INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We Protect Hoosiers and Our Environment.
100 N. Senate Avenue • Indianapolis, IN 46204
(800) 451-6027 • (317) 232-8603 • www.idem.IN.gov

Michael R. Pence
Governor

Thomas W. Easterly
Commissioner

To:	Interested Parties
Date:	September 30, 2014
From:	Matthew Stuckey, Chief Permits Branch Office of Air Quality
Source Name:	Enbridge Energy – Hartsdale/Griffith Terminal
Permit Level:	Title V Significant Permit Modification
Permit Number:	089-34494-00497
Source Location:	1500 West Main Street, Griffith, Indiana and Central Avenue and Division Street, Schererville, Indiana
Type of Action Taken:	Modification at an existing source

Notice of Decision: Approval - Effective Immediately

Please be advised that on behalf of the Commissioner of the Department of Environmental Management, I have issued a decision regarding the matter referenced above.

The final decision is available on the IDEM website at: http://www.in.gov/apps/idem/caats/
To view the document, select Search option 3, then enter permit 34494.

If you would like to request a paper copy of the permit document, please contact IDEM's central file room:

Indiana Government Center North, Room 1201
100 North Senate Avenue, MC 50-07
Indianapolis, IN 46204
Phone: 1-800-451-6027 (ext. 4-0965)
Fax (317) 232-8659

Pursuant to IC 13-17-3-4 and 326 IAC 2, this permit modification is effective immediately, unless a petition for stay of effectiveness is filed and granted, and may be revoked or modified in accordance with the provisions of IC 13-15-7-1.

(continues on next page)

If you wish to challenge this decision, IC 4-21.5-3-7 and IC 13-15-7-3 require that you file a petition for administrative review. This petition may include a request for stay of effectiveness and must be submitted to the Office Environmental Adjudication, 100 North Senate Avenue, Government Center North, Suite N 501E, Indianapolis, IN 46204, **within eighteen (18) days of the mailing of this notice**. The filing of a petition for administrative review is complete on the earliest of the following dates that apply to the filing:

(1) the date the document is delivered to the Office of Environmental Adjudication (OEA);
(2) the date of the postmark on the envelope containing the document, if the document is mailed to OEA by U.S. mail; or
(3) The date on which the document is deposited with a private carrier, as shown by receipt issued by the carrier, if the document is sent to the OEA by private carrier.

The petition must include facts demonstrating that you are either the applicant, a person aggrieved or adversely affected by the decision or otherwise entitled to review by law. Please identify the permit, decision, or other order for which you seek review by permit number, name of the applicant, location, date of this notice and all of the following:

(1) the name and address of the person making the request;
(2) the interest of the person making the request;
(3) identification of any persons represented by the person making the request;
(4) the reasons, with particularity, for the request;
(5) the issues, with particularity, proposed for considerations at any hearing; and
(6) identification of the terms and conditions which, in the judgment of the person making the request, would be appropriate in the case in question to satisfy the requirements of the law governing documents of the type issued by the Commissioner.

Pursuant to 326 IAC 2-7-18(d), any person may petition the U.S. EPA to object to the issuance of a Title V operating permit or modification within sixty (60) days of the end of the forty-five (45) day EPA review period. Such an objection must be based only on issues that were raised with reasonable specificity during the public comment period, unless the petitioner demonstrates that it was impractible to raise such issues, or if the grounds for such objection arose after the comment period.

To petition the U.S. EPA to object to the issuance of a Title V operating permit, contact:

U.S. Environmental Protection Agency
401 M Street
Washington, D.C. 20406

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178. Callers from within Indiana may call toll-free at 1-800-451-6027, ext. 3-0178.

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Rhonda O'Leary
Enbridge Energy - Hartsdale/Griffith Terminal
1320 Grand Avenue
Superior, WI 54880

September 30, 2014

Re: 089-34494-00497
Significant Permit Modification to
Part 70 Renewal No.: T089-31293-00497

Dear Ms. O'Leary:

Enbridge Energy - Hartsdale/Griffith Terminal was issued a Part 70 Operating Permit Renewal No. T089-31293-00497 on August 29, 2012 for a stationary bulk petroleum storage company located at 1500 W. Main Street, Griffith, IN 46319, and Central Avenue and Division Street, Schererville, IN 46375. An application requesting changes to this permit was received on May 2, 2014. Pursuant to the provisions of 326 IAC 2-7-12, a significant permit modification to this permit is hereby approved as described in the attached Technical Support Document.

Please find attached the entire Part 70 Operating Permit as modified, including the following new and modified attachments:

Attachment E: 40 CFR 63, Subpart ZZZZ, Stationary Reciprocating Internal Combustion Engines
Attachment G: 40 CFR 60, Subpart JJJJ, Stationary Spark Ignition Internal Combustion Engines

The permit references the below listed attachments. Since these attachments have been provided in previously issued approvals for this source, IDEM OAQ has not included a copy of these attachments with this modification:

Attachment A: Griffith Terminal Fugitive Dust Control Plan
Attachment B: Hartsdale Terminal Fugitive Dust Control Plan
Attachment C: 40 CFR 60, Subpart Ka, Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and Prior to July 23, 1984
Attachment D: 40 CFR 60, Subpart Kb, Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984
Attachment F: 40 CFR 60, Subpart IIII, Stationary Compression Ignition Internal Combustion Engines

Previously issued approvals for this source containing these attachments are available on the Internet at: http://www.in.gov/ai/appfiles/idem-caats/.

Federal rules under Title 40 of United States Code of Federal Regulations may also be found on the U.S. Government Printing Office's Electronic Code of Federal Regulations (eCFR) website, located on the Internet at: http://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title40/40tab_02.tpl.

A copy of the permit is available on the Internet at: http://www.in.gov/ai/appfiles/idem-caats/. For additional information about air permits and how the public and interested parties can participate, refer to the IDEM Permit Guide on the Internet at: http://www.in.gov/idem/5881.htm; and the Citizens' Guide to IDEM on the Internet at: http://www.in.gov/idem/6900.htm.

This decision is subject to the Indiana Administrative Orders and Procedures Act - IC 4-21.5-3-5. If you have any questions on this matter, please contact Celeste Wanner, of my staff, at 317-234-5376 or 1-800-451-6027, and ask for extension 4-5376.

Sincerely,

Jenny Acker, Section Chief
Permits Branch
Office of Air Quality

Attachment(s): Updated Permit, Technical Support Document and Appendix A

JA/cw

cc: File - Lake County
Lake County Health Department
U.S. EPA, Region V
Compliance and Enforcement Branch
Billing, Licensing and Training Section
Northwest Regional Office

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Part 70 Operating Permit Renewal

OFFICE OF AIR QUALITY

Enbridge Energy - Hartsdale/Griffith Terminal
1500 W. Main Street, Griffith, Indiana 46319 and
Central Avenue and Division Street, Schererville, Indiana, 46375

(herein known as the Permittee) is hereby authorized to operate subject to the conditions contained herein, the source described in Section A (Source Summary) of this permit.

The Permittee must comply with all conditions of this permit. Noncompliance with any provisions of this permit is grounds for enforcement action; permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. Noncompliance with any provision of this permit, except any provision specifically designated as not federally enforceable, constitutes a violation of the Clean Air Act. It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. An emergency does constitute an affirmative defense in an enforcement action provided the Permittee complies with the applicable requirements set forth in Section B, Emergency Provisions.

This permit is issued in accordance with 326 IAC 2 and 40 CFR Part 70 Appendix A and contains the conditions and provisions specified in 326 IAC 2-7 as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR Part 70.6, IC 13-15 and IC 13-17.

Operation Permit No.: T089-31293-00497	
Issued by: Original Signed Tripurari P. Sinha, Ph.D., Section Chief Permits Branch, Office of Air Quality	Issuance Date: August 29, 2012 Expiration Date: August 29, 2017

Significant Permit Modification No.: 089-33314-00497, Issued on September 11, 2013

Significant Permit Modification No.: 089-34494-00497	
Issued by: Jenny Acker, Section Chief Permits Branch Office of Air Quality	Issuance Date: September 30, 2014 Expiration Date: August 29, 2017

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SECTION A SOURCE SUMMARY

This permit is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ). The information describing the source contained in conditions A.1 through A.3 is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this permit pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

A.1 General Information [326 IAC 2-7-4(c)][326 IAC 2-7-5(14)][326 IAC 2-7-1(22)]

The Permittee owns and operates a stationary bulk petroleum storage company.

Source Address:	1500 W. Main Street, Griffith, IN 46319, and Central Avenue and Division Street, Schererville, IN 46375
General Source Phone Number:	(713) 821-2110
SIC Code:	4612
County Location:	Lake
Source Location Status:	Nonattainment for 8-hour ozone standard Attainment for all other criteria pollutants
Source Status:	Part 70 Operating Permit Program Minor Source, under PSD Major Source, under Emission Offset Rules Minor Source, Section 112 of the Clean Air Act 1 of 28 Source Categories

A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)][326 IAC 2-7-5(14)]

This stationary source consists of the following emission units and pollution control devices:

Hartsdale Terminal:

(a) Nine (9) crude oil storage tanks, all constructed in 1958, modification permitted in 2012, identified as EU1601 through EU1609, each with an external floating roof, each with a maximum storage capacity of 4,200,000 gallons (100,000 barrels) of crude oil.

(b) One (1) crude oil storage tank, approved in 2013 for construction, identified as EU1610, with an external floating roof, with a maximum storage capacity of 530,000 barrels. [40 CFR 60, Subpart Kb]

(c) One (1) crude oil storage tank, approved in 2013 for construction, identified as EU1611, with an external floating roof, with a maximum storage capacity of 360,000 barrels. [40 CFR 60, Subpart Kb]

(d) Piping component fugitive emission sources in VOC service.

Griffith Terminal:

(a) One (1) crude oil storage tank, constructed in 1969, identified as EU70, with an external floating roof, with a maximum capacity of 120,000 barrels.

(b) One (1) crude oil storage tank, constructed in 1970, identified as EU71, with an external floating roof, with a maximum capacity of 217,000 barrels.

(c) One (1) crude oil storage tank, constructed in 1971, identified as EU72, with an external floating roof, with a maximum capacity of 217,000 barrels.

(d) One (1) crude oil storage tank, constructed in 1971, identified as EU73, with an external floating roof, with a maximum capacity of 217,000 barrels.

(e) One (1) crude oil storage tank, constructed in 1972, identified as EU74, with an external floating roof, with a maximum capacity of 217,000 barrels.

(f) One (1) crude oil storage tank, constructed in 1972, identified as EU75, with an external floating roof, with guide-pole controls (guide-pole sleeve and guide-pole wiper), permitted in 2008, with a maximum capacity of 217,000 barrels.

(g) One (1) crude oil storage tank, constructed in 1973, identified as EU76, with an external floating roof, with a maximum capacity of 395,000 barrels.

(h) One (1) crude oil storage tank, constructed in 1973, identified as EU77, with an external floating roof, with a maximum capacity of 395,000 barrels.

(i) One (1) crude oil storage tank, constructed in 1979, identified as EU78, with an external floating roof, with a maximum capacity of 217,000 barrels. [40 CFR 60, Subpart Ka]

(j) One (1) crude oil storage tank, constructed in 2007, identified as EU79, with an external floating roof, with a maximum capacity of 392,169 barrels (16,471,098 gallons). [40 CFR 60, Subpart Kb]

(k) One (1) crude oil storage tank, constructed in 2007, identified as EU80, with an external floating roof, with a maximum capacity of 240,000 barrels (10,080,000 gallons). [40 CFR 60, Subpart Kb]

(l) Piping component fugitive emission sources in VOC service.

A.3 Specifically Regulated Insignificant Activities
[326 IAC 2-7-1(21)][326 IAC 2-7-4(c)][326 IAC 2-7-5(14)]

This stationary source also includes the following insignificant activities which are specifically regulated, as defined in 326 IAC 2-7-1(21):

(a) Paved and unpaved roads and parking lots with public access. [326 IAC 6-4]

(b) The following equipment related to manufacturing activities not resulting in the emission of HAPs; brazing equipment, cutting torches, soldering equipment, welding equipment. [326 IAC 6.8-1-2]

(c) Two (2) emergency diesel generators: [326 IAC 6.8-1-2] [40 CFR 63, Subpart ZZZZ]
(1) Griffith emergency generator constructed in 1993 rated at 207 horsepower.
(2) Hartsdale emergency generator constructed in 1998 rated at 207 horsepower.

(d) One (1) emergency diesel generator, approved in 2013 for construction, with a maximum capacity of 266 hp. [326 IAC 6.8-1-2] [40 CFR 60, Subpart IIII] [40 CFR 63, Subpart ZZZZ]

(e) Two (2) stationary diesel fire pumps: [326 IAC 6.8-1-2] [40 CFR 63, Subpart ZZZZ]
(1) Griffith fire pump constructed in 1971 rated at 175 horsepower.
(2) Hartsdale fire pump constructed in 2002 rated at 300 horsepower.

(f) Portable blast-cleaning equipment with enclosures. [326 IAC 6.8-1-2]

(g) Two (2) liquid propane-fired emergency generators, installed in 2014, identified as Hartsdale Emergency Generator #2 and Hartsdale Emergency Generator #3, each with a maximum capacity of 14 kW. [326 IAC 6.8-1-2] [40 CFR 60, Subpart JJJJ] [40 CFR 63, Subpart ZZZZ]

A.4 Part 70 Permit Applicability [326 IAC 2-7-2]

This stationary source is required to have a Part 70 permit by 326 IAC 2-7-2 (Applicability) because:

(a) It is a major source, as defined in 326 IAC 2-7-1(22);

(b) It is a source in a source category designated by the United States Environmental Protection Agency (U.S. EPA) under 40 CFR 70.3 (Part 70 - Applicability).

SECTION B GENERAL CONDITIONS

B.1 Definitions [326 IAC 2-7-1]

Terms in this permit shall have the definition assigned to such terms in the referenced regulation. In the absence of definitions in the referenced regulation, the applicable definitions found in the statutes or regulations (IC 13-11, 326 IAC 1-2 and 326 IAC 2-7) shall prevail.

B.2 Permit Term [326 IAC 2-7-5(2)][326 IAC 2-1.1-9.5][326 IAC 2-7-4(a)(1)(D)][IC 13-15-3-6(a)]

(a) This permit, T089-31293-00497, is issued for a fixed term of five (5) years from the issuance date of this permit, as determined in accordance with IC 4-21.5-3-5(f) and IC 13-15-5-3. Subsequent revisions, modifications, or amendments of this permit do not affect the expiration date of this permit.

(b) If IDEM, OAQ, upon receiving a timely and complete renewal permit application, fails to issue or deny the permit renewal prior to the expiration date of this permit, this existing permit shall not expire and all terms and conditions shall continue in effect, including any permit shield provided in 326 IAC 2-7-15, until the renewal permit has been issued or denied.

B.3 Term of Conditions [326 IAC 2-1.1-9.5]

Notwithstanding the permit term of a permit to construct, a permit to operate, or a permit modification, any condition established in a permit issued pursuant to a permitting program approved in the state implementation plan shall remain in effect until:

(a) the condition is modified in a subsequent permit action pursuant to Title I of the Clean Air Act; or

(b) the emission unit to which the condition pertains permanently ceases operation.

B.4 Enforceability [326 IAC 2-7-7] [IC 13-17-12]

Unless otherwise stated, all terms and conditions in this permit, including any provisions designed to limit the source's potential to emit, are enforceable by IDEM, the United States Environmental Protection Agency (U.S. EPA) and by citizens in accordance with the Clean Air Act.

B.5 Severability [326 IAC 2-7-5(5)]

The provisions of this permit are severable; a determination that any portion of this permit is invalid shall not affect the validity of the remainder of the permit.

B.6 Property Rights or Exclusive Privilege [326 IAC 2-7-5(6)(D)]

This permit does not convey any property rights of any sort or any exclusive privilege.

B.7 Duty to Provide Information [326 IAC 2-7-5(6)(E)]

(a) The Permittee shall furnish to IDEM, OAQ, within a reasonable time, any information that IDEM, OAQ may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. Upon request, the Permittee shall also furnish to IDEM, OAQ copies of records required to be kept by this permit.

(b) For information furnished by the Permittee to IDEM, OAQ, the Permittee may include a claim of confidentiality in accordance with 326 IAC 17.1. When furnishing copies of requested records directly to U. S. EPA, the Permittee may assert a claim of confidentiality in accordance with 40 CFR 2, Subpart B.

B.8 Certification [326 IAC 2-7-4(f)][326 IAC 2-7-6(1)][326 IAC 2-7-5(3)(C)]

(a) A certification required by this permit meets the requirements of 326 IAC 2-7-6(1) if:

(1) it contains a certification by a "responsible official" as defined by 326 IAC 2-7-1(35), and

(2) the certification states that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

(b) The Permittee may use the attached Certification Form, or its equivalent with each submittal requiring certification. One (1) certification may cover multiple forms in one (1) submittal.

(c) A "responsible official" is defined at 326 IAC 2-7-1(35).

B.9 Annual Compliance Certification [326 IAC 2-7-6(5)]

(a) The Permittee shall annually submit a compliance certification report which addresses the status of the source's compliance with the terms and conditions contained in this permit, including emission limitations, standards, or work practices. The initial certification shall cover the time period from the date of final permit issuance through December 31 of the same year. All subsequent certifications shall cover the time period from January 1 to December 31 of the previous year, and shall be submitted no later than April 15 of each year to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

and

United States Environmental Protection Agency, Region V
Air and Radiation Division, Air Enforcement Branch - Indiana (AE-17J)
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

(b) The annual compliance certification report required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ, on or before the date it is due.

(c) The annual compliance certification report shall include the following:

(1) The appropriate identification of each term or condition of this permit that is the basis of the certification;

(2) The compliance status;

(3) Whether compliance was continuous or intermittent;

(4) The methods used for determining the compliance status of the source, currently and over the reporting period consistent with 326 IAC 2-7-5(3); and

(5) Such other facts, as specified in Sections D of this permit, as IDEM, OAQ may require to determine the compliance status of the source.

The submittal by the Permittee does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

B.10 Preventive Maintenance Plan [326 IAC 2-7-5(12)][326 IAC 1-6-3]

(a) If required by specific condition(s) in Section D of this permit, the Permittee shall prepare and maintain Preventive Maintenance Plans (PMPs) no later than ninety (90) days after issuance of this permit or ninety (90) days after initial start-up, whichever is later, including the following information on each facility:

(1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;

(2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions; and

(3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.

If, due to circumstances beyond the Permittee's control, the PMPs cannot be prepared and maintained within the above time frame, the Permittee may extend the date an additional ninety (90) days provided the Permittee notifies:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

The PMP extension notification does not require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

The Permittee shall implement the PMPs.

(b) A copy of the PMPs shall be submitted to IDEM, OAQ upon request and within a reasonable time, and shall be subject to review and approval by IDEM, OAQ. IDEM, OAQ may require the Permittee to revise its PMPs whenever lack of proper maintenance causes or is the primary contributor to an exceedance of any limitation on emissions. The PMPs and their submittal do not require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

(c) To the extent the Permittee is required by 40 CFR Part 60/63 to have an Operation Maintenance, and Monitoring (OMM) Plan for a unit, such Plan is deemed to satisfy the PMP requirements of 326 IAC 1-6-3 for that unit.

B.11 Emergency Provisions [326 IAC 2-7-16]

(a) An emergency, as defined in 326 IAC 2-7-1(12), is not an affirmative defense for an action brought for noncompliance with a federal or state health-based emission limitation.

(b) An emergency, as defined in 326 IAC 2-7-1(12), constitutes an affirmative defense to an action brought for noncompliance with a technology-based emission limitation if the affirmative defense of an emergency is demonstrated through properly signed, contemporaneous operating logs or other relevant evidence that describe the following:

(1) An emergency occurred and the Permittee can, to the extent possible, identify the causes of the emergency;

(2) The permitted facility was at the time being properly operated;

(3) During the period of an emergency, the Permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards or other requirements in this permit;

(4) For each emergency lasting one (1) hour or more, the Permittee notified IDEM, OAQ or Northwest Regional Office within four (4) daytime business hours after the beginning of the emergency, or after the emergency was discovered or reasonably should have been discovered;

Telephone Number: 1-800-451-6027 (ask for Office of Air Quality, Compliance and Enforcement Branch), or
Telephone Number: 317-233-0178 (ask for Office of Air Quality, Compliance and Enforcement Branch)
Facsimile Number: 317-233-6865
Northwest Regional Office phone: (219) 464-0233; fax: (219) 464-0553**.**

(5) For each emergency lasting one (1) hour or more, the Permittee submitted the attached Emergency Occurrence Report Form or its equivalent, either by mail or facsimile to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

within two (2) working days of the time when emission limitations were exceeded due to the emergency.

The notice fulfills the requirement of 326 IAC 2-7-5(3)(C)(ii) and must contain the following:

(A) A description of the emergency;

(B) Any steps taken to mitigate the emissions; and

(C) Corrective actions taken.

The notification which shall be submitted by the Permittee does not require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

(6) The Permittee immediately took all reasonable steps to correct the emergency.

(c) In any enforcement proceeding, the Permittee seeking to establish the occurrence of an emergency has the burden of proof.

(d) This emergency provision supersedes 326 IAC 1-6 (Malfunctions). This permit condition is in addition to any emergency or upset provision contained in any applicable requirement.

(e) The Permittee seeking to establish the occurrence of an emergency shall make records available upon request to ensure that failure to implement a PMP did not cause or contribute to an exceedance of any limitations on emissions. However, IDEM, OAQ may require that the Preventive Maintenance Plans required under 326 IAC 2-7-4(c)(8) be revised in response to an emergency.

(f) Failure to notify IDEM, OAQ by telephone or facsimile of an emergency lasting more than one (1) hour in accordance with (b)(4) and (5) of this condition shall constitute a violation of 326 IAC 2-7 and any other applicable rules.

(g) If the emergency situation causes a deviation from a technology-based limit, the Permittee may continue to operate the affected emitting facilities during the emergency provided the Permittee immediately takes all reasonable steps to correct the emergency and minimize emissions.

B.12 Permit Shield [326 IAC 2-7-15][326 IAC 2-7-20][326 IAC 2-7-12]

(a) Pursuant to 326 IAC 2-7-15, the Permittee has been granted a permit shield. The permit shield provides that compliance with the conditions of this permit shall be deemed compliance with any applicable requirements as of the date of permit issuance, provided that either the applicable requirements are included and specifically identified in this permit or the permit contains an explicit determination or concise summary of a determination that other specifically identified requirements are not applicable. The Indiana statutes from IC 13 and rules from 326 IAC, referenced in conditions in this permit, are those applicable at the time the permit was issued. The issuance or possession of this permit shall not alone constitute a defense against an alleged violation of any law, regulation or standard, except for the requirement to obtain a Part 70 permit under 326 IAC 2-7 or for applicable requirements for which a permit shield has been granted.

This permit shield does not extend to applicable requirements which are promulgated after the date of issuance of this permit unless this permit has been modified to reflect such new requirements.

(b) If, after issuance of this permit, it is determined that the permit is in nonconformance with an applicable requirement that applied to the source on the date of permit issuance, IDEM, OAQ shall immediately take steps to reopen and revise this permit and issue a compliance order to the Permittee to ensure expeditious compliance with the applicable requirement until the permit is reissued. The permit shield shall continue in effect so long as the Permittee is in compliance with the compliance order.

(c) No permit shield shall apply to any permit term or condition that is determined after issuance of this permit to have been based on erroneous information supplied in the permit application. Erroneous information means information that the Permittee knew to be false, or in the exercise of reasonable care should have been known to be false, at the time the information was submitted.

(d) Nothing in 326 IAC 2-7-15 or in this permit shall alter or affect the following:

(1) The provisions of Section 303 of the Clean Air Act (emergency orders), including the authority of the U.S. EPA under Section 303 of the Clean Air Act;

(2) The liability of the Permittee for any violation of applicable requirements prior to or at the time of this permit's issuance;

(3) The applicable requirements of the acid rain program, consistent with Section 408(a) of the Clean Air Act; and

(4) The ability of U.S. EPA to obtain information from the Permittee under Section 114 of the Clean Air Act.

(e) This permit shield is not applicable to any change made under 326 IAC 2-7-20(b)(2) (Sections 502(b)(10) of the Clean Air Act changes) and 326 IAC 2-7-20(c)(2) (trading based on State Implementation Plan (SIP) provisions).

(f) This permit shield is not applicable to modifications eligible for group processing until after IDEM, OAQ, has issued the modifications. [326 IAC 2-7-12(c)(7)]

(g) This permit shield is not applicable to minor Part 70 permit modifications until after IDEM, OAQ, has issued the modification. [326 IAC 2-7-12(b)(8)]

B.13 Prior Permits Superseded [326 IAC 2-1.1-9.5][326 IAC 2-7-10.5]

(a) All terms and conditions of permits established prior to T089-31293-00497 and issued pursuant to permitting programs approved into the state implementation plan have been either:

(1) incorporated as originally stated,

(2) revised under 326 IAC 2-7-10.5, or

(3) deleted under 326 IAC 2-7-10.5.

