07	2.407E+04	3.608E+07
2025	1.607E+07	2.456E+04	3.682E+07
2026	1.656E+07	2.505E+04	3.754E+07
2027	1.656E+07	2.447E+04	3.668E+07
2028	1.656E+07	2.390E+04	3.583E+07
2029	1.656E+07	2.335E+04	3.501E+07
2030	1.656E+07	2.282E+04	3.420E+07
2031	1.656E+07	2.229E+04	3.341E+07
2032	1.656E+07	2.178E+04	3.264E+07
2033	1.656E+07	2.128E+04	3.189E+07
2034	1.656E+07	2.079E+04	3.116E+07
2035	1.656E+07	2.031E+04	3.044E+07
2036	1.656E+07	1.984E+04	2.974E+07
2037	1.656E+07	1.938E+04	2.905E+07
2038	1.656E+07	1.894E+04	2.838E+07
2039	1.656E+07	1.850E+04	2.773E+07
2040	1.656E+07	1.807E+04	2.709E+07
2041	1.656E+07	1.766E+04	2.647E+07
2042	1.656E+07	1.725E+04	2.586E+07
2043	1.656E+07	1.685E+04	2.526E+07
2044	1.656E+07	1.647E+04	2.468E+07
2045	1.656E+07	1.609E+04	2.411E+07
2046	1.656E+07	1.572E+04	2.356E+07
2047	1.656E+07	1.535E+04	2.301E+07
2048	1.656E+07	1.500E+04	2.248E+07
2049	1.656E+07	1.466E+04	2.197E+07
2050	1.656E+07	1.432E+04	2.146E+07
2051	1.656E+07	1.399E+04	2.097E+07
2052	1.656E+07	1.367E+04	2.048E+07
2053	1.656E+07	1.335E+04	2.001E+07
2054	1.656E+07	1.304E+04	1.955E+07
2055	1.656E+07	1.274E+04	1.910E+07
2056	1.656E+07	1.245E+04	1.866E+07
2057	1.656E+07	1.216E+04	1.823E+07
2058	1.656E+07	1.188E+04	1.781E+07
2059	1.656E+07	1.161E+04	1.740E+07
2060	1.656E+07	1.134E+04	1.700E+07
2061	1.656E+07	1.108E+04	1.661E+07
2062	1.656E+07	1.083E+04	1.623E+07
2063	1.656E+07	1.058E+04	1.585E+07

2064	1.656E+07	1.033E+04	1.549E+07
2065	1.656E+07	1.009E+04	1.513E+07
2066	1.656E+07	9.862E+03	1.478E+07
2067	1.656E+07	9.635E+03	1.444E+07
2068	1.656E+07	9.413E+03	1.411E+07
2069	1.656E+07	9.196E+03	1.378E+07
2070	1.656E+07	8.984E+03	1.347E+07
2071	1.656E+07	8.777E+03	1.316E+07
2072	1.656E+07	8.575E+03	1.285E+07
2073	1.656E+07	8.378E+03	1.256E+07
2074	1.656E+07	8.185E+03	1.227E+07
2075	1.656E+07	7.996E+03	1.199E+07
2076	1.656E+07	7.812E+03	1.171E+07
2077	1.656E+07	7.632E+03	1.144E+07
2078	1.656E+07	7.457E+03	1.118E+07
2079	1.656E+07	7.285E+03	1.092E+07
2080	1.656E+07	7.117E+03	1.067E+07
2081	1.656E+07	6.953E+03	1.042E+07
2082	1.656E+07	6.793E+03	1.018E+07
2083	1.656E+07	6.637E+03	9.948E+06
2084	1.656E+07	6.484E+03	9.718E+06
2085	1.656E+07	6.334E+03	9.495E+06
2086	1.656E+07	6.188E+03	9.276E+06
2087	1.656E+07	6.046E+03	9.062E+06
2088	1.656E+07	5.907E+03	8.854E+06
2089	1.656E+07	5.771E+03	8.650E+06
2090	1.656E+07	5.638E+03	8.451E+06
2091	1.656E+07	5.508E+03	8.256E+06
2092	1.656E+07	5.381E+03	8.066E+06
2093	1.656E+07	5.257E+03	7.880E+06
2094	1.656E+07	5.136E+03	7.699E+06
2095	1.656E+07	5.018E+03	7.521E+06
2096	1.656E+07	4.902E+03	7.348E+06
2097	1.656E+07	4.789E+03	7.179E+06
2098	1.656E+07	4.679E+03	7.013E+06
2099	1.656E+07	4.571E+03	6.852E+06
2100	1.656E+07	4.466E+03	6.694E+06
2101	1.656E+07	4.363E+03	6.540E+06
2102	1.656E+07	4.263E+03	6.389E+06
2103	1.656E+07	4.164E+03	6.242E+06
2104	1.656E+07	4.069E+03	6.098E+06
2105	1.656E+07	3.975E+03	5.958E+06
2106	1.656E+07	3.883E+03	5.821E+06
2107	1.656E+07	3.794E+03	5.687E+06
2108	1.656E+07	3.706E+03	5.556E+06
2109	1.656E+07	3.621E+03	5.428E+06
2110	1.656E+07	3.538E+03	5.303E+06

2111	1.656E+07	3.456E+03	5.181E+06
2112	1.656E+07	3.377E+03	5.061E+06
2113	1.656E+07	3.299E+03	4.945E+06
2114	1.656E+07	3.223E+03	4.831E+06
2115	1.656E+07	3.149E+03	4.720E+06
2116	1.656E+07	3.076E+03	4.611E+06
2117	1.656E+07	3.005E+03	4.505E+06
2118	1.656E+07	2.936E+03	4.401E+06
2119	1.656E+07	2.868E+03	4.300E+06
2120	1.656E+07	2.802E+03	4.201E+06
2121	1.656E+07	2.738E+03	4.104E+06
2122	1.656E+07	2.675E+03	4.009E+06
2123	1.656E+07	2.613E+03	3.917E+06
2124	1.656E+07	2.553E+03	3.827E+06
2125	1.656E+07	2.494E+03	3.739E+06
2126	1.656E+07	2.437E+03	3.653E+06
2127	1.656E+07	2.381E+03	3.568E+06
2128	1.656E+07	2.326E+03	3.486E+06
2129	1.656E+07	2.272E+03	3.406E+06
2130	1.656E+07	2.220E+03	3.328E+06
2131	1.656E+07	2.169E+03	3.251E+06
2132	1.656E+07	2.119E+03	3.176E+06
2133	1.656E+07	2.070E+03	3.103E+06
2134	1.656E+07	2.022E+03	3.031E+06
2135	1.656E+07	1.976E+03	2.962E+06
2136	1.656E+07	1.930E+03	2.893E+06
2137	1.656E+07	1.886E+03	2.827E+06
2138	1.656E+07	1.842E+03	2.762E+06
2139	1.656E+07	1.800E+03	2.698E+06
2140	1.656E+07	1.759E+03	2.636E+06
2141	1.656E+07	1.718E+03	2.575E+06
2142	1.656E+07	1.678E+03	2.516E+06
2143	1.656E+07	1.640E+03	2.458E+06
2144	1.656E+07	1.602E+03	2.401E+06
2145	1.656E+07	1.565E+03	2.346E+06
2146	1.656E+07	1.529E+03	2.292E+06
2147	1.656E+07	1.494E+03	2.239E+06
2148	1.656E+07	1.459E+03	2.188E+06
2149	1.656E+07	1.426E+03	2.137E+06
2150	1.656E+07	1.393E+03	2.088E+06
2151	1.656E+07	1.361E+03	2.040E+06
2152	1.656E+07	1.330E+03	1.993E+06
2153	1.656E+07	1.299E+03	1.947E+06
2154	1.656E+07	1.269E+03	1.902E+06
2155	1.656E+07	1.240E+03	1.858E+06
2156	1.656E+07	1.211E+03	1.816E+06
2157	1.656E+07	1.183E+03	1.774E+06

2158	1.656E+07	1.156E+03	1.733E+06
2159	1.656E+07	1.130E+03	1.693E+06
2160	1.656E+07	1.103E+03	1.654E+06
2161	1.656E+07	1.078E+03	1.616E+06
2162	1.656E+07	1.053E+03	1.579E+06
2163	1.656E+07	1.029E+03	1.542E+06
2164	1.656E+07	1.005E+03	1.507E+06
2165	1.656E+07	9.821E+02	1.472E+06
2166	1.656E+07	9.595E+02	1.438E+06
2167	1.656E+07	9.374E+02	1.405E+06
2168	1.656E+07	9.158E+02	1.373E+06
2169	1.656E+07	8.947E+02	1.341E+06
2170	1.656E+07	8.741E+02	1.310E+06
2171	1.656E+07	8.540E+02	1.280E+06
2172	1.656E+07	8.343E+02	1.251E+06
2173	1.656E+07	8.151E+02	1.222E+06
2174	1.656E+07	7.964E+02	1.194E+06
2175	1.656E+07	7.780E+02	1.166E+06
2176	1.656E+07	7.601E+02	1.139E+06
2177	1.656E+07	7.426E+02	1.113E+06
2178	1.656E+07	7.255E+02	1.087E+06
2179	1.656E+07	7.088E+02	1.062E+06
2180	1.656E+07	6.925E+02	1.038E+06
2181	1.656E+07	6.765E+02	1.014E+06
2182	1.656E+07	6.609E+02	9.907E+05
2183	1.656E+07	6.457E+02	9.679E+05
2184	1.656E+07	6.308E+02	9.456E+05
2185	1.656E+07	6.163E+02	9.238E+05
2186	1.656E+07	6.021E+02	9.025E+05
2187	1.656E+07	5.882E+02	8.817E+05
2188	1.656E+07	5.747E+02	8.614E+05
2189	1.656E+07	5.615E+02	8.416E+05
2190	1.656E+07	5.485E+02	8.222E+05
2191	1.656E+07	5.359E+02	8.033E+05
2192	1.656E+07	5.236E+02	7.848E+05
2193	1.656E+07	5.115E+02	7.667E+05
2194	1.656E+07	4.997E+02	7.490E+05
2195	1.656E+07	4.882E+02	7.318E+05
2196	1.656E+07	4.770E+02	7.149E+05
2197	1.656E+07	4.660E+02	6.985E+05
2198	1.656E+07	4.552E+02	6.824E+05
2199	1.656E+07	4.448E+02	6.667E+05
2200	1.656E+07	4.345E+02	6.513E+05
2201	1.656E+07	4.245E+02	6.363E+05
2202	1.656E+07	4.147E+02	6.217E+05
2203	1.656E+07	4.052E+02	6.073E+05
2204	1.656E+07	3.959E+02	5.934E+05

2205	1.656E+07	3.867E+02	5.797E+05
2206	1.656E+07	3.778E+02	5.663E+05
2207	1.656E+07	3.691E+02	5.533E+05
2208	1.656E+07	3.606E+02	5.405E+05
2209	1.656E+07	3.523E+02	5.281E+05
2210	1.656E+07	3.442E+02	5.159E+05
2211	1.656E+07	3.363E+02	5.041E+05
2212	1.656E+07	3.285E+02	4.924E+05
2213	1.656E+07	3.210E+02	4.811E+05
2214	1.656E+07	3.136E+02	4.700E+05
2215	1.656E+07	3.064E+02	4.592E+05
2216	1.656E+07	2.993E+02	4.486E+05
2217	1.656E+07	2.924E+02	4.383E+05
2218	1.656E+07	2.857E+02	4.282E+05
2219	1.656E+07	2.791E+02	4.183E+05
2220	1.656E+07	2.727E+02	4.087E+05
2221	1.656E+07	2.664E+02	3.993E+05
2222	1.656E+07	2.602E+02	3.901E+05
2223	1.656E+07	2.543E+02	3.811E+05
2224	1.656E+07	2.484E+02	3.723E+05
2225	1.656E+07	2.427E+02	3.638E+05

ATTACHMENT 2

Landfill Air Emissions Estimation Model
Estimated Carbon Dioxide Emissions

Model Parameters

Lo : 139.60 m^3 / Mg ***** User Mode Selection *****
k : 0.0233 1/yr ***** User Mode Selection *****
NMOC : 1,170.00 ppmv ***** User Mode Selection *****
Methane : 50.0000 % volume
Carbon Dioxide : 50.0000 % volume

Landfill Parameters

Year Opened : 1992 Current Year : 1997 Year Closed: 2026
Capacity : 16,555,595 Mg
Average Acceptance Rate Required from
Current Year to Closure Year : 482,937.69 Mg/year

Model Results

Year	Refuse In Place (Mg)	Carbon Dioxide Emission Rate (Mg/yr)	(Cubic m/yr)
1993	3.740E+05	2.227E+03	1.217E+06
1994	9.350E+05	5.516E+03	3.013E+06
1995	1.525E+06	8.904E+03	4.864E+06
1996	2.071E+06	1.195E+04	6.526E+06
1997	2.550E+06	1.453E+04	7.936E+06
1998	3.033E+06	1.707E+04	9.324E+06
1999	3.516E+06	1.955E+04	1.068E+07
2000	3.999E+06	2.198E+04	1.200E+07
2001	4.482E+06	2.434E+04	1.330E+07
2002	4.965E+06	2.666E+04	1.456E+07
2003	5.448E+06	2.892E+04	1.580E+07
2004	5.931E+06	3.113E+04	1.701E+07
2005	6.414E+06	3.329E+04	1.819E+07
2006	6.897E+06	3.540E+04	1.934E+07
2007	7.380E+06	3.746E+04	2.046E+07
2008	7.863E+06	3.947E+04	2.156E+07
2009	8.346E+06	4.144E+04	2.264E+07
2010	8.829E+06	4.336E+04	2.369E+07
2011	9.312E+06	4.523E+04	2.471E+07
2012	9.794E+06	4.707E+04	2.571E+07
2013	1.028E+07	4.886E+04	2.669E+07
2014	1.076E+07	5.061E+04	2.765E+07
2015	1.124E+07	5.232E+04	2.858E+07
2016	1.173E+07	5.399E+04	2.949E+07