(b) Provided that all terms and conditions are accurately reflected in this permit, all previous registrations and permits are superseded by this Part 70 operating permit.

B.14 Termination of Right to Operate [326 IAC 2-7-10][326 IAC 2-7-4(a)]

The Permittee's right to operate this source terminates with the expiration of this permit unless a timely and complete renewal application is submitted at least nine (9) months prior to the date of expiration of the source's existing permit, consistent with 326 IAC 2-7-3 and 326 IAC 2-7-4(a).

B.15 Permit Modification, Reopening, Revocation and Reissuance, or Termination [326 IAC 2-7-5(6)(C)][326 IAC 2-7-8(a)][326 IAC 2-7-9]

(a) This permit may be modified, reopened, revoked and reissued, or terminated for cause. The filing of a request by the Permittee for a Part 70 Operating Permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any condition of this permit. [326 IAC 2-7-5(6)(C)] The notification by the Permittee does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

(b) This permit shall be reopened and revised under any of the circumstances listed in IC 13-15-7-2 or if IDEM, OAQ determines any of the following:

(1) That this permit contains a material mistake.

(2) That inaccurate statements were made in establishing the emissions standards or other terms or conditions.

(3) That this permit must be revised or revoked to assure compliance with an applicable requirement. [326 IAC 2-7-9(a)(3)]

(c) Proceedings by IDEM, OAQ to reopen and revise this permit shall follow the same procedures as apply to initial permit issuance and shall affect only those parts of this permit for which cause to reopen exists. Such reopening and revision shall be made as expeditiously as practicable. [326 IAC 2-7-9(b)]

(d) The reopening and revision of this permit, under 326 IAC 2-7-9(a), shall not be initiated before notice of such intent is provided to the Permittee by IDEM, OAQ at least thirty (30) days in advance of the date this permit is to be reopened, except that IDEM, OAQ may provide a shorter time period in the case of an emergency. [326 IAC 2-7-9(c)]

B.16 Permit Renewal [326 IAC 2-7-3][326 IAC 2-7-4][326 IAC 2-7-8(e)]

(a) The application for renewal shall be submitted using the application form or forms prescribed by IDEM, OAQ and shall include the information specified in 326 IAC 2-7-4. Such information shall be included in the application for each emission unit at this source, except those emission units included on the trivial or insignificant activities list contained in 326 IAC 2-7-1(21) and 326 IAC 2-7-1(42). The renewal application does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

Request for renewal shall be submitted to:

Indiana Department of Environmental Management
Permit Administration and Support Section, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

(b) A timely renewal application is one that is:

(1) Submitted at least nine (9) months prior to the date of the expiration of this permit; and

(2) If the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.

(c) If the Permittee submits a timely and complete application for renewal of this permit, the source’s failure to have a permit is not a violation of 326 IAC 2-7 until IDEM, OAQ takes final action on the renewal application, except that this protection shall cease to apply if, subsequent to the completeness determination, the Permittee fails to submit by the deadline specified, pursuant to 326 IAC 2-7-4(a)(2)(D), in writing by IDEM, OAQ any additional information identified as being needed to process the application.

B.17 Permit Amendment or Modification [326 IAC 2-7-11][326 IAC 2-7-12]

(a) Permit amendments and modifications are governed by the requirements of 326 IAC 2-7-11 or 326 IAC 2-7-12 whenever the Permittee seeks to amend or modify this permit.

(b) Any application requesting an amendment or modification of this permit shall be submitted to:

Indiana Department of Environmental Management
Permit Administration and Support Section, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

Any such application does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

(c) The Permittee may implement administrative amendment changes addressed in the request for an administrative amendment immediately upon submittal of the request. [326 IAC 2-7-11(c)(3)]

B.18 Permit Revision Under Economic Incentives and Other Programs [326 IAC 2-7-5(8)][326 IAC 2-7-12(b)(2)]

(a) No Part 70 permit revision or notice shall be required under any approved economic incentives, marketable Part 70 permits, emissions trading, and other similar programs or processes for changes that are provided for in a Part 70 permit.

(b) Notwithstanding 326 IAC 2-7-12(b)(1) and 326 IAC 2-7-12(c)(1), minor Part 70 permit modification procedures may be used for Part 70 modifications involving the use of economic incentives, marketable Part 70 permits, emissions trading, and other similar approaches to the extent that such minor Part 70 permit modification procedures are explicitly provided for in the applicable State Implementation Plan (SIP) or in applicable requirements promulgated or approved by the U.S. EPA.

B.19 Operational Flexibility [326 IAC 2-7-20][326 IAC 2-7-10.5]

(a) The Permittee may make any change or changes at the source that are described in 326 IAC 2-7-20(b) or (c) without a prior permit revision, if each of the following conditions is met:

(1) The changes are not modifications under any provision of Title I of the Clean Air Act;

(2) Any preconstruction approval required by 326 IAC 2-7-10.5 has been obtained;

(3) The changes do not result in emissions which exceed the limitations provided in this permit (whether expressed herein as a rate of emissions or in terms of total emissions);

(4) The Permittee notifies the:

Indiana Department of Environmental Management
Permit Administration and Support Section, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

and

United States Environmental Protection Agency, Region V
Air and Radiation Division, Regulation Development Branch - Indiana (AR-18J)
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

in advance of the change by written notification at least ten (10) days in advance of the proposed change. The Permittee shall attach every such notice to the Permittee's copy of this permit; and

(5) The Permittee maintains records on-site, on a rolling five (5) year basis, which document all such changes and emission trades that are subject to 326 IAC 2-7-20(b)(1) and (c)(1). The Permittee shall make such records available, upon reasonable request, for public review.

Such records shall consist of all information required to be submitted to IDEM, OAQ in the notices specified in 326 IAC 2-7-20(b)(1) and (c)(1).

(b) The Permittee may make Section 502(b)(10) of the Clean Air Act changes (this term is defined at 326 IAC 2-7-1(37)) without a permit revision, subject to the constraint of 326 IAC 2-7-20(a). For each such Section 502(b)(10) of the Clean Air Act change, the required written notification shall include the following:

(1) A brief description of the change within the source;

(2) The date on which the change will occur;

(3) Any change in emissions; and

(4) Any permit term or condition that is no longer applicable as a result of the change.

The notification which shall be submitted is not considered an application form, report or compliance certification. Therefore, the notification by the Permittee does not require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

(c) Emission Trades [326 IAC 2-7-20(c)]
The Permittee may trade emissions increases and decreases at the source, where the applicable SIP provides for such emission trades without requiring a permit revision, subject to the constraints of Section (a) of this condition and those in 326 IAC 2-7-20(c).

(d) Alternative Operating Scenarios [326 IAC 2-7-20(d)]
The Permittee may make changes at the source within the range of alternative operating scenarios that are described in the terms and conditions of this permit in accordance with 326 IAC 2-7-5(9). No prior notification of IDEM, OAQ or U.S. EPA is required.

(e) Backup fuel switches specifically addressed in, and limited under, Section D of this permit shall not be considered alternative operating scenarios. Therefore, the notification requirements of part (a) of this condition do not apply.

B.20 Source Modification Requirement [326 IAC 2-7-10.5]

A modification, construction, or reconstruction is governed by the requirements of 326 IAC 2.

B.21 Inspection and Entry [326 IAC 2-7-6][IC 13-14-2-2][IC 13-30-3-1][IC 13-17-3-2]

Upon presentation of proper identification cards, credentials, and other documents as may be required by law, and subject to the Permittee’s right under all applicable laws and regulations to assert that the information collected by the agency is confidential and entitled to be treated as such, the Permittee shall allow IDEM, OAQ, U.S. EPA, or an authorized representative to perform the following:

(a) Enter upon the Permittee's premises where a Part 70 source is located, or emissions related activity is conducted, or where records must be kept under the conditions of this permit;

(b) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, have access to and copy any records that must be kept under the conditions of this permit;

(c) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, inspect any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit;

(d) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, sample or monitor substances or parameters for the purpose of assuring compliance with this permit or applicable requirements; and

(e) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, utilize any photographic, recording, testing, monitoring, or other equipment for the purpose of assuring compliance with this permit or applicable requirements.

B.22 Transfer of Ownership or Operational Control [326 IAC 2-7-11]

(a) The Permittee must comply with the requirements of 326 IAC 2-7-11 whenever the Permittee seeks to change the ownership or operational control of the source and no other change in the permit is necessary.

(b) Any application requesting a change in the ownership or operational control of the source shall contain a written agreement containing a specific date for transfer of permit responsibility, coverage and liability between the current and new Permittee. The application shall be submitted to:

Indiana Department of Environmental Management
Permit Administration and Support Section, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

Any such application does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

(c) The Permittee may implement administrative amendment changes addressed in the request for an administrative amendment immediately upon submittal of the request. [326 IAC 2-7-11(c)(3)]

B.23 Annual Fee Payment [326 IAC 2-7-19] [326 IAC 2-7-5(7)][326 IAC 2-1.1-7]

(a) The Permittee shall pay annual fees to IDEM, OAQ within thirty (30) calendar days of receipt of a billing. Pursuant to 326 IAC 2-7-19(b), if the Permittee does not receive a bill from IDEM, OAQ the applicable fee is due April 1 of each year.

(b) Except as provided in 326 IAC 2-7-19(e), failure to pay may result in administrative enforcement action or revocation of this permit.

(c) The Permittee may call the following telephone numbers: 1-800-451-6027 or 317-233-4230 (ask for OAQ, Billing, Licensing, and Training Section), to determine the appropriate permit fee.

B.24 Credible Evidence [326 IAC 2-7-5(3)][326 IAC 2-7-6][62 FR 8314] [326 IAC 1-1-6]

For the purpose of submitting compliance certifications or establishing whether or not the Permittee has violated or is in violation of any condition of this permit, nothing in this permit shall preclude the use, including the exclusive use, of any credible evidence or information relevant to whether the Permittee would have been in compliance with the condition of this permit if the appropriate performance or compliance test or procedure had been performed.

SECTION C SOURCE OPERATION CONDITIONS

Entire Source

Emission Limitations and Standards [326 IAC 2-7-5(1)]

C.1 Opacity [326 IAC 5-1]

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-1 (Applicability) and 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

(a) Opacity shall not exceed an average of twenty percent (20%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

C.2 Open Burning [326 IAC 4-1] [IC 13-17-9]

The Permittee shall not open burn any material except as provided in 326 IAC 4-1-3, 326 IAC 4-1-4 or 326 IAC 4-1-6. The previous sentence notwithstanding, the Permittee may open burn in accordance with an open burning approval issued by the Commissioner under 326 IAC 4-1-4.1.

C.3 Incineration [326 IAC 4-2] [326 IAC 9-1-2]

The Permittee shall not operate an incinerator except as provided in 326 IAC 4-2 or in this permit. The Permittee shall not operate a refuse incinerator or refuse burning equipment except as provided in 326 IAC 9-1-2 or in this permit.

C.4 Fugitive Dust Emissions [326 IAC 6-4]

The Permittee shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4 (Fugitive Dust Emissions). 326 IAC 6-4-2(4) is not federally enforceable.

C.5 Fugitive Particulate Matter Emissions [326 IAC 6.8-10-3]

Pursuant to 326 IAC 6.8-10-3 (formerly 326 IAC 6-1-11.1) (Lake County Fugitive Particulate Matter Control Requirements), the particulate matter emissions from source wide activities shall meet the following requirements:

(a) The average instantaneous opacity of fugitive particulate emissions from a paved road shall not exceed ten percent (10%).

(b) The average instantaneous opacity of fugitive particulate emissions from an unpaved road shall not exceed ten percent (10%).

(c) The opacity of fugitive particulate emissions from exposed areas shall not exceed ten percent (10%) on a six (6) minute average.

(d) The opacity of fugitive particulate emissions from continuous transfer of material onto and out of storage piles shall not exceed ten percent (10%) on a three (3) minute average.

(e) The opacity of fugitive particulate emissions from storage piles shall not exceed ten percent (10%) on a six (6) minute average.

(f) There shall be a zero (0) percent frequency of visible emission observations of a material during the inplant transportation of material by truck or rail at any time.

(g) The opacity of fugitive particulate emissions from the inplant transportation of material by front end loaders and skip hoists shall not exceed ten percent (10%).

(h) Material processing facilities shall include the following:

(1) There shall be a zero (0) percent frequency of visible emission observations from a building enclosing all or part of the material processing equipment, except from a vent in the building.

(2) The PM_{10} emissions from building vents shall not exceed twenty-two thousandths (0.022) grains per dry standard cubic foot and ten percent (10%) opacity.

(3) The PM_{10} stack emissions from a material processing facility shall not exceed twenty-two thousandths (0.022) grains per dry standard cubic foot and ten percent (10%) opacity.

(4) The opacity of fugitive particulate emissions from the material processing facilities, except a crusher at which a capture system is not used, shall not exceed ten percent (10%) opacity.

(5) The opacity of fugitive particulate emissions from a crusher at which a capture system is not used shall not exceed fifteen percent (15%).

(i) The opacity of particulate emissions from dust handling equipment shall not exceed ten percent (10%).

(j) Material transfer limits shall be as follows:

(1) The average instantaneous opacity of fugitive particulate emissions from batch transfer shall not exceed ten percent (10%).

(2) Where adequate wetting of the material for fugitive particulate emissions control is prohibitive to further processing or reuse of the material, the opacity shall not exceed ten percent (10%), three (3) minute average.

(3) Slag and kish handling activities at integrated iron and steel plants shall comply with the following particulate emissions limits:

(A) The opacity of fugitive particulate emissions from transfer from pots and trucks into pits shall not exceed twenty percent (20%) on a six (6) minute average.

(B) The opacity of fugitive particulate emissions from transfer from pits into front end loaders and from transfer from front end loaders into trucks shall comply with the fugitive particulate emission limits in 326 IAC 6.8-10-3(9).

(k) Any facility or operation not specified in 326 IAC 6.8-10-3 shall meet a twenty percent (20%), three (3) minute average opacity standard.

The Permittee shall achieve these limits by controlling fugitive particulate matter emissions according to the attached Fugitive Dust Control Plan.

C.6 Asbestos Abatement Projects [326 IAC 14-10] [326 IAC 18] [40 CFR 61, Subpart M]

(a) Notification requirements apply to each owner or operator. If the combined amount of regulated asbestos containing material (RACM) to be stripped, removed or disturbed is at least 260 linear feet on pipes or 160 square feet on other facility components, or at least thirty-five (35) cubic feet on all facility components, then the notification requirements of 326 IAC 14-10-3 are mandatory. All demolition projects require notification whether or not asbestos is present.

(b) The Permittee shall ensure that a written notification is sent on a form provided by the Commissioner at least ten (10) working days before asbestos stripping or removal work or before demolition begins, per 326 IAC 14-10-3, and shall update such notice as necessary, including, but not limited to the following:

(1) When the amount of affected asbestos containing material increases or decreases by at least twenty percent (20%); or

(2) If there is a change in the following:

(A) Asbestos removal or demolition start date;

(B) Removal or demolition contractor; or

(C) Waste disposal site.

(c) The Permittee shall ensure that the notice is postmarked or delivered according to the guidelines set forth in 326 IAC 14-10-3(2).

(d) The notice to be submitted shall include the information enumerated in 326 IAC 14-10-3(3).

All required notifications shall be submitted to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

The notice shall include a signed certification from the owner or operator that the information provided in this notification is correct and that only Indiana licensed workers and project supervisors will be used to implement the asbestos removal project. The notifications do not require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

(e) Procedures for Asbestos Emission Control
The Permittee shall comply with the applicable emission control procedures in 326 IAC 14-10-4 and 40 CFR 61.145(c). Per 326 IAC 14-10-1, emission control requirements are applicable for any removal or disturbance of RACM greater than three (3) linear feet on pipes or three (3) square feet on any other facility components or a total of at least 0.75 cubic feet on all facility components.

(f) Demolition and Renovation
The Permittee shall thoroughly inspect the affected facility or part of the facility where the demolition or renovation will occur for the presence of asbestos pursuant to 40 CFR 61.145(a).

(g) Indiana Licensed Asbestos Inspector
The Permittee shall comply with 326 IAC 14-10-1(a) that requires the owner or operator, prior to a renovation/demolition, to use an Indiana Licensed Asbestos Inspector to thoroughly inspect the affected portion of the facility for the presence of asbestos. The requirement to use an Indiana Licensed Asbestos inspector is not federally enforceable.

Testing Requirements [326 IAC 2-7-6(1)]

C.7 Performance Testing [326 IAC 3-6]

(a) For performance testing required by this permit, a test protocol, except as provided elsewhere in this permit, shall be submitted to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

no later than thirty-five (35) days prior to the intended test date. The protocol submitted by the Permittee does not require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

(b) The Permittee shall notify IDEM, OAQ of the actual test date at least fourteen (14) days prior to the actual test date. The notification submitted by the Permittee does not require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

(c) Pursuant to 326 IAC 3-6-4(b), all test reports must be received by IDEM, OAQ not later than forty-five (45) days after the completion of the testing. An extension may be granted by IDEM, OAQ if the Permittee submits to IDEM, OAQ a reasonable written explanation not later than five (5) days prior to the end of the initial forty-five (45) day period.

Compliance Requirements [326 IAC 2-1.1-11]

C.8 Compliance Requirements [326 IAC 2-1.1-11]

The commissioner may require stack testing, monitoring, or reporting at any time to assure compliance with all applicable requirements by issuing an order under 326 IAC 2-1.1-11. Any monitoring or testing shall be performed in accordance with 326 IAC 3 or other methods approved by the commissioner or the U. S. EPA.

Compliance Monitoring Requirements [326 IAC 2-7-5(1)][326 IAC 2-7-6(1)]

C.9 Compliance Monitoring [326 IAC 2-7-5(3)][326 IAC 2-7-6(1)]

(a) For new units:
Unless otherwise specified in the approval for the new emission unit(s), compliance monitoring for new emission units shall be implemented on and after the date of initial start-up.

(b) For existing units:
Unless otherwise specified in this permit, for all monitoring requirements not already legally required, the Permittee shall be allowed up to ninety (90) days from the date of

permit issuance to begin such monitoring. If, due to circumstances beyond the Permittee's control, any monitoring equipment required by this permit cannot be installed and operated no later than ninety (90) days after permit issuance, the Permittee may extend the compliance schedule related to the equipment for an additional ninety (90) days provided the Permittee notifies:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

in writing, prior to the end of the initial ninety (90) day compliance schedule, with full justification of the reasons for the inability to meet this date.

The notification which shall be submitted by the Permittee does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

C.10 Instrument Specifications [326 IAC 2-1.1-11] [326 IAC 2-7-5(3)] [326 IAC 2-7-6(1)]

(a) When required by any condition of this permit, an analog instrument used to measure a parameter related to the operation of an air pollution control device shall have a scale such that the expected maximum reading for the normal range shall be no less than twenty percent (20%) of full scale. The analog instrument shall be capable of measuring values outside of the normal range.

(b) The Permittee may request that the IDEM, OAQ approve the use of an instrument that does not meet the above specifications provided the Permittee can demonstrate that an alternative instrument specification will adequately ensure compliance with permit conditions requiring the measurement of the parameters.

Corrective Actions and Response Steps [326 IAC 2-7-5][326 IAC 2-7-6]

C.11 Emergency Reduction Plans [326 IAC 1-5-2] [326 IAC 1-5-3]

Pursuant to 326 IAC 1-5-2 (Emergency Reduction Plans; Submission):

(a) The Permittee shall maintain the most recently submitted written emergency reduction plans (ERPs) consistent with safe operating procedures.

(b) Upon direct notification by IDEM, OAQ that a specific air pollution episode level is in effect, the Permittee shall immediately put into effect the actions stipulated in the approved ERP for the appropriate episode level. [326 IAC 1-5-3]

C.12 Risk Management Plan [326 IAC 2-7-5(12)] [40 CFR 68]

If a regulated substance, as defined in 40 CFR 68, is present at a source in more than a threshold quantity, the Permittee must comply with the applicable requirements of 40 CFR 68.

C.13 Response to Excursions or Exceedances [326 IAC 2-7-5] [326 IAC 2-7-6]

Upon detecting an excursion where a response step is required by the D Section or an exceedance of a limitation in this permit:

(a) The Permittee shall take reasonable response steps to restore operation of the emissions unit (including any control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing excess emissions.

(b) The response shall include minimizing the period of any startup, shutdown or malfunction. The response may include, but is not limited to, the following:

(1) initial inspection and evaluation;

(2) recording that operations returned or are returning to normal without operator action (such as through response by a computerized distribution control system); or

(3) any necessary follow-up actions to return operation to normal or usual manner of operation.

(c) A determination of whether the Permittee has used acceptable procedures in response to an excursion or exceedance will be based on information available, which may include, but is not limited to, the following:

(1) monitoring results;

(2) review of operation and maintenance procedures and records; and/or

(3) inspection of the control device, associated capture system, and the process.

(d) Failure to take reasonable response steps shall be considered a deviation from the permit.

(e) The Permittee shall record the reasonable response steps taken.

C.14 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-7-5][326 IAC 2-7-6]

(a) When the results of a stack test performed in conformance with Section C - Performance Testing, of this permit exceed the level specified in any condition of this permit, the Permittee shall submit a description of its response actions to IDEM, OAQ no later than seventy-five (75) days after the date of the test.

(b) A retest to demonstrate compliance shall be performed no later than one hundred eighty (180) days after the date of the test. Should the Permittee demonstrate to IDEM, OAQ that retesting in one hundred eighty (180) days is not practicable, IDEM, OAQ may extend the retesting deadline.

(c) IDEM, OAQ reserves the authority to take any actions allowed under law in response to noncompliant stack tests.

The response action documents submitted pursuant to this condition do require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

C.15 Emission Statement [326 IAC 2-7-5(3)(C)(iii)][326 IAC 2-7-5(7)][326 IAC 2-7-19(c)][326 IAC 2-6]

(a) In accordance with the compliance schedule specified in 326 IAC 2-6-3(b)(1), the Permittee shall submit by July 1 an emission statement covering the previous calendar year as follows:

(1) starting in 2004 and every three (3) years thereafter, and

(2) any year not already required under (1) if the source emits volatile organic compounds or oxides of nitrogen into the ambient air at levels equal to or greater than twenty-five (25) tons during the previous calendar year.

(b) The emission statement shall contain, at a minimum, the information specified in 326 IAC 2-6-4(c) and shall meet the following requirements:

(1) Indicate estimated actual emissions of all pollutants listed in 326 IAC 2-6-4(a);

(2) Indicate estimated actual emissions of regulated pollutants as defined by 326 IAC 2-7-1(32) ("Regulated pollutant, which is used only for purposes of Section 19 of this rule") from the source, for purpose of fee assessment.

The statement must be submitted to:

Indiana Department of Environmental Management
Technical Support and Modeling Section, Office of Air Quality
100 North Senate Avenue
MC 61-50 IGCN 1003
Indianapolis, Indiana 46204-2251

The emission statement does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

C.16 General Record Keeping Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-6] [326 IAC 2-2][326 IAC 2-3]

(a) Records of all required monitoring data, reports and support information required by this permit shall be retained for a period of at least five (5) years from the date of monitoring sample, measurement, report, or application. Support information includes the following, where applicable:

(AA) All calibration and maintenance records.
(BB) All original strip chart recordings for continuous monitoring instrumentation.
(CC) Copies of all reports required by the Part 70 permit.

Records of required monitoring information include the following, where applicable:

(AA) The date, place, as defined in this permit, and time of sampling or measurements.
(BB) The dates analyses were performed.
(CC) The company or entity that performed the analyses.
(DD) The analytical techniques or methods used.
(EE) The results of such analyses.
(FF) The operating conditions as existing at the time of sampling or measurement.

These records shall be physically present or electronically accessible at the source location for a minimum of three (3) years. The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner makes a request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time.

(b) Unless otherwise specified in this permit, for all record keeping requirements not already legally required, the Permittee shall be allowed up to ninety (90) days from the date of permit issuance or the date of initial start-up, whichever is later, to begin such record keeping.

(c) If there is a reasonable possibility (as defined in 326 IAC 2-2-8 (b)(6)(A), 326 IAC 2-2-8 (b)(6)(B), 326 IAC 2-3-2 (l)(6)(A), and/or 326 IAC 2-3-2 (l)(6)(B)) that a "project" (as defined in 326 IAC 2-2-1(oo) and/or 326 IAC 2-3-1(jj)) at an existing emissions unit, other than projects at a source with a Plantwide Applicability Limitation (PAL), which is not part of a "major modification" (as defined in 326 IAC 2-2-1(dd) and/or 326 IAC 2-3-1(y)) may result in significant emissions increase and the Permittee elects to utilize the "projected actual emissions" (as defined in 326 IAC 2-2-1(pp) and/or 326 IAC 2-3-1(kk)), the Permittee shall comply with following:

(1) Before beginning actual construction of the "project" (as defined in 326 IAC 2-2-1(oo) and/or 326 IAC 2-3-1(jj)) at an existing emissions unit, document and maintain the following records:

(A) A description of the project.

(B) Identification of any emissions unit whose emissions of a regulated new source review pollutant could be affected by the project.

(C) A description of the applicability test used to determine that the project is not a major modification for any regulated NSR pollutant, including:

(i) Baseline actual emissions;

(ii) Projected actual emissions;

(iii) Amount of emissions excluded under section 326 IAC 2-2-1(pp)(2)(A)(iii) and/or 326 IAC 2-3-1 (kk)(2)(A)(iii); and

(iv) An explanation for why the amount was excluded, and any netting calculations, if applicable.

(d) If there is a reasonable possibility (as defined in 326 IAC 2-2-8 (b)(6)(A) and/or 326 IAC 2-3-2 (l)(6)(A)) that a "project" (as defined in 326 IAC 2-2-1(oo) and/or 326 IAC 2-3-1(jj)) at an existing emissions unit, other than projects at a source with a Plantwide Applicability Limitation (PAL), which is not part of a "major modification" (as defined in 326 IAC 2-2-1(dd) and/or 326 IAC 2-3-1(y)) may result in significant emissions increase and the Permittee elects to utilize the "projected actual emissions" (as defined in 326 IAC 2-2-1(pp) and/or 326 IAC 2-3-1(kk)), the Permittee shall comply with following:

(1) Monitor the emissions of any regulated NSR pollutant that could increase as a result of the project and that is emitted by any existing emissions unit identified in (1)(B) above; and

(2) Calculate and maintain a record of the annual emissions, in tons per year on a calendar year basis, for a period of five (5) years following resumption of regular operations after the change, or for a period of ten (10) years following resumption of regular operations after the change if the project increases the design capacity of or the potential to emit that regulated NSR pollutant at the emissions unit.

C.17 General Reporting Requirements [326 IAC 2-7-5(3)(C)] [326 IAC 2-1.1-11] [326 IAC 2-2] [326 IAC 2-3]

(a) The Permittee shall submit the attached Quarterly Deviation and Compliance Monitoring Report or its equivalent. Proper notice submittal under Section B –Emergency Provisions satisfies the reporting requirements of this paragraph. Any deviation from permit

requirements, the date(s) of each deviation, the cause of the deviation, and the response steps taken must be reported except that a deviation required to be reported pursuant to an applicable requirement that exists independent of this permit, shall be reported according to the schedule stated in the applicable requirement and does not need to be included in this report. This report shall be submitted not later than thirty (30) days after the end of the reporting period. The Quarterly Deviation and Compliance Monitoring Report shall include a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35). A deviation is an exceedance of a permit limitation or a failure to comply with a requirement of the permit.

(b) The address for report submittal is:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

(c) Unless otherwise specified in this permit, any notice, report, or other submission required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.

(d) Reporting periods are based on calendar years, unless otherwise specified in this permit. For the purpose of this permit, “calendar year” means the twelve (12) month period from January 1 to December 31 inclusive.

(e) If the Permittee is required to comply with the recordkeeping provisions of (d) in Section C - General Record Keeping Requirements for any “project” (as defined in 326 IAC 2-2-1 (oo) and/or 326 IAC 2-3-1 (jj)) at an existing emissions unit, and the project meets the following criteria, then the Permittee shall submit a report to IDEM, OAQ:

(1) The annual emissions, in tons per year, from the project identified in (c)(1) in Section C- General Record Keeping Requirements exceed the baseline actual emissions, as documented and maintained under Section C- General Record Keeping Requirements (c)(1)(C)(i), by a significant amount, as defined in 326 IAC 2-2-1 (ww) and/or 326 IAC 2-3-1 (pp), for that regulated NSR pollutant, and

(2) The emissions differ from the preconstruction projection as documented and maintained under Section C - General Record Keeping Requirements (c)(1)(C)(ii).

(f) The report for project at an existing emissions unit shall be submitted no later than sixty (60) days after the end of the year and contain the following:

(1) The name, address, and telephone number of the major stationary source.

(2) The annual emissions calculated in accordance with (d)(1) and (2) in Section C - General Record Keeping Requirements.

(3) The emissions calculated under the actual-to-projected actual test stated in 326 IAC 2-2-2(d)(3) and/or 326 IAC 2-3-2(c)(3).

(4) Any other information that the Permittee wishes to include in this report such as an explanation as to why the emissions differ from the preconstruction projection.

Reports required in this part shall be submitted to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

(g) The Permittee shall make the information required to be documented and maintained in accordance with (c) in Section C- General Record Keeping Requirements available for review upon a request for inspection by IDEM, OAQ. The general public may request this information from the IDEM, OAQ under 326 IAC 17.1.

Stratospheric Ozone Protection

C.18 Compliance with 40 CFR 82 and 326 IAC 22-1

Pursuant to 40 CFR 82 (Protection of Stratospheric Ozone), Subpart F, except as provided for motor vehicle air conditioners in Subpart B, the Permittee shall comply with applicable standards for recycling and emissions reduction.

SECTION D.1 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Hartsdale Terminal:

(a) Nine (9) crude oil storage tanks, all constructed in 1958, modification permitted in 2012, identified as EU1601 through EU1609, each with an external floating roof, each with a maximum storage capacity of 4,200,000 gallons (100,000 barrels) of crude oil.

(b) One (1) crude oil storage tank, approved in 2013 for construction, identified as EU1610, with an external floating roof, with a maximum storage capacity of 530,000 barrels. [40 CFR 60, Subpart Kb]

(c) One (1) crude oil storage tank, approved in 2013 for construction, identified as EU1611, with an external floating roof, with a maximum storage capacity of 360,000 barrels. [40 CFR 60, Subpart Kb]

(d) Piping component fugitive emission sources in VOC service.

Griffith Terminal:

(a) One (1) crude oil storage tank, constructed in 1969, identified as EU70, with an external floating roof, with a maximum capacity of 120,000 barrels.

(b) One (1) crude oil storage tank, constructed in 1970, identified as EU71, with an external floating roof, with a maximum capacity of 217,000 barrels.

(c) One (1) crude oil storage tank, constructed in 1971, identified as EU72, with an external floating roof, with a maximum capacity of 217,000 barrels.

(d) One (1) crude oil storage tank, constructed in 1971, identified as EU73, with an external floating roof, with a maximum capacity of 217,000 barrels.

(e) One (1) crude oil storage tank, constructed in 1972, identified as EU74, with an external floating roof, with a maximum capacity of 217,000 barrels.

(f) One (1) crude oil storage tank, constructed in 1972, identified as EU75, with an external floating roof, with guide-pole controls (guide-pole sleeve and guide-pole wiper), permitted in 2008, with a maximum capacity of 217,000 barrels.

(g) One (1) crude oil storage tank, constructed in 1973, identified as EU76, with an external floating roof, with a maximum capacity of 395,000 barrels.

(h) One (1) crude oil storage tank, constructed in 1973, identified as EU77, with an external floating roof, with a maximum capacity of 395,000 barrels.

(i) One (1) crude oil storage tank, constructed in 1979, identified as EU78, with an external floating roof, with a maximum capacity of 217,000 barrels. [40 CFR 60, Subpart Ka]

(j) One (1) crude oil storage tank, constructed in 2007, identified as EU79, with an external floating roof, with a maximum capacity of 392,169 barrels (16,471,098 gallons). [40 CFR 60, Subpart Kb]

(k) One (1) crude oil storage tank, constructed in 2007, identified as EU80, with an external floating roof, with a maximum capacity of 240,000 barrels (10,080,000 gallons). [40 CFR 60, Subpart Kb]

(l) Piping component fugitive emission sources in VOC service.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.1.1 Volatile Organic Compounds (VOC) [326 IAC 8-4-3]

Pursuant to 326 IAC 8-4-3(c)(2), the Permittee shall not store petroleum liquid in the storage tanks EU70 through EU80, and EU1601 through EU1611, unless:

(a) The storage tanks have been fitted with:

(1) A continuous secondary seal extending from the floating roof to the tank wall (rim-mounted secondary seal); or

(2) A closure or other device approved by the commissioner which is equally effective.

(b) All seal closure devices meet the following requirements:

(1) There are no visible holes, tears, or other openings in the seal(s) or seal fabric;

(2) The seal(s) are intact and uniformly in place around the circumference of the floating roof between the floating roof and the tank wall.

(3) For vapor mounted primary seals, the accumulated gap area around the circumference of the secondary seal where a gap exceeding one-eighth (1/8) inch exists between the secondary seal and the tank wall shall not exceed one (1.0) square inch per foot of tank diameter. There shall be no gaps exceeding one-half (½) inch between the secondary seal and the tank wall of welded tanks and no gaps exceeding one (1) inch between the secondary seal and the tank wall of riveted tanks.

(c) All openings in the external floating roof, except for automatic bleeder vents, rim space vents, and leg sleeves, are:

(1) Equipped with covers, seals, or lids in the closed position except when the openings are in actual use; and

(2) Equipped with projections into the tank which remain below the liquid surface at all times.

(d) Automatic bleeder vents are closed at all times except when the roof is floated off or landed on the roof leg supports;

(e) Rim vents are set to open when the roof is being floated off the leg supports or at the manufacturer's recommended setting; and

(f) Emergency roof drains are provided with slotted membrane fabric covers or equivalent covers which cover at least ninety percent (90%) of the area of the opening.

D.1.2 Volatile Organic Compounds (VOC) [326 IAC 8-9-4]

Pursuant to 326 IAC 8-9-4(e) (Volatile Organic Liquid Storage Vessels), the Permittee shall comply with the following standards for the external floating roofs on storage tanks EU70 through EU78 and EU1601 through 1609:

(a) Each external floating roof shall be equipped with a closure device between the wall of the vessel and the roof edge. The closure device shall consist of two (2) seals, one (1) above the other. The lower seal shall be referred to as the primary seal; the upper seal shall be referred to as the secondary seal.

(b) Except as provided in 326 IAC 8-9-5(c)(4), the primary seal shall completely cover the annular space between the edge of the floating roof and vessel wall and shall be either a liquid-mounted seal or a shoe seal.

(c) The secondary seal shall completely cover the annular space between the external floating roof and the wall of the vessel in a continuous fashion except as allowed in 326 IAC 8-9-5(c)(4).

(d) Except for automatic bleeder vents and rim space vents, each opening in a noncontact external floating roof shall provide a projection below the liquid surface.

(e) Except for automatic bleeder vents, rim space vents, roof drains, and leg sleeves, each opening in the roof shall be equipped with a gasketed cover, seal, or lid that shall be maintained in a closed position at all times, without visible gap, except when the device is in actual use.

(f) Automatic bleeder vents shall be closed at all times when the roof is floating except when the roof is being floated off or is being landed on the roof leg supports.

(g) Rim vents shall be set to open when the roof is being floated off the roof leg supports or at the manufacturer's recommended setting. Automatic bleeder vents and rim space vents shall be gasketed.

(h) Each emergency roof drain shall be provided with a slotted membrane fabric cover that covers at least ninety percent (90%) of the area of the opening.

(i) The roof shall be floating on the liquid at all times, for example, off the roof leg supports, except when the vessel is completely emptied and subsequently refilled. The process of filling, emptying, or refilling when the roof is resting on the leg supports shall be continuous and shall be accomplished as rapidly as possible.

D.1.3 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan, is required for these facilities and their control devices. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

Compliance Determination Requirements

D.1.4 Compliance Determination [326 IAC 8-9-5]

Pursuant to 326 IAC 8-9-5(a), for storage tanks EU70 through EU78 and EU1601 through 1609, the Permittee shall comply with the following requirements:

(a) Determine the gap areas and maximum gap widths between the primary seal and the wall of the vessel and between the secondary seal and the wall of the vessel according to the following frequency:

(1) Measurements of gaps between the vessel wall and the primary seal (seal gaps) shall be performed during the hydrostatic testing of the vessel or within sixty (60) days of the initial fill with VOL and at least once every five (5) years thereafter.

(2) Measurements of gaps between the vessel wall and the secondary seal shall be performed within sixty (60) days of the initial fill with VOL and at least once per year thereafter.

(3) If any source ceases to store VOL for a period of one (1) year or more, subsequent introduction of VOL into the vessel shall be considered an initial fill for purposes of this subdivision.

(b) Determine gap widths and areas in the primary and secondary seals individually by the following procedures:

(1) Measure seal gaps, if any, at one (1) or more floating roof levels when the roof is floating off the roof leg supports.

(2) Measure seal gaps around the entire circumference of the vessel in each place where a one-eighth (⅛) inch diameter uniform probe passes freely (without forcing or binding against seal) between the seal and the wall of the vessel and measure the circumferential distance of each such location.

(3) The total surface area of each gap described in 326 IAC 8-9-5(c)(2)(B) shall be determined by using probes of various widths to measure accurately the actual distance from the vessel wall to the seal and multiplying each such width by its respective circumferential distance.

(c) Add the gap surface area of each gap location for the primary seal and the secondary seal individually and divide the sum for each by the nominal diameter of the vessel and compare each ratio to the respective standards in 326 IAC 8-9-5(c)(4).

(d) Make necessary repairs or empty the vessel within forty-five (45) days of identification of seals not meeting the requirements listed in 326 IAC 8-9-5(c)(4)(A) and 326 IAC 8-9-5(c)(4)(B) as follows:

(1) The accumulated area of gaps between the vessel wall and the mechanical shoe or liquid-mounted primary seal shall not exceed ten (10) square inches per foot of vessel diameter, and the width of any portion of any gap shall not exceed one and five-tenths (1.5) inches. There shall be no holes, tears, or other openings in the shoe, seal fabric, or seal envelope.

(2) The secondary seal shall meet the following requirements:

(A) The secondary seal shall be installed above the primary seal so that it completely covers the space between the roof edge and the vessel wall except as provided in 326 IAC 8-9-5(c)(2)(C).

(B) The accumulated area of gaps between the vessel wall and the secondary seal used in combination with a metallic shoe or liquid-mounted primary seal shall not exceed one (1) square inch per foot of vessel diameter, and the width of any portion of any gap shall not exceed

five-tenths (0.5) inch. There shall be no gaps between the vessel wall and the secondary seal when used in combination with a vapor-mounted primary seal.

(C) There shall be no holes, tears, or other openings in the seal or seal fabric.

(3) If a failure that is detected during inspections required in subdivision (1) cannot be repaired within forty-five (45) days and if the vessel cannot be emptied within forty-five (45) days, a thirty (30) day extension may be requested from IDEM, OAQ in the inspection report required in 326 IAC 8-9-6(d)(3). Such extension request must include a demonstration of unavailability of alternate storage capacity and a specification of a schedule that will assure that the control equipment will be repaired or the vessel will be emptied as soon as possible.

(e) Notify the department thirty days in advance of any gap measurements required to afford the department the opportunity to have an observer present.

(f) Visually inspect the external floating roof, the primary seal, secondary seal, and fittings each time the vessel is emptied and degassed. For all visual inspections, the following requirements apply:

(1) If the external floating roof has defects, the primary seal has holes, tears, or other openings in the seal or the seal fabric, or the secondary seal has holes, tears, or other openings in the seal fabric, the Permittee shall repair the items as necessary so that none of the conditions specified in this clause exist before filling or refilling the vessel with VOL.

(2) The owner or operator shall notify the department in writing at least thirty days prior to the filling or refilling of each vessel to afford the department the opportunity to inspect the vessel prior to the filling. If the inspection is not planned and the owner or operator could not have known about the inspection thirty days in advance of refilling the vessel, the owner or operator shall notify the department at least seven days prior to the refilling of the vessel. Notification shall be made by telephone immediately followed by written documentation demonstrating why the inspection was unplanned. Alternatively, this notification including the written documentation may be made in writing and sent by express mail so that it is received by the department at least 7 days prior to the refilling.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.1.5 Record Keeping Requirements [326 IAC 8-4] [326 IAC 8-9]

(a) Pursuant to 326 IAC 8-4-3(d), the Permittee shall maintain the following records for storage tanks EU70 through EU80 and EU1601 through EU1611:

(1) The types of volatile petroleum liquid stored,

(2) The maximum true vapor pressure of the liquid as stored, and

(3) The results of the inspections performed on the storage vessels.

Records shall be maintained for a period of two (2) years and shall be made available to the commissioner upon written request.

(b) Pursuant to 326 IAC 8-9-6(b), the Permittee shall maintain a record of the following for storage tanks EU70 through EU78 and EU1601 through EU1609:

(1) The vessel identification number.

(2) The vessel dimensions.

(3) The vessel capacity.

(4) A description of the emission control equipment for each storage vessel with a certification that the emission control equipment meets the applicable standards.

These records shall be maintained for the life of the vessel.

(c) Pursuant to 326 IAC 8-9-6(d), the Permittee shall keep a record for storage tanks EU70 through EU78 and EU1601 through EU1609 of each gap measurement performed as required by 326 IAC 8-9-5(c). Each record shall identify the vessel in which the measurement was made and shall contain the following:

(1) The date of measurement.

(2) The raw data obtained in the measurement.

(3) The calculations described in 326 IAC 8-9-5(c)(2) and 326 IAC 8-9-5(c)(3).

These records shall be maintained for a period of three (3) years.

(d) Section C - General Record Keeping Requirements contains the Permittee's obligations with regard to the records required by this condition.

D.1.6 Reporting and Notification Requirements [326 IAC 8-4] [326 IAC 8-9]

(a) Pursuant to 326 IAC 8-9-5(c)(5), the Permittee shall notify IDEM, OAQ thirty (30) days in advance of any gap measurements required by Condition D.1.4 to afford IDEM, OAQ the opportunity to have an observer present.

(b) Pursuant to 326 IAC 8-9-5(c)(6)(B), the Permittee shall notify IDEM, OAQ in writing at least thirty (30) days prior to the filling or refilling of each vessel to afford IDEM, OAQ the opportunity to inspect the vessel prior to the filling. If the inspection required by 326 IAC 8-9-5(c)(6) is not planned and the Permittee could not have known about the inspection thirty (30) days in advance of refilling the vessel, the Permittee shall notify IDEM, OAQ at least seven (7) days prior to the refilling of the vessel. Notification shall be made by telephone immediately followed by written documentation demonstrating why the inspection was unplanned. Alternatively, this notification including the written documentation may be made in writing and sent by express mail so that it is received by IDEM, OAQ at least seven (7) days prior to the refilling.

(c) Pursuant to 326 IAC 8-9-6:

(1) A seal gap report must be submitted for initial seal gap measurement. For subsequent seal gap measurements, a seal gap report must be submitted only when the measured gaps exceed the limitations specified in 326 IAC 8-9-5(c). Within sixty (60) days of exceeding the limitations, the Permitttee shall furnish IDEM, OAQ with a report that contains the following:

(A) The date of measurement.

(B) The raw data obtained in the measurement.

(C) The calculations described in 326 IAC 8-9-5(c)(2) and 326 IAC 8-9-5(c)(3).

(2) After each seal gap measurement that detects gaps exceeding the limitations specified in 326 IAC 8-9-5(c), the Permittee shall submit a report to IDEM, OAQ within thirty (30) days of the inspection. The report shall identify the vessel and contain the date of measurement, the raw data obtained in the measurement, the calculations described in 326 IAC 8-9-5(c)(2) and 326 IAC 8-9-5(c)(3), and the date the vessel was emptied or the repairs made and date of repair.

(d) Pursuant to 326 IAC 8-9-6, the Permittee of storage vessels EU70 through EU78 and EU1601 through EU1609, shall submit to IDEM, OAQ a report containing the following information for each vessel:

(1) The vessel identification number.

(2) The vessel dimensions.

(3) The vessel capacity.

(4) A description of the emission control equipment for each storage vessel with a certification that the emission control equipment meets the applicable standards.

(e) The reports and notifications required by this Condition shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit. Section C - General Reporting contains the Permittee's obligation with regard to the reporting required by this condition. The report submitted by the Permittee does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official," as defined by 326 IAC 2-7-1 (35).

SECTION D.2 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

(b) The following equipment related to manufacturing activities not resulting in the emission of HAPs; brazing equipment, cutting torches, soldering equipment, welding equipment [326 IAC 6.8-1-2].

(c) Two (2) emergency diesel generators: [326 IAC 6.8-1-2] [40 CFR 63, Subpart ZZZZ]
(1) Griffith emergency generator constructed in 1993 rated at 207 horsepower.
(2) Hartsdale emergency generator constructed in 1998 rated at 207 horsepower.

(d) One (1) emergency diesel generator, approved in 2013 for construction, with a maximum capacity of 266 hp. [326 IAC 6.8-1-2] [40 CFR 60, Subpart IIII] [40 CFR 63, Subpart ZZZZ]

(e) Two (2) stationary diesel fire pumps: [326 IAC 6.8-1-2] [40 CFR 63, Subpart ZZZZ]
(1) Griffith fire pump constructed in 1971 rated at 175 horsepower.
(2) Hartsdale fire pump constructed in 2002 rated at 300 horsepower.

(f) Portable blast-cleaning equipment with enclosures. [326 IAC 6.8-1-2]

(g) Two (2) liquid propane-fired emergency generators, installed in 2014, identified as Hartsdale Emergency Generator #2 and Hartsdale Emergency Generator #3, each with a maximum capacity of 14 kW. [326 IAC 6.8-1-2] [40 CFR 60, Subpart JJJJ] [40 CFR 63, Subpart ZZZZ]

(The information describing the process in this facility description is descriptive information and does not constitute enforceable condition.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.2.1 Particulate Emissions [326 IAC 6.8-1-2]

Pursuant to 326 IAC 6.8-1-2(a), the particulate matter emissions from the above listed emissions units shall not exceed 0.03 grains per dry standard cubic foot.

SECTION E.1 NSPS

Emissions Unit Description:

Griffith Terminal:

(i) One (1) crude oil storage tank, constructed in 1979, identified as EU78, with an external floating roof, with a maximum capacity of 217,000 barrels. [40 CFR 60, Subpart Ka]

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

New Source Performance Standards (NSPS) Requirements [326 IAC 2-7-5(1)]

E.1.1 General Provisions Relating to New Source Performance Standards [40 CFR Part 60**,** Subpart A] [326 IAC 12-1]

(a) Pursuant to 40 CFR 60.1, the Permittee shall comply with ~~T~~the provisions of 40 CFR Part 60, Subpart A - General Provisions, which are incorporated by reference as 326 IAC 12-1, for the above listed emissions units, except as otherwise specified in 40 CFR Part 60, Subpart Ka.

(b) Pursuant to 40 CFR 60.4, the Permittee shall submit all required notifications and reports to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

and

United States Environmental Protection Agency, Region V
Air and Radiation Division, Air Enforcement Branch - Indiana (AE-17J)
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

E.1.2 Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and Prior to July 23, 1984 NSPS [40 CFR Part 60, Subpart Ka] [326 IAC 12]

Pursuant to 40 CFR Part 60, Subpart Ka, the Permittee shall comply with the provisions of 40 CFR Part 60, Subpart Ka, which are incorporated by reference as 326 IAC 12 (included as Attachment C to this permit), for the above listed emissions units as specified as follows.

(1) 40 CFR 60.110a(a) & (b)
(2) 40 CFR 60.111a
(3) 40 CFR 60.112a(a)
(4) 40 CFR 60.113a
(5) 40 CFR 60.115a(a), (b), (c)

SECTION E.2 NSPS

Emissions Unit Description:

Hartsdale Terminal:

(a) Nine (9) crude oil storage tanks, all constructed in 1958, modification permitted in 2012, identified as EU1601 through EU1609, each with an external floating roof, each with a maximum storage capacity of 4,200,000 gallons (100,000 barrels) of crude oil. [40 CFR 60, Subpart Kb]

(b) One (1) crude oil storage tank, approved in 2013 for construction, identified as EU1610, with an external floating roof, with a maximum storage capacity of 530,000 barrels. [40 CFR 60, Subpart Kb]

(c) One (1) crude oil storage tank, approved in 2013 for construction, identified as EU1611, with an external floating roof, with a maximum storage capacity of 360,000 barrels. [40 CFR 60, Subpart Kb]

Griffith Terminal:

(j) One (1) crude oil storage tank, constructed in 2007, identified as EU79, with an external floating roof, with a maximum capacity of 392,169 barrels (16,471,098 gallons). [40 CFR 60, Subpart Kb]

(k) One (1) crude oil storage tank, constructed in 2007, identified as EU80, with an external floating roof, with a maximum capacity of 240,000 barrels (10,080,000 gallons). [40 CFR 60, Subpart Kb]

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

New Source Performance Standards (NSPS) Requirements [326 IAC 2-7-5(1)]

E.2.1 General Provisions Relating to New Source Performance Standards [40 CFR Part 60, Subpart A] [326 IAC 12-1]

(a) Pursuant to 40 CFR 60.1, the Permittee shall comply with the provisions of 40 CFR Part 60, Subpart A - General Provisions, which are incorporated by reference as 326 IAC 12-1 for the above listed emissions units, except when otherwise specified in 40 CFR Part 60, Subpart Kb.

Note: Tanks 1601 – 1609 will become subject to 40 CFR Part 60, Subpart A upon modification.