2017	1.221E+07	5.562E+04	3.039E+07
2018	1.269E+07	5.722E+04	3.126E+07
2019	1.318E+07	5.877E+04	3.211E+07
2020	1.366E+07	6.030E+04	3.294E+07
2021	1.414E+07	6.178E+04	3.375E+07
2022	1.462E+07	6.324E+04	3.455E+07
2023	1.511E+07	6.465E+04	3.532E+07
2024	1.559E+07	6.604E+04	3.608E+07
2025	1.607E+07	6.740E+04	3.682E+07
2026	1.656E+07	6.872E+04	3.754E+07
2027	1.656E+07	6.714E+04	3.668E+07
2028	1.656E+07	6.559E+04	3.583E+07
2029	1.656E+07	6.408E+04	3.501E+07
2030	1.656E+07	6.260E+04	3.420E+07
2031	1.656E+07	6.116E+04	3.341E+07
2032	1.656E+07	5.975E+04	3.264E+07
2033	1.656E+07	5.838E+04	3.189E+07
2034	1.656E+07	5.703E+04	3.116E+07
2035	1.656E+07	5.572E+04	3.044E+07
2036	1.656E+07	5.444E+04	2.974E+07
2037	1.656E+07	5.318E+04	2.905E+07
2038	1.656E+07	5.196E+04	2.838E+07
2039	1.656E+07	5.076E+04	2.773E+07
2040	1.656E+07	4.959E+04	2.709E+07
2041	1.656E+07	4.845E+04	2.647E+07
2042	1.656E+07	4.733E+04	2.586E+07
2043	1.656E+07	4.624E+04	2.526E+07
2044	1.656E+07	4.518E+04	2.468E+07
2045	1.656E+07	4.414E+04	2.411E+07
2046	1.656E+07	4.312E+04	2.356E+07
2047	1.656E+07	4.213E+04	2.301E+07
2048	1.656E+07	4.116E+04	2.248E+07
2049	1.656E+07	4.021E+04	2.197E+07
2050	1.656E+07	3.928E+04	2.146E+07
2051	1.656E+07	3.838E+04	2.097E+07
2052	1.656E+07	3.750E+04	2.048E+07
2053	1.656E+07	3.663E+04	2.001E+07
2054	1.656E+07	3.579E+04	1.955E+07
2055	1.656E+07	3.496E+04	1.910E+07
2056	1.656E+07	3.416E+04	1.866E+07
2057	1.656E+07	3.337E+04	1.823E+07
2058	1.656E+07	3.260E+04	1.781E+07
2059	1.656E+07	3.185E+04	1.740E+07
2060	1.656E+07	3.112E+04	1.700E+07
2061	1.656E+07	3.040E+04	1.661E+07
2062	1.656E+07	2.970E+04	1.623E+07
2063	1.656E+07	2.902E+04	1.585E+07

2064	1.656E+07	2.835E+04	1.549E+07
2065	1.656E+07	2.770E+04	1.513E+07
2066	1.656E+07	2.706E+04	1.478E+07
2067	1.656E+07	2.644E+04	1.444E+07
2068	1.656E+07	2.583E+04	1.411E+07
2069	1.656E+07	2.523E+04	1.378E+07
2070	1.656E+07	2.465E+04	1.347E+07
2071	1.656E+07	2.408E+04	1.316E+07
2072	1.656E+07	2.353E+04	1.285E+07
2073	1.656E+07	2.299E+04	1.256E+07
2074	1.656E+07	2.246E+04	1.227E+07
2075	1.656E+07	2.194E+04	1.199E+07
2076	1.656E+07	2.143E+04	1.171E+07
2077	1.656E+07	2.094E+04	1.144E+07
2078	1.656E+07	2.046E+04	1.118E+07
2079	1.656E+07	1.999E+04	1.092E+07
2080	1.656E+07	1.953E+04	1.067E+07
2081	1.656E+07	1.908E+04	1.042E+07
2082	1.656E+07	1.864E+04	1.018E+07
2083	1.656E+07	1.821E+04	9.948E+06
2084	1.656E+07	1.779E+04	9.718E+06
2085	1.656E+07	1.738E+04	9.495E+06
2086	1.656E+07	1.698E+04	9.276E+06
2087	1.656E+07	1.659E+04	9.062E+06
2088	1.656E+07	1.621E+04	8.854E+06
2089	1.656E+07	1.583E+04	8.650E+06
2090	1.656E+07	1.547E+04	8.451E+06
2091	1.656E+07	1.511E+04	8.256E+06
2092	1.656E+07	1.476E+04	8.066E+06
2093	1.656E+07	1.442E+04	7.880E+06
2094	1.656E+07	1.409E+04	7.699E+06
2095	1.656E+07	1.377E+04	7.521E+06
2096	1.656E+07	1.345E+04	7.348E+06
2097	1.656E+07	1.314E+04	7.179E+06
2098	1.656E+07	1.284E+04	7.013E+06
2099	1.656E+07	1.254E+04	6.852E+06
2100	1.656E+07	1.225E+04	6.694E+06
2101	1.656E+07	1.197E+04	6.540E+06
2102	1.656E+07	1.170E+04	6.389E+06
2103	1.656E+07	1.143E+04	6.242E+06
2104	1.656E+07	1.116E+04	6.098E+06
2105	1.656E+07	1.091E+04	5.958E+06
2106	1.656E+07	1.065E+04	5.821E+06
2107	1.656E+07	1.041E+04	5.687E+06
2108	1.656E+07	1.017E+04	5.556E+06
2109	1.656E+07	9.936E+03	5.428E+06
2110	1.656E+07	9.707E+03	5.303E+06

2111	1.656E+07	9.483E+03	5.181E+06
2112	1.656E+07	9.265E+03	5.061E+06
2113	1.656E+07	9.051E+03	4.945E+06
2114	1.656E+07	8.843E+03	4.831E+06
2115	1.656E+07	8.639E+03	4.720E+06
2116	1.656E+07	8.440E+03	4.611E+06
2117	1.656E+07	8.246E+03	4.505E+06
2118	1.656E+07	8.056E+03	4.401E+06
2119	1.656E+07	7.870E+03	4.300E+06
2120	1.656E+07	7.689E+03	4.201E+06
2121	1.656E+07	7.512E+03	4.104E+06
2122	1.656E+07	7.339E+03	4.009E+06
2123	1.656E+07	7.170E+03	3.917E+06
2124	1.656E+07	7.005E+03	3.827E+06
2125	1.656E+07	6.844E+03	3.739E+06
2126	1.656E+07	6.686E+03	3.653E+06
2127	1.656E+07	6.532E+03	3.568E+06
2128	1.656E+07	6.382E+03	3.486E+06
2129	1.656E+07	6.235E+03	3.406E+06
2130	1.656E+07	6.091E+03	3.328E+06
2131	1.656E+07	5.951E+03	3.251E+06
2132	1.656E+07	5.814E+03	3.176E+06
2133	1.656E+07	5.680E+03	3.103E+06
2134	1.656E+07	5.549E+03	3.031E+06
2135	1.656E+07	5.421E+03	2.962E+06
2136	1.656E+07	5.296E+03	2.893E+06
2137	1.656E+07	5.174E+03	2.827E+06
2138	1.656E+07	5.055E+03	2.762E+06
2139	1.656E+07	4.939E+03	2.698E+06
2140	1.656E+07	4.825E+03	2.636E+06
2141	1.656E+07	4.714E+03	2.575E+06
2142	1.656E+07	4.605E+03	2.516E+06
2143	1.656E+07	4.499E+03	2.458E+06
2144	1.656E+07	4.396E+03	2.401E+06
2145	1.656E+07	4.294E+03	2.346E+06
2146	1.656E+07	4.196E+03	2.292E+06
2147	1.656E+07	4.099E+03	2.239E+06
2148	1.656E+07	4.004E+03	2.188E+06
2149	1.656E+07	3.912E+03	2.137E+06
2150	1.656E+07	3.822E+03	2.088E+06
2151	1.656E+07	3.734E+03	2.040E+06
2152	1.656E+07	3.648E+03	1.993E+06
2153	1.656E+07	3.564E+03	1.947E+06
2154	1.656E+07	3.482E+03	1.902E+06
2155	1.656E+07	3.402E+03	1.858E+06
2156	1.656E+07	3.323E+03	1.816E+06
2157	1.656E+07	3.247E+03	1.774E+06

2158	1.656E+07	3.172E+03	1.733E+06
2159	1.656E+07	3.099E+03	1.693E+06
2160	1.656E+07	3.028E+03	1.654E+06
2161	1.656E+07	2.958E+03	1.616E+06
2162	1.656E+07	2.890E+03	1.579E+06
2163	1.656E+07	2.823E+03	1.542E+06
2164	1.656E+07	2.758E+03	1.507E+06
2165	1.656E+07	2.695E+03	1.472E+06
2166	1.656E+07	2.633E+03	1.438E+06
2167	1.656E+07	2.572E+03	1.405E+06
2168	1.656E+07	2.513E+03	1.373E+06
2169	1.656E+07	2.455E+03	1.341E+06
2170	1.656E+07	2.398E+03	1.310E+06
2171	1.656E+07	2.343E+03	1.280E+06
2172	1.656E+07	2.289E+03	1.251E+06
2173	1.656E+07	2.237E+03	1.222E+06
2174	1.656E+07	2.185E+03	1.194E+06
2175	1.656E+07	2.135E+03	1.166E+06
2176	1.656E+07	2.086E+03	1.139E+06
2177	1.656E+07	2.037E+03	1.113E+06
2178	1.656E+07	1.991E+03	1.087E+06
2179	1.656E+07	1.945E+03	1.062E+06
2180	1.656E+07	1.900E+03	1.038E+06
2181	1.656E+07	1.856E+03	1.014E+06
2182	1.656E+07	1.813E+03	9.907E+05
2183	1.656E+07	1.772E+03	9.679E+05
2184	1.656E+07	1.731E+03	9.456E+05
2185	1.656E+07	1.691E+03	9.238E+05
2186	1.656E+07	1.652E+03	9.025E+05
2187	1.656E+07	1.614E+03	8.817E+05
2188	1.656E+07	1.577E+03	8.614E+05
2189	1.656E+07	1.541E+03	8.416E+05
2190	1.656E+07	1.505E+03	8.222E+05
2191	1.656E+07	1.470E+03	8.033E+05
2192	1.656E+07	1.437E+03	7.848E+05
2193	1.656E+07	1.403E+03	7.667E+05
2194	1.656E+07	1.371E+03	7.490E+05
2195	1.656E+07	1.340E+03	7.318E+05
2196	1.656E+07	1.309E+03	7.149E+05
2197	1.656E+07	1.279E+03	6.985E+05
2198	1.656E+07	1.249E+03	6.824E+05
2199	1.656E+07	1.220E+03	6.667E+05
2200	1.656E+07	1.192E+03	6.513E+05
2201	1.656E+07	1.165E+03	6.363E+05
2202	1.656E+07	1.138E+03	6.217E+05
2203	1.656E+07	1.112E+03	6.073E+05
2204	1.656E+07	1.086E+03	5.934E+05

2205	1.656E+07	1.061E+03	5.797E+05
2206	1.656E+07	1.037E+03	5.663E+05
2207	1.656E+07	1.013E+03	5.533E+05
2208	1.656E+07	9.895E+02	5.405E+05
2209	1.656E+07	9.667E+02	5.281E+05
2210	1.656E+07	9.444E+02	5.159E+05
2211	1.656E+07	9.227E+02	5.041E+05
2212	1.656E+07	9.014E+02	4.924E+05
2213	1.656E+07	8.807E+02	4.811E+05
2214	1.656E+07	8.604E+02	4.700E+05
2215	1.656E+07	8.406E+02	4.592E+05
2216	1.656E+07	8.212E+02	4.486E+05
2217	1.656E+07	8.023E+02	4.383E+05
2218	1.656E+07	7.838E+02	4.282E+05
2219	1.656E+07	7.658E+02	4.183E+05
2220	1.656E+07	7.481E+02	4.087E+05
2221	1.656E+07	7.309E+02	3.993E+05
2222	1.656E+07	7.141E+02	3.901E+05
2223	1.656E+07	6.976E+02	3.811E+05
2224	1.656E+07	6.816E+02	3.723E+05
2225	1.656E+07	6.659E+02	3.638E+05

ATTACHMENT 3

Discussion of the Darcy Radius of Influence For Landfill Gas Extraction Systems

DISCUSSION OF THE DARCY RADIUS OF INFLUENCE FOR LANDFILL GAS EXTRACTION SYSTEMS

Purpose: To present a design procedure for determination of gas extraction well locations and relative placement/spacings.

Method: Utilization of an individual gas extraction well's darcy radius of influence to determine well spacings to distribute an induced vacuum uniformly throughout the waste disposal area. The concept of radial fluid flow has been used in the petroleum industry for calculating flows in porous rock reservoirs towards oil and natural gas extraction wells.

Objective: As a standard design criterion, landfill gas extraction well spacing by means of the Darcy radius of influence method should indicate a reasonable effective extraction area coverage over the waste disposal area, with minimum overlap or open spaces. Placement of gas extraction wells on sideslopes should be minimized to reduce air intrusion.

Definition: The radius of influence (ROI) is the radial distance from an extraction well from which the migration direction of landfill gas will be influenced by an application of vacuum. Since gas is influenced by convection forces (pressure gradient), the radius of influence is established where the measured pressure/vacuum at extreme radius (r_1) of influence is zero.

Darcy radius of influence for radial compressible fluid flow

Discussion: darcy equation, for radial fluid flow

$$v = \left(\frac{g_C\, k}{\mu} \right) \left(\frac{dP}{dr} \right) \qquad \textit{equation (1)}$$

Where: g_C = acceleration of gravity constant = 32.2 (lb_M•ft/lb_F•sec^2)

v = apparent flow velocity in (ft/sec) units

μ = absolute viscosity of the flowing fluid (landfill gas) in (lb_M/ft•sec) units

k = absolute permeability of the porous media (refuse) in (ft^2) units

dP = pressure gradient in the direction of radial flow in (lb_F/ft^2) units

dr = radial distance gradient in (ft) units

Definition: Permeability is defined as a measure of a porous media's ability to transmit fluids.

Assumptions necessary to develop the basic flow equations:

(1) steady-state flow conditions exist.

(2) the pore space of the refuse is 100 percent saturated with the flowing fluid (landfill gas).

(3) the viscosity of the flowing fluid is constant.

(4) isothermal conditions in the refuse prevail.

(5) flow is laminar, horizontal, and linear since refuse grain size is relatively small and the velocity of the fluid flow is low.

Please refer to the ideal radial flow system diagram (Figure 1). With these assumptions in mind, let

$$v = \frac{q}{A}$$

Where: v = the apparent velocity of the flowing fluid (gas)

q = volumetric rate of fluid (gas) flow

A = total cross-sectional area perpendicular to flow direction

= $2\pi r h_s$

h_s = total extraction well length of slotted pipe

Substitute in equation (1):

$$q/A = \left(\frac{g_c\, k}{\mu}\right)\left(\frac{dP}{dr}\right) \qquad \textit{equation (2)}$$

with $A = 2\pi r h_s$ and rearranging

$$q = \left(\frac{2\pi r h_s\, g_c\, k}{\mu}\right)\left(\frac{dP}{dr}\right) \qquad \textit{equation (3)}$$

Since landfill gas is a compressible fluid, its viscosity and flow characteristics must be corrected to standard conditions.

When a flowing fluid is compressible, then q is not constant, but is a function of pressure and temperature $f(P,T)$. An expression for the standard flow rate of a gas (q_S) is obtained from Charles' law, assuming ideal gas behavior at standard conditions:

$$\frac{P_1 q_1}{T_1} = \frac{P_2 q_2}{T_2} = constant = \frac{P_S q_S}{T_S} \leftarrow at\ standard\ conditions$$

Substitution in equation (3):

$$\frac{P_S q_S}{T_S} = \frac{Pq}{T} = \left(\frac{2\pi r h_S g_C k}{\mu T} \right) \left(\frac{PdP}{dr} \right) = constant$$

Where: T_S = standard temperature = 60(°F) = 520(°R) constant

P_S = standard pressure = 14.7 (psia) = 2,116.8 (lb_F/ft^2) constant

T = flowing temperature of the fluid (landfill gas)

Therefore:

$$\frac{P_S q_S}{T_S} = \left(\frac{2\pi r h_S g_C k}{\mu T} \right) \left(\frac{PdP}{dr} \right) \qquad equation\ (4)$$

let q_S = standard volumetric rate of fluid flow

$$q_S = (dG/dt) V\rho = (dG/dt) \pi r^2 h_T \rho$$

Where: (dG/dt) = landfill gas generation rate

V = volume of well influence, assuming uniform cylindrical geometry

$V = \pi r^2 h_T$

ρ = density of refuse; assume ρ = 1,200 (lb_M/yd^3) = 44.44 (lb_M/ft^3)

h_T = total extraction well length (total well depth)

This approach assumes that all conditions are uniform, and that all gas generated at radius r_1 is extracted. Actually, only a fraction of the gas generated at some distance "r" from the well would be extracted, and this fraction would decrease as the radius increases.

Please refer to the ideal radial flow system diagram (Figure 1).

Substitution in equation (4):

$$\frac{P_S (dG/dt)\,\pi r^2 h_T \rho}{T_S} = \left(\frac{2\pi r h_S g_C k}{\mu T} \right) \left(\frac{PdP}{dr} \right) \qquad \textit{equation (5)}$$

Simplification, separation of variables, and insertion of system limits in equation (5):

$$\int_{r_0}^{r_1} rdr = \frac{2 g_C k T_S (h_S / h_T)}{P_S (dG/dT)\,\rho\mu T} \int_{P_0}^{P_1} PdP$$

Where: r_o = radius of the extraction well pipe
r_1 = the darcy radius of influence

Which when integrated:

$$\frac{(r_1^2 - r_0^2)}{2} = \left[\frac{g_C k T_S (h_S / h_T)}{P_S (dG/dt)\,\rho\mu T} \; x \; (P_1^2 - P_0^2) \right]$$

Solving for radius of influence *(r_1)*:

$$r_1 = \left[\frac{2 g_C k T_S (h_S / h_T)}{P_S (dG/dt)\rho\mu T} (P_1^2 - P_0^2) + r_0^2 \right]^{1/2} \qquad \textit{equation (6)}$$

This is the Darcy radius of influence equation.

Since a concentric cylindrical surface at distances r_1 and r_0 are assumed, perpendicular gas flow across the surface at r_1 must be much greater than that across the surface at r_0 and since $r_0 <<< r_1$, then r_0 is negligible and:

$$r_1 = \left[\frac{2 g_C K T_S (h_S / h_T)}{P_S (dG/dt)\rho\mu T} \; x \; (P_1^2 - P_0^2) \right]^{1/2} \qquad \textit{equation (7)}$$

The maximum vacuum that can be applied in a gas extraction well is usually dependent on the length of solid pipe section specified. The relationship is that as the length of solid pipe section increases, the potential of air intrusion through the cover or sideslopes decreases, therefore allowing more vacuum to be applied to the gas extraction well to maximize its effective radius of well influence. The

average reasonable applied vacuum at the wellhead *(P_0)* for an active gas extraction system must be anticipated by the designer to calculate the darcy radius of influence.

The following table is a guideline of reasonable applied vacuum values to be utilized in equation (7):

LENGTH OF SOLID PIPE (ft)	APPLIED VACUUM (" W.C.)	APPLIED VACUUM (lb_F / ft) absolute
15	1.0	2,111.6
20	2.0	2,106.4
25	3.0	2,101.2
30	4.0	2,096.0
35	5.0	2,090.8
40	6.0	2,085.6

The following calculation demonstrates how the darcy radius of influence can be determined for a conceptual gas extraction well location plan.

Assumptions:

Average landfill gas composition:

percent methane (CH_4)	=	56 %
percent carbon dioxide (CO_2)	=	43 %
percent air (N_2/O_2)	=	1 %
Total	=	100 %

Average flowing landfill gas temperature *(T)* = 86(°F) = 546(°R)

Average reasonable gas generation rate *(dG/dt)* = 0.102($ft^3/lb_M \cdot yr$)

or *(dG/dt)* = 3.234×10^{-9}($ft^3/lb_M \cdot sec$)

Average reasonable applied vacuum at the wellhead *(P_0)* for an active gas extraction system with a 29-foot length of solid pipe:

P_0 = 3.8 (inches of water column)

= 0.137 (psig)

= 2.097.0 (lb_F/ft^2) absolute

Conversion: 1.0 (psig) = 27.7 (inches of water column)

Average reasonable absolute permeability of refuse *(k)*.

k = $2.681 \times 10^{-11} (ft^2)$

Typical gas absolute viscosity at standard temperature conditions = 60(°F)

Absolute Viscosity Reference Values

methane (CH_4)	=	7.1×10^{-6} ($lb_M/ft \cdot sec$)
carbon dioxide (CO_2)	=	9.8×10^{-6} ($lb_M/ft \cdot sec$)
air (N_2/O_2)	=	1.2×10^{-5} ($lb_M/ft \cdot sec$)

Standard landfill gas viscosity *(μ)* at 60(°F):

$\mu = (0.56)(7.1 \times 10^{-6}) + (0.43)(9.8 \times 10^{-6}) + (0.01)(1.2 \times 10^{-5})$

$\mu = 8.31 \times 10^{-6}$ ($lb_M/ft \cdot sec$)

Determine the ratio of slotted pipe to total pipe section for typical gas extraction wells as specified by the designer.

Typical ratio value *(h_S / h_T)* = 0.567, approximately two-thirds slotted length per total length.

Constants utilized in the darcy radius of well influence, equation (7):

g_C = acceleration of gravity constant = 32.2 ($lb_M \cdot ft / lb_F \cdot sec^2$)

T_S = standard temperature = 520 (°R)

P_S = standard pressure = 2,116.8 (lb_F/ft^2)

ρ = density of refuse = 44.44 (lb_M/ft^3)

P_1 = pressure/vacuum at extreme radius *(r_1)* of influence convention pressure gradient

P_1 = 0 (inches of water column)

P_1 = 0 (psig) = 14.7 (psia) absolute

P_1 = 2,116.8 (lb_F/ft^2) absolute

Note that $P_1 = P_S = 2{,}116.8$ (lb_F/ft^2) absolute atmospheric pressure.

Substitution is equation (7) to derive the darcy radius of influence for a typical gas extraction well.

Therefore: $r_1 = 175.4$ (ft) = 176 (ft), radius of well influence.

$$r_1 = \left[\frac{(2x32.2)\ (2.681 \times 10^{-11})\ (520)\ (0.567)\ [(2{,}116.7)^2 - (2{,}097.0)^2]}{(2{,}116.8)\ (3.234 \times 10^{-9})\ (44.44)\ (8.31 \times 10^{-6})\ (546)} \right]^{1/2}$$

$$r_1 = \left[3.077 \times 10^4\ (ft^2) \right]^{1/2}$$

It is the Rust Gas Recovery Group's guideline to have a minimum overlap of typical gas extraction well's radius of influence of approximately 15 to 20 percent to provide sufficient coverage over the waste disposal area by the wellfield.

ATTACHMENT 4

KY Gas Model Input/Output Data

*** KYGAS Version 2.32 ***
GAS DISTRIBUTION NETWORK ANALYSIS

Updated 5/29/92

INPUT DATA FILE NAME FOR THIS SIMULATION = tr2.DAT

OUTPUT DATA FILE NAME FOR THIS SIMULATION = tr2.OUT

DATE FOR THIS COMPUTER RUN = 11-08-1996 - TIME = 15:09:47

********** SUMMARY OF DISTRIBUTION SYSTEM CHARACTERISTICS **********

NUMBER OF PIPES = 97
NUMBER OF JUNCTION NODES = 93

ENGLISH UNITS SPECIFIED FOR THIS ANALYSIS

THE FOLLOW UNITS APPLY TO PROGRAM CALCULATIONS:
MASS FLOW UNITS = POUNDS / SEC.
VOLUMETRIC FLOW UNITS = CUBIC FEET / SEC.
PRESSURE UNITS = PSIA (ABSOLUTE)
DENSITY UNITS = POUNDS / CUBIC FOOT

THE PROPERTIES OF THE GAS FOR THIS ANALYSIS ARE:

OPERATING TEMPERATURE = 100 DEGREES FAHRENHEIT
REFERENCE DENSITY (AT STANDARD PRESSURE) = .039 POUNDS / CUBIC FOOT
GAS MOLECULAR WEIGHT = 16.06
GAS SPECIFIC GRAVITY = .554
RATIO OF SPECIFIC HEATS = 1.32
GAS CONSTANT = 96.20018
ABSOLUTE VISCOSITY = 2.4E-07 POUND SECONDS / SQUARE FOOT

USER SPECIFIED FLOW UNITS (USFU) = SCF / MIN.
USER SPECIFIED PRESSURE UNITS (USPU) = INCHES OF WATER (GAUGE)

---------- SUMMARY OF PIPE NETWORK GEOMETRIC AND OPERATING DATA ----------

DATE = 11-08-1996 PAGE NO. 2
JOB NAME = Trail Ridge

PIPE NO.	NODE #1	NODE #2	LENGTH (FT.)	DIAM. (IN.)	ROUGHNESS (MILLIFEET)	SUM-M FACT.	PUMP TYPE	ELEVATION CHANGE	FPN PRESSURE
1	1	2	385.0	5.8	0.005	0.0	0	0.0	
2	2	4	305.0	5.8	0.005	0.0	0	0.0	
3	4	5	200.0	5.8	0.005	0.0	0	0.0	
4	5	6	300.0	5.8	0.005	0.0	0	0.0	
5	6	7	220.0	5.8	0.005	0.0	0	0.0	
6	7	8	50.0	5.8	0.005	0.0	0	0.0	
7	8	9	190.0	5.8	0.005	0.0	0	0.0	
8	9	10	240.0	5.8	0.005	0.0	0	0.0	
9	10	12	265.0	11.3	0.005	0.0	0	0.0	
10	12	14	470.0	11.3	0.005	0.0	0	0.0	
11	14	22	230.0	12.5	0.005	0.0	0	0.0	
12	22	31	250.0	12.5	0.005	0.0	0	0.0	
13	31	32	85.0	12.5	0.005	0.0	0	0.0	
14	32	41	165.0	12.5	0.005	0.0	0	0.0	
15	41	42	90.0	12.5	0.005	0.0	0	0.0	
16	42	45	165.0	12.5	0.005	0.0	0	0.0	
17	45	55	125.0	12.5	0.005	0.0	0	0.0	
18	55	56	150.0	17.9	0.005	0.0	0	0.0	
19	56	65	250.0	17.9	0.005	0.0	0	0.0	
20	65	73	225.0	17.9	0.005	0.0	0	0.0	
21	73	90	250.0	17.9	0.005	0.0	0	0.0	
22	90	89	485.0	17.9	0.005	0.0	0	0.0	
	89	88	355.0	19.8	0.005	0.0	0	0.0	
24	85	88	225.0	19.8	0.005	0.0	0	0.0	
25	84	85	220.0	19.8	0.005	0.0	0	0.0	
26	82	84	230.0	19.8	0.005	0.0	0	0.0	
27	81	82	75.0	19.8	0.005	0.0	0	0.0	
28	79	81	170.0	17.9	0.005	0.0	0	0.0	
29	78	79	215.0	17.9	0.005	0.0	0	0.0	
30	76	78	310.0	17.9	0.005	0.0	0	0.0	
31	74	76	370.0	17.9	0.005	0.0	0	0.0	
32	66	74	300.0	14.3	0.005	0.0	0	0.0	
33	57	66	280.0	14.3	0.005	0.0	0	0.0	
34	46	57	285.0	14.3	0.005	0.0	0	0.0	
35	43	46	250.0	11.3	0.005	0.0	0	0.0	
36	34	43	155.0	11.3	0.005	0.0	0	0.0	
37	33	34	85.0	9.6	0.005	0.0	0	0.0	
38	24	33	160.0	9.6	0.005	0.0	0	0.0	
39	23	24	80.0	7.6	0.005	0.0	0	0.0	
40	15	23	235.0	7.6	0.005	0.0	0	0.0	
41	1	15	255.0	7.6	0.005	0.0	0	0.0	
42	47	46	70.0	9.6	0.005	0.0	0	0.0	
43	48	47	270.0	9.6	0.005	0.0	0	0.0	
44	49	48	260.0	9.6	0.005	0.0	0	0.0	
45	50	49	400.0	9.6	0.005	0.0	0	0.0	
46	51	50	150.0	9.6	0.005	0.0	0	0.0	
47	52	51	250.0	9.6	0.005	0.0	0	0.0	

48	52	53	380.0	9.6	0.005	0.0	0	0.0
49	53	54	225.0	9.6	0.005	0.0	0	0.0
50	54	55	300.0	9.6	0.005	0.0	0	0.0
51	6	18	250.0	9.6	0.005	0.0	0	0.0
52	18	27	170.0	9.6	0.005	0.0	0	0.0
53	27	37	230.0	9.6	0.005	0.0	0	0.0
54	37	51	430.0	9.6	0.005	0.0	0	0.0
55	51	61	380.0	9.6	0.005	0.0	0	0.0
56	61	68	285.0	9.6	0.005	0.0	0	0.0
57	68	80	270.0	9.6	0.005	0.0	0	0.0
58	80	81	230.0	9.6	0.005	0.0	0	0.0
59	3	2	85.0	5.8	0.005	0.0	0	0.0
60	16	3	265.0	5.8	0.005	0.0	0	0.0
61	17	5	280.0	5.8	0.005	0.0	0	0.0
62	26	17	280.0	5.8	0.005	0.0	0	0.0
63	28	27	190.0	5.8	0.005	0.0	0	0.0
64	19	8	250.0	5.8	0.005	0.0	0	0.0
65	11	10	50.0	7.6	0.005	0.0	0	0.0
66	20	11	255.0	7.6	0.005	0.0	0	0.0
67	29	20	330.0	7.6	0.005	0.0	0	0.0
68	38	29	320.0	5.8	0.005	0.0	0	0.0
69	13	12	95.0	5.8	0.005	0.0	0	0.0
70	21	13	230.0	5.8	0.005	0.0	0	0.0
71	30	32	260.0	5.8	0.005	0.0	0	0.0
	39	30	285.0	5.8	0.005	0.0	0	0.0
73	40	42	260.0	5.8	0.005	0.0	0	0.0
74	44	40	300.0	5.8	0.005	0.0	0	0.0
75	64	65	320.0	5.8	0.005	0.0	0	0.0
76	63	64	275.0	5.8	0.005	0.0	0	0.0
77	72	73	70.0	5.8	0.005	0.0	0	0.0
78	71	72	260.0	5.8	0.005	0.0	0	0.0
79	87	88	80.0	5.8	0.005	0.0	0	0.0
80	86	87	285.0	5.8	0.005	0.0	0	0.0
81	62	70	295.0	5.8	0.005	0.0	0	0.0
82	69	70	130.0	5.8	0.005	0.0	0	0.0
83	70	83	160.0	7.6	0.005	0.0	0	0.0
84	83	84	270.0	7.6	0.005	0.0	0	0.0
85	77	78	265.0	5.8	0.005	0.0	0	0.0
86	67	91	290.0	5.8	0.005	0.0	0	0.0
87	91	75	260.0	5.8	0.005	0.0	0	0.0
88	75	74	100.0	5.8	0.005	0.0	0	0.0
89	60	59	300.0	5.8	0.005	0.0	0	0.0
90	59	58	240.0	5.8	0.005	0.0	0	0.0
91	58	57	90.0	5.8	0.005	0.0	0	0.0
92	36	35	240.0	5.8	0.005	0.0	0	0.0
93	35	34	280.0	5.8	0.005	0.0	0	0.0
94	25	24	270.0	5.8	0.005	0.0	0	0.0
95	88	92	320.0	21.6	0.005	0.0	0	0.0
96	92	93	230.0	21.6	0.005	0.0	1	0.0