E.2.2 Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984 NSPS [40 CFR Part 60, Subpart Kb] [326 IAC 12]

Pursuant to 40 CFR Part 60, Subpart Kb, the Permittee shall comply with the provisions of 40 CFR Part 60, Subpart Kb, which are incorporated by reference as 326 IAC 12 (included as Attachment D to this permit), for the above listed emissions units as specified as follows.

(1) 40 CFR 60.110b(a), (b)
(2) 40 CFR 60.111b
(3) 40 CFR 60.112b(a)(2)
(4) 40 CFR 60.113b(b)

(5) 40 CFR 60.115b(b)
(6) 40 CFR 60.116b(a), (b), (c), (d), (e)
(7) 40 CFR 60.117b

Note: Tanks 1601 – 1609 will become subject to 40 CFR Part 60, Subpart Kb upon modification.

SECTION E.3 NESHAP

Emissions Unit Description: Insignificant Activities

(c) Two (2) emergency diesel generators: [326 IAC 6.8-1-2] [40 CFR 63, Subpart ZZZZ]
(1) Griffith emergency generator constructed in 1993 rated at 207 horsepower.
(2) Hartsdale emergency generator constructed in 1998 rated at 207 horsepower.

(d) One (1) emergency diesel generator, approved in 2013 for construction, with a maximum capacity of 266 hp. [326 IAC 6.8-1-2] [40 CFR 60, Subpart IIII] [40 CFR 63, Subpart ZZZZ]

(e) Two (2) stationary diesel fire pumps: [326 IAC 6.8-1-2] [40 CFR 63, Subpart ZZZZ]
(1) Griffith fire pump constructed in 1971 rated at 175 horsepower.
(2) Hartsdale fire pump constructed in 2002 rated at 300 horsepower.

(g) Two (2) liquid propane-fired emergency generators, installed in 2014, identified as Hartsdale Emergency Generator #2 and Hartsdale Emergency Generator #3, each with a maximum capacity of 14 kW. [326 IAC 6.8-1-2] [40 CFR 60, Subpart JJJJ] [40 CFR 63, Subpart ZZZZ]

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

National Emission Standards for Hazardous Air Pollutants (NESHAP) Requirements [326 IAC 2-7-5(1)]

E.3.1 General Provisions Relating to National Emission Standards for Hazardous Air Pollutants under 40 CFR Part 63 [326 IAC 20-1] [40 CFR 63, Subpart A]

(a) Pursuant to 40 CFR *63*.6665, the Permittee shall comply with the provisions of 40 CFR Part 63, Subpart A - General Provisions, which are incorporated by reference in 326 IAC 20**-**1-1, for the above listed emissions units, as specified in 40 CFR Part 63, Subpart ZZZZ, in accordance with the schedule in 40 CFR Part 63, Subpart ZZZZ.

(b) Pursuant to 40 CFR 63.10, the Permittee shall submit all required notifications and reports to:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204

and

United States Environmental Protection Agency, Region V
Air and Radiation Division, Air Enforcement Branch - Indiana (AE-17J)
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

E.3.2 Stationary Reciprocating Internal Combustion Engines NESHAP [326 IAC 20-82] [40 CFR Part 63, Subpart ZZZZ]

Pursuant to 40 CFR Part 63, Subpart ZZZZ, the Permittee shall comply with the provisions of 40 CFR Part 63**,** Subpart ZZZZ, which are incorporated by reference as 326 IAC 20-82 (included as Attachment E to this permit), for the above listed emissions units, as specified as follows~~:~~**.**

(1) 40 CFR 63.6580
(2) 40 CFR 63.6585
(3) 40 CFR 63.6590
(4) 40 CFR 63.6595
(5) 40 CFR 63.6603
(6) 40 CFR 63.6604
(7) 40 CFR 63.6605
(8) 40 CFR 63.6612
(9) 40 CFR 63.6625(e)
(10) 40 CFR 63.6630
(11) 40 CFR 63.6640
(12) 40 CFR 63.6645
(13) 40 CFR 63.6650
(14) 40 CFR 63.6655
(15) 40 CFR 63.6660
(16) 40 CFR 63.6665
(17) 40 CFR 63.6670
(18) 40 CFR 63.6675
(19) Table 8

SECTION E.4 NSPS

Emissions Unit Description: Insignificant Activities

(d) One (1) emergency diesel generator, approved in 2013 for construction, with a maximum capacity of 266 hp. [326 IAC 6.8-1-2] [40 CFR 60, Subpart IIII] [40 CFR 63, Subpart ZZZZ]

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

New Source Performance Standards (NSPS) Requirements [326 IAC 2-7-5(1)]

E.4.1 General Provisions Relating to New Source Performance Standards [40 CFR Part 60**,** Subpart A] [326 IAC 12-1]

(a) Pursuant to 40 CFR 60.1, the Permittee shall comply with the provisions of 40 CFR Part 60, Subpart A - General Provisions, which are incorporated by reference as 326 IAC 12-1, for the above listed emissions units, except as otherwise specified in 40 CFR Part 60, Subpart IIII.

(b) Pursuant to 40 CFR 60.4, the Permittee shall submit all required notifications and reports to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

and

United States Environmental Protection Agency, Region V
Air and Radiation Division, Air Enforcement Branch - Indiana (AE-17J)
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

E.4.2 Stationary Compression Ignition Internal Combustion Engines NSPS [40 CFR Part 60, Subpart IIII] [326 IAC 12]

Pursuant to 40 CFR Part 60, Subpart IIII, the Permittee shall comply with the provisions of 40 CFR Part 60, Subpart IIII, which are incorporated by reference as 326 IAC 12, (included as Attachment F to this permit), for the above listed emissions units as specified as follows.

(1) 40 CFR 60.4200(a)
(2) 40 CFR 60.4205 (b), (e)
(3) 40 CFR 60.4206
(4) 40 CFR 60.4207 (b)
(5) 40 CFR 60.4209
(6) 40 CFR 60.4211 (a), (c), (f), (g)
(7) 40 CFR 60.4212
(8) 40 CFR 60.4214 (b), (c), (d)
(9) 40 CFR 60.4218
(10) 40 CFR 60.4219
(11) Table 5
(12) Table 8

SECTION E.5 NSPS

Emissions Unit Description:

(g) Two (2) liquid propane-fired emergency generators, installed in 2014, identified as Hartsdale Emergency Generator #2 and Hartsdale Emergency Generator #3, each with a maximum capacity of 14 kW. [326 IAC 6.8-1-2] [40 CFR 60, Subpart JJJJ] [40 CFR 63, Subpart ZZZZ]

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

New Source Performance Standards (NSPS) Requirements [326 IAC 2-7-5(1)]

E.5.1 General Provisions Relating to New Source Performance Standards [326 IAC 12-1] [40 CFR Part 60, Subpart A]

(a) Pursuant to 40 CFR 60.1, the Permittee shall comply with the provisions of 40 CFR Part 60, Subpart A – General Provisions, which are incorporated by reference as 326 IAC 12-1, for the above listed emissions units, except as otherwise specified in 40 CFR Part 60, Subpart JJJJ.

(b) Pursuant to 40 CFR 60.4, the Permittee shall submit all required notifications and reports to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

and

United States Environmental Protection Agency, Region V
Air and Radiation Division, Air Enforcement Branch - Indiana (AE-17J)
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

E.5.2 Stationary Spark Ignition Internal Combustion Engines NSPS [326 IAC 12] [40 CFR Part 60, Subpart JJJJ]

Pursuant to 40 CFR Part 60, Subpart JJJJ, the Permittee shall comply with the provisions of 40 CFR Part 60, Subpart JJJJ, which are incorporated by reference as 326 IAC 12 (included as Attachment G to this permit), for the above listed emissions units as specified as follows.

(1) 40 CFR 60.4230(a)(4)(iii)
(2) 40 CFR 60.4231(a)
(3) 40 CFR 60.4233(a)
(4) 40 CFR 60.4234
(5) 40 CFR 60.4236
(6) 40 CFR 60.4237(c)
(7) 40 CFR 60.4243(a)(1) & (2)(i), and (d)
(8) 40 CFR 60.4245(a)
(9) 40 CFR 60.4246
(10) 40 CFR 60.4248
(11) Table 3 - As Applicable

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH
PART 70 OPERATING PERMIT
CERTIFICATION

Source Name: Enbridge Energy - Hartsdale/Griffith Terminal
Source Address: 1500 W. Main Street, Griffith, IN 46319, and Central Avenue and Division Street, Hartsdale, IN 46375
Part 70 Permit No.: T089-31293-00497

This certification shall be included when submitting monitoring, testing reports/results or other documents as required by this permit.

Please check what document is being certified:

☐ Annual Compliance Certification Letter

☐ Test Result (specify)

☐ Report (specify)

☐ Notification (specify)

☐ Affidavit (specify)

☐ Other (specify)

I certify that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

Signature:
Printed Name:
Title/Position:
Phone:
Date:

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251
Phone: (317) 233-0178
Fax: (317) 233-6865

PART 70 OPERATING PERMIT
EMERGENCY OCCURRENCE REPORT

Source Name: Enbridge Energy - Hartsdale/Griffith Terminal
Source Address: 1500 W. Main Street, Griffith, IN 46319, and Central Avenue and Division Street, Hartsdale, IN 46375
Part 70 Permit No.: T089-31293-00497

This form consists of 2 pages **Page 1 of 2**

□ This is an emergency as defined in 326 IAC 2-7-1(12)

- The Permittee must notify the Office of Air Quality (OAQ), within four (**4**) business hours (1-800-451-6027 or 317-233-0178, ask for Compliance Section); and
- The Permittee must submit notice in writing or by facsimile within two (**2**) working days (Facsimile Number: 317-233-6865), and follow the other requirements of 326 IAC 2-7-16.

If any of the following are not applicable, mark N/A

Facility/Equipment/Operation:
Control Equipment:
Permit Condition or Operation Limitation in Permit:
Description of the Emergency:
Describe the cause of the Emergency:

If any of the following are not applicable, mark N/A **Page 2 of 2**

Date/Time Emergency started:
Date/Time Emergency was corrected:
Was the facility being properly operated at the time of the emergency? Y N
Type of Pollutants Emitted: TSP, PM-10, SO_2, VOC, NO_X, CO, Pb, other:
Estimated amount of pollutant(s) emitted during emergency:
Describe the steps taken to mitigate the problem:
Describe the corrective actions/response steps taken:
Describe the measures taken to minimize emissions:
If applicable, describe the reasons why continued operation of the facilities are necessary to prevent imminent injury to persons, severe damage to equipment, substantial loss of capital investment, or loss of product or raw materials of substantial economic value:

Form Completed by:_____

Title / Position: _____

Date:_____

Phone: _____

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH
PART 70 OPERATING PERMIT
QUARTERLY DEVIATION AND COMPLIANCE MONITORING REPORT

Source Name: Enbridge Energy - Hartsdale/Griffith Terminal
Source Address: 1500 W. Main Street, Griffith, IN 46319, and Central Avenue and Division Street, Hartsdale, IN 46375
Part 70 Permit No.: T089-31293-00497

Months: _____ to _____ Year: _____

This report shall be submitted quarterly based on a calendar year. Proper notice submittal under Section B –Emergency Provisions satisfies the reporting requirements of paragraph (a) of Section C-General Reporting. Any deviation from the requirements of this permit, the date(s) of each deviation, the probable cause of the deviation, and the response steps taken must be reported. A deviation required to be reported pursuant to an applicable requirement that exists independent of the permit, shall be reported according to the schedule stated in the applicable requirement and does not need to be included in this report. Additional pages may be attached if necessary. If no deviations occurred, please specify in the box marked "No deviations occurred this reporting period".

☐ NO DEVIATIONS OCCURRED THIS REPORTING PERIOD.

☐ THE FOLLOWING DEVIATIONS OCCURRED THIS REPORTING PERIOD

Permit Requirement (specify permit condition #)	
Date of Deviation:	**Duration of Deviation:**
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	

Permit Requirement (specify permit condition #)	
Date of Deviation:	**Duration of Deviation:**
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	

Permit Requirement (specify permit condition #)	
Date of Deviation:	**Duration of Deviation:**
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	
Permit Requirement (specify permit condition #)	
Date of Deviation:	**Duration of Deviation:**
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	
Permit Requirement (specify permit condition #)	
Date of Deviation:	**Duration of Deviation:**
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	

Form Completed by:_____

Title / Position: _____

Date:_____

Phone: _____

Attachment E

Part 70 Operating Permit Renewal No: 089-31293-00497

[Downloaded from the eCFR on July 23, 2014]

Electronic Code of Federal Regulations

Title 40: Protection of Environment

PART 63—NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS FOR SOURCE CATEGORIES

Subpart ZZZZ—National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

Source: 69 FR 33506, June 15, 2004, unless otherwise noted.

What This Subpart Covers

§63.6580 What is the purpose of subpart ZZZZ?

Subpart ZZZZ establishes national emission limitations and operating limitations for hazardous air pollutants (HAP) emitted from stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and operating limitations.

[73 FR 3603, Jan. 18, 2008]

§63.6585 Am I subject to this subpart?

You are subject to this subpart if you own or operate a stationary RICE at a major or area source of HAP emissions, except if the stationary RICE is being tested at a stationary RICE test cell/stand.

(a) A stationary RICE is any internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work and which is not mobile. Stationary RICE differ from mobile RICE in that a stationary RICE is not a non-road engine as defined at 40 CFR 1068.30, and is not used to propel a motor vehicle or a vehicle used solely for competition.

(b) A major source of HAP emissions is a plant site that emits or has the potential to emit any single HAP at a rate of 10 tons (9.07 megagrams) or more per year or any combination of HAP at a rate of 25 tons (22.68 megagrams) or more per year, except that for oil and gas production facilities, a major source of HAP emissions is determined for each surface site.

(c) An area source of HAP emissions is a source that is not a major source.

(d) If you are an owner or operator of an area source subject to this subpart, your status as an entity subject to a standard or other requirements under this subpart does not subject you to the obligation to obtain a permit under 40 CFR part 70 or 71, provided you are not required to obtain a permit under 40 CFR 70.3(a) or 40 CFR 71.3(a) for a reason other than your status as an area source under this subpart. Notwithstanding the previous sentence, you must continue to comply with the provisions of this subpart as applicable.

(e) If you are an owner or operator of a stationary RICE used for national security purposes, you may be eligible to request an exemption from the requirements of this subpart as described in 40 CFR part 1068, subpart C.

(f) The emergency stationary RICE listed in paragraphs (f)(1) through (3) of this section are not subject to this subpart. The stationary RICE must meet the definition of an emergency stationary RICE in §63.6675, which includes operating according to the provisions specified in §63.6640(f).

(1) Existing residential emergency stationary RICE located at an area source of HAP emissions that do not operate or are not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii) and that do not operate for the purpose specified in §63.6640(f)(4)(ii).

(2) Existing commercial emergency stationary RICE located at an area source of HAP emissions that do not operate or are not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii) and that do not operate for the purpose specified in §63.6640(f)(4)(ii).

(3) Existing institutional emergency stationary RICE located at an area source of HAP emissions that do not operate or are not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii) and that do not operate for the purpose specified in §63.6640(f)(4)(ii).

[69 FR 33506, June 15, 2004, as amended at 73 FR 3603, Jan. 18, 2008; 78 FR 6700, Jan. 30, 2013]

§63.6590 What parts of my plant does this subpart cover?

This subpart applies to each affected source.

(a) *Affected source.* An affected source is any existing, new, or reconstructed stationary RICE located at a major or area source of HAP emissions, excluding stationary RICE being tested at a stationary RICE test cell/stand.

(1) *Existing stationary RICE.*

(i) For stationary RICE with a site rating of more than 500 brake horsepower (HP) located at a major source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before December 19, 2002.

(ii) For stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before June 12, 2006.

(iii) For stationary RICE located at an area source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before June 12, 2006.

(iv) A change in ownership of an existing stationary RICE does not make that stationary RICE a new or reconstructed stationary RICE.

(2) *New stationary RICE.* (i) A stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions is new if you commenced construction of the stationary RICE on or after December 19, 2002.

(ii) A stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions is new if you commenced construction of the stationary RICE on or after June 12, 2006.

(iii) A stationary RICE located at an area source of HAP emissions is new if you commenced construction of the stationary RICE on or after June 12, 2006.

(3) *Reconstructed stationary RICE.* (i) A stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions is reconstructed if you meet the definition of reconstruction in §63.2 and reconstruction is commenced on or after December 19, 2002.

(ii) A stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions is reconstructed if you meet the definition of reconstruction in §63.2 and reconstruction is commenced on or after June 12, 2006.

(iii) A stationary RICE located at an area source of HAP emissions is reconstructed if you meet the definition of reconstruction in §63.2 and reconstruction is commenced on or after June 12, 2006.

(b) *Stationary RICE subject to limited requirements.* (1) An affected source which meets either of the criteria in paragraphs (b)(1)(i) through (ii) of this section does not have to meet the requirements of this subpart and of subpart A of this part except for the initial notification requirements of §63.6645(f).

(i) The stationary RICE is a new or reconstructed emergency stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions that does not operate or is not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii).

(ii) The stationary RICE is a new or reconstructed limited use stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions.

(2) A new or reconstructed stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis must meet the initial notification requirements of §63.6645(f) and the requirements of §§63.6625(c), 63.6650(g), and 63.6655(c). These stationary RICE do not have to meet the emission limitations and operating limitations of this subpart.

(3) The following stationary RICE do not have to meet the requirements of this subpart and of subpart A of this part, including initial notification requirements:

(i) Existing spark ignition 2 stroke lean burn (2SLB) stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions;

(ii) Existing spark ignition 4 stroke lean burn (4SLB) stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions;

(iii) Existing emergency stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions that does not operate or is not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii).

(iv) Existing limited use stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions;

(v) Existing stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis;

(c) *Stationary RICE subject to Regulations under 40 CFR Part 60.* An affected source that meets any of the criteria in paragraphs (c)(1) through (7) of this section must meet the requirements of this part by meeting the requirements of 40 CFR part 60 subpart IIII, for compression ignition engines or 40 CFR part 60 subpart JJJJ, for spark ignition engines. No further requirements apply for such engines under this part.

(1) A new or reconstructed stationary RICE located at an area source;

(2) A new or reconstructed 2SLB stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions;

(3) A new or reconstructed 4SLB stationary RICE with a site rating of less than 250 brake HP located at a major source of HAP emissions;

(4) A new or reconstructed spark ignition 4 stroke rich burn (4SRB) stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions;

(5) A new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis;

(6) A new or reconstructed emergency or limited use stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions;

(7) A new or reconstructed compression ignition (CI) stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions.

[69 FR 33506, June 15, 2004, as amended at 73 FR 3604, Jan. 18, 2008; 75 FR 9674, Mar. 3, 2010; 75 FR 37733, June 30, 2010; 75 FR 51588, Aug. 20, 2010; 78 FR 6700, Jan. 30, 2013]

§63.6595 When do I have to comply with this subpart?

(a) *Affected sources.* (1) If you have an existing stationary RICE, excluding existing non-emergency CI stationary RICE, with a site rating of more than 500 brake HP located at a major source of HAP emissions, you must comply with the applicable emission limitations, operating limitations and other requirements no later than June 15, 2007. If you have an existing non-emergency CI stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, an existing stationary CI RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions, or an existing stationary CI RICE located at an area source of HAP emissions, you must comply with the applicable emission limitations, operating limitations, and other requirements no later than May 3, 2013. If you have an existing stationary SI RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions, or an existing stationary SI RICE located at an area source of HAP emissions, you must comply with the applicable emission limitations, operating limitations, and other requirements no later than October 19, 2013.

(2) If you start up your new or reconstructed stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions before August 16, 2004, you must comply with the applicable emission limitations and operating limitations in this subpart no later than August 16, 2004.

(3) If you start up your new or reconstructed stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions after August 16, 2004, you must comply with the applicable emission limitations and operating limitations in this subpart upon startup of your affected source.

(4) If you start up your new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions before January 18, 2008, you must comply with the applicable emission limitations and operating limitations in this subpart no later than January 18, 2008.

(5) If you start up your new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions after January 18, 2008, you must comply with the applicable emission limitations and operating limitations in this subpart upon startup of your affected source.

(6) If you start up your new or reconstructed stationary RICE located at an area source of HAP emissions before January 18, 2008, you must comply with the applicable emission limitations and operating limitations in this subpart no later than January 18, 2008.

(7) If you start up your new or reconstructed stationary RICE located at an area source of HAP emissions after January 18, 2008, you must comply with the applicable emission limitations and operating limitations in this subpart upon startup of your affected source.

(b) *Area sources that become major sources.* If you have an area source that increases its emissions or its potential to emit such that it becomes a major source of HAP, the compliance dates in paragraphs (b)(1) and (2) of this section apply to you.

(1) Any stationary RICE for which construction or reconstruction is commenced after the date when your area source becomes a major source of HAP must be in compliance with this subpart upon startup of your affected source.

(2) Any stationary RICE for which construction or reconstruction is commenced before your area source becomes a major source of HAP must be in compliance with the provisions of this subpart that are applicable to RICE located at major sources within 3 years after your area source becomes a major source of HAP.

(c) If you own or operate an affected source, you must meet the applicable notification requirements in §63.6645 and in 40 CFR part 63, subpart A.

[69 FR 33506, June 15, 2004, as amended at 73 FR 3604, Jan. 18, 2008; 75 FR 9675, Mar. 3, 2010; 75 FR 51589, Aug. 20, 2010; 78 FR 6701, Jan. 30, 2013]

Emission and Operating Limitations

§63.6600 What emission limitations and operating limitations must I meet if I own or operate a stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions?

Compliance with the numerical emission limitations established in this subpart is based on the results of testing the average of three 1-hour runs using the testing requirements and procedures in §63.6620 and Table 4 to this subpart.

(a) If you own or operate an existing, new, or reconstructed spark ignition 4SRB stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you must comply with the emission limitations in Table 1a to this subpart and the operating limitations in Table 1b to this subpart which apply to you.

(b) If you own or operate a new or reconstructed 2SLB stationary RICE with a site rating of more than 500 brake HP located at major source of HAP emissions, a new or reconstructed 4SLB stationary RICE with a site rating of more than 500 brake HP located at major source of HAP emissions, or a new or reconstructed CI stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you must comply with the emission limitations in Table 2a to this subpart and the operating limitations in Table 2b to this subpart which apply to you.

(c) If you own or operate any of the following stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you do not need to comply with the emission limitations in Tables 1a, 2a, 2c, and 2d to this subpart or operating limitations in Tables 1b and 2b to this subpart: an existing 2SLB stationary RICE; an existing 4SLB stationary RICE; a stationary RICE that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis; an emergency stationary RICE; or a limited use stationary RICE.

(d) If you own or operate an existing non-emergency stationary CI RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you must comply with the emission limitations in Table 2c to this subpart and the operating limitations in Table 2b to this subpart which apply to you.

[73 FR 3605, Jan. 18, 2008, as amended at 75 FR 9675, Mar. 3, 2010]

§63.6601 What emission limitations must I meet if I own or operate a new or reconstructed 4SLB stationary RICE with a site rating of greater than or equal to 250 brake HP and less than or equal to 500 brake HP located at a major source of HAP emissions?

Compliance with the numerical emission limitations established in this subpart is based on the results of testing the average of three 1-hour runs using the testing requirements and procedures in §63.6620 and Table 4 to this subpart. If you own or operate a new or reconstructed 4SLB stationary RICE with a site rating of greater than or equal to 250 and less than or equal to 500 brake HP located at major source of HAP emissions manufactured on or after January 1, 2008, you must comply with the emission limitations in Table 2a to this subpart and the operating limitations in Table 2b to this subpart which apply to you.

[73 FR 3605, Jan. 18, 2008, as amended at 75 FR 9675, Mar. 3, 2010; 75 FR 51589, Aug. 20, 2010]

§63.6602 What emission limitations and other requirements must I meet if I own or operate an existing stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions?

If you own or operate an existing stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions, you must comply with the emission limitations and other requirements in Table 2c to this subpart which apply to you. Compliance with the numerical emission limitations established in this subpart is based on the results of testing the average of three 1-hour runs using the testing requirements and procedures in §63.6620 and Table 4 to this subpart.

[78 FR 6701, Jan. 30, 2013]

§63.6603 What emission limitations, operating limitations, and other requirements must I meet if I own or operate an existing stationary RICE located at an area source of HAP emissions?

Compliance with the numerical emission limitations established in this subpart is based on the results of testing the average of three 1-hour runs using the testing requirements and procedures in §63.6620 and Table 4 to this subpart.

(a) If you own or operate an existing stationary RICE located at an area source of HAP emissions, you must comply with the requirements in Table 2d to this subpart and the operating limitations in Table 2b to this subpart that apply to you.

(b) If you own or operate an existing stationary non-emergency CI RICE with a site rating of more than 300 HP located at an area source of HAP that meets either paragraph (b)(1) or (2) of this section, you do not have to meet the numerical CO emission limitations specified in Table 2d of this subpart. Existing stationary non-emergency CI RICE with a site rating of more than 300 HP located at an area source of HAP that meet either paragraph (b)(1) or (2) of this section must meet the management practices that are shown for stationary non-emergency CI RICE with a site rating of less than or equal to 300 HP in Table 2d of this subpart.