97	93	0	100.0	21.6	0.005	0.0	0	0.0	-10.0

*** DATA FOR PUMPS (COMPRESSORS) FOR THIS SYSTEM ***

PUMP TYPE # 1 IS DESCRIBED BY THE FOLLOWING DATA:

PRESSURE (USPU)	DISCHARGE (USFU)
34	5300
31.4	6000
29.8	6300

JUNCTION NUMBER	LOCATION OF NODE	DEMAND (USFU)
1	W65	-22.70
3	W64	-25.50
4	W48	-24.00
5	W47	-22.60
6	W46	-32.70
7	W27	-26.50
9	W26	-23.80
11	W25	-22.10
13	W10	-22.80
14	W9	-28.70
15	W66	-31.50
16	W63	-92.50
17	W49	-88.30
18	W45	-91.10
19	W28	-89.80
20	W24	-86.90
21	W11	-90.00
22	W8	-26.80
23	W67	-31.90
25	W62	-91.80
26	W50	-117.50
28	W44	-103.80
29	W29	-121.90
30	W12	-99.80
31	W7	-30.40
33	W68	-33.20
35	W61	-94.10
36	W51	-119.80
37	W43	-235.30
38	W30	-256.30
39	W23	-122.40
40	W13	-92.50
41	W6	-33.40
43	W69	-39.30
44	W22	-128.80
45	W5	-34.70

47	W70	-55.20
48	W60	-96.00
49	W52	-133.70
50	W42	-269.60
52	W31	-241.30
53	W21	-122.70
54	W14	-95.40
56	W4	-31.00
58	W71	-51.00
59	W59	-93.50
60	W53	-127.90
61	W41	-272.90
62	W32	-232.80
63	W20	-122.40
64	W15	-96.20
65	W3	-21.10
66	W72	-59.40
67	W54	-125.90
68	W40	-127.40
69	W33	-108.00
71	W16	-85.10
72	W2	-20.80
75	W73	-24.20
76	W57	-46.50
77	W55	-87.60
78	W56	-24.10
79	W38	-22.80
80	W39	-85.80
82	W37	-26.80
83	W34	-86.30
84	W36	-24.10
85	W35	-26.30
86	W19	-97.00
87	W18	-23.80
89	W17	-24.70
90	W1	-38.70
91	W58	-80.70

****

********** THE RESULTS FOR THIS SIMULATION FOLLOW **********

PIPE NO.	NODE #1	NODE #2	FLOW (USFU)	FLOW (#/S)	LOSS (USPU)	VELOCITY (FT/S)	DENSITY (#/CF)	FRICTION FACTOR	AREA RATIO

1	1	2	-201.25	-0.14	0.84	21.71	0.036	0.0209	.0245
2	2	4	-83.25	-0.06	0.14	8.97	0.036	0.0258	.0101
3	4	5	-59.25	-0.04	0.05	6.38	0.036	0.0282	.0072
4	5	6	169.15	0.12	0.48	18.22	0.036	0.0218	.0206
5	6	7	6.96	0.00	0.00	0.75	0.036	0.0383	.0008
6	7	8	33.46	0.02	0.00	3.61	0.036	0.0329	.0041
7	8	9	123.26	0.09	0.17	13.29	0.036	0.0235	.0150
8	9	10	147.06	0.10	0.30	15.87	0.036	0.0225	.0179
9	10	12	634.26	0.45	0.18	18.04	0.036	0.0188	.0204
10	12	14	747.06	0.53	0.44	21.27	0.036	0.0182	.0240
11	14	22	775.76	0.55	0.14	18.06	0.036	0.0184	.0204
12	22	31	802.56	0.57	0.16	18.70	0.036	0.0183	.0211
13	31	32	832.96	0.59	0.06	19.41	0.036	0.0182	.0219
14	32	41	1055.16	0.75	0.18	24.60	0.036	0.0173	.0278
15	41	42	1088.56	0.77	0.10	25.39	0.036	0.0172	.0287
16	42	45	1309.86	0.93	0.26	30.56	0.036	0.0166	.0345
17	45	55	1344.56	0.95	0.21	31.39	0.036	0.0165	.0355
18	55	56	2054.50	1.45	0.09	23.40	0.036	0.0162	.0264
19	56	65	2085.50	1.47	0.16	23.76	0.035	0.0162	.0268
20	65	73	2325.20	1.64	0.18	26.51	0.035	0.0159	.0299
21	73	90	2431.10	1.72	0.21	27.73	0.035	0.0157	.0313
22	90	89	2469.80	1.75	0.43	28.19	0.035	0.0157	.0318
23	89	88	2494.50	1.76	0.20	23.29	0.035	0.0159	.0263
24	85	88	3328.60	2.35	0.21	31.08	0.035	0.0151	.0351
	84	85	3302.30	2.33	0.20	30.82	0.035	0.0151	.0348
26	82	84	2851.10	2.01	0.16	26.59	0.035	0.0155	.0300
27	81	82	2824.30	2.00	0.05	26.34	0.035	0.0156	.0297
28	79	81	1943.59	1.37	0.10	22.17	0.035	0.0164	.0250
29	78	79	1920.79	1.36	0.12	21.90	0.035	0.0165	.0247
30	76	78	1809.09	1.28	0.16	20.62	0.035	0.0167	.0233
31	74	76	1762.59	1.25	0.18	20.08	0.035	0.0167	.0227
32	66	74	1531.79	1.08	0.33	27.33	0.036	0.0165	.0309
33	57	66	1472.39	1.04	0.29	26.25	0.036	0.0166	.0296
34	46	57	1199.99	0.85	0.20	21.38	0.036	0.0173	.0241
35	43	46	665.55	0.47	0.19	18.98	0.036	0.0186	.0214
36	34	43	626.25	0.44	0.11	17.85	0.036	0.0189	.0202
37	33	34	412.35	0.29	0.06	16.28	0.036	0.0200	.0184
38	24	33	379.15	0.27	0.10	14.96	0.036	0.0203	.0169
39	23	24	287.35	0.20	0.09	18.09	0.036	0.0205	.0204
40	15	23	255.45	0.18	0.22	16.08	0.036	0.0211	.0182
41	1	15	223.95	0.16	0.18	14.09	0.036	0.0217	.0159
42	47	46	534.44	0.38	0.08	21.12	0.036	0.0189	.0239
43	48	47	479.24	0.34	0.25	18.93	0.036	0.0193	.0214
44	49	48	383.24	0.27	0.16	15.13	0.036	0.0203	.0171
45	50	49	249.54	0.18	0.12	9.84	0.036	0.0224	.0111
46	51	50	-20.06	-0.01	0.00	0.79	0.036	0.0449	.0009
47	52	51	-250.54	-0.18	0.07	9.88	0.036	0.0223	.0112
48	52	53	491.84	0.35	0.37	19.42	0.036	0.0192	.0219
49	53	54	614.54	0.43	0.32	24.28	0.036	0.0183	.0274

50	54	55	709.94	0.50	0.56	28.09	0.036	0.0178	.0317
51	6	18	194.89	0.14	0.05	7.67	0.036	0.0237	.0087
52	18	27	285.99	0.20	0.06	11.26	0.036	0.0217	.0127
53	27	37	389.79	0.28	0.15	15.35	0.036	0.0202	.0173
54	37	51	625.09	0.44	0.64	24.64	0.036	0.0183	.0278
55	51	61	394.61	0.28	0.25	15.57	0.036	0.0202	.0176
56	61	68	667.51	0.47	0.47	26.37	0.036	0.0180	.0298
57	68	80	794.91	0.56	0.62	31.45	0.036	0.0174	.0355
58	80	81	880.71	0.62	0.63	34.91	0.035	0.0170	.0394
59	3	2	118.00	0.08	0.07	12.71	0.036	0.0237	.0144
60	16	3	92.50	0.07	0.15	9.96	0.036	0.0251	.0113
61	17	5	205.80	0.15	0.63	22.14	0.036	0.0208	.0250
62	26	17	117.50	0.08	0.23	12.63	0.036	0.0237	.0143
63	28	27	103.80	0.07	0.13	11.19	0.036	0.0244	.0126
64	19	8	89.80	0.06	0.13	9.68	0.036	0.0253	.0109
65	11	10	487.20	0.34	0.14	30.63	0.036	0.0183	.0346
66	20	11	465.10	0.33	0.68	29.21	0.036	0.0185	.0330
67	29	20	378.20	0.27	0.61	23.71	0.036	0.0193	.0268
68	38	29	256.30	0.18	1.07	27.52	0.036	0.0199	.0311
69	13	12	112.80	0.08	0.07	12.18	0.036	0.0240	.0138
70	21	13	90.00	0.06	0.12	9.72	0.036	0.0253	.0110
71	30	32	222.20	0.16	0.68	24.03	0.036	0.0205	.0271
72	39	30	122.40	0.09	0.26	13.22	0.036	0.0235	.0149
73	40	42	221.30	0.16	0.67	23.95	0.036	0.0205	.0271
	44	40	128.80	0.09	0.30	13.92	0.036	0.0232	.0157
75	64	65	218.60	0.15	0.81	23.70	0.036	0.0206	.0268
76	63	64	122.40	0.09	0.25	13.25	0.036	0.0235	.0150
77	72	73	105.90	0.07	0.05	11.50	0.035	0.0243	.0130
78	71	72	85.10	0.06	0.12	9.24	0.035	0.0257	.0104
79	87	88	120.80	0.09	0.07	13.15	0.035	0.0236	.0149
80	86	87	97.00	0.07	0.17	10.55	0.035	0.0249	.0119
81	62	70	232.80	0.16	0.84	25.22	0.036	0.0203	.0285
82	69	70	108.00	0.08	0.09	11.71	0.036	0.0242	.0132
83	70	83	340.80	0.24	0.25	21.54	0.036	0.0198	.0243
84	83	84	427.10	0.30	0.62	27.02	0.035	0.0188	.0305
85	77	78	87.60	0.06	0.13	9.51	0.035	0.0255	.0107
86	67	91	125.90	0.09	0.28	13.62	0.036	0.0233	.0154
87	91	75	206.60	0.15	0.60	22.38	0.036	0.0208	.0253
88	75	74	230.80	0.16	0.28	25.03	0.036	0.0203	.0283
89	60	59	127.90	0.09	0.29	13.81	0.036	0.0233	.0156
90	59	58	221.40	0.16	0.62	23.94	0.036	0.0205	.0270
91	58	57	272.40	0.19	0.34	29.49	0.036	0.0196	.0333
92	36	35	119.80	0.08	0.21	12.93	0.036	0.0236	.0146
93	35	34	213.90	0.15	0.68	23.12	0.036	0.0207	.0261
94	25	24	91.80	0.06	0.15	9.92	0.036	0.0252	.0112
95	88	92	5943.90	4.20	0.56	46.70	0.035	0.0138	.0527
THE COMPRESSOR (PUMP) IN LINE 96 OPERATES AT 31.63 (USU)									
96	92	93	5943.90	4.20	0.37	43.04	0.038	0.0138	.0486
97	93	0	5943.90	4.20	0.16	43.07	0.038	0.0138	.0486

47	W70	-55.20	-38.46	13.31	-1.39	0.036
48	W60	-96.00	-38.21	13.32	-1.38	0.036
49	W52	-133.70	-38.05	13.32	-1.37	0.036
50	W42	-269.60	-37.93	13.33	-1.37	0.036
51		0.00	-37.93	13.33	-1.37	0.036
52	W31	-241.30	-38.00	13.32	-1.37	0.036
53	W21	-122.70	-38.37	13.31	-1.38	0.036
54	W14	-95.40	-38.69	13.30	-1.40	0.036
55		0.00	-39.25	13.28	-1.42	0.036
56	W4	-31.00	-39.35	13.28	-1.42	0.036
57		0.00	-38.73	13.30	-1.40	0.036
58	W71	-51.00	-38.40	13.31	-1.39	0.036
59	W59	-93.50	-37.78	13.33	-1.36	0.036
60	W53	-127.90	-37.48	13.34	-1.35	0.036
61	W41	-272.90	-38.18	13.32	-1.38	0.036
62	W32	-232.80	-38.41	13.31	-1.39	0.036
63	W20	-122.40	-38.45	13.31	-1.39	0.036
64	W15	-96.20	-38.70	13.30	-1.40	0.036
65	W3	-21.10	-39.51	13.27	-1.43	0.035
66	W72	-59.40	-39.02	13.29	-1.41	0.036
67	W54	-125.90	-38.20	13.32	-1.38	0.036
68	W40	-127.40	-38.65	13.30	-1.39	0.036
69	W33	-108.00	-39.15	13.28	-1.41	0.036
70		0.00	-39.25	13.28	-1.42	0.036
71	W16	-85.10	-39.51	13.27	-1.43	0.035
72	W2	-20.80	-39.64	13.27	-1.43	0.035
73		0.00	-39.69	13.26	-1.43	0.035
74		0.00	-39.35	13.28	-1.42	0.036
75	W73	-24.20	-39.07	13.29	-1.41	0.036
76	W57	-46.50	-39.53	13.27	-1.43	0.035
77	W55	-87.60	-39.55	13.27	-1.43	0.035
78	W56	-24.10	-39.68	13.26	-1.43	0.035
79	W38	-22.80	-39.80	13.26	-1.44	0.035
80	W39	-85.80	-39.27	13.28	-1.42	0.036
81		0.00	-39.90	13.26	-1.44	0.035
82	W37	-26.80	-39.95	13.25	-1.44	0.035
83	W34	-86.30	-39.49	13.27	-1.42	0.035
84	W36	-24.10	-40.12	13.25	-1.45	0.035
85	W35	-26.30	-40.32	13.24	-1.45	0.035
86	W19	-97.00	-40.28	13.24	-1.45	0.035
87	W18	-23.80	-40.46	13.24	-1.46	0.035
88		0.00	-40.53	13.23	-1.46	0.035
89	W17	-24.70	-40.33	13.24	-1.46	0.035
90	W1	-38.70	-39.90	13.26	-1.44	0.035
91	W58	-80.70	-38.47	13.31	-1.39	0.036
92		0.00	-41.09	13.21	-1.48	0.035
93		0.00	-9.84	14.34	-0.35	0.038