(1) The area source is located in an area of Alaska that is not accessible by the Federal Aid Highway System (FAHS).

(2) The stationary RICE is located at an area source that meets paragraphs (b)(2)(i), (ii), and (iii) of this section.

(i) The only connection to the FAHS is through the Alaska Marine Highway System (AMHS), or the stationary RICE operation is within an isolated grid in Alaska that is not connected to the statewide electrical grid referred to as the Alaska Railbelt Grid.

(ii) At least 10 percent of the power generated by the stationary RICE on an annual basis is used for residential purposes.

(iii) The generating capacity of the area source is less than 12 megawatts, or the stationary RICE is used exclusively for backup power for renewable energy.

(c) If you own or operate an existing stationary non-emergency CI RICE with a site rating of more than 300 HP located on an offshore vessel that is an area source of HAP and is a nonroad vehicle that is an Outer Continental Shelf (OCS) source as defined in 40 CFR 55.2, you do not have to meet the numerical CO emission limitations specified in Table 2d of this subpart. You must meet all of the following management practices:

(1) Change oil every 1,000 hours of operation or annually, whichever comes first. Sources have the option to utilize an oil analysis program as described in §63.6625(i) in order to extend the specified oil change requirement.

(2) Inspect and clean air filters every 750 hours of operation or annually, whichever comes first, and replace as necessary.

(3) Inspect fuel filters and belts, if installed, every 750 hours of operation or annually, whichever comes first, and replace as necessary.

(4) Inspect all flexible hoses every 1,000 hours of operation or annually, whichever comes first, and replace as necessary.

(d) If you own or operate an existing non-emergency CI RICE with a site rating of more than 300 HP located at an area source of HAP emissions that is certified to the Tier 1 or Tier 2 emission standards in Table 1 of 40 CFR 89.112 and that is subject to an enforceable state or local standard that requires the engine to be replaced no later than June 1, 2018, you may until January 1, 2015, or 12 years after the installation date of the engine (whichever is later), but not later than June 1, 2018, choose to comply with the management practices that are shown for stationary non-emergency CI RICE with a site rating of less than or equal to 300 HP in Table 2d of this subpart instead of the applicable emission limitations in Table 2d, operating limitations in Table 2b, and crankcase ventilation system requirements in §63.6625(g). You must comply with the emission limitations in Table 2d and operating limitations in Table 2b that apply for non-emergency CI RICE with a site rating of more than 300 HP located at an area source of HAP emissions by January 1, 2015, or 12 years after the installation date of the engine (whichever is later), but not later than June 1, 2018. You must also comply with the crankcase ventilation system requirements in §63.6625(g) by January 1, 2015, or 12 years after the installation date of the engine (whichever is later), but not later than June 1, 2018.

(e) If you own or operate an existing non-emergency CI RICE with a site rating of more than 300 HP located at an area source of HAP emissions that is certified to the Tier 3 (Tier 2 for engines above 560 kilowatt (kW)) emission standards in Table 1 of 40 CFR 89.112, you may comply with the requirements under this part by meeting the requirements for Tier 3 engines (Tier 2 for engines above 560 kW) in 40 CFR part 60 subpart IIII instead of the emission limitations and other requirements that would otherwise apply under this part for existing non-emergency CI RICE with a site rating of more than 300 HP located at an area source of HAP emissions.

(f) An existing non-emergency SI 4SLB and 4SRB stationary RICE with a site rating of more than 500 HP located at area sources of HAP must meet the definition of remote stationary RICE in §63.6675 on the initial compliance date for the engine, October 19, 2013, in order to be considered a remote stationary RICE under this subpart. Owners and operators of existing non-emergency SI 4SLB and 4SRB stationary RICE with a site rating of more than 500 HP located at area sources of HAP that meet the definition of remote stationary RICE in §63.6675 of this subpart as of October 19, 2013 must evaluate the status of their stationary RICE every 12 months. Owners and operators must keep records of the initial and annual evaluation of the status of the engine. If the evaluation indicates that the stationary RICE no longer meets the definition of remote stationary RICE in §63.6675 of this subpart, the owner or operator must comply with all of the requirements for existing non-emergency SI 4SLB and 4SRB stationary RICE with a site rating of more than 500 HP located at area sources of HAP that are not remote stationary RICE within 1 year of the evaluation.

[75 FR 9675, Mar. 3, 2010, as amended at 75 FR 51589, Aug. 20, 2010; 76 FR 12866, Mar. 9, 2011; 78 FR 6701, Jan. 30, 2013]

§63.6604 What fuel requirements must I meet if I own or operate a stationary CI RICE?

(a) If you own or operate an existing non-emergency, non-black start CI stationary RICE with a site rating of more than 300 brake HP with a displacement of less than 30 liters per cylinder that uses diesel fuel, you must use diesel fuel that meets the requirements in 40 CFR 80.510(b) for nonroad diesel fuel.

(b) Beginning January 1, 2015, if you own or operate an existing emergency CI stationary RICE with a site rating of more than 100 brake HP and a displacement of less than 30 liters per cylinder that uses diesel fuel and operates or is contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii) or that operates for the purpose specified in §63.6640(f)(4)(ii), you must use diesel fuel that meets the requirements in 40 CFR 80.510(b) for nonroad diesel fuel, except that any existing diesel fuel purchased (or otherwise obtained) prior to January 1, 2015, may be used until depleted.

(c) Beginning January 1, 2015, if you own or operate a new emergency CI stationary RICE with a site rating of more than 500 brake HP and a displacement of less than 30 liters per cylinder located at a major source of HAP that uses diesel fuel and operates or is contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii), you must use diesel fuel that meets the requirements in 40 CFR 80.510(b) for nonroad diesel fuel, except that any existing diesel fuel purchased (or otherwise obtained) prior to January 1, 2015, may be used until depleted.

(d) Existing CI stationary RICE located in Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, at area sources in areas of Alaska that meet either §63.6603(b)(1) or §63.6603(b)(2), or are on offshore vessels that meet §63.6603(c) are exempt from the requirements of this section.

[78 FR 6702, Jan. 30, 2013]

General Compliance Requirements

§63.6605 What are my general requirements for complying with this subpart?

(a) You must be in compliance with the emission limitations, operating limitations, and other requirements in this subpart that apply to you at all times.

(b) At all times you 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. The general duty to minimize emissions does not require you to make any further efforts to reduce emissions if levels required by this 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, review of operation and maintenance records, and inspection of the source.

[75 FR 9675, Mar. 3, 2010, as amended at 78 FR 6702, Jan. 30, 2013]

Testing and Initial Compliance Requirements

§63.6610 By what date must I conduct the initial performance tests or other initial compliance demonstrations if I own or operate a stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions?

If you own or operate a stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions you are subject to the requirements of this section.

(a) You must conduct the initial performance test or other initial compliance demonstrations in Table 4 to this subpart that apply to you within 180 days after the compliance date that is specified for your stationary RICE in §63.6595 and according to the provisions in §63.7(a)(2).

(b) If you commenced construction or reconstruction between December 19, 2002 and June 15, 2004 and own or operate stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you must demonstrate initial compliance with either the proposed emission limitations or the promulgated emission limitations no later than February 10, 2005 or no later than 180 days after startup of the source, whichever is later, according to §63.7(a)(2)(ix).

(c) If you commenced construction or reconstruction between December 19, 2002 and June 15, 2004 and own or operate stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, and you chose to comply with the proposed emission limitations when demonstrating initial compliance, you must conduct a second performance test to demonstrate compliance with the promulgated emission limitations by December 13, 2007 or after startup of the source, whichever is later, according to §63.7(a)(2)(ix).

(d) An owner or operator is not required to conduct an initial performance test on units for which a performance test has been previously conducted, but the test must meet all of the conditions described in paragraphs (d)(1) through (5) of this section.

(1) The test must have been conducted using the same methods specified in this subpart, and these methods must have been followed correctly.

(2) The test must not be older than 2 years.

(3) The test must be reviewed and accepted by the Administrator.

(4) Either no process or equipment changes must have been made since the test was performed, or the owner or operator must be able to demonstrate that the results of the performance test, with or without adjustments, reliably demonstrate compliance despite process or equipment changes.

(5) The test must be conducted at any load condition within plus or minus 10 percent of 100 percent load.

[69 FR 33506, June 15, 2004, as amended at 73 FR 3605, Jan. 18, 2008]

§63.6611 By what date must I conduct the initial performance tests or other initial compliance demonstrations if I own or operate a new or reconstructed 4SLB SI stationary RICE with a site rating of greater than or equal to 250 and less than or equal to 500 brake HP located at a major source of HAP emissions?

If you own or operate a new or reconstructed 4SLB stationary RICE with a site rating of greater than or equal to 250 and less than or equal to 500 brake HP located at a major source of HAP emissions, you must conduct an initial performance test within 240 days after the compliance date that is specified for your stationary RICE in §63.6595 and according to the provisions specified in Table 4 to this subpart, as appropriate.

[73 FR 3605, Jan. 18, 2008, as amended at 75 FR 51589, Aug. 20, 2010]

§63.6612 By what date must I conduct the initial performance tests or other initial compliance demonstrations if I own or operate an existing stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions or an existing stationary RICE located at an area source of HAP emissions?

If you own or operate an existing stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions or an existing stationary RICE located at an area source of HAP emissions you are subject to the requirements of this section.

(a) You must conduct any initial performance test or other initial compliance demonstration according to Tables 4 and 5 to this subpart that apply to you within 180 days after the compliance date that is specified for your stationary RICE in §63.6595 and according to the provisions in §63.7(a)(2).

(b) An owner or operator is not required to conduct an initial performance test on a unit for which a performance test has been previously conducted, but the test must meet all of the conditions described in paragraphs (b)(1) through (4) of this section.

(1) The test must have been conducted using the same methods specified in this subpart, and these methods must have been followed correctly.

(2) The test must not be older than 2 years.

(3) The test must be reviewed and accepted by the Administrator.

(4) Either no process or equipment changes must have been made since the test was performed, or the owner or operator must be able to demonstrate that the results of the performance test, with or without adjustments, reliably demonstrate compliance despite process or equipment changes.

[75 FR 9676, Mar. 3, 2010, as amended at 75 FR 51589, Aug. 20, 2010]

§63.6615 When must I conduct subsequent performance tests?

If you must comply with the emission limitations and operating limitations, you must conduct subsequent performance tests as specified in Table 3 of this subpart.

§63.6620 What performance tests and other procedures must I use?

(a) You must conduct each performance test in Tables 3 and 4 of this subpart that applies to you.

(b) Each performance test must be conducted according to the requirements that this subpart specifies in Table 4 to this subpart. If you own or operate a non-operational stationary RICE that is subject to performance testing, you do not need to start up the engine solely to conduct the performance test. Owners and operators of a non-operational engine can conduct the performance test when the engine is started up again. The test must be conducted at any load condition within plus or minus 10 percent of 100 percent load for the stationary RICE listed in paragraphs (b)(1) through (4) of this section.

(1) Non-emergency 4SRB stationary RICE with a site rating of greater than 500 brake HP located at a major source of HAP emissions.

(2) New non-emergency 4SLB stationary RICE with a site rating of greater than or equal to 250 brake HP located at a major source of HAP emissions.

(3) New non-emergency 2SLB stationary RICE with a site rating of greater than 500 brake HP located at a major source of HAP emissions.

(4) New non-emergency CI stationary RICE with a site rating of greater than 500 brake HP located at a major source of HAP emissions.

(c) [Reserved]

(d) You must conduct three separate test runs for each performance test required in this section, as specified in §63.7(e)(3). Each test run must last at least 1 hour, unless otherwise specified in this subpart.

(e)(1) You must use Equation 1 of this section to determine compliance with the percent reduction requirement:

$$\frac{C_i - C_o}{C_i} \times 100 = R \quad (Eq.\ 1)$$

Where:

C_i = concentration of carbon monoxide (CO), total hydrocarbons (THC), or formaldehyde at the control device inlet,

C_o = concentration of CO, THC, or formaldehyde at the control device outlet, and

R = percent reduction of CO, THC, or formaldehyde emissions.

(2) You must normalize the CO, THC, or formaldehyde concentrations at the inlet and outlet of the control device to a dry basis and to 15 percent oxygen, or an equivalent percent carbon dioxide (CO_2). If pollutant concentrations are to be corrected to 15 percent oxygen and CO_2 concentration is measured in lieu of oxygen concentration measurement, a CO_2 correction factor is needed. Calculate the CO_2 correction factor as described in paragraphs (e)(2)(i) through (iii) of this section.

(i) Calculate the fuel-specific F_o value for the fuel burned during the test using values obtained from Method 19, Section 5.2, and the following equation:

$$F_o = \frac{0.209\ F_d}{F_c} \quad (Eq.\ 2)$$

Where:

F_o = Fuel factor based on the ratio of oxygen volume to the ultimate CO_2 volume produced by the fuel at zero percent excess air.

0.209 = Fraction of air that is oxygen, percent/100.

F_d = Ratio of the volume of dry effluent gas to the gross calorific value of the fuel from Method 19, dsm3/J (dscf/106 Btu).

F_c = Ratio of the volume of CO_2 produced to the gross calorific value of the fuel from Method 19, dsm3/J (dscf/106 Btu)

(ii) Calculate the CO_2 correction factor for correcting measurement data to 15 percent O_2, as follows:

$$X_{CO2} = \frac{5.9}{F_o} \quad (Eq. 3)$$

Where:

X_{CO2} = CO_2 correction factor, percent.

5.9 = 20.9 percent O_2—15 percent O_2, the defined O_2 correction value, percent.

(iii) Calculate the CO, THC, and formaldehyde gas concentrations adjusted to 15 percent O_2 using CO_2 as follows:

$$C_{adj} = C_d \frac{X_{CO2}}{\%CO_2} \quad (Eq. 4)$$

Where:

C_{adj} = Calculated concentration of CO, THC, or formaldehyde adjusted to 15 percent O_2.

C_d = Measured concentration of CO, THC, or formaldehyde, uncorrected.

X_{CO2} = CO_2 correction factor, percent.

$\%CO_2$ = Measured CO_2 concentration measured, dry basis, percent.

(f) If you comply with the emission limitation to reduce CO and you are not using an oxidation catalyst, if you comply with the emission limitation to reduce formaldehyde and you are not using NSCR, or if you comply with the emission limitation to limit the concentration of formaldehyde in the stationary RICE exhaust and you are not using an oxidation catalyst or NSCR, you must petition the Administrator for operating limitations to be established during the initial performance test and continuously monitored thereafter; or for approval of no operating limitations. You must not conduct the initial performance test until after the petition has been approved by the Administrator.

(g) If you petition the Administrator for approval of operating limitations, your petition must include the information described in paragraphs (g)(1) through (5) of this section.

(1) Identification of the specific parameters you propose to use as operating limitations;

(2) A discussion of the relationship between these parameters and HAP emissions, identifying how HAP emissions change with changes in these parameters, and how limitations on these parameters will serve to limit HAP emissions;

(3) A discussion of how you will establish the upper and/or lower values for these parameters which will establish the limits on these parameters in the operating limitations;

(4) A discussion identifying the methods you will use to measure and the instruments you will use to monitor these parameters, as well as the relative accuracy and precision of these methods and instruments; and

(5) A discussion identifying the frequency and methods for recalibrating the instruments you will use for monitoring these parameters.

(h) If you petition the Administrator for approval of no operating limitations, your petition must include the information described in paragraphs (h)(1) through (7) of this section.

(1) Identification of the parameters associated with operation of the stationary RICE and any emission control device which could change intentionally (*e.g.,* operator adjustment, automatic controller adjustment, etc.) or unintentionally (*e.g.,* wear and tear, error, etc.) on a routine basis or over time;

(2) A discussion of the relationship, if any, between changes in the parameters and changes in HAP emissions;

(3) For the parameters which could change in such a way as to increase HAP emissions, a discussion of whether establishing limitations on the parameters would serve to limit HAP emissions;

(4) For the parameters which could change in such a way as to increase HAP emissions, a discussion of how you could establish upper and/or lower values for the parameters which would establish limits on the parameters in operating limitations;

(5) For the parameters, a discussion identifying the methods you could use to measure them and the instruments you could use to monitor them, as well as the relative accuracy and precision of the methods and instruments;

(6) For the parameters, a discussion identifying the frequency and methods for recalibrating the instruments you could use to monitor them; and

(7) A discussion of why, from your point of view, it is infeasible or unreasonable to adopt the parameters as operating limitations.

(i) The engine percent load during a performance test must be determined by documenting the calculations, assumptions, and measurement devices used to measure or estimate the percent load in a specific application. A written report of the average percent load determination must be included in the notification of compliance status. The following information must be included in the written report: the engine model number, the engine manufacturer, the year of purchase, the manufacturer's site-rated brake horsepower, the ambient temperature, pressure, and humidity during the performance test, and all assumptions that were made to estimate or calculate percent load during the performance test must be clearly explained. If measurement devices such as flow meters, kilowatt meters, beta analyzers, stain gauges, etc. are used, the model number of the measurement device, and an estimate of its accurate in percentage of true value must be provided.

[69 FR 33506, June 15, 2004, as amended at 75 FR 9676, Mar. 3, 2010; 78 FR 6702, Jan. 30, 2013]

§63.6625 What are my monitoring, installation, collection, operation, and maintenance requirements?

(a) If you elect to install a CEMS as specified in Table 5 of this subpart, you must install, operate, and maintain a CEMS to monitor CO and either O_2 or CO_2 according to the requirements in paragraphs (a)(1) through (4) of this section. If you are meeting a requirement to reduce CO emissions, the CEMS must be installed at both the inlet and outlet of the control device. If you are meeting a requirement to limit the concentration of CO, the CEMS must be installed at the outlet of the control device.

(1) Each CEMS must be installed, operated, and maintained according to the applicable performance specifications of 40 CFR part 60, appendix B.

(2) You must conduct an initial performance evaluation and an annual relative accuracy test audit (RATA) of each CEMS according to the requirements in §63.8 and according to the applicable performance specifications of 40 CFR

part 60, appendix B as well as daily and periodic data quality checks in accordance with 40 CFR part 60, appendix F, procedure 1.

(3) As specified in §63.8(c)(4)(ii), each CEMS must complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period. You must have at least two data points, with each representing a different 15-minute period, to have a valid hour of data.

(4) The CEMS data must be reduced as specified in §63.8(g)(2) and recorded in parts per million or parts per billion (as appropriate for the applicable limitation) at 15 percent oxygen or the equivalent CO_2 concentration.

(b) If you are required to install a continuous parameter monitoring system (CPMS) as specified in Table 5 of this subpart, you must install, operate, and maintain each CPMS according to the requirements in paragraphs (b)(1) through (6) of this section. For an affected source that is complying with the emission limitations and operating limitations on March 9, 2011, the requirements in paragraph (b) of this section are applicable September 6, 2011.

(1) You must prepare a site-specific monitoring plan that addresses the monitoring system design, data collection, and the quality assurance and quality control elements outlined in paragraphs (b)(1)(i) through (v) of this section and in §63.8(d). As specified in §63.8(f)(4), you may request approval of monitoring system quality assurance and quality control procedures alternative to those specified in paragraphs (b)(1) through (5) of this section in your site-specific monitoring plan.

(i) The performance criteria and design specifications for the monitoring system equipment, including the sample interface, detector signal analyzer, and data acquisition and calculations;

(ii) Sampling interface (*e.g.,* thermocouple) location such that the monitoring system will provide representative measurements;

(iii) Equipment performance evaluations, system accuracy audits, or other audit procedures;

(iv) Ongoing operation and maintenance procedures in accordance with provisions in §63.8(c)(1)(ii) and (c)(3); and

(v) Ongoing reporting and recordkeeping procedures in accordance with provisions in §63.10(c), (e)(1), and (e)(2)(i).

(2) You must install, operate, and maintain each CPMS in continuous operation according to the procedures in your site-specific monitoring plan.

(3) The CPMS must collect data at least once every 15 minutes (see also §63.6635).

(4) For a CPMS for measuring temperature range, the temperature sensor must have a minimum tolerance of 2.8 degrees Celsius (5 degrees Fahrenheit) or 1 percent of the measurement range, whichever is larger.

(5) You must conduct the CPMS equipment performance evaluation, system accuracy audits, or other audit procedures specified in your site-specific monitoring plan at least annually.

(6) You must conduct a performance evaluation of each CPMS in accordance with your site-specific monitoring plan.

(c) If you are operating a new or reconstructed stationary RICE which fires landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, you must monitor and record your fuel usage daily with separate fuel meters to measure the volumetric flow rate of each fuel. In addition, you must operate your stationary RICE in a manner which reasonably minimizes HAP emissions.

(d) If you are operating a new or reconstructed emergency 4SLB stationary RICE with a site rating of greater than or equal to 250 and less than or equal to 500 brake HP located at a major source of HAP emissions, you must install a non-resettable hour meter prior to the startup of the engine.

(e) If you own or operate any of the following stationary RICE, you must operate and maintain the stationary RICE and after-treatment control device (if any) according to the manufacturer's emission-related written instructions or develop your own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions:

(1) An existing stationary RICE with a site rating of less than 100 HP located at a major source of HAP emissions;

(2) An existing emergency or black start stationary RICE with a site rating of less than or equal to 500 HP located at a major source of HAP emissions;

(3) An existing emergency or black start stationary RICE located at an area source of HAP emissions;

(4) An existing non-emergency, non-black start stationary CI RICE with a site rating less than or equal to 300 HP located at an area source of HAP emissions;

(5) An existing non-emergency, non-black start 2SLB stationary RICE located at an area source of HAP emissions;

(6) An existing non-emergency, non-black start stationary RICE located at an area source of HAP emissions which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis.

(7) An existing non-emergency, non-black start 4SLB stationary RICE with a site rating less than or equal to 500 HP located at an area source of HAP emissions;

(8) An existing non-emergency, non-black start 4SRB stationary RICE with a site rating less than or equal to 500 HP located at an area source of HAP emissions;

(9) An existing, non-emergency, non-black start 4SLB stationary RICE with a site rating greater than 500 HP located at an area source of HAP emissions that is operated 24 hours or less per calendar year; and

(10) An existing, non-emergency, non-black start 4SRB stationary RICE with a site rating greater than 500 HP located at an area source of HAP emissions that is operated 24 hours or less per calendar year.

(f) If you own or operate an existing emergency stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions or an existing emergency stationary RICE located at an area source of HAP emissions, you must install a non-resettable hour meter if one is not already installed.

(g) If you own or operate an existing non-emergency, non-black start CI engine greater than or equal to 300 HP that is not equipped with a closed crankcase ventilation system, you must comply with either paragraph (g)(1) or paragraph (2) of this section. Owners and operators must follow the manufacturer's specified maintenance requirements for operating and maintaining the open or closed crankcase ventilation systems and replacing the crankcase filters, or can request the Administrator to approve different maintenance requirements that are as protective as manufacturer requirements. Existing CI engines located at area sources in areas of Alaska that meet either §63.6603(b)(1) or §63.6603(b)(2) do not have to meet the requirements of this paragraph (g). Existing CI engines located on offshore vessels that meet §63.6603(c) do not have to meet the requirements of this paragraph (g).

(1) Install a closed crankcase ventilation system that prevents crankcase emissions from being emitted to the atmosphere, or

(2) Install an open crankcase filtration emission control system that reduces emissions from the crankcase by filtering the exhaust stream to remove oil mist, particulates and metals.

(h) If you operate a new, reconstructed, or existing stationary engine, you must minimize the engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the emission standards applicable to all times other than startup in Tables 1a, 2a, 2c, and 2d to this subpart apply.

(i) If you own or operate a stationary CI engine that is subject to the work, operation or management practices in items 1 or 2 of Table 2c to this subpart or in items 1 or 4 of Table 2d to this subpart, you have the option of utilizing an oil analysis program in order to extend the specified oil change requirement in Tables 2c and 2d to this subpart. The oil analysis must be performed at the same frequency specified for changing the oil in Table 2c or 2d to this subpart. The analysis program must at a minimum analyze the following three parameters: Total Base Number, viscosity, and percent water content. The condemning limits for these parameters are as follows: Total Base Number is less than 30 percent of the Total Base Number of the oil when new; viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new; or percent water content (by volume) is greater than 0.5. If all of these condemning limits are not exceeded, the engine owner or operator is not required to change the oil. If any of the limits are exceeded, the engine owner or operator must change the oil within 2 business days of receiving the results of the analysis; if the engine is not in operation when the results of the analysis are received, the engine owner or operator must change the oil within 2 business days or before commencing operation, whichever is later. The owner or operator must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine.