THE NET SYSTEM DEMAND (USFU) = -5943.899
SUMMARY OF INFLOWS(+) AND OUTFLOWS(-)

PIPE NO.	FLOW (USFU)
97	-5943.9

MAXIMUM MACH NUMBER = .036 IN LINE NO. 95

SUMMARY OF MINIMUM AND MAXIMUM VELOCITIES (FT/S)

MINIMUMS		MAXIMUMS	
5	0.75	95	46.70
46	0.79	97	43.07
6	3.61	96	43.04

SUMMARY OF MINIMUM AND MAXIMUM LOSS/1000 (PSI)

MINIMUMS		MAXIMUMS	
46	0.00	91	0.14
5	0.00	68	0.12
6	0.00	65	0.10

SUMMARY OF MINIMUM AND MAXIMUM PRESSURES (USPU)

MINIMUMS		MAXIMUMS	
92	-41.09	93	-9.84
88	-40.53	38	-35.02
87	-40.46	26	-35.69

********** END OF THIS SIMULATION **********

SURFACE MONITORING DESIGN PLAN
FOR
TRAIL RIDGE LANDFILL
BALDWIN, FLORIDA

JUNE 1997

TABLE OF CONTENTS

1.0 INTRODUCTION

40 CFR 60.753(d) requires the landfill gas collection system be operated so that the methane concentration is less than 500 ppm above background at the surface of the landfill. This Surface Monitoring Design Plan specifies the monitoring procedures that will be used to meet NSPS requirement. This plan includes a topographical map with the monitoring route and specifies the monitoring procedures. Any deviations from the surface monitoring requirements as stated in the NSPS are contained in this plan.

2.0 AREAS MONITORED

After installation of the collection system, 40 CFR 60.755(c)(1) requires monitoring the surface of the collection area for methane. The NSPS requires monitoring along the entire perimeter of the collection area and along a serpentine pattern spaced 30 meters apart (or a site-specific established spacing) for each collection area on a quarterly basis.

Figure 1 is a topographical map of the completed facility showing the surface monitoring route. Once the landfill is filled and the collection system is complete, the surface monitoring route will be consistent with the route shown in Figure 1. Before the collection system is complete, the surface monitoring route will vary depending on the construction status of the landfill and collection system. A topographical map showing the current surface monitoring route will be maintained at the facility along with a copy of this plan once surface monitoring is required. The topography of the map will be updated periodically to reflect changes in the monitoring route. The surface monitoring route will be updated before the next quarterly monitoring event if the collection system was modified since the previous monitoring event such that a change in the monitoring route is required.

Areas which will be excluded from monitoring include:

- Active areas of the site. Active areas are those areas which only have daily and intermediate cover. Active areas of the landfill have a larger volume of equipment traffic which poses an unacceptable health and safety risk to an individual in the area.

- Areas that do not have the final cap in place. The collection system and an effective cover work in concert to control surface emissions. Without an effective cover in place, the collection system cannot be expected to effectively control surface emissions.

- Areas of the landfill with slopes equal to or greater than 4:1 (horizontal to vertical). These steep slopes present a safety hazard to the monitoring technician traversing them.

3.0 MONITORING FREQUENCY

Surface monitoring will normally occur on a quarterly basis. Monitoring will begin within the first quarter that the facility is required to have the collection system operating pursuant to the NSPS. The NSPS requires the collection system to be operating 30 months after the facility calculates that the NMOC rate exceeds 50 Mg/yr.

The monitoring instrument has a limited temperature operating range. Monitoring cannot be conducted when the temperature is outside the operating temperature range of the instrument. For example, a very reliable and popular instrument that meets the NSPS equipment specifications is the Model OVA 128 CENTURY Organic Vapor Analyzer, which has an operating temperature range of 10C to 40C (50°F to 104°F).

Monitoring will be rescheduled if it cannot be conducted because temperature conditions are outside the operating range of the instrument and/or other conditions (snow cover, rain storms, etc.) prevent monitoring. The monitoring event will be rescheduled as soon as practicable after the original scheduled date.

4.0 SURFACE MONITORING INSTRUMENT

The monitoring will be conducted with an organic vapor analyzer, flame ionization detector, or other portable monitor meeting the specifications in 40 CFR 60.755(d):

> The portable analyzer shall meet the instrument specifications provided in section 3 of Method 21 of appendix A of 40 CFR Part 60 (Method 21), except that "methane" shall replace all references to VOC.

To meet the performance evaluation requirements in section 3.1.3 of Method 21, the instrument evaluation procedures of section 4.4 of Method 21 shall be used. The performance evaluation results will be documented in an instrument logbook or on a form similar to the one shown in Table 1.

5.0 SURFACE MONITORING SURVEY

Immediately before commencing a surface monitoring survey, the instrument shall be calibrated per section 4.2 of Method 21. The calibration gas shall be methane, diluted to a nominal concentration of 500 parts per million in air. Calibrations will be documented in an instrument logbook or on a form similar to the one shown in Table 2.

The background concentration at the facility will be determined immediately prior to conducting the survey. The background concentration shall be determined by moving the probe inlet upwind outside the boundary of the landfill at least 30 meters from the perimeter wells. The background concentration, measurement location, and basic meteorological conditions will be recorded on Table 2. Other factors that can affect "background" should be noted and accounted for (such as a nearby landfill, highway, refinery, chemical plant, etc.).

Surface emission monitoring shall be performed in accordance with section 4.3.1 of Method 21, except that the probe inlet shall be placed within 5 to 10 centimeters of the ground approximately every 30 meters along the monitoring route. Monitoring will not be performed during extreme meteorological conditions.

Surface monitoring will be conducted around the perimeter of the collection area and the route shown on the topographic map. Areas where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover, will be monitored.

The landfill cover may include dense vegetation that is not mowed. An alternative surface monitoring procedure may be required because mowing the vegetation will have a negative impact on the cover integrity by increasing erosion and monitoring with the probe 5 to 10 cm above ground may not be possible. Either of the two options will be used depending the specific conditions encountered. The method(s) used should be noted on the monitoring form (Table 2).

Dense Vegetation Point Monitoring Method: As done elsewhere, monitoring in the dense vegetation may be done by placing the probe within 5 to 10 cm of the ground approximately every 30 meters along the monitoring route. Using the point monitoring method will allow the vegetation to be pushed aside temporarily while a reading is obtained.

Elevated Dense Vegetation Point Monitoring Method: Monitoring in the dense vegetation may be done by placing the probe as low as possible above the ground surface without encountering unreasonable resistance due to the vegetation. Unreasonable resistance may include, but is not limited to, entanglement within the vegetation. In no case will the probe be traversed at a height of more than 12 inches above the ground surface. Although the probe will be elevated, the dense vegetation will extend the boundary condition of the landfill surface which reduces the chance of the methane emissions from dissipating.

Any reading of 500 parts per million or more above background at any location shall be recorded as a monitored exceedence and the following actions shall be taken:

(I) The location of each monitored exceedence shall be marked and the location recorded. Table 3 is a form for documenting monitoring exceedence.

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

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

(iv) Any location that initially showed an exceedence but has a methane concentration less than 500 ppm methane above background at the 10-day re-monitoring specified in paragraph (c)(4) (ii) or (iii) of this section shall be re-monitored 1 month from the initial exceedence. 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 exceedence, the actions specified in paragraph (iii) or (v) shall be taken.

(v) For any location where monitored methane concentration equals or exceeds 500 parts per million above background three consecutive times within a quarterly period, a new

well or other collection device shall be installed within 120 calendar days of the initial exceedence. An alternative remedy to the exceedence, such as upgrading the blower, header pipes or control device, and a corresponding timeline for installation may be submitted to the Administrator for approval.

6.0 REDUCED MONITORING FREQUENCY FOR CLOSED LANDFILLS

Any closed landfill or closed section of an open landfill that has no monitored exceedences of the 500 ppm limit above background 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 to quarterly monitoring.

7.0 COVER INTEGRITY MONITORING

40 CFR 60.755(b)(5) requires a program to monitor for cover integrity and implement cover repairs as necessary on a monthly basis.

On a monthly basis facility personnel will conduct a site walk of the landfill to inspect the final cover. The inspector will look for signs of compromised cover integrity such as stressed vegetation, cracks, and erosion. The monthly inspection will be documented on the form in Table 4. Areas of compromised integrity will be noted on the inspection form. The appropriate facility personnel will be notified of the compromised areas so appropriate action can be taken.

TABLE 1
MONITORING INSTRUMENT PERFORMANCE EVALUATION
SURFACE MONITORING DESIGN PLAN

40 CFR 60.755(d)(3) requires performance evaluation of response factor, response time and calibration precision according to the section 4.4 of 40 CFR 60 Appendix A, Method 21. The requirements are presented below along with locations to record the evaluations.

Response Factor:

Response factor is the ratio of the known concentration of a VOC compound to the observed meter reading when measured using an instrument calibrated with the reference compound specified in the applicable regulation. Since the monitoring instrument is being used to detect methane and the calibration reference compound is methane, the response factor by definition is one. No further evaluation is required.

Response Time:

Response time is the time interval from a step change in VOC concentration at the input of the sampling system to the time at which 90 percent of the corresponding final value is reached as displayed on the instrument readout meter.

Performance Requirement: Section 3.1.2(b) of Method 21 requires the instrument response time to be equal to or less than 30 seconds.

Evaluation Frequency: Prior to placing instrument into service (for the first time or after it was out of service for maintenance or repair). If modification to the sample pumping system or flow configuration is made that would change the response time, a new test is required prior to further use.

Evaluation Procedure: (Section 4.4.3 of Method 21) Calibrate instrument with the methane calibration gas. Introduce zero gas into the instrument sample probe. When the meter reading has stabilized, switch quickly to the specified calibration gas. Measure the time from switching to when 90 percent of the final stable reading is attained. Perform this test sequence three time and record the results. Calculate the average response time. Use the form below or a similar format to document this procedure.

Date: _____
Operator Name: _____
Facility: _____
Instrument ID: _____
Calibration Gas Conc.: _____
90% of Calib. Gas Conc.: _____

TABLE 1 (CONT'D)
MONITORING INSTRUMENT PERFORMANCE EVALUATION
SURFACE MONITORING DESIGN PLAN

Trial No.	Time to reach 90% gas value
1	_____seconds
2	_____seconds
3	_____seconds
Average	_____seconds

Calibration Precision:

Calibration precision is the degree of agreement between measurements of the same known value, expressed as the relative percentage of the average difference between the meter readings and the known concentration to the known concentration.

Performance Requirement: The calibration precision must be equal to or less than 10 percent of the calibration gas value.

Evaluation Frequency: Must be completed prior to placing instrument into service, and at subsequent 3-month intervals or at the next use whichever is later.

Evaluation Procedure: (Section 4.4.2 of Method 21) Calibrate instrument with the methane calibration gas. Make a total of three measurements by alternately using zero gas and the specified calibration gas. Record the meter readings. Calculate the average algebraic difference between the meter readings and the known value. Divide this average difference by the known calibration value and multiply by 100 to express the resulting calibration precision as a percentage.

Date: _____
Operator Name: _____
Facility: _____
Instrument ID: _____
Calibration Gas Conc.: _____

Trial No.	Meter Reading After Zero Gas	Difference Between Calibration Gas and Meter Reading
1	_____ppm	_____ppm
2	_____ppm	_____ppm
3	_____ppm	_____ppm
	Average Difference:	_____ppm

Calibration Precision = Average Difference/Calibration Gas Conc. X 100%
= _____ / _____ X 100%
= _____%

TABLE 2
INSTRUMENT CALIBRATION AND MONITORING PROCEDURES
SURFACE MONITORING DESIGN PLAN

The calibration procedures in section 4.2 of 40 CFR 60 Appendix A, Method 21 must be conducted immediately before commencing a surface monitoring survey. [40 CFR 60.755(d)(4)] Calibration, background readings and monitoring details can be recorded using this form.

Calibration Procedure:

The calibration gas should be methane in air at a nominal concentration of 500 ppm. [See section 3.2 of Method 21 for further calibration gas requirements.]

Assemble and start up the analyzer according to the manufacturer's instructions. After the appropriate warm-up period and zero internal calibration procedure, introduce the calibration gas into the instrument sample probe. Adjust the instrument meter readout to correspond to the calibration gas value. Record the calibration information in the table below.

Background Concentration:

Determine the background concentration by moving the probe inlet upwind outside the boundary of the landfill at a distance of at least 30 meters from the perimeter wells. Record the background concentration and location in the table below.

General Information:

Date: _____
Operator Name: _____
Facility: _____
Instrument ID: _____
Wind Direction: N NE E SE S SW W NW (circle one)
Approximate Wind Speed _____mph
General Weather: _____ °F,
clear, partly cloudy, overcast, _____ (circle one or write in)
no precip., drizzle, rain, snow, _____ (circle one or write in)

Calibration Information:

Calibration Gas Conc.: _____ppm
Conduct internal zero calibration? Yes No (circle one)
Instrument reading after calibration: _____ppm (should be same as above)
Time of Calibration: ___:___ am pm (fill in and pick one)

TABLE 2 (CONT'D)
INSTRUMENT CALIBRATION AND MONITORING PROCEDURES
SURFACE MONITORING DESIGN PLAN

Background Concentration Information:

Background concentration upwind of site: _____ppm

Location of background reading: _____
(Describe, ex: North end of Area 1,
100 feet north of gas well No. B13) _____

Monitoring Procedure Used:

If either of the following alternative monitoring procedures were used, please indicate which were used and where:

Elevated Dense Vegetation Method Used? Yes No (circle one) If yes, where used: _____

Dense Vegetation Point Monitoring Method Used? Yes No (circle one) If yes, where used:

TABLE 3
INDIVIDUAL MONITORING EXCEEDANCE
SURFACE MONITORING DESIGN PLAN

Use this form to record an individual monitoring exceedance and follow-up monitoring activities. This form is only used when a reading of 500 ppm above background is encountered during the surface monitoring. Use a separate form for each initial exceedance.

Initial Monitoring Exceedance:

Date: _____ Time:_____am pm Monitoring Technician Initials:_____
Instrument reading - Background reading: _____ppm - _____ppm = _____ppm

Location of monitored exceedance (include description of field marker used):_____
_____

Describe cover maintenance or adjustments to the vacuum of adjacent wells to increase gas collection in vicinity of measured exceedance before remonitoring in 10 days:_____
_____

Remonitor location within 10 calendar days of initial exceedance:

Date: _____ Time:_____am pm Monitoring Technician Initials:_____
Instrument reading - Background reading: _____ppm - _____ppm = _____ppm

If 10 day remonitoring shows an exceedance, describe additional corrective action taken before remonitoring again within 10 days:_____
_____

If the 10 day remonitoring is <500 ppm, remonitor 1 month from initial exceedance:
Date: _____ Time:_____am pm Monitoring Technician Initials:_____
Instrument reading - Background reading: _____ppm - _____ppm = _____ppm

If the 1 month remonitoring is <500 ppm, resume normal quarterly monitoring.
If the 1 month remonitoring shows an exceedance, describe additional corrective action taken before remonitoring again within 10 days:_____
_____

Remonitor location within 10 calendar days of 2nd exceedance:

Date: _____ Time:_____am pm Monitoring Technician Initials:_____
Instrument reading - Background reading: _____ppm - _____ppm = _____ppm

TABLE 3 (CONT'D)
INDIVIDUAL MONITORING EXCEEDANCE
SURFACE MONITORING DESIGN PLAN

If the 10 day remonitoring is <500 ppm, remonitor 1 month from initial exceedance:
Date: _____ Time:_____am pm Monitoring Technician Initials:_____
Instrument reading - Background reading: _____ppm - _____ppm = _____ppm

If the 1 month remonitoring is <500 ppm, resume normal quarterly monitoring.
If the 1 month remonitoring shows an exceedance, describe additional corrective action taken before remonitoring again within 10 days:_____

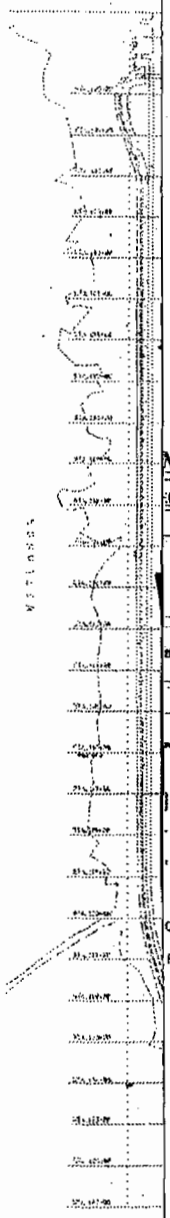
_____

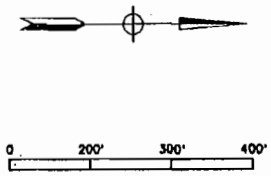
(use additional forms if necessary)*

*If remonitoring shows 3 consecutive exceedances within a quarterly period a new well or other collection device must be installed within 120 days of initial exceedance or alternative remedies/timelines may be submitted to the Administrator for approval. Further monitoring is not necessary until the remedy is completed.

TABLE 4
MONTHLY COVER INTEGRITY INSPECTION
SURFACE MONITORING DESIGN PLAN

Month	Inspection Date	Inspector's Initials	Cover Integrity Problems Found During Inspection
January	___/___/___		
February	___/___/___		
March	___/___/___		
April	___/___/___		
May	___/___/___		
June	___/___/___		
July	___/___/___		
August	___/___/___		
September	___/___/___		
October	___/___/___		
November	___/___/___		
December	___/___/___		





ND

PROPOSED CONTOUR

PAVED DITCH

℄ OF DITCH

ROADWAY

18' BERM

TERRACE

DOWNCOMER PIPE

GAS HEADER

GAS WELLS

BLOWER(S), FLARE(S), EMISSION POINT(S)

CONDENSATE FORCEMAIN

CONDENSATE GRAVITY DRAIN

UNDERGROUND CONTROL VALVE

CONDENSATE KNOCKOUT

PUMP STATION

NOTES

1. LEACHATE RISER PIPES AND CLEANOUTS TO BE FIELD LOCATED.
2. THE EXISTING PASSIVE GAS WELLS WITHIN THE LANDFILL ARE NOT SHOWN ON THE DRAWING AND WILL ULTIMATELY BE ABANDONED.
3. LANDFILL GAS MANAGEMENT SYSTEM ALIGNMENT, LOCATION, DETAILS AND NUMBER AND LOCATIONS OF EXTRACTION WELLS MAY CHANGE DUE TO SITE CONDITIONS AT THE TIME OF CONSTRUCTION.
4. LOCATION AND INSTALLATION OF THE PROPOSED GAS EXTRACTION WELLS, HEADER AND LATERAL ALIGNMENT, AND LIQUID MANAGEMENT FACILITIES MAY VARY TO ACCOMODATE LANDFILL FIELD SLOPE.
5. MINIMUM ACCEPTABLE COLLECTION HEADER AND LATERAL PIPELINE SLOPE IS THREE PERCENT (3%) WHEN LOCATED IN WASTE DISPOSAL AREAS.
6. MINIMUM ACCEPTABLE COLLECTION HEADER AND LATERAL PIPELINE SLOPE IS ONE PERCENT (1%) WHEN LOCATED OUT OF WASTE DISPOSAL AREAS.
7. ON SIDESLOPES (OF 3:1), MONITORING ROUTE WILL FOLLOW THE DRAINAGE TERRACES FOR SAFETY REASONS. ROUTE TO BE LOCATED 100 FEET (30 METERS) APART ON ALL OTHER AREAS.
8. SURFACE MONITORING READINGS WILL BE TAKEN EVERY 100 FEET (30 METERS) ALONG MONITORING ROUTE.
9. MONITORING ROUTE SHOWN IS FOR THE COMPLETED FACILITY. BEFORE COLLECTION SYSTEM IS COMPLETE, THE SURFACE MONITORING ROUTE WILL VARY DEPENDING UPON THE CONSTRUCTION PHASE OF THE LANDFILL AND COLLECTION SYSTEM.

REV	DATE	DESCRIPTION	DES BY	APP BY

PROJECT NO	40153
DATE	NOVEMBER 1998
DES BY	
DRN BY	
CHK BY	
APP BY	

TRAIL RIDGE LANDFILL - PERMIT RENEWAL
FOR
TRAIL RIDGE LANDFILL, INC.

FIGURE 1
SURFACE MONITORING ROUTE PLAN

Trail Ridge Landfill, Inc.

SHEET ____ OF ____
DRAWING NO

0153GSFG.DGN

APPENDIX A
40 CFR 60 Appendix A, Method 21

Method 21--Determination of Volatile Organic Compounds Leaks

1. Applicability and Principle

1.1 Applicability. This method applies to the determination of volatile organic compound (VOC) leaks from process equipment. These sources include, but are not limited to, valves, flanges and other connections, pumps and compressors, pressure relief devices, process drains, open-ended valves, pump and compressor seal system degassing vents, accumulator vessel vents, agitator seals, and access door seals.

1.2 Principle. A portable instrument is used to detect VOC leaks from individual sources. The instrument detector type is not specified, but it must meet the specifications and performance criteria contained in Section 3. A leak definition concentration based on a reference compound is specified in each applicable regulation. This procedure is intended to locate and classify leaks only, and is not to be used as a direct measure of mass emission rates from individual sources.

2. Definitions

2.1 Leak Definition Concentration. The local VOC concentration at the surface of a leak source that indicates that a VOC emission (leak) is present. The leak definition is an instrument meter reading based on a reference compound.

2.2 Reference Compound. The VOC species selected as an instrument calibration basis for specification of the leak definition concentration. (For example: If a leak definition concentration is 10,000 ppmv as methane, then any source emission that results in a local concentration that yields a meter reading of 10,000 on an instrument calibrated with methane would be classified as a leak. In this example, the leak definition is 10,000 ppmv, and the reference compound is methane.)

2.3 Calibration Gas. The VOC compound used to adjust the instrument meter reading to a known value. The calibration gas is usually the reference compound at a concentration approximately equal to the leak definition concentration.

2.4 No Detectable Emission. Any VOC concentration at a potential leak source (adjusted for local VOC ambient concentration) that is less than a value corresponding to the instrument readability specification of section 3.1.1(c) indicates that a leak is not present.

2.5 Response Factor. The ratio of the known concentration of a VOC compound to the observed meter reading when measured using an instrument calibrated with the reference compound specified in the application regulation.

2.6 Calibration Precision. The degree of agreement between measurements of the same known

value, expressed as the relative percentage of the average difference between the meter readings and the known concentration to the known concentration.

2.7 Response Time. The time interval from a step change in VOC concentration at the input of the sampling system to the time at which 90 percent of the corresponding final value is reached as displayed on the instrument readout meter.

3. Apparatus

3.1 Monitoring Instrument.

3.1.1 Specifications.

a. The VOC instrument detector shall respond to the compounds being processed. Detector types which may meet this requirement include, but are not limited to, catalytic oxidation, flame ionization, infrared absorption, and photoionization.

b. Both the linear response range and the measurable range of the instrument for each of the VOC to be measured, and for the VOC calibration gas that is used for calibration, shall encompass the leak definition concentration specified in the regulation. A dilution probe assembly may be used to bring the VOC concentration within both ranges; however, the specifications for instrument response time and sample probe diameter shall still be met.

c. The scale of the instrument meter shall be readable to $\pm$ 2.5 percent of the specified leak definition concentration when performing a no detectable emission survey.

d. The instrument shall be equipped with an electrically driven pump to insure that a sample is provided to the detector at a constant flow rate. The nominal sample flow rate, as measured at the sample probe tip, shall be 0.10 to 3.0 liters per minute when the probe is fitted with a glass wool plug or filter that may be used to prevent plugging of the instrument.

e. The instrument shall be intrinsically safe as defined by the applicable U.S.A. standards (e.g., National Electric Code by the National Fire Prevention Association) for operation in any explosive atmospheres that may be encountered in its use. The instrument shall, at a minimum, be intrinsically safe for Class 1, Division 1 conditions, and Class 2, Division 1 conditions, as defined by the example Code. The instrument shall not be operated with any safety device, such as an exhaust flame arrestor, removed.

f. The instrument shall be equipped with a probe or probe extension for sampling not to exceed 1/4 in. in outside diameter, with a single end opening for admission of sample.

3.1.2 Performance Criteria.

(a) The instrument response factors for each of the VOC to be measured shall be less than 10. When no instrument is available that meets this specification when calibrated with the reference VOC specified in the applicable regulation, the available instrument may be calibrated with one of

manufacturer's instructions. After the appropriate warmup period and zero internal calibration procedure, introduce the calibration gas into the instrument sample probe. Adjust the instrument meter readout to correspond to the calibration gas value.
Note: If the meter readout cannot be adjusted to the proper value, a malfunction of the analyzer is indicated and corrective actions are necessary before use.

4.3 Individual Source Surveys.

4.3.1 Type I--Leak Definition Based on Concentration. Place the probe inlet at the surface of the component interface where leakage could occur. Move the probe along the interface periphery while observing the instrument readout. If an increased meter reading is observed, slowly sample the interface where leakage is indicated until the maximum meter reading is obtained. Leave the probe inlet at this maximum reading location for approximately two times the instrument response time. If the maximum observed meter reading is greater than the leak definition in the applicable regulation, record and report the results as specified in the regulation reporting requirements. Examples of the application of this general technique to specific equipment types are:

a. Valves--The most common source of leaks from valves is at the seal between the stem and housing. Place the probe at the interface where the stem exits the packing gland and sample the stem circumference. Also, place the probe at the interface of the packing gland take-up flange seat and sample the periphery. In addition, survey valve housings of multipart assembly at the surface of all interfaces where a leak could occur.

b. Flanges and Other Connections--For welded flanges, place the probe at the outer edge of the flange-gasket interface and sample the circumference of the flange. Sample other types of nonpermanent joints (such as threaded connections) with a similar traverse.

c. Pumps and Compressors--Conduct a circumferential traverse at the outer surface of the pump or compressor shaft and seal interface. If the source is a rotating shaft, position the probe inlet within 1 cm of the shaft-seal interface for the survey. If the housing configuration prevents a complete traverse of the shaft periphery, sample all accessible portions. Sample all other joints on the pump or compressor housing where leakage could occur.

d. Pressure Relief Devices--The configuration of most pressure relief devices prevents sampling at the sealing seat interface. For those devices equipped with an enclosed extension, or horn, place the probe inlet at approximately the center of the exhaust area to the atmosphere.

e. Process Drains--For open drains, place the probe inlet at approximately the center of the area open to the atmosphere. For covered drains, place the probe at the surface of the cover interface and conduct a peripheral traverse.

f. Open-Ended Lines or Valves--Place the probe inlet at approximately the center of the opening to the atmosphere.

g. Seal System Degassing Vents and Accumulator Vents--Place the probe inlet at approximately

the center of the opening to the atmosphere.

h. Access Door Seals--Place the probe inlet at the surface of the door seal interface and conduct a peripheral traverse.

4.3.2 Type II--"No Detectable Emission".

Determine the local ambient concentration around the source by moving the probe inlet randomly upwind and downwind at a distance of one to two meters from the source. If an interference exists with this determination due to a nearby emission or leak, the local ambient concentration may be determined at distances closer to the source, but in no case shall the distance be less than 25 centimeters. Then move the probe inlet to the surface of the source and determine the concentration described in 4.3.1. The difference between these concentrations determines whether there are no detectable emissions. Record and report the results as specified by the regulation.

For those cases where the regulation requires a specific device installation, or that specified vents be ducted or piped to a control device, the existence of these conditions shall be visually confirmed. When the regulation also requires that no detectable emissions exist, visual observations and sampling surveys are required. Examples of this technique are:

(a) Pump or Compressor Seals--If applicable, determine the type of shaft seal. Preform a survey of the local area ambient VOC concentration and determine if detectable emissions exist as described above.

(b) Seal System Degassing Vents, Accumulator Vessel Vents, Pressure Relief Devices--If applicable, observe whether or not the applicable ducting or piping exists. Also, determine if any sources exist in the ducting or piping where emissions could occur prior to the control device. If the required ducting or piping exists and there are no sources where the emissions could be vented to the atmosphere prior to the control device, then it is presumed that no detectable emissions are present. If there are sources in the ducting or piping where emissions could be vented or sources where leaks could occur, the sampling surveys described in this paragraph shall be used to determine if detectable emissions exist.

4.3.3 Alternative Screening Procedure. A screening procedure based on the formation of bubbles in a soap solution that is sprayed on a potential leak source may be used for those sources that do not have continuously moving parts, that do not have surface temperatures greater than the boiling point or less than the freezing point of the soap solution, that do not have open areas to the atmosphere that the soap solution cannot bridge, or that do not exhibit evidence of liquid leakage. Sources that have these conditions present must be surveyed using the instrument techniques of 4.3.1 or 4.3.2.