(j) If you own or operate a stationary SI engine that is subject to the work, operation or management practices in items 6, 7, or 8 of Table 2c to this subpart or in items 5, 6, 7, 9, or 11 of Table 2d to this subpart, you have the option of utilizing an oil analysis program in order to extend the specified oil change requirement in Tables 2c and 2d to this subpart. The oil analysis must be performed at the same frequency specified for changing the oil in Table 2c or 2d to this subpart. The analysis program must at a minimum analyze the following three parameters: Total Acid Number, viscosity, and percent water content. The condemning limits for these parameters are as follows: Total Acid Number increases by more than 3.0 milligrams of potassium hydroxide (KOH) per gram from Total Acid Number of the oil when new; viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new; or percent water content (by volume) is greater than 0.5. If all of these condemning limits are not exceeded, the engine owner or operator is not required to change the oil. If any of the limits are exceeded, the engine owner or operator must change the oil within 2 business days of receiving the results of the analysis; if the engine is not in operation when the results of the analysis are received, the engine owner or operator must change the oil within 2 business days or before commencing operation, whichever is later. The owner or operator must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine.

[69 FR 33506, June 15, 2004, as amended at 73 FR 3606, Jan. 18, 2008; 75 FR 9676, Mar. 3, 2010; 75 FR 51589, Aug. 20, 2010; 76 FR 12866, Mar. 9, 2011; 78 FR 6703, Jan. 30, 2013]

§63.6630 How do I demonstrate initial compliance with the emission limitations, operating limitations, and other requirements?

(a) You must demonstrate initial compliance with each emission limitation, operating limitation, and other requirement that applies to you according to Table 5 of this subpart.

(b) During the initial performance test, you must establish each operating limitation in Tables 1b and 2b of this subpart that applies to you.

(c) You must submit the Notification of Compliance Status containing the results of the initial compliance demonstration according to the requirements in §63.6645.

(d) Non-emergency 4SRB stationary RICE complying with the requirement to reduce formaldehyde emissions by 76 percent or more can demonstrate initial compliance with the formaldehyde emission limit by testing for THC instead of formaldehyde. The testing must be conducted according to the requirements in Table 4 of this subpart. The average reduction of emissions of THC determined from the performance test must be equal to or greater than 30 percent.

(e) The initial compliance demonstration required for existing non-emergency 4SLB and 4SRB stationary RICE with a site rating of more than 500 HP located at an area source of HAP that are not remote stationary RICE and that are operated more than 24 hours per calendar year must be conducted according to the following requirements:

(1) The compliance demonstration must consist of at least three test runs.

(2) Each test run must be of at least 15 minute duration, except that each test conducted using the method in appendix A to this subpart must consist of at least one measurement cycle and include at least 2 minutes of test data phase measurement.

(3) If you are demonstrating compliance with the CO concentration or CO percent reduction requirement, you must measure CO emissions using one of the CO measurement methods specified in Table 4 of this subpart, or using appendix A to this subpart.

(4) If you are demonstrating compliance with the THC percent reduction requirement, you must measure THC emissions using Method 25A, reported as propane, of 40 CFR part 60, appendix A.

(5) You must measure O_2 using one of the O_2 measurement methods specified in Table 4 of this subpart. Measurements to determine O_2 concentration must be made at the same time as the measurements for CO or THC concentration.

(6) If you are demonstrating compliance with the CO or THC percent reduction requirement, you must measure CO or THC emissions and O_2 emissions simultaneously at the inlet and outlet of the control device.

[69 FR 33506, June 15, 2004, as amended at 78 FR 6704, Jan. 30, 2013]

Continuous Compliance Requirements

§63.6635 How do I monitor and collect data to demonstrate continuous compliance?

(a) If you must comply with emission and operating limitations, you must monitor and collect data according to this section.

(b) Except for monitor malfunctions, associated repairs, required performance evaluations, and required quality assurance or control activities, you must monitor continuously at all times that the stationary RICE is operating. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.

(c) You may not use data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities in data averages and calculations used to report emission or operating levels. You must, however, use all the valid data collected during all other periods.

[69 FR 33506, June 15, 2004, as amended at 76 FR 12867, Mar. 9, 2011]

§63.6640 How do I demonstrate continuous compliance with the emission limitations, operating limitations, and other requirements?

(a) You must demonstrate continuous compliance with each emission limitation, operating limitation, and other requirements in Tables 1a and 1b, Tables 2a and 2b, Table 2c, and Table 2d to this subpart that apply to you according to methods specified in Table 6 to this subpart.

(b) You must report each instance in which you did not meet each emission limitation or operating limitation in Tables 1a and 1b, Tables 2a and 2b, Table 2c, and Table 2d to this subpart that apply to you. These instances are deviations from the emission and operating limitations in this subpart. These deviations must be reported according to the requirements in §63.6650. If you change your catalyst, you must reestablish the values of the operating parameters measured during the initial performance test. When you reestablish the values of your operating parameters, you must also conduct a performance test to demonstrate that you are meeting the required emission limitation applicable to your stationary RICE.

(c) The annual compliance demonstration required for existing non-emergency 4SLB and 4SRB stationary RICE with a site rating of more than 500 HP located at an area source of HAP that are not remote stationary RICE and that are operated more than 24 hours per calendar year must be conducted according to the following requirements:

(1) The compliance demonstration must consist of at least one test run.

(2) Each test run must be of at least 15 minute duration, except that each test conducted using the method in appendix A to this subpart must consist of at least one measurement cycle and include at least 2 minutes of test data phase measurement.

(3) If you are demonstrating compliance with the CO concentration or CO percent reduction requirement, you must measure CO emissions using one of the CO measurement methods specified in Table 4 of this subpart, or using appendix A to this subpart.

(4) If you are demonstrating compliance with the THC percent reduction requirement, you must measure THC emissions using Method 25A, reported as propane, of 40 CFR part 60, appendix A.

(5) You must measure O_2 using one of the O_2 measurement methods specified in Table 4 of this subpart. Measurements to determine O_2 concentration must be made at the same time as the measurements for CO or THC concentration.

(6) If you are demonstrating compliance with the CO or THC percent reduction requirement, you must measure CO or THC emissions and O_2 emissions simultaneously at the inlet and outlet of the control device.

(7) If the results of the annual compliance demonstration show that the emissions exceed the levels specified in Table 6 of this subpart, the stationary RICE must be shut down as soon as safely possible, and appropriate corrective action must be taken (e.g., repairs, catalyst cleaning, catalyst replacement). The stationary RICE must be retested within 7 days of being restarted and the emissions must meet the levels specified in Table 6 of this subpart. If the retest shows that the emissions continue to exceed the specified levels, the stationary RICE must again be shut down as soon as safely possible, and the stationary RICE may not operate, except for purposes of startup and testing, until the owner/operator demonstrates through testing that the emissions do not exceed the levels specified in Table 6 of this subpart.

(d) For new, reconstructed, and rebuilt stationary RICE, deviations from the emission or operating limitations that occur during the first 200 hours of operation from engine startup (engine burn-in period) are not violations. Rebuilt stationary RICE means a stationary RICE that has been rebuilt as that term is defined in 40 CFR 94.11(a).

(e) You must also report each instance in which you did not meet the requirements in Table 8 to this subpart that apply to you. If you own or operate a new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions (except new or reconstructed 4SLB engines greater than or equal to 250 and less than or equal to 500 brake HP), a new or reconstructed stationary RICE located at an area source of HAP emissions, or any of the following RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you do not need to comply with the requirements in Table 8 to this subpart: An existing 2SLB stationary RICE, an existing 4SLB stationary RICE, an existing emergency stationary RICE, an existing limited use stationary RICE, or an existing stationary RICE which fires landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis. If you own or operate any of the following RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you do not need to comply with the requirements in Table 8 to this subpart, except for the initial notification requirements: a new or reconstructed stationary RICE that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, a new or reconstructed emergency stationary RICE, or a new or reconstructed limited use stationary RICE.

(f) If you own or operate an emergency stationary RICE, you must operate the emergency stationary RICE according to the requirements in paragraphs (f)(1) through (4) of this section. In order for the engine to be considered an emergency stationary RICE under this subpart, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency situations for 50 hours per year, as described in paragraphs (f)(1) through (4) of this section, is prohibited. If you do not operate the engine according to the requirements in paragraphs (f)(1) through (4) of this section, the engine will not be considered an emergency engine under this subpart and must meet all requirements for non-emergency engines.

(1) There is no time limit on the use of emergency stationary RICE in emergency situations.

(2) You may operate your emergency stationary RICE for any combination of the purposes specified in paragraphs (f)(2)(i) through (iii) of this section for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraphs (f)(3) and (4) of this section counts as part of the 100 hours per calendar year allowed by this paragraph (f)(2).

(i) Emergency stationary RICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency RICE beyond 100 hours per calendar year.

(ii) Emergency stationary RICE may be operated for emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see §63.14), or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3.

(iii) Emergency stationary RICE may be operated for periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.

(3) Emergency stationary RICE located at major sources of HAP may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in paragraph (f)(2) of this section. The 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

(4) Emergency stationary RICE located at area sources of HAP may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in paragraph (f)(2) of this section. Except as provided in paragraphs (f)(4)(i) and (ii) of this section, the 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

(i) Prior to May 3, 2014, the 50 hours per year for non-emergency situations can be used for peak shaving or non-emergency demand response to generate income for a facility, or to otherwise supply power as part of a financial arrangement with another entity if the engine is operated as part of a peak shaving (load management program) with the local distribution system operator and the power is provided only to the facility itself or to support the local distribution system.

(ii) The 50 hours per year for non-emergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met:

(A) The engine is dispatched by the local balancing authority or local transmission and distribution system operator.

(B) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.

(C) The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.

(D) The power is provided only to the facility itself or to support the local transmission and distribution system.

(E) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the

engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator.

[69 FR 33506, June 15, 2004, as amended at 71 FR 20467, Apr. 20, 2006; 73 FR 3606, Jan. 18, 2008; 75 FR 9676, Mar. 3, 2010; 75 FR 51591, Aug. 20, 2010; 78 FR 6704, Jan. 30, 2013]

Notifications, Reports, and Records

§63.6645 What notifications must I submit and when?

(a) You must submit all of the notifications in §§63.7(b) and (c), 63.8(e), (f)(4) and (f)(6), 63.9(b) through (e), and (g) and (h) that apply to you by the dates specified if you own or operate any of the following;

(1) An existing stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions.

(2) An existing stationary RICE located at an area source of HAP emissions.

(3) A stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions.

(4) A new or reconstructed 4SLB stationary RICE with a site rating of greater than or equal to 250 HP located at a major source of HAP emissions.

(5) This requirement does not apply if you own or operate an existing stationary RICE less than 100 HP, an existing stationary emergency RICE, or an existing stationary RICE that is not subject to any numerical emission standards.

(b) As specified in §63.9(b)(2), if you start up your stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions before the effective date of this subpart, you must submit an Initial Notification not later than December 13, 2004.

(c) If you start up your new or reconstructed stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions on or after August 16, 2004, you must submit an Initial Notification not later than 120 days after you become subject to this subpart.

(d) As specified in §63.9(b)(2), if you start up your stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions before the effective date of this subpart and you are required to submit an initial notification, you must submit an Initial Notification not later than July 16, 2008.

(e) If you start up your new or reconstructed stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions on or after March 18, 2008 and you are required to submit an initial notification, you must submit an Initial Notification not later than 120 days after you become subject to this subpart.

(f) If you are required to submit an Initial Notification but are otherwise not affected by the requirements of this subpart, in accordance with §63.6590(b), your notification should include the information in §63.9(b)(2)(i) through (v), and a statement that your stationary RICE has no additional requirements and explain the basis of the exclusion (for example, that it operates exclusively as an emergency stationary RICE if it has a site rating of more than 500 brake HP located at a major source of HAP emissions).

(g) If you are required to conduct a performance test, you must submit a Notification of Intent to conduct a performance test at least 60 days before the performance test is scheduled to begin as required in §63.7(b)(1).

(h) If you are required to conduct a performance test or other initial compliance demonstration as specified in Tables 4 and 5 to this subpart, you must submit a Notification of Compliance Status according to §63.9(h)(2)(ii).

(1) For each initial compliance demonstration required in Table 5 to this subpart that does not include a performance test, you must submit the Notification of Compliance Status before the close of business on the 30th day following the completion of the initial compliance demonstration.

(2) For each initial compliance demonstration required in Table 5 to this subpart that includes a performance test conducted according to the requirements in Table 3 to this subpart, you must submit the Notification of Compliance Status, including the performance test results, before the close of business on the 60th day following the completion of the performance test according to §63.10(d)(2).

(i) If you own or operate an existing non-emergency CI RICE with a site rating of more than 300 HP located at an area source of HAP emissions that is certified to the Tier 1 or Tier 2 emission standards in Table 1 of 40 CFR 89.112 and subject to an enforceable state or local standard requiring engine replacement and you intend to meet management practices rather than emission limits, as specified in §63.6603(d), you must submit a notification by March 3, 2013, stating that you intend to use the provision in §63.6603(d) and identifying the state or local regulation that the engine is subject to.

[73 FR 3606, Jan. 18, 2008, as amended at 75 FR 9677, Mar. 3, 2010; 75 FR 51591, Aug. 20, 2010; 78 FR 6705, Jan. 30, 2013]

§63.6650 What reports must I submit and when?

(a) You must submit each report in Table 7 of this subpart that applies to you.

(b) Unless the Administrator has approved a different schedule for submission of reports under §63.10(a), you must submit each report by the date in Table 7 of this subpart and according to the requirements in paragraphs (b)(1) through (b)(9) of this section.

(1) For semiannual Compliance reports, the first Compliance report must cover the period beginning on the compliance date that is specified for your affected source in §63.6595 and ending on June 30 or December 31, whichever date is the first date following the end of the first calendar half after the compliance date that is specified for your source in §63.6595.

(2) For semiannual Compliance reports, the first Compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date follows the end of the first calendar half after the compliance date that is specified for your affected source in §63.6595.

(3) For semiannual Compliance reports, each subsequent Compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.

(4) For semiannual Compliance reports, each subsequent Compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period.

(5) For each stationary RICE that is subject to permitting regulations pursuant to 40 CFR part 70 or 71, and if the permitting authority has established dates for submitting semiannual reports pursuant to 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6 (a)(3)(iii)(A), you may submit the first and subsequent Compliance reports according to the dates the permitting authority has established instead of according to the dates in paragraphs (b)(1) through (b)(4) of this section.

(6) For annual Compliance reports, the first Compliance report must cover the period beginning on the compliance date that is specified for your affected source in §63.6595 and ending on December 31.

(7) For annual Compliance reports, the first Compliance report must be postmarked or delivered no later than January 31 following the end of the first calendar year after the compliance date that is specified for your affected source in §63.6595.

(8) For annual Compliance reports, each subsequent Compliance report must cover the annual reporting period from January 1 through December 31.

(9) For annual Compliance reports, each subsequent Compliance report must be postmarked or delivered no later than January 31.

(c) The Compliance report must contain the information in paragraphs (c)(1) through (6) of this section.

(1) Company name and address.

(2) Statement by a responsible official, with that official's name, title, and signature, certifying the accuracy of the content of the report.

(3) Date of report and beginning and ending dates of the reporting period.

(4) If you had a malfunction during the reporting period, the compliance report must 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. The report must also include a description of actions taken by an owner or operator during a malfunction of an affected source to minimize emissions in accordance with §63.6605(b), including actions taken to correct a malfunction.

(5) If there are no deviations from any emission or operating limitations that apply to you, a statement that there were no deviations from the emission or operating limitations during the reporting period.

(6) If there were no periods during which the continuous monitoring system (CMS), including CEMS and CPMS, was out-of-control, as specified in §63.8(c)(7), a statement that there were no periods during which the CMS was out-of-control during the reporting period.

(d) For each deviation from an emission or operating limitation that occurs for a stationary RICE where you are not using a CMS to comply with the emission or operating limitations in this subpart, the Compliance report must contain the information in paragraphs (c)(1) through (4) of this section and the information in paragraphs (d)(1) and (2) of this section.

(1) The total operating time of the stationary RICE at which the deviation occurred during the reporting period.

(2) Information on the number, duration, and cause of deviations (including unknown cause, if applicable), as applicable, and the corrective action taken.

(e) For each deviation from an emission or operating limitation occurring for a stationary RICE where you are using a CMS to comply with the emission and operating limitations in this subpart, you must include information in paragraphs (c)(1) through (4) and (e)(1) through (12) of this section.

(1) The date and time that each malfunction started and stopped.

(2) The date, time, and duration that each CMS was inoperative, except for zero (low-level) and high-level checks.

(3) The date, time, and duration that each CMS was out-of-control, including the information in §63.8(c)(8).

(4) The date and time that each deviation started and stopped, and whether each deviation occurred during a period of malfunction or during another period.

(5) A summary of the total duration of the deviation during the reporting period, and the total duration as a percent of the total source operating time during that reporting period.

(6) A breakdown of the total duration of the deviations during the reporting period into those that are due to control equipment problems, process problems, other known causes, and other unknown causes.

(7) A summary of the total duration of CMS downtime during the reporting period, and the total duration of CMS downtime as a percent of the total operating time of the stationary RICE at which the CMS downtime occurred during that reporting period.

(8) An identification of each parameter and pollutant (CO or formaldehyde) that was monitored at the stationary RICE.

(9) A brief description of the stationary RICE.

(10) A brief description of the CMS.

(11) The date of the latest CMS certification or audit.

(12) A description of any changes in CMS, processes, or controls since the last reporting period.

(f) Each affected source that has obtained a title V operating permit pursuant to 40 CFR part 70 or 71 must report all deviations as defined in this subpart in the semiannual monitoring report required by 40 CFR 70.6 (a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A). If an affected source submits a Compliance report pursuant to Table 7 of this subpart along with, or as part of, the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), and the Compliance report includes all required information concerning deviations from any emission or operating limitation in this subpart, submission of the Compliance report shall be deemed to satisfy any obligation to report the same deviations in the semiannual monitoring report. However, submission of a Compliance report shall not otherwise affect any obligation the affected source may have to report deviations from permit requirements to the permit authority.

(g) If you are operating as a new or reconstructed stationary RICE which fires landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, you must submit an annual report according to Table 7 of this subpart by the date specified unless the Administrator has approved a different schedule, according to the information described in paragraphs (b)(1) through (b)(5) of this section. You must report the data specified in (g)(1) through (g)(3) of this section.

(1) Fuel flow rate of each fuel and the heating values that were used in your calculations. You must also demonstrate that the percentage of heat input provided by landfill gas or digester gas is equivalent to 10 percent or more of the total fuel consumption on an annual basis.

(2) The operating limits provided in your federally enforceable permit, and any deviations from these limits.

(3) Any problems or errors suspected with the meters.

(h) If you own or operate an emergency stationary RICE with a site rating of more than 100 brake HP that operates or is contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii) or that operates for the purpose specified in §63.6640(f)(4)(ii), you must submit an annual report according to the requirements in paragraphs (h)(1) through (3) of this section.

(1) The report must contain the following information:

(i) Company name and address where the engine is located.

(ii) Date of the report and beginning and ending dates of the reporting period.

(iii) Engine site rating and model year.

(iv) Latitude and longitude of the engine in decimal degrees reported to the fifth decimal place.

(v) Hours operated for the purposes specified in §63.6640(f)(2)(ii) and (iii), including the date, start time, and end time for engine operation for the purposes specified in §63.6640(f)(2)(ii) and (iii).

(vi) Number of hours the engine is contractually obligated to be available for the purposes specified in §63.6640(f)(2)(ii) and (iii).

(vii) Hours spent for operation for the purpose specified in §63.6640(f)(4)(ii), including the date, start time, and end time for engine operation for the purposes specified in §63.6640(f)(4)(ii). The report must also identify the entity that dispatched the engine and the situation that necessitated the dispatch of the engine.

(viii) If there were no deviations from the fuel requirements in §63.6604 that apply to the engine (if any), a statement that there were no deviations from the fuel requirements during the reporting period.

(ix) If there were deviations from the fuel requirements in §63.6604 that apply to the engine (if any), information on the number, duration, and cause of deviations, and the corrective action taken.

(2) The first annual report must cover the calendar year 2015 and must be submitted no later than March 31, 2016. Subsequent annual reports for each calendar year must be submitted no later than March 31 of the following calendar year.

(3) The annual report must be submitted electronically using the subpart specific reporting form in the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) (*www.epa.gov/cdx*). However, if the reporting form specific to this subpart is not available in CEDRI at the time that the report is due, the written report must be submitted to the Administrator at the appropriate address listed in §63.13.

[69 FR 33506, June 15, 2004, as amended at 75 FR 9677, Mar. 3, 2010; 78 FR 6705, Jan. 30, 2013]

§63.6655 What records must I keep?

(a) If you must comply with the emission and operating limitations, you must keep the records described in paragraphs (a)(1) through (a)(5), (b)(1) through (b)(3) and (c) of this section.

(1) A copy of each notification and report that you submitted to comply with this subpart, including all documentation supporting any Initial Notification or Notification of Compliance Status that you submitted, according to the requirement in §63.10(b)(2)(xiv).

(2) Records of the occurrence and duration of each malfunction of operation (*i.e.,* process equipment) or the air pollution control and monitoring equipment.

(3) Records of performance tests and performance evaluations as required in §63.10(b)(2)(viii).

(4) Records of all required maintenance performed on the air pollution control and monitoring equipment.

(5) Records of actions taken during periods of malfunction to minimize emissions in accordance with §63.6605(b), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation.

(b) For each CEMS or CPMS, you must keep the records listed in paragraphs (b)(1) through (3) of this section.

(1) Records described in §63.10(b)(2)(vi) through (xi).

(2) Previous (*i.e.,* superseded) versions of the performance evaluation plan as required in §63.8(d)(3).

(3) Requests for alternatives to the relative accuracy test for CEMS or CPMS as required in §63.8(f)(6)(i), if applicable.

(c) If you are operating a new or reconstructed stationary RICE which fires landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, you must keep the records of your daily fuel usage monitors.

(d) You must keep the records required in Table 6 of this subpart to show continuous compliance with each emission or operating limitation that applies to you.

(e) You must keep records of the maintenance conducted on the stationary RICE in order to demonstrate that you operated and maintained the stationary RICE and after-treatment control device (if any) according to your own maintenance plan if you own or operate any of the following stationary RICE;

(1) An existing stationary RICE with a site rating of less than 100 brake HP located at a major source of HAP emissions.

(2) An existing stationary emergency RICE.

(3) An existing stationary RICE located at an area source of HAP emissions subject to management practices as shown in Table 2d to this subpart.

(f) If you own or operate any of the stationary RICE in paragraphs (f)(1) through (2) of this section, you must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. The owner or operator must document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation. If the engine is used for the purposes specified in §63.6640(f)(2)(ii) or (iii) or §63.6640(f)(4)(ii), the owner or operator must keep records of the notification of the emergency situation, and the date, start time, and end time of engine operation for these purposes.

(1) An existing emergency stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions that does not meet the standards applicable to non-emergency engines.

(2) An existing emergency stationary RICE located at an area source of HAP emissions that does not meet the standards applicable to non-emergency engines.

[69 FR 33506, June 15, 2004, as amended at 75 FR 9678, Mar. 3, 2010; 75 FR 51592, Aug. 20, 2010; 78 FR 6706, Jan. 30, 2013]

§63.6660 In what form and how long must I keep my records?

(a) Your records must be in a form suitable and readily available for expeditious review according to §63.10(b)(1).

(b) As specified in §63.10(b)(1), you must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

(c) You must keep each record readily accessible in hard copy or electronic form for at least 5 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to §63.10(b)(1).

[69 FR 33506, June 15, 2004, as amended at 75 FR 9678, Mar. 3, 2010]

Other Requirements and Information

§63.6665 What parts of the General Provisions apply to me?

Table 8 to this subpart shows which parts of the General Provisions in §§63.1 through 63.15 apply to you. If you own or operate a new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions (except new or reconstructed 4SLB engines greater than or equal to 250 and less than or equal to 500 brake HP), a new or reconstructed stationary RICE located at an area source of HAP emissions, or any of the following RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you do not need to comply with any of the requirements of the General Provisions specified in Table 8: An existing 2SLB stationary RICE, an existing 4SLB stationary RICE, an existing stationary RICE that combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, an existing emergency stationary RICE, or an existing limited use stationary RICE. If you own or operate any of the following RICE with a

site rating of more than 500 brake HP located at a major source of HAP emissions, you do not need to comply with the requirements in the General Provisions specified in Table 8 except for the initial notification requirements: A new stationary RICE that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, a new emergency stationary RICE, or a new limited use stationary RICE.

[75 FR 9678, Mar. 3, 2010]

§63.6670 Who implements and enforces this subpart?

(a) This subpart is implemented and enforced by the U.S. EPA, or a delegated authority such as your State, local, or tribal agency. If the U.S. EPA Administrator has delegated authority to your State, local, or tribal agency, then that agency (as well as the U.S. EPA) has the authority to implement and enforce this subpart. You should contact your U.S. EPA Regional Office to find out whether this subpart is delegated to your State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under 40 CFR part 63, subpart E, the authorities contained in paragraph (c) of this section are retained by the Administrator of the U.S. EPA and are not transferred to the State, local, or tribal agency.

(c) The authorities that will not be delegated to State, local, or tribal agencies are:

(1) Approval of alternatives to the non-opacity emission limitations and operating limitations in §63.6600 under §63.6(g).