Spray a soap solution over all potential leak sources. The soap solution may be a commercially available leak detection solution or may be prepared using concentrated detergent and water. A pressure sprayer or a squeeze bottle may be used to dispense the solution. Observe the potential leak sites to determine if any bubbles are formed. If no bubbles are observed, the source is

presumed to have no detectable emissions or leaks as applicable. If any bubbles are observed, the instrument techniques of 4.3.1 or 4.3.2 shall be used to determine if a leak exists, or if the source has detectable emissions, as applicable.

4.4 Instrument Evaluation Procedures. At the beginning of the instrument performance evaluation test, assemble and start up the instrument according to the manufacturer's instructions for recommended warmup period and preliminary adjustments.

4.4.1 Response Factor. Calibrate the instrument with the reference compound as specified in the applicable regulation. For each organic species that is to be measured during individual source surveys, obtain or prepare a known standard in air at a concentration of approximately 80 percent of the applicable leak definition unless limited by volatility or explosivity. In these cases, prepare a standard at 90 percent of the saturation concentration, or 70 percent of the lower explosive limit, respectively. Introduce this mixture to the analyzer and record the observed meter reading. Introduce zero air until a stable reading is obtained. Make a total of three measurements by alternating between the known mixture and zero air. Calculate the response factor for each repetition and the average response factor.

Alternatively, if response factors have been published for the compounds of interest for the instrument or detector type, the response factor determination is not required, and existing results may be referenced. Examples of published response factors for flame ionization and catalytic oxidation detectors are included in Bibliography.

4.4.2 Calibration Precision. Make a total of three measurements by alternately using zero gas and the specified calibration gas. Record the meter readings. Calculate the average algebraic difference between the meter readings and the known value. Divide this average difference by the known calibration value and multiply by 100 to express the resulting calibration precision as a percentage.

4.4.3 Response Time. Introduce zero gas into the instrument sample probe. When the meter reading has stabilized, switch quickly to the specified calibration gas. Measure the time from switching to when 90 percent of the final stable reading is attained. Perform this test sequence three times and record the results. Calculate the average response time.

5. Bibliography

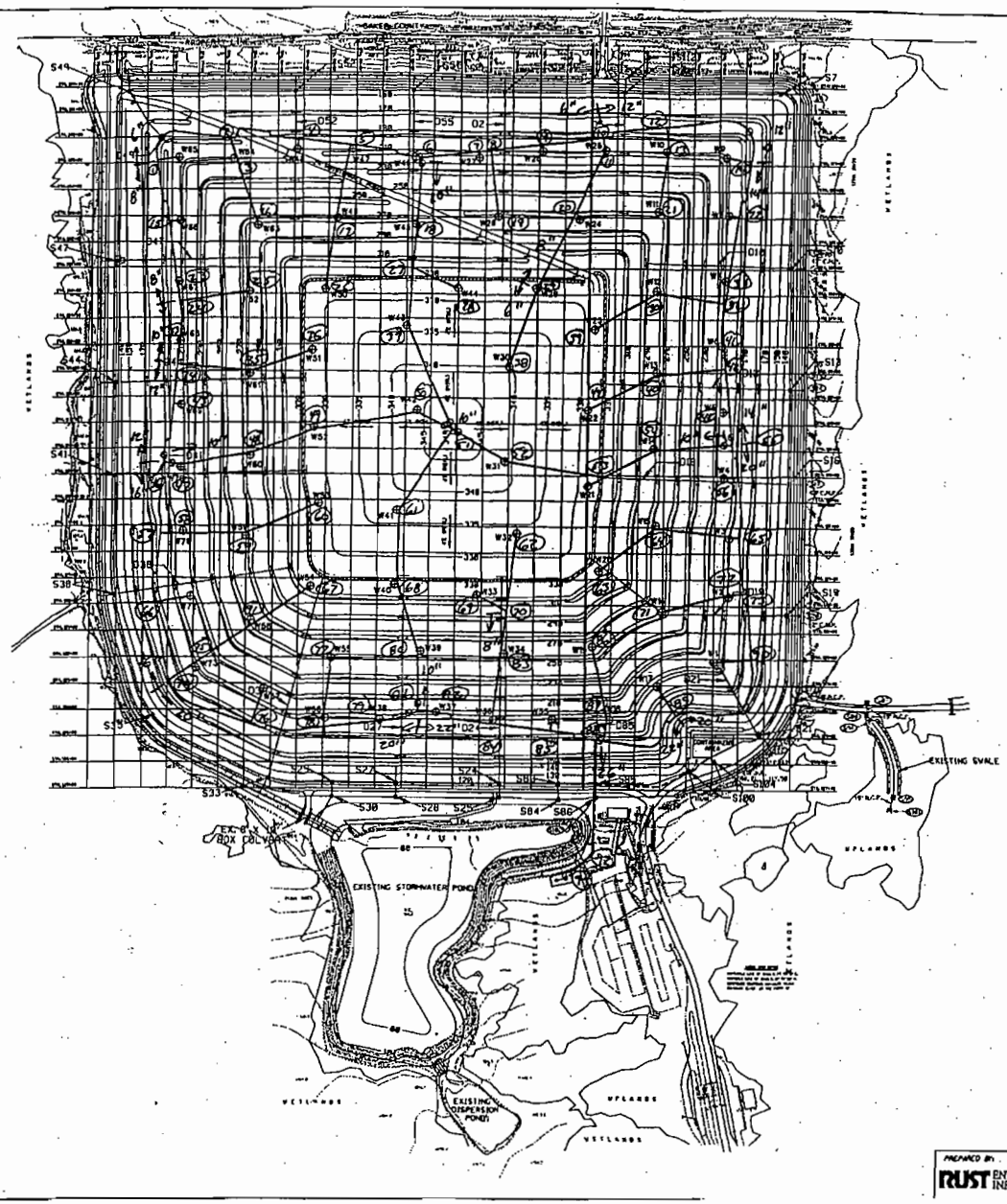
1. DuBose, D.A., and G.E. Harris. Response Factors of VOC Analyzers at a Meter Reading of 10,000 ppmv for Selected Organic Compounds. U.S. Environmental Protection Agency, Research Triangle Park, NC. Publication No. EPA 600/2-81-051. September 1981.

2. Brown, G.E., et al. Response Factors of VOC Analyzers Calibrated with Methane for Selected Organic Compounds. U.S. Environmental Protection Agency, Research Triangle Park, NC. Publication No. EPA 600/2-81-022. May 1981.

3. DuBose, D.A., et al. Response of Portable VOC Analyzers to Chemical Mixtures. U.S. Environmental Protection Agency, Research Triangle Park, NC. Publication No. EPA 600/2-81-

110. September 1981.

BEST AVAILABLE COPY



GRAPHIC SCALE

LEGEND

EXISTING | PROPOSED

- PROPOSED CONTOUR
- DRAINAGE STRUCTURE
- PAVED DITCH
- ℄ OF DITCH
- ROADWAY
- 18' BERM
- TERRACE
- DOWNCOMER PIPE
- GAS HEADER
- ⊕ W28 GAS WELLS
- BLOWER FLARE
- CONDENSATE FORCEMAIN
- UNDERGROUND CONTROL VALVE

(39) NODE # USED IN KY GAS PROGRAM TO SIZE HEADER PIPE

* ALL PIPES ARE 6" DIA. UNLESS OTHERWISE SPECIFIED.

REV	DATE	DESCRIPTION	DES BY	APP BY
PROJECT NO	4883	TRAIL RIDGE LANDFILL - PERMIT RENEWAL FOR TRAIL RIDGE LANDFILL INC.		
DATE	NOVEMBER 1999			
DES BY				
DRN BY				
CHK BY				
APP BY				

PREPARED BY: RUST ENVIRONMENT & INFRASTRUCTURE

GAS MANAGEMENT PLAN

SHEET 1 OF 5

DRAWING NO P1

Florida Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

February 26, 2009

Trail Ridge
Duval County

Mr. Scott Salisbury
Trail Ridge Energy, LLC
29261 Wall Street
Wixom, Michigan 48393

Dear Mr. Salisbury:

Enclosed is the Department's order approving Trail Ridge Energy's request for an alternate testing procedure to demonstrate compliance with PM_{10} emission limits. This order is in response to Trail Ridge Energy's request to utilize a combination of EPA Methods 5 and 202 in lieu of EPA Method 201 to determine compliance with PM_{10} limits on one of the six landfill gas-fired engines at the Trail Ridge municipal solid waste landfill in Baldwin, Florida. Trail Ridge Energy proposed to count all particulates collected (both filterable and condensable) from the combined sampling train as PM_{10} emissions.

The Department considers a combination of Methods 5/202 to be an acceptable alternative to EPA Method 201 for the measurement of PM_{10} based on the justifications provided. If you have any questions regarding this order, please call me at 850/921-9511

Sincerely,

Michael Pacione
Environmental Specialist II
Emissions Monitoring Section
Bureau of Air Monitoring
and Mobile Sources

/MP

Enclosure

cc: Chris Kirts, DEP Northeast District
Trina Vielhauer, DARM

RECEIVED

MAR 2 2009

NORTHEAST DISTRICT
DEP-JACKSONVILLE

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

In the matter of: Permit No. 0310358-010-AV

Trail Ridge Energy, LLC

Petitioner) File No. 09-B-AP

ORDER ON REQUEST
FOR
ALTERNATE PROCEDURES AND REQUIREMENTS

Pursuant to Rule 62-297.620, Florida Administrative Code (F.A.C.), Trail Ridge Energy, LLC has petitioned for approval of an alternate sampling procedure for determining emissions of particulate matter smaller than 10 microns (PM_{10}) from one of the six landfill gas-fired engines at the municipal solid waste landfill facility located in Baldwin, Florida. Petitioner has requested approval for the use of a combination EPA Methods 5/202 sampling train in lieu of EPA Method 201, as required by Petitioner's permit. The basis for this request is the Petitioner's assertion that the EPA Method 201 sampling apparatus will exceed the maximum area blockage allowed by the method. Additionally, the Petitioner asserts that the elevated temperatures and relatively high moisture characteristics of the engine exhaust gases are not amicable with Method 201 testing.

Having considered Petitioner's written request and all supporting documentation, the following Findings of Fact, Conclusions of Law, and Order are entered:

FINDINGS OF FACT

1. Units 004-009 at the Trail Ridge Energy municipal solid waste landfill facility are landfill gas-fired internal combustion engines used for the generation of a total of up to 9.6 megawatts of power. Emissions of PM_{10} are a by-product of this combustion.

2. Petitioner is required by its operating permit to conduct annual testing on one of the six engines using EPA Method 201 to determine PM_{10} emissions.

3. EPA Method 201 utilizes a small cyclone and an exhaust gas recirculation (EGR) apparatus at the probe tip to separate the PM_{10} fraction from the total particulates in the exhaust gas stream. Method 201 states that the blockage effects of the EGR apparatus will be minimal if the cross sectional area of the sampling assembly is less than or equal to 3 percent of the cross sectional area of the duct.

4. On February 11, 2009, the Department received Petitioner's request to use a combined EPA Method 5/202 sampling train for PM_{10} measurement for the initial performance test on one of the six engines in lieu of EPA Method 201.

5. As justification for the alternate testing procedure, Petitioner cited the potential for flow interference by the EGR apparatus due to the small diameter of the exhaust stack. It has been determined that the cross sectional area of the sampling assembly exceeds 3 percent of the cross sectional area of the 18-inch diameter stack and, as noted in Method 201, has the potential to cause excessive blockage of the exhaust gas stream.

6. Petitioner proposes to combine filterable PM emissions collected by the Method 5 portion of the sample train and condensable PM emissions collected by the Method 202 portion and count all collected particulate as PM_{10}. It is generally accepted that this sampling technique results in a more conservative estimate of PM_{10} emissions than that based on Method 201.

CONCLUSIONS OF LAW

1. The Department has jurisdiction to consider Petitioner's request pursuant to Section 403.061, Florida Statutes (F.S.), and Rule 62-297.620, F.A.C.

2. Petitioner has provided reasonable assurance that this alternate sampling procedure is necessary and will produce acceptable results. The Department's conclusion is based upon review and comparison of both test methods, discussion with the district office, and professional experience with EPA Methods 5, 201, and 202.

ORDER

Having considered Petitioner's written request and supporting documentation, it is hereby ordered that:

1. In lieu of EPA Method 201, Petitioner may utilize a combination of EPA Methods 5 and 202 to determine PM_{10} emissions from the landfill gas-fired engines at the Trail Ridge Energy municipal solid waste landfill facility in Baldwin.

2. This Order shall not abrogate Petitioner's obligation to comply with any monitoring requirements established pursuant to the provisions of the federal Clean Air Act (42 USC 1857, et seq) as amended in 1990.

PETITION FOR ADMINISTRATIVE REVIEW

The Department's Proposed Agency Action will become final upon expiration of the petition period described below unless a timely petition for an Administrative Hearing is filed pursuant to Sections 120.569 and 120.57, F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below.

A person whose substantial interests are affected by the Proposed Agency Action may petition for an Administrative Proceeding (hearing) under Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within 21 days of

receipt of this Notice of Intent. Petitions filed by any persons other than those entitled to written notice under Section 120.60(3), F.S., must be filed within 21 days of publication of the Public Notice or within 21 days of receipt of this notice, whichever occurs first. Under Section 120.60(3), F.S., however, any person who asked the Department for Notice of Agency Action may file a petition within 21 days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an Administrative Determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a Motion in Compliance with Rule 28-106.205, F.A.C.

A petition that disputes the material facts on which the Department's action is based must contain the following information:

(a) The name and address of each agency affected and each agency's file or identification number, if known;

(b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination;

(c) A statement of how and when petitioner received notice of the agency action or proposed action;

(d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate;

(e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action;

(f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and

(g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

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

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

Mediation is not available in this proceeding.

NOTICE OF APPEAL RIGHTS

Any party to this order has the right to seek judicial review of it under Section 120.68, F.S., by filing a Notice of Appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the Clerk of the Department of Environmental Protection in the Office of General Counsel, Mail Station 35, 3900

Commonwealth Boulevard, Tallahassee, Florida, 32399-3000, and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate district court of appeal. The notice must be filed within 30 days after this order is filed with the clerk of the Department.

DONE AND ORDERED this 26TH day of FEBRUARY, 2009 in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

Joseph Kahn, Director
Division of Air Resource Management
Mail Station 5500
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400
(850) 488-0114

Clerk Stamp

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

Martha Jane Wise 2/26/09
(Clerk) (Date)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, NC 27711

JUL 2 1 2010

OFFICE OF
AIR QUALITY PLANNING
AND STANDARDS

Howard Schiff
TRC Companies Inc.
650 Suffolk Street
Wannalancit Mills
Lowell, MA 01854

Dear Mr. Schiff:

In an alternative methods approval letter dated February 25, 2010, we granted Derenzo & Associates permission to use the TECO Model 55C analyzer in place of Method 18 to measure methane from internal combustion engines subject to 40 CFR Part 60, Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines. You brought to our attention that the proposed analyzer more appropriately measures non-methane organics and should be allowed as an alternative to the "cutter" analyzers already allowed by the regulation.