(2) Approval of major alternatives to test methods under §63.7(e)(2)(ii) and (f) and as defined in §63.90.

(3) Approval of major alternatives to monitoring under §63.8(f) and as defined in §63.90.

(4) Approval of major alternatives to recordkeeping and reporting under §63.10(f) and as defined in §63.90.

(5) Approval of a performance test which was conducted prior to the effective date of the rule, as specified in §63.6610(b).

§63.6675 What definitions apply to this subpart?

Terms used in this subpart are defined in the Clean Air Act (CAA); in 40 CFR 63.2, the General Provisions of this part; and in this section as follows:

Alaska Railbelt Grid means the service areas of the six regulated public utilities that extend from Fairbanks to Anchorage and the Kenai Peninsula. These utilities are Golden Valley Electric Association; Chugach Electric Association; Matanuska Electric Association; Homer Electric Association; Anchorage Municipal Light & Power; and the City of Seward Electric System.

Area source means any stationary source of HAP that is not a major source as defined in part 63.

Associated equipment as used in this subpart and as referred to in section 112(n)(4) of the CAA, means equipment associated with an oil or natural gas exploration or production well, and includes all equipment from the well bore to the point of custody transfer, except glycol dehydration units, storage vessels with potential for flash emissions, combustion turbines, and stationary RICE.

Backup power for renewable energy means an engine that provides backup power to a facility that generates electricity from renewable energy resources, as that term is defined in Alaska Statute 42.45.045(l)(5) (incorporated by reference, see §63.14).

Black start engine means an engine whose only purpose is to start up a combustion turbine.

CAA means the Clean Air Act (42 U.S.C. 7401 *et seq.,* as amended by Public Law 101-549, 104 Stat. 2399).

Commercial emergency stationary RICE means an emergency stationary RICE used in commercial establishments such as office buildings, hotels, stores, telecommunications facilities, restaurants, financial institutions such as banks, doctor's offices, and sports and performing arts facilities.

Compression ignition means relating to a type of stationary internal combustion engine that is not a spark ignition engine.

Custody transfer means the transfer of hydrocarbon liquids or natural gas: After processing and/or treatment in the producing operations, or from storage vessels or automatic transfer facilities or other such equipment, including product loading racks, to pipelines or any other forms of transportation. For the purposes of this subpart, the point at which such liquids or natural gas enters a natural gas processing plant is a point of custody transfer.

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 emission limitation or operating limitation;

(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 or operating limitation in this subpart during malfunction, regardless or whether or not such failure is permitted by this subpart.

(4) Fails to satisfy the general duty to minimize emissions established by §63.6(e)(1)(i).

Diesel engine means any stationary RICE in which a high boiling point liquid fuel injected into the combustion chamber ignites when the air charge has been compressed to a temperature sufficiently high for auto-ignition. This process is also known as compression ignition.

Diesel fuel means any liquid obtained from the distillation of petroleum with a boiling point of approximately 150 to 360 degrees Celsius. One commonly used form is fuel oil number 2. Diesel fuel also includes any non-distillate fuel with comparable physical and chemical properties (*e.g.* biodiesel) that is suitable for use in compression ignition engines.

Digester gas means any gaseous by-product of wastewater treatment typically formed through the anaerobic decomposition of organic waste materials and composed principally of methane and CO_2.

Dual-fuel engine means any stationary RICE in which a liquid fuel (typically diesel fuel) is used for compression ignition and gaseous fuel (typically natural gas) is used as the primary fuel.

Emergency stationary RICE means any stationary reciprocating internal combustion engine that meets all of the criteria in paragraphs (1) through (3) of this definition. All emergency stationary RICE must comply with the requirements specified in §63.6640(f) in order to be considered emergency stationary RICE. If the engine does not comply with the requirements specified in §63.6640(f), then it is not considered to be an emergency stationary RICE under this subpart.

(1) The stationary RICE is operated to provide electrical power or mechanical work during an emergency situation. Examples include stationary RICE used to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility (or the normal power source, if the facility runs on its own power production) is interrupted, or stationary RICE used to pump water in the case of fire or flood, etc.

(2) The stationary RICE is operated under limited circumstances for situations not included in paragraph (1) of this definition, as specified in §63.6640(f).

(3) The stationary RICE operates as part of a financial arrangement with another entity in situations not included in paragraph (1) of this definition only as allowed in §63.6640(f)(2)(ii) or (iii) and §63.6640(f)(4)(i) or (ii).

Engine startup means the time from initial start until applied load and engine and associated equipment reaches steady state or normal operation. For stationary engine with catalytic controls, engine startup means the time from initial start until applied load and engine and associated equipment, including the catalyst, reaches steady state or normal operation.

Four-stroke engine means any type of engine which completes the power cycle in two crankshaft revolutions, with intake and compression strokes in the first revolution and power and exhaust strokes in the second revolution.

Gaseous fuel means a material used for combustion which is in the gaseous state at standard atmospheric temperature and pressure conditions.

Gasoline means any fuel sold in any State for use in motor vehicles and motor vehicle engines, or nonroad or stationary engines, and commonly or commercially known or sold as gasoline.

Glycol dehydration unit means a device in which a liquid glycol (including, but not limited to, ethylene glycol, diethylene glycol, or triethylene glycol) absorbent directly contacts a natural gas stream and absorbs water in a contact tower or absorption column (absorber). The glycol contacts and absorbs water vapor and other gas stream constituents from the natural gas and becomes “rich” glycol. This glycol is then regenerated in the glycol dehydration unit reboiler. The “lean” glycol is then recycled.

Hazardous air pollutants (HAP) means any air pollutants listed in or pursuant to section 112(b) of the CAA.

Institutional emergency stationary RICE means an emergency stationary RICE used in institutional establishments such as medical centers, nursing homes, research centers, institutions of higher education, correctional facilities, elementary and secondary schools, libraries, religious establishments, police stations, and fire stations.

ISO standard day conditions means 288 degrees Kelvin (15 degrees Celsius), 60 percent relative humidity and 101.3 kilopascals pressure.

Landfill gas means a gaseous by-product of the land application of municipal refuse typically formed through the anaerobic decomposition of waste materials and composed principally of methane and CO_2.

Lean burn engine means any two-stroke or four-stroke spark ignited engine that does not meet the definition of a rich burn engine.

Limited use stationary RICE means any stationary RICE that operates less than 100 hours per year.

Liquefied petroleum gas means any liquefied hydrocarbon gas obtained as a by-product in petroleum refining of natural gas production.

Liquid fuel means any fuel in liquid form at standard temperature and pressure, including but not limited to diesel, residual/crude oil, kerosene/naphtha (jet fuel), and gasoline.

Major Source, as used in this subpart, shall have the same meaning as in §63.2, except that:

(1) Emissions from any oil or gas exploration or production well (with its associated equipment (as defined in this section)) and emissions from any pipeline compressor station or pump station shall not be aggregated with emissions from other similar units, to determine whether such emission points or stations are major sources, even when emission points are in a contiguous area or under common control;

(2) For oil and gas production facilities, emissions from processes, operations, or equipment that are not part of the same oil and gas production facility, as defined in §63.1271 of subpart HHH of this part, shall not be aggregated;

(3) For production field facilities, only HAP emissions from glycol dehydration units, storage vessel with the potential for flash emissions, combustion turbines and reciprocating internal combustion engines shall be aggregated for a major source determination; and

(4) Emissions from processes, operations, and equipment that are not part of the same natural gas transmission and storage facility, as defined in §63.1271 of subpart HHH of this part, shall not be aggregated.

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 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.

Natural gas means a naturally occurring mixture of hydrocarbon and non-hydrocarbon gases found in geologic formations beneath the Earth's surface, of which the principal constituent is methane. Natural gas may be field or pipeline quality.

Non-selective catalytic reduction (NSCR) means an add-on catalytic nitrogen oxides (NO_X) control device for rich burn engines that, in a two-step reaction, promotes the conversion of excess oxygen, NO_X, CO, and volatile organic compounds (VOC) into CO_2, nitrogen, and water.

Oil and gas production facility as used in this subpart means any grouping of equipment where hydrocarbon liquids are processed, upgraded (*i.e.,* remove impurities or other constituents to meet contract specifications), or stored prior to the point of custody transfer; or where natural gas is processed, upgraded, or stored prior to entering the natural gas transmission and storage source category. For purposes of a major source determination, facility (including a building, structure, or installation) means oil and natural gas production and processing equipment that is located within the boundaries of an individual surface site as defined in this section. Equipment that is part of a facility will typically be located within close proximity to other equipment located at the same facility. Pieces of production equipment or groupings of equipment located on different oil and gas leases, mineral fee tracts, lease tracts, subsurface or surface unit areas, surface fee tracts, surface lease tracts, or separate surface sites, whether or not connected by a road, waterway, power line or pipeline, shall not be considered part of the same facility. Examples of facilities in the oil and natural gas production source category include, but are not limited to, well sites, satellite tank batteries, central tank batteries, a compressor station that transports natural gas to a natural gas processing plant, and natural gas processing plants.

Oxidation catalyst means an add-on catalytic control device that controls CO and VOC by oxidation.

Peaking unit or engine means any standby engine intended for use during periods of high demand that are not emergencies.

Percent load means the fractional power of an engine compared to its maximum manufacturer's design capacity at engine site conditions. Percent load may range between 0 percent to above 100 percent.

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. For oil and natural gas production facilities subject to subpart HH of this part, the potential to emit provisions in §63.760(a) may be used. For natural gas transmission and storage facilities subject to subpart HHH of this part, the maximum annual facility gas throughput for storage facilities may be determined according to §63.1270(a)(1) and the maximum annual throughput for transmission facilities may be determined according to §63.1270(a)(2).

Production field facility means those oil and gas production facilities located prior to the point of custody transfer.

Production well means any hole drilled in the earth from which crude oil, condensate, or field natural gas is extracted.

Propane means a colorless gas derived from petroleum and natural gas, with the molecular structure C_3H_8.

Remote stationary RICE means stationary RICE meeting any of the following criteria:

(1) Stationary RICE located in an offshore area that is beyond the line of ordinary low water along that portion of the coast of the United States that is in direct contact with the open seas and beyond the line marking the seaward limit of inland waters.

(2) Stationary RICE located on a pipeline segment that meets both of the criteria in paragraphs (2)(i) and (ii) of this definition.

(i) A pipeline segment with 10 or fewer buildings intended for human occupancy and no buildings with four or more stories within 220 yards (200 meters) on either side of the centerline of any continuous 1-mile (1.6 kilometers) length of pipeline. Each separate dwelling unit in a multiple dwelling unit building is counted as a separate building intended for human occupancy.

(ii) The pipeline segment does not lie within 100 yards (91 meters) of either a building or a small, well-defined outside area (such as a playground, recreation area, outdoor theater, or other place of public assembly) that is occupied by 20 or more persons on at least 5 days a week for 10 weeks in any 12-month period. The days and weeks need not be consecutive. The building or area is considered occupied for a full day if it is occupied for any portion of the day.

(iii) For purposes of this paragraph (2), the term pipeline segment means all parts of those physical facilities through which gas moves in transportation, including but not limited to pipe, valves, and other appurtenance attached to pipe, compressor units, metering stations, regulator stations, delivery stations, holders, and fabricated assemblies. Stationary RICE located within 50 yards (46 meters) of the pipeline segment providing power for equipment on a pipeline segment are part of the pipeline segment. Transportation of gas means the gathering, transmission, or distribution of gas by pipeline, or the storage of gas. A building is intended for human occupancy if its primary use is for a purpose involving the presence of humans.

(3) Stationary RICE that are not located on gas pipelines and that have 5 or fewer buildings intended for human occupancy and no buildings with four or more stories within a 0.25 mile radius around the engine. A building is intended for human occupancy if its primary use is for a purpose involving the presence of humans.

Residential emergency stationary RICE means an emergency stationary RICE used in residential establishments such as homes or apartment buildings.

Responsible official means responsible official as defined in 40 CFR 70.2.

Rich burn engine means any four-stroke spark ignited engine where the manufacturer's recommended operating air/fuel ratio divided by the stoichiometric air/fuel ratio at full load conditions is less than or equal to 1.1. Engines originally manufactured as rich burn engines, but modified prior to December 19, 2002 with passive emission control technology for NO_X (such as pre-combustion chambers) will be considered lean burn engines. Also, existing engines where there are no manufacturer's recommendations regarding air/fuel ratio will be considered a rich burn engine if the excess oxygen content of the exhaust at full load conditions is less than or equal to 2 percent.

Site-rated HP means the maximum manufacturer's design capacity at engine site conditions.

Spark ignition means relating to either: A gasoline-fueled engine; or any other type of engine with a spark plug (or other sparking device) and with operating characteristics significantly similar to the theoretical Otto combustion cycle. Spark ignition engines usually use a throttle to regulate intake air flow to control power during normal operation. Dual-fuel engines in which a liquid fuel (typically diesel fuel) is used for CI and gaseous fuel (typically natural gas) is used as the primary fuel at an annual average ratio of less than 2 parts diesel fuel to 100 parts total fuel on an energy equivalent basis are spark ignition engines.

Stationary reciprocating internal combustion engine (RICE) means any reciprocating internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work and which is not mobile. Stationary RICE differ from mobile RICE in that a stationary RICE is not a non-road engine as defined at 40 CFR 1068.30, and is not used to propel a motor vehicle or a vehicle used solely for competition.

Stationary RICE test cell/stand means an engine test cell/stand, as defined in subpart PPPPP of this part, that tests stationary RICE.

Stoichiometric means the theoretical air-to-fuel ratio required for complete combustion.

Storage vessel with the potential for flash emissions means any storage vessel that contains a hydrocarbon liquid with a stock tank gas-to-oil ratio equal to or greater than 0.31 cubic meters per liter and an American Petroleum Institute gravity equal to or greater than 40 degrees and an actual annual average hydrocarbon liquid throughput equal to or greater than 79,500 liters per day. Flash emissions occur when dissolved hydrocarbons in the fluid evolve from solution when the fluid pressure is reduced.

Subpart means 40 CFR part 63, subpart ZZZZ.

Surface site means any combination of one or more graded pad sites, gravel pad sites, foundations, platforms, or the immediate physical location upon which equipment is physically affixed.

Two-stroke engine means a type of engine which completes the power cycle in single crankshaft revolution by combining the intake and compression operations into one stroke and the power and exhaust operations into a second stroke. This system requires auxiliary scavenging and inherently runs lean of stoichiometric.

[69 FR 33506, June 15, 2004, as amended at 71 FR 20467, Apr. 20, 2006; 73 FR 3607, Jan. 18, 2008; 75 FR 9679, Mar. 3, 2010; 75 FR 51592, Aug. 20, 2010; 76 FR 12867, Mar. 9, 2011; 78 FR 6706, Jan. 30, 2013]

Table 1a to Subpart ZZZZ of Part 63—Emission Limitations for Existing, New, and Reconstructed Spark Ignition, 4SRB Stationary RICE >500 HP Located at a Major Source of HAP Emissions

As stated in §§63.6600 and 63.6640, you must comply with the following emission limitations at 100 percent load plus or minus 10 percent for existing, new and reconstructed 4SRB stationary RICE >500 HP located at a major source of HAP emissions:

For each . . .	You must meet the following emission limitation, except during periods of startup . . .	During periods of startup you must . . .
1. 4SRB stationary RICE	a. Reduce formaldehyde emissions by 76 percent or more. If you commenced construction or reconstruction between December 19, 2002 and June 15, 2004, you may reduce formaldehyde emissions by 75 percent or more until June 15, 2007 or	Minimize the engine's time spent at idle and minimize the engine's startup time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply.[1]
	b. Limit the concentration of formaldehyde in the stationary RICE exhaust to 350 ppbvd or less at 15 percent O_2	

[1] Sources can petition the Administrator pursuant to the requirements of 40 CFR 63.6(g) for alternative work practices.

[75 FR 9679, Mar. 3, 2010, as amended at 75 FR 51592, Aug. 20, 2010]

Table 1b to Subpart ZZZZ of Part 63—Operating Limitations for Existing, New, and Reconstructed SI 4SRB Stationary RICE >500 HP Located at a Major Source of HAP Emissions

As stated in §§63.6600, 63.6603, 63.6630 and 63.6640, you must comply with the following operating limitations for existing, new and reconstructed 4SRB stationary RICE >500 HP located at a major source of HAP emissions:

For each . . .	You must meet the following operating limitation, except during periods of startup . . .
1. existing, new and reconstructed 4SRB stationary RICE >500 HP located at a major source of HAP emissions complying with the requirement to reduce formaldehyde emissions by 76 percent or more (or by 75 percent or more, if applicable) and using NSCR; or existing, new and reconstructed 4SRB stationary RICE >500 HP located at a major source of HAP emissions complying with the requirement to limit the concentration of formaldehyde in the stationary RICE exhaust to 350 ppbvd or less at 15 percent O_2 and using NSCR;	a. maintain your catalyst so that the pressure drop across the catalyst does not change by more than 2 inches of water at 100 percent load plus or minus 10 percent from the pressure drop across the catalyst measured during the initial performance test; and b. maintain the temperature of your stationary RICE exhaust so that the catalyst inlet temperature is greater than or equal to 750 °F and less than or equal to 1250 °F.[1]
2. existing, new and reconstructed 4SRB stationary RICE >500 HP located at a major source of HAP emissions complying with the requirement to reduce formaldehyde emissions by 76 percent or more (or by 75 percent or more, if applicable) and not using NSCR; or	Comply with any operating limitations approved by the Administrator.
existing, new and reconstructed 4SRB stationary RICE >500 HP located at a major source of HAP emissions complying with the requirement to limit the concentration of formaldehyde in the stationary RICE exhaust to 350 ppbvd or less at 15 percent O_2 and not using NSCR.	

[1]Sources can petition the Administrator pursuant to the requirements of 40 CFR 63.8(f) for a different temperature range.

[78 FR 6706, Jan. 30, 2013]

Table 2a to Subpart ZZZZ of Part 63—Emission Limitations for New and Reconstructed 2SLB and Compression Ignition Stationary RICE >500 HP and New and Reconstructed 4SLB Stationary RICE ≥250 HP Located at a Major Source of HAP Emissions

As stated in §§63.6600 and 63.6640, you must comply with the following emission limitations for new and reconstructed lean burn and new and reconstructed compression ignition stationary RICE at 100 percent load plus or minus 10 percent:

For each . . .	You must meet the following emission limitation, except during periods of startup . . .	During periods of startup you must . . .
1. 2SLB stationary RICE	a. Reduce CO emissions by 58 percent or more; or b. Limit concentration of formaldehyde in the stationary RICE exhaust to 12 ppmvd or less at 15 percent O_2. If you commenced construction or reconstruction between December 19, 2002 and June 15, 2004, you may limit concentration of formaldehyde to 17 ppmvd or less at 15 percent O_2 until June 15, 2007	Minimize the engine's time spent at idle and minimize the engine's startup time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply.[1]
2. 4SLB stationary RICE	a. Reduce CO emissions by 93 percent or more; or	
	b. Limit concentration of formaldehyde in the stationary RICE exhaust to 14 ppmvd or less at 15 percent O_2	
3. CI stationary RICE	a. Reduce CO emissions by 70 percent or more; or	
	b. Limit concentration of formaldehyde in the stationary RICE exhaust to 580 ppbvd or less at 15 percent O_2	

[1]Sources can petition the Administrator pursuant to the requirements of 40 CFR 63.6(g) for alternative work practices.

[75 FR 9680, Mar. 3, 2010]

Table 2b to Subpart ZZZZ of Part 63—Operating Limitations for New and Reconstructed 2SLB and CI Stationary RICE >500 HP Located at a Major Source of HAP Emissions, New and Reconstructed 4SLB Stationary RICE ≥250 HP Located at a Major Source of HAP Emissions, Existing CI Stationary RICE >500 HP

As stated in §§63.6600, 63.6601, 63.6603, 63.6630, and 63.6640, you must comply with the following operating limitations for new and reconstructed 2SLB and CI stationary RICE >500 HP located at a major source of HAP emissions; new and reconstructed 4SLB stationary RICE ≥250 HP located at a major source of HAP emissions; and existing CI stationary RICE >500 HP:

For each . . .	You must meet the following operating limitation, except during periods of startup . . .
1. New and reconstructed 2SLB and CI stationary RICE >500 HP located at a major source of HAP emissions and new and reconstructed 4SLB stationary RICE ≥250 HP located at a major source of HAP emissions complying with the requirement to reduce CO emissions and using an oxidation catalyst; and New and reconstructed 2SLB and CI stationary RICE >500 HP located at a major source of HAP emissions and new and reconstructed 4SLB stationary RICE ≥250 HP located at a major source of HAP emissions complying with the requirement to limit the concentration of formaldehyde in the stationary RICE exhaust and using an oxidation catalyst.	a. maintain your catalyst so that the pressure drop across the catalyst does not change by more than 2 inches of water at 100 percent load plus or minus 10 percent from the pressure drop across the catalyst that was measured during the initial performance test; and b. maintain the temperature of your stationary RICE exhaust so that the catalyst inlet temperature is greater than or equal to 450 °F and less than or equal to 1350 °F.[1]
2. Existing CI stationary RICE >500 HP complying with the requirement to limit or reduce the concentration of CO in the stationary RICE exhaust and using an oxidation catalyst	a. maintain your catalyst so that the pressure drop across the catalyst does not change by more than 2 inches of water from the pressure drop across the catalyst that was measured during the initial performance test; and
	b. maintain the temperature of your stationary RICE exhaust so that the catalyst inlet temperature is greater than or equal to 450 °F and less than or equal to 1350 °F.[1]
3. New and reconstructed 2SLB and CI stationary RICE >500 HP located at a major source of HAP emissions and new and reconstructed 4SLB stationary RICE ≥250 HP located at a major source of HAP emissions complying with the requirement to reduce CO emissions and not using an oxidation catalyst; and	Comply with any operating limitations approved by the Administrator.
New and reconstructed 2SLB and CI stationary RICE >500 HP located at a major source of HAP emissions and new and reconstructed 4SLB stationary RICE ≥250 HP located at a major source of HAP emissions complying with the requirement to limit the concentration of formaldehyde in the stationary RICE exhaust and not using an oxidation catalyst; and	
existing CI stationary RICE >500 HP complying with the requirement to limit or reduce the concentration of CO in the stationary RICE exhaust and not using an oxidation catalyst.	

[1]Sources can petition the Administrator pursuant to the requirements of 40 CFR 63.8(f) for a different temperature range.

[78 FR 6707, Jan. 30, 2013]

Table 2c to Subpart ZZZZ of Part 63—Requirements for Existing Compression Ignition Stationary RICE Located at a Major Source of HAP Emissions and Existing Spark Ignition Stationary RICE ≤500 HP Located at a Major Source of HAP Emissions

As stated in §§63.6600, 63.6602, and 63.6640, you must comply with the following requirements for existing compression ignition stationary RICE located at a major source of HAP emissions and existing spark ignition stationary RICE ≤500 HP located at a major source of HAP emissions:

For each . . .	You must meet the following requirement, except during periods of startup . . .	During periods of startup you must . . .
1. Emergency stationary CI RICE and black start stationary CI RICE[1]	a. Change oil and filter every 500 hours of operation or annually, whichever comes first.[2] b. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.[3]	Minimize the engine's time spent at idle and minimize the engine's startup time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply.[3]
2. Non-Emergency, non-black start stationary CI RICE <100 HP	a. Change oil and filter every 1,000 hours of operation or annually, whichever comes first.[2] b. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.[3]	
3. Non-Emergency, non-black start CI stationary RICE 100≤HP≤300 HP	Limit concentration of CO in the stationary RICE exhaust to 230 ppmvd or less at 15 percent O_2.	
4. Non-Emergency, non-black start CI stationary RICE 300<HP≤500	a. Limit concentration of CO in the stationary RICE exhaust to 49 ppmvd or less at 15 percent O_2; or b. Reduce CO emissions by 70 percent or more.	
5. Non-Emergency, non-black start stationary CI RICE >500 HP	a. Limit concentration of CO in the stationary RICE exhaust to 23 ppmvd or less at 15 percent O_2; or b. Reduce CO emissions by 70 percent or more.	

For each . . .	You must meet the following requirement, except during periods of startup . . .	During periods of startup you must . . .
6. Emergency stationary SI RICE and black start stationary SI RICE.[1]	a. Change oil and filter every 500 hours of operation or annually, whichever comes first;[2] b. Inspect spark plugs every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.[3]	
7. Non-Emergency, non-black start stationary SI RICE <100 HP that are not 2SLB stationary RICE	a. Change oil and filter every 1,440 hours of operation or annually, whichever comes first;[2] b. Inspect spark plugs every 1,440 hours of operation or annually, whichever comes first, and replace as necessary;	
	c. Inspect all hoses and belts every 1,440 hours of operation or annually, whichever comes first, and replace as necessary.[3]	
8. Non-Emergency, non-black start 2SLB stationary SI RICE <100 HP	a. Change oil and filter every 4,320 hours of operation or annually, whichever comes first;[2] b. Inspect spark plugs every 4,320 hours of operation or annually, whichever comes first, and replace as necessary;	
	c. Inspect all hoses and belts every 4,320 hours of operation or annually, whichever comes first, and replace as necessary.[3]	
9. Non-emergency, non-black start 2SLB stationary RICE 100≤HP≤500	Limit concentration of CO in the stationary RICE exhaust to 225 ppmvd or less at 15 percent O_2.	
10. Non-emergency, non-black start 4SLB stationary RICE 100≤HP≤500	Limit concentration of CO in the stationary RICE exhaust to 47 ppmvd or less at 15 percent O_2.	
11. Non-emergency, non-black start 4SRB stationary RICE 100≤HP≤500	Limit concentration of formaldehyde in the stationary RICE exhaust to 10.3 ppmvd or less at 15 percent O_2.	

For each . . .	You must meet the following requirement, except during periods of startup . . .	During periods of startup you must . . .
12. Non-emergency, non-black start stationary RICE 100≤HP≤500 which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis	Limit concentration of CO in the stationary RICE exhaust to 177 ppmvd or less at 15 percent O_2.	

[1]If an emergency engine is operating during an emergency and it is not possible to shut down the engine in order to perform the work practice requirements on the schedule required in Table 2c of this subpart, or if performing the work practice on the required schedule would otherwise pose an unacceptable risk under federal, state, or local law, the work practice can be delayed until the emergency is over or the unacceptable risk under federal, state, or local law has abated. The work practice should be performed as soon as practicable after the emergency has ended or the unacceptable risk under federal, state, or local law has abated. Sources must report any failure to perform the work practice on the schedule required and the federal, state or local law under which the risk was deemed unacceptable.

[2]Sources have the option to utilize an oil analysis program as described in §63.6625(i) or (j) in order to extend the specified oil change requirement in Table 2c of this subpart.

[3]Sources can petition the Administrator pursuant to the requirements of 40 CFR 63.6(g) for alternative work practices.

[78 FR 6708, Jan. 30, 2013, as amended at 78 FR 14457, Mar. 6, 2013]

Table 2d to Subpart ZZZZ of Part 63—Requirements for Existing Stationary RICE Located at Area Sources of HAP Emissions

As stated in §§63.6603 and 63.6640, you must comply with the following requirements for existing stationary RICE located at area sources of HAP emissions:

For each . . .	You must meet the following requirement, except during periods of startup . . .	During periods of startup you must . . .
1. Non-Emergency, non-black start CI stationary RICE ≤300 HP	a. Change oil and filter every 1,000 hours of operation or annually, whichever comes first;[1] b. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.	Minimize the engine's time spent at idle and minimize the engine's startup time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply.
2. Non-Emergency, non-black start CI stationary RICE 300<HP≤500	a. Limit concentration of CO in the stationary RICE exhaust to 49 ppmvd at 15 percent O_2; or	
	b. Reduce CO emissions by 70 percent or more.	

For each . . .	You must meet the following requirement, except during periods of startup . . .	During periods of startup you must . . .
3. Non-Emergency, non-black start CI stationary RICE >500 HP	a. Limit concentration of CO in the stationary RICE exhaust to 23 ppmvd at 15 percent O_2; or	
	b. Reduce CO emissions by 70 percent or more.	
4. Emergency stationary CI RICE and black start stationary CI RICE.[2]	a. Change oil and filter every 500 hours of operation or annually, whichever comes first;[1]	
	b. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; and	
	c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.	
5. Emergency stationary SI RICE; black start stationary SI RICE; non-emergency, non-black start 4SLB stationary RICE >500 HP that operate 24 hours or less per calendar year; non-emergency, non-black start 4SRB stationary RICE >500 HP that operate 24 hours or less per calendar year.[2]	a. Change oil and filter every 500 hours of operation or annually, whichever comes first;[1]; b. Inspect spark plugs every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; and c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.	
6. Non-emergency, non-black start 2SLB stationary RICE	a. Change oil and filter every 4,320 hours of operation or annually, whichever comes first;[1]	
	b. Inspect spark plugs every 4,320 hours of operation or annually, whichever comes first, and replace as necessary; and	
	c. Inspect all hoses and belts every 4,320 hours of operation or annually, whichever comes first, and replace as necessary.	
7. Non-emergency, non-black start 4SLB stationary RICE ≤500 HP	a. Change oil and filter every 1,440 hours of operation or annually, whichever comes first;[1]	

For each . . .	You must meet the following requirement, except during periods of startup . . .	During periods of startup you must . . .
	b. Inspect spark plugs every 1,440 hours of operation or annually, whichever comes first, and replace as necessary; and	
	c. Inspect all hoses and belts every 1,440 hours of operation or annually, whichever comes first, and replace as necessary.	
8. Non-emergency, non-black start 4SLB remote stationary RICE >500 HP	a. Change oil and filter every 2,160 hours of operation or annually, whichever comes first;[1]	
	b. Inspect spark plugs every 2,160 hours of operation or annually, whichever comes first, and replace as necessary; and	
	c. Inspect all hoses and belts every 2,160 hours of operation or annually, whichever comes first, and replace as necessary.	
9. Non-emergency, non-black start 4SLB stationary RICE >500 HP that are not remote stationary RICE and that operate more than 24 hours per calendar year	Install an oxidation catalyst to reduce HAP emissions from the stationary RICE.	
10. Non-emergency, non-black start 4SRB stationary RICE ≤500 HP	a. Change oil and filter every 1,440 hours of operation or annually, whichever comes first;[1]	
	b. Inspect spark plugs every 1,440 hours of operation or annually, whichever comes first, and replace as necessary; and	
	c. Inspect all hoses and belts every 1,440 hours of operation or annually, whichever comes first, and replace as necessary.	
11. Non-emergency, non-black start 4SRB remote stationary RICE >500 HP	a. Change oil and filter every 2,160 hours of operation or annually, whichever comes first;[1]	
	b. Inspect spark plugs every 2,160 hours of operation or annually, whichever comes first, and replace as necessary; and	

For each . . .	You must meet the following requirement, except during periods of startup . . .	During periods of startup you must . . .
	c. Inspect all hoses and belts every 2,160 hours of operation or annually, whichever comes first, and replace as necessary.	
12. Non-emergency, non-black start 4SRB stationary RICE >500 HP that are not remote stationary RICE and that operate more than 24 hours per calendar year	Install NSCR to reduce HAP emissions from the stationary RICE.	
13. Non-emergency, non-black start stationary RICE which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis	a. Change oil and filter every 1,440 hours of operation or annually, whichever comes first;[1] b. Inspect spark plugs every 1,440 hours of operation or annually, whichever comes first, and replace as necessary; and	
	c. Inspect all hoses and belts every 1,440 hours of operation or annually, whichever comes first, and replace as necessary.	

[1]Sources have the option to utilize an oil analysis program as described in §63.6625(i) or (j) in order to extend the specified oil change requirement in Table 2d of this subpart.

[2]If an emergency engine is operating during an emergency and it is not possible to shut down the engine in order to perform the management practice requirements on the schedule required in Table 2d of this subpart, or if performing the management practice on the required schedule would otherwise pose an unacceptable risk under federal, state, or local law, the management practice can be delayed until the emergency is over or the unacceptable risk under federal, state, or local law has abated. The management practice should be performed as soon as practicable after the emergency has ended or the unacceptable risk under federal, state, or local law has abated. Sources must report any failure to perform the management practice on the schedule required and the federal, state or local law under which the risk was deemed unacceptable.

[78 FR 6709, Jan. 30, 2013]

Table 3 to Subpart ZZZZ of Part 63—Subsequent Performance Tests

As stated in §§63.6615 and 63.6620, you must comply with the following subsequent performance test requirements:

For each . . .	Complying with the requirement to . . .	You must . . .
1. New or reconstructed 2SLB stationary RICE >500 HP located at major sources; new or reconstructed 4SLB stationary RICE ≥250 HP located at major sources; and new or reconstructed CI stationary RICE >500 HP located at major sources	Reduce CO emissions and not using a CEMS	Conduct subsequent performance tests semiannually.[1]
2. 4SRB stationary RICE ≥5,000 HP located at major sources	Reduce formaldehyde emissions	Conduct subsequent performance tests semiannually.[1]

For each . . .	Complying with the requirement to . . .	You must . . .
3. Stationary RICE >500 HP located at major sources and new or reconstructed 4SLB stationary RICE 250≤HP≤500 located at major sources	Limit the concentration of formaldehyde in the stationary RICE exhaust	Conduct subsequent performance tests semiannually.[1]
4. Existing non-emergency, non-black start CI stationary RICE >500 HP that are not limited use stationary RICE	Limit or reduce CO emissions and not using a CEMS	Conduct subsequent performance tests every 8,760 hours or 3 years, whichever comes first.
5. Existing non-emergency, non-black start CI stationary RICE >500 HP that are limited use stationary RICE	Limit or reduce CO emissions and not using a CEMS	Conduct subsequent performance tests every 8,760 hours or 5 years, whichever comes first.

[1]After you have demonstrated compliance for two consecutive tests, you may reduce the frequency of subsequent performance tests to annually. If the results of any subsequent annual performance test indicate the stationary RICE is not in compliance with the CO or formaldehyde emission limitation, or you deviate from any of your operating limitations, you must resume semiannual performance tests.

[78 FR 6711, Jan. 30, 2013]

Table 4 to Subpart ZZZZ of Part 63—Requirements for Performance Tests

As stated in §§63.6610, 63.6611, 63.6620, and 63.6640, you must comply with the following requirements for performance tests for stationary RICE:

Table 4 to Subpart ZZZZ of Part 63—Requirements for Performance Tests

For each . . .	Complying with the requirement to . . .	You must . . .	Using . . .	According to the following requirements . . .
1. 2SLB, 4SLB, and CI stationary RICE	a. reduce CO emissions	i. Select the sampling port location and the number/location of traverse points at the inlet and outlet of the control device; and		(a) For CO and O_2 measurement, ducts ≤6 inches in diameter may be sampled at a single point located at the duct centroid and ducts >6 and ≤12 inches in diameter may be sampled at 3 traverse points located at 16.7, 50.0, and 83.3% of the measurement line (`3-point long line'). If the duct is >12 inches in diameter *and* the sampling port location meets the two and half-diameter criterion of Section 11.1.1 of Method 1 of 40 CFR part 60, appendix A-1, the duct may be sampled at `3-point long line'; otherwise, conduct the stratification testing and select sampling points according to Section 8.1.2 of Method 7E of 40 CFR part 60, appendix A-4.

For each . . .	Complying with the requirement to . . .	You must . . .	Using . . .	According to the following requirements . . .
		ii. Measure the O_2 at the inlet and outlet of the control device; and	(1) Method 3 or 3A or 3B of 40 CFR part 60, appendix A-2, or ASTM Method D6522-00 (Reapproved 2005)[ac] (heated probe not necessary)	(b) Measurements to determine O_2 must be made at the same time as the measurements for CO concentration.
		iii. Measure the CO at the inlet and the outlet of the control device	(1) ASTM D6522-00 (Reapproved 2005)[abc] (heated probe not necessary) or Method 10 of 40 CFR part 60, appendix A-4	(c) The CO concentration must be at 15 percent O_2, dry basis.
2. 4SRB stationary RICE	a. reduce formaldehyde emissions	i. Select the sampling port location and the number/location of traverse points at the inlet and outlet of the control device; and		(a) For formaldehyde, O_2, and moisture measurement, ducts ≤6 inches in diameter may be sampled at a single point located at the duct centroid and ducts >6 and ≤12 inches in diameter may be sampled at 3 traverse points located at 16.7, 50.0, and 83.3% of the measurement line (`3-point long line'). If the duct is >12 inches in diameter *and* the sampling port location meets the two and half-diameter criterion of Section 11.1.1 of Method 1 of 40 CFR part 60, appendix A, the duct may be sampled at `3-point long line'; otherwise, conduct the stratification testing and select sampling points according to Section 8.1.2 of Method 7E of 40 CFR part 60, appendix A.
		ii. Measure O_2 at the inlet and outlet of the control device; and	(1) Method 3 or 3A or 3B of 40 CFR part 60, appendix A-2, or ASTM Method D6522-00 (Reapproved 2005)[a] (heated probe not necessary)	(a) Measurements to determine O_2 concentration must be made at the same time as the measurements for formaldehyde or THC concentration.
		iii. Measure moisture content at the inlet and outlet of the control device; and	(1) Method 4 of 40 CFR part 60, appendix A-3, or Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03[a]	(a) Measurements to determine moisture content must be made at the same time and location as the measurements for formaldehyde or THC concentration.

For each . . .	Complying with the requirement to . . .	You must . . .	Using . . .	According to the following requirements . . .
		iv. If demonstrating compliance with the formaldehyde percent reduction requirement, measure formalde-hyde at the inlet and the outlet of the control device	(1) Method 320 or 323 of 40 CFR part 63, appendix A; or ASTM D6348-03[a], provided in ASTM D6348-03 Annex A5 (Analyte Spiking Technique), the percent R must be greater than or equal to 70 and less than or equal to 130	(a) Formaldehyde concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.
		v. If demonstrating compliance with the THC percent reduction requirement, measure THC at the inlet and the outlet of the control device	(1) Method 25A, reported as propane, of 40 CFR part 60, appendix A-7	(a) THC concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.
3. Stationary RICE	a. limit the concentra-tion of formalde-hyde or CO in the stationary RICE exhaust	i. Select the sampling port location and the number/location of traverse points at the exhaust of the stationary RICE; and		(a) For formaldehyde, CO, O_2, and moisture measurement, ducts ≤6 inches in diameter may be sampled at a single point located at the duct centroid and ducts >6 and ≤12 inches in diameter may be sampled at 3 traverse points located at 16.7, 50.0, and 83.3% of the measurement line (`3-point long line'). If the duct is >12 inches in diameter *and* the sampling port location meets the two and half-diameter criterion of Section 11.1.1 of Method 1 of 40 CFR part 60, appendix A, the duct may be sampled at `3-point long line'; otherwise, conduct the stratification testing and select sampling points according to Section 8.1.2 of Method 7E of 40 CFR part 60, appendix A. If using a control device, the sampling site must be located at the outlet of the control device.
		ii. Determine the O_2 concentration of the stationary RICE exhaust at the sampling port location; and	(1) Method 3 or 3A or 3B of 40 CFR part 60, appendix A-2, or ASTM Method D6522-00 (Reapproved 2005)[a] (heated probe not necessary)	(a) Measurements to determine O_2 concentration must be made at the same time and location as the measurements for formaldehyde or CO concentration.
		iii. Measure moisture content of the station-ary RICE exhaust at the sampling port location; and	(1) Method 4 of 40 CFR part 60, appendix A-3, or Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03[a]	(a) Measurements to determine moisture content must be made at the same time and location as the measurements for formaldehyde or CO concentration.

For each . . .	Complying with the requirement to . . .	You must . . .	Using . . .	According to the following requirements . . .
		iv. Measure formalde-hyde at the exhaust of the station-ary RICE; or	(1) Method 320 or 323 of 40 CFR part 63, appendix A; or ASTM D6348-03[a], provided in ASTM D6348-03 Annex A5 (Analyte Spiking Technique), the percent R must be greater than or equal to 70 and less than or equal to 130	(a) Formaldehyde concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.
		v. measure CO at the exhaust of the station-ary RICE	(1) Method 10 of 40 CFR part 60, appendix A-4, ASTM Method D6522-00 (2005)[ac], Method 320 of 40 CFR part 63, appendix A, or ASTM D6348-03[a]	(a) CO concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.

[a]You may also use Methods 3A and 10 as options to ASTM-D6522-00 (2005). You may obtain a copy of ASTM-D6522-00 (2005) from at least one of the following addresses: American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106.

[b]You may obtain a copy of ASTM-D6348-03 from at least one of the following addresses: American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106.

[79 FR 11290, Feb. 27, 2014]

Table 5 to Subpart ZZZZ of Part 63—Initial Compliance With Emission Limitations, Operating Limitations, and Other Requirements

As stated in §§63.6612, 63.6625 and 63.6630, you must initially comply with the emission and operating limitations as required by the following:

For each . . .	Complying with the requirement to . . .	You have demonstrated initial compliance if . . .
1. New or reconstructed non-emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, non-emergency stationary CI RICE >500 HP located at a major source of HAP, and existing non-emergency stationary CI RICE >500 HP located at an area source of HAP	a. Reduce CO emissions and using oxidation catalyst, and using a CPMS	i. The average reduction of emissions of CO determined from the initial performance test achieves the required CO percent reduction; and ii. You have installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in §63.6625(b); and iii. You have recorded the catalyst pressure drop and catalyst inlet temperature during the initial performance test.
2. Non-emergency stationary CI RICE >500 HP located at a major source of HAP, and existing non-emergency stationary CI RICE >500 HP located at an area source of HAP	a. Limit the concentration of CO, using oxidation catalyst, and using a CPMS	i. The average CO concentration determined from the initial performance test is less than or equal to the CO emission limitation; and

		ii. You have installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in §63.6625(b); and
		iii. You have recorded the catalyst pressure drop and catalyst inlet temperature during the initial performance test.
3. New or reconstructed non-emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, non-emergency stationary CI RICE >500 HP located at a major source of HAP, and existing non-emergency stationary CI RICE >500 HP located at an area source of HAP	a. Reduce CO emissions and not using oxidation catalyst	i. The average reduction of emissions of CO determined from the initial performance test achieves the required CO percent reduction; and ii. You have installed a CPMS to continuously monitor operating parameters approved by the Administrator (if any) according to the requirements in §63.6625(b); and iii. You have recorded the approved operating parameters (if any) during the initial performance test.
4. Non-emergency stationary CI RICE >500 HP located at a major source of HAP, and existing non-emergency stationary CI RICE >500 HP located at an area source of HAP	a. Limit the concentration of CO, and not using oxidation catalyst	i. The average CO concentration determined from the initial performance test is less than or equal to the CO emission limitation; and ii. You have installed a CPMS to continuously monitor operating parameters approved by the Administrator (if any) according to the requirements in §63.6625(b); and
		iii. You have recorded the approved operating parameters (if any) during the initial performance test.
5. New or reconstructed non-emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, non-emergency stationary CI RICE >500 HP located at a major source of HAP, and existing non-emergency stationary CI RICE >500 HP located at an area source of HAP	a. Reduce CO emissions, and using a CEMS	i. You have installed a CEMS to continuously monitor CO and either O_2 or CO_2 at both the inlet and outlet of the oxidation catalyst according to the requirements in §63.6625(a); and ii. You have conducted a performance evaluation of your CEMS using PS 3 and 4A of 40 CFR part 60, appendix B; and
		iii. The average reduction of CO calculated using §63.6620 equals or exceeds the required percent reduction. The initial test comprises the first 4-hour period after successful validation of the CEMS. Compliance is based on the average percent reduction achieved during the 4-hour period.
6. Non-emergency stationary CI RICE >500 HP located at a major source of HAP, and existing non-emergency stationary CI RICE >500 HP located at an area source of HAP	a. Limit the concentration of CO, and using a CEMS	i. You have installed a CEMS to continuously monitor CO and either O_2 or CO_2 at the outlet of the oxidation catalyst according to the requirements in §63.6625(a); and
		ii. You have conducted a performance evaluation of your CEMS using PS 3 and 4A of 40 CFR part 60, appendix B; and

		iii. The average concentration of CO calculated using §63.6620 is less than or equal to the CO emission limitation. The initial test comprises the first 4-hour period after successful validation of the CEMS. Compliance is based on the average concentration measured during the 4-hour period.
7. Non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP	a. Reduce formaldehyde emissions and using NSCR	i. The average reduction of emissions of formaldehyde determined from the initial performance test is equal to or greater than the required formaldehyde percent reduction, or the average reduction of emissions of THC determined from the initial performance test is equal to or greater than 30 percent; and
		ii. You have installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in §63.6625(b); and
		iii. You have recorded the catalyst pressure drop and catalyst inlet temperature during the initial performance test.
8. Non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP	a. Reduce formaldehyde emissions and not using NSCR	i. The average reduction of emissions of formaldehyde determined from the initial performance test is equal to or greater than the required formaldehyde percent reduction or the average reduction of emissions of THC determined from the initial performance test is equal to or greater than 30 percent; and
		ii. You have installed a CPMS to continuously monitor operating parameters approved by the Administrator (if any) according to the requirements in §63.6625(b); and
		iii. You have recorded the approved operating parameters (if any) during the initial performance test.
9. New or reconstructed non-emergency stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE 250≤HP≤500 located at a major source of HAP, and existing non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP	a. Limit the concentration of formaldehyde in the stationary RICE exhaust and using oxidation catalyst or NSCR	i. The average formaldehyde concentration, corrected to 15 percent O_2, dry basis, from the three test runs is less than or equal to the formaldehyde emission limitation; and ii. You have installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in §63.6625(b); and
		iii. You have recorded the catalyst pressure drop and catalyst inlet temperature during the initial performance test.

10. New or reconstructed non-emergency stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE 250≤HP≤500 located at a major source of HAP, and existing non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP	a. Limit the concentration of formaldehyde in the stationary RICE exhaust and not using oxidation catalyst or NSCR	i. The average formaldehyde concentration, corrected to 15 percent O_2, dry basis, from the three test runs is less than or equal to the formaldehyde emission limitation; and ii. You have installed a CPMS to continuously monitor operating parameters approved by the Administrator (if any) according to the requirements in §63.6625(b); and
		iii. You have recorded the approved operating parameters (if any) during the initial performance test.
11. Existing non-emergency stationary RICE 100≤HP≤500 located at a major source of HAP, and existing non-emergency stationary CI RICE 300<HP≤500 located at an area source of HAP	a. Reduce CO emissions	i. The average reduction of emissions of CO or formaldehyde, as applicable determined from the initial performance test is equal to or greater than the required CO or formaldehyde, as applicable, percent reduction.
12. Existing non-emergency stationary RICE 100≤HP≤500 located at a major source of HAP, and existing non-emergency stationary CI RICE 300<HP≤500 located at an area source of HAP	a. Limit the concentration of formaldehyde or CO in the stationary RICE exhaust	i. The average formaldehyde or CO concentration, as applicable, corrected to 15 percent O_2, dry basis, from the three test runs is less than or equal to the formaldehyde or CO emission limitation, as applicable.
13. Existing non-emergency 4SLB stationary RICE >500 HP located at an area source of HAP that are not remote stationary RICE and that are operated more than 24 hours per calendar year	a. Install an oxidation catalyst	i. You have conducted an initial compliance demonstration as specified in §63.6630(e) to show that the average reduction of emissions of CO is 93 percent or more, or the average CO concentration is less than or equal to 47 ppmvd at 15 percent O_2;
		ii. You have installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in §63.6625(b), or you have installed equipment to automatically shut down the engine if the catalyst inlet temperature exceeds 1350 °F.
14. Existing non-emergency 4SRB stationary RICE >500 HP located at an area source of HAP that are not remote stationary RICE and that are operated more than 24 hours per calendar year	a. Install NSCR	i. You have conducted an initial compliance demonstration as specified in §63.6630(e) to show that the average reduction of emissions of CO is 75 percent or more, the average CO concentration is less than or equal to 270 ppmvd at 15 percent O_2, or the average reduction of emissions of THC is 30 percent or more;
		ii. You have installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in §63.6625(b), or you have installed equipment to automatically shut down the engine if the catalyst inlet temperature exceeds 1250 °F.

[78 FR 6712, Jan. 30, 2013]

Table 6 to Subpart ZZZZ of Part 63—Continuous Compliance With Emission Limitations, and Other Requirements

As stated in §63.6640, you must continuously comply with the emissions and operating limitations and work or management practices as required by the following:

For each . . .	Complying with the requirement to . . .	You must demonstrate continuous compliance by . . .
1. New or reconstructed non-emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, and new or reconstructed non-emergency CI stationary RICE >500 HP located at a major source of HAP	a. Reduce CO emissions and using an oxidation catalyst, and using a CPMS	i. Conducting semiannual performance tests for CO to demonstrate that the required CO percent reduction is achieved[a]; and ii. Collecting the catalyst inlet temperature data according to §63.6625(b); and iii. Reducing these data to 4-hour rolling averages; and
		iv. Maintaining the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature; and
		v. Measuring the pressure drop across the catalyst once per month and demonstrating that the pressure drop across the catalyst is within the operating limitation established during the performance test.
2. New or reconstructed non-emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, and new or reconstructed non-emergency CI stationary RICE >500 HP located at a major source of HAP	a. Reduce CO emissions and not using an oxidation catalyst, and using a CPMS	i. Conducting semiannual performance tests for CO to demonstrate that the required CO percent reduction is achieved[a]; and ii. Collecting the approved operating parameter (if any) data according to §63.6625(b); and iii. Reducing these data to 4-hour rolling averages; and
		iv. Maintaining the 4-hour rolling averages within the operating limitations for the operating parameters established during the performance test.
3. New or reconstructed non-emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, new or reconstructed non-emergency stationary CI RICE >500 HP located at a major source of HAP, and existing non-emergency stationary CI RICE >500 HP	a. Reduce CO emissions or limit the concentration of CO in the stationary RICE exhaust