We see your point and appreciate your bringing it to our attention. This letter grants approval to use the TECO Model 55C analyzer to measure non-methane organic compounds from Subpart JJJJ engines. The analyzer may also be used by others at other Subpart JJJJ engines. We will announce this as broadly applicable to all stationary spark ignition combustion engines on EPA's web site (at http://www.epa.gov/ttn/emc/tmethods.html#CatB).

If you need further assistance, please contact Foston Curtis at (919) 541-1063 or Gary McAlister at (919) 541-1062.

Sincerely,

Conniesue B. Oldham, Ph.D., Group Leader
Measurement Technology Group

cc: Michael Brack, Derenzo & Associates
Foston Curtis, E143-02
Gary McAlister E143-02

Table 1-1, Summary of Air Pollutant Standards and Terms

City of Jacksonville
Trail Ridge Energy Plant

FINAL Permit No.: 0310358-013-AV
Facility ID No.: 0310358

This table summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.

E.U. ID No.	Brief Description
EU004-009	(6) CAT G3520C Engines
EU012-015	(4) CAT G3520C Engines

			Allowable Emissions			Equivalent Emissions*			
Pollutant Name**	Fuel(s)	Hours/Year	Standard(s)	lbs./hour	TPY	lbs./hour	TPY	Regulatory Citation(s)	See permit condition(s)
Visible Emissions		8760	<10% Opacity						III.E.16.
NOx			0.6 g/bhp-hr	3.0	12.9				III.E.10.
CO			3.5 g/bhp-hr	17.2	75.3				III.E.11.
PM10 ***			0.24 g/bhp-hr	1.2	5.1				III.E.12
VOC			0.28 g/bhp-hr	1.4	6				III.E.13.
HCl			5.9 lb/MMscf		0.9				III.E.15.
SO_2 (all engines)					41.6				III.E.14.

Notes:
* The "Equivalent Emissions" listed are for informational purposes only.

****Applicable to each engine except for SO_2**

*****Expected maximum emissions. Emissions of PM/PM10 shall be minimized by the following work practice standards: installing, maintaining and operating the LFG Treatment System that meets the filtration specification; the firing of diesel/biodiesel that meets the maximum sulfur specification; and, as determined by EPA Method 9, visible emissions from each engine exhaust shall not exceed 10% opacity.**

Table 2-1, Summary of Compliance Requirements

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

FINAL Permit No.: 0310358-013-AV
Facility ID No.: 0310358

This table summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.

E.U. ID No.	Brief Description
EU001	Muncipal Solid Waste Landfill

Pollutant Name or Parameter	Fuel(s)	Compliance Method	Testing Time Frequency	Frequency Base Date *	Min. Compliance Test Duration	CMS**	See permit condition(s)
Well Temp		Monitoring	Monthly				III.A.11.
Well Pressure		Monitoring	Monthly				III.A.11.
Well O2 or N2		Monitoring	Monthly				III.A.11.
Surface Methane		Scanning	Quarterly/Annually				III.A.12.

* The frequency base date is established for planning purposes only; see Rule 62-297.310, F.A.C.

**CMS [=] continuous monitoring system

Appendix H-1, Permit History/ID Number Changes

City of Jacksonville
Trail Ridge Municipal Solid Waste Landfill

FINAL Title V Operation Permit No.: 0310358-013-AV
Facility ID No.: 0310358

E.U. ID No.	Description	Permit No.	Effective Date	Expiration Date	Project Type
001	Municipal Solid Waste Landfill Open 2,800 scfm open Flare	0310358-001-AC	February 7, 1997	July 31, 1998	Construction
001 002 003	Municipal Solid Waste Landfill Open 2,800 scfm Flare Fugitive Emissions Diesel and Leachate Storage Tanks	0310358-002-AV	August 9, 1999	August 31, 2003	Initial Title V
001 002 003	Municipal Solid Waste Landfill Open 2,800 (now 3,100 scfm) Flare Fugitive Emissions Diesel and Leachate Storage Tanks	0310358-003-AV	May 3, 2004	August 31, 2008	Renewal Title V
004-009	(6) Reciprocating Internal Combustion Engines (Engine Plant)	0310358-004-AC	December 11, 2006	October 1, 2008	Construction
010	5,000 scfm open Flare	0310358-005-AC	November 1, 2006	March 30, 2008	Construction
001 002 003	Municipal Solid Waste Landfill Open 2,800 (now 3,100 scfm) Flare Fugitive Emissions Diesel and Leachate Storage Tanks	0310358-006-AV	December 4, 2006	August 31, 2008	Administrative Correction
011	1,600 scfm (de-rated) open flare	0310358-007-AC	March 2, 2010	March 2, 2011	Construction
004-009	(6) Reciprocating Internal Combustion Engines (Engine Plant)	0310358-008-AC	May 2, 2008	October 1, 2009	Time Extension of Permit No. 0310358-004-AC

Appendix H-1, Permit History/ID Number Changes

City of Jacksonville
Trail Ridge Municipal Solid Waste Landfill

FINAL Title V Operation Permit No.: 0310358-013-AV
Facility ID No.: 0310358

011	1,600 scfm (de-rated) open flare	0310358-009-AV	May 10, 2010	May 10, 2015	Title V Permit Revision to incorporate Construction Permit No. 0310358-007-AC. Will be incorporated in Title V Renewal, i.e. issued under No. 0310358-010-AV
001 002 004-009 010 011	Municipal Solid Waste Landfill Fugitive Emissions (6) Reciprocating Internal Combustion Engines (Engine Plant) 5,000 scfm open Flare 1,600 scfm (de-rated) open flare	0310358-010-AV	May 10, 2010	May 10, 2015	Title V Renewal
004-009	(6) Reciprocating Internal Combustion Engines (Engine Plant)	0310358-011-AC	January 22, 2009	October 1, 2009	Permit Revision to Construction permit No. 0310358-004-AC
004-009 and 012-015	Add (4)Reciprocating Internal Combustion Engines (Engine Plant) & Revise CO BACT	0310358-012-AC	September 28, 2011	October 1, 2016	Permit Revision to Construction permit No. 0310358-004-AC

Friday, Barbara

From: Friday, Barbara
Sent: Wednesday, November 16, 2011 9:50 AM
To: 'kbowling@coj.net'
Cc: 'scott.salisbury@landfillenergy.com'; 'rharvey@derenzo.com'; Kirts, Christopher; 'robinson@coj.net'; 'forney.kathleen@epamail.epa.gov'; 'ceron.heather@epa.gov'; 'oquendo.ana@epa.gov'; Scearce, Lynn; DeVore, Christy; Arif, Syed
Subject: CITY OF JACKSONVILLE - TRAIL RIDGE LANDFILL, INC.; 0310358-013-AV
Attachments: 0310358-013-AVSignedNoticeofFinalPermit.pdf

Tracking:

Recipient	Delivery	Read
'kbowling@coj.net'		
'scott.salisbury@landfillenergy.com'		
'rharvey@derenzo.com'		
Kirts, Christopher	Delivered: 11/16/2011 9:50 AM	
'robinson@coj.net'		
'forney.kathleen@epamail.epa.gov'		
'ceron.heather@epa.gov'		
'oquendo.ana@epa.gov'		
Scearce, Lynn	Delivered: 11/16/2011 9:50 AM	
DeVore, Christy	Delivered: 11/16/2011 9:50 AM	Read: 11/16/2011 9:50 AM
Arif, Syed	Delivered: 11/16/2011 9:50 AM	

Dear Ms. Bowling:

Attached is the official **Notice of Final Permit** for the project referenced below. Click on the link displayed below to access the permit project documents and send a "reply" message verifying receipt of the document(s) provided in the link; this may be done by selecting "Reply" on the menu bar of your e-mail software, noting that you can view the documents, and then selecting "Send".
Note: We must receive verification that you are able to access the documents. Your immediate reply will preclude subsequent e-mail transmissions to verify accessibility of the document(s).

Attention: Christy DeVore

Owner/Company Name: CITY OF JACKSONVILLE
Facility Name: TRAIL RIDGE LANDFILL
Project Number: 0310358-013-AV
Permit Status: FINAL
Permit Activity: PERMIT REVISION
Facility County: DUVAL

Click on the following link to access the permit project documents:
http://ARM-PERMIT2K.dep.state.fl.us/adh/prod/pdf_permit_zip_files/0310358.013.AV.F_pdf.zip

The Office of Permitting and Compliance is issuing electronic documents for permits, notices and other correspondence in lieu of hard copies through the United States Postal System, to provide greater service to the applicant and the engineering community. Access these documents by clicking on the link provided above, or search for other project documents using the "*Air Permit Documents Search*" website at http://www.dep.state.fl.us/air/emission/apds/default.asp.

Permit project documents addressed in this email may require immediate action within a specified time frame. Please open and review the document(s) as soon as possible, and verify that they are accessible. Please advise this office of any changes to your e-mail address or that of the Engineer-of-Record. If you have any problems opening the documents or would like further information, please contact the Florida Department of Environmental Protection, Office of Permitting and Compliance.

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

Regards,
Barbara Friday
Office of Permitting and Compliance (OPC)
Division of Air Resources Management
850-717-9095

Please take a few minutes to share your comments on the service you received from the department by clicking on this link DEP Customer Survey.

Friday, Barbara

From: Microsoft Exchange
To: 'kbowling@coj.net'; 'robinson@coj.net'
Sent: Wednesday, November 16, 2011 9:50 AM
Subject: Relayed: CITY OF JACKSONVILLE - TRAIL RIDGE LANDFILL, INC.; 0310358-013-AV

Delivery to these recipients or distribution lists is complete, but delivery notification was not sent by the destination:

'kbowling@coj.net'

'robinson@coj.net'

Subject: CITY OF JACKSONVILLE - TRAIL RIDGE LANDFILL, INC.; 0310358-013-AV

Sent by Microsoft Exchange Server 2007

Friday, Barbara

From: Bowling, Karen [KBowling@coj.net]
To: Friday, Barbara
Sent: Wednesday, November 16, 2011 9:56 AM
Subject: Read: CITY OF JACKSONVILLE - TRAIL RIDGE LANDFILL, INC.; 0310358-013-AV

Your message was read on Wednesday, November 16, 2011 9:56:14 AM (GMT-05:00) Eastern Time (US & Canada).

Friday, Barbara

From: Microsoft Exchange
To: 'scott.salisbury@landfillenergy.com'
Sent: Wednesday, November 16, 2011 9:50 AM
Subject: Relayed: CITY OF JACKSONVILLE - TRAIL RIDGE LANDFILL, INC.; 0310358-013-AV

Delivery to these recipients or distribution lists is complete, but delivery notification was not sent by the destination:

'scott.salisbury@landfillenergy.com'

Subject: CITY OF JACKSONVILLE - TRAIL RIDGE LANDFILL, INC.; 0310358-013-AV

Sent by Microsoft Exchange Server 2007

Friday, Barbara

From: Scott Salisbury [Scott.salisbury@landfillenergy.com]
To: Friday, Barbara
Sent: Wednesday, November 16, 2011 10:18 AM
Subject: Read: CITY OF JACKSONVILLE - TRAIL RIDGE LANDFILL, INC.; 0310358-013-AV

Your message was read on Wednesday, November 16, 2011 10:18:28 AM (GMT-05:00) Eastern Time (US & Canada).

Friday, Barbara

From: Microsoft Exchange
To: 'rharvey@derenzo.com'
Sent: Wednesday, November 16, 2011 9:50 AM
Subject: Relayed: CITY OF JACKSONVILLE - TRAIL RIDGE LANDFILL, INC.; 0310358-013-AV

Delivery to these recipients or distribution lists is complete, but delivery notification was not sent by the destination:

'rharvey@derenzo.com'

Subject: CITY OF JACKSONVILLE - TRAIL RIDGE LANDFILL, INC.; 0310358-013-AV

Sent by Microsoft Exchange Server 2007

Friday, Barbara

From: Robert Harvey [rharvey@derenzo.com]
Sent: Wednesday, November 16, 2011 10:00 AM
To: Friday, Barbara
Subject: Read: CITY OF JACKSONVILLE - TRAIL RIDGE LANDFILL, INC.; 0310358-013-AV
Attachments: ATT00001

Friday, Barbara

From: Microsoft Exchange
To: Kirts, Christopher; Scearce, Lynn
Sent: Wednesday, November 16, 2011 9:50 AM
Subject: Delivered: CITY OF JACKSONVILLE - TRAIL RIDGE LANDFILL, INC.; 0310358-013-AV

Your message has been delivered to the following recipients:

Kirts, Christopher

Scearce, Lynn

Subject: CITY OF JACKSONVILLE - TRAIL RIDGE LANDFILL, INC.; 0310358-013-AV

Sent by Microsoft Exchange Server 2007

Friday, Barbara

From: Kirts, Christopher
To: Friday, Barbara
Sent: Friday, November 18, 2011 10:49 AM
Subject: Read: CITY OF JACKSONVILLE - TRAIL RIDGE LANDFILL, INC.; 0310358-013-AV

Your message was read on Friday, November 18, 2011 10:49:07 AM (GMT-05:00) Eastern Time (US & Canada).

Friday, Barbara

From: Scearce, Lynn
To: Friday, Barbara
Sent: Wednesday, November 16, 2011 11:08 AM
Subject: Read: CITY OF JACKSONVILLE - TRAIL RIDGE LANDFILL, INC.; 0310358-013-AV

Your message was read on Wednesday, November 16, 2011 11:07:43 AM (GMT-05:00) Eastern Time (US & Canada).

Friday, Barbara

From: Microsoft Exchange
To: DeVore, Christy; Arif, Syed
Sent: Wednesday, November 16, 2011 9:50 AM
Subject: Delivered: CITY OF JACKSONVILLE - TRAIL RIDGE LANDFILL, INC.; 0310358-013-AV

Your message has been delivered to the following recipients:

DeVore, Christy

Arif, Syed

Subject: CITY OF JACKSONVILLE - TRAIL RIDGE LANDFILL, INC.; 0310358-013-AV

Sent by Microsoft Exchange Server 2007

Friday, Barbara

From: DeVore, Christy
To: Friday, Barbara
Sent: Wednesday, November 16, 2011 9:50 AM
Subject: Read: CITY OF JACKSONVILLE - TRAIL RIDGE LANDFILL, INC.; 0310358-013-AV

Your message was read on Wednesday, November 16, 2011 9:50:21 AM (GMT-05:00) Eastern Time (US & Canada).

Friday, Barbara

From: Arif, Syed
To: Friday, Barbara
Sent: Wednesday, November 16, 2011 10:16 AM
Subject: Read: CITY OF JACKSONVILLE - TRAIL RIDGE LANDFILL, INC.; 0310358-013-AV

Your message was read on Wednesday, November 16, 2011 10:16:11 AM (GMT-05:00) Eastern Time (US & Canada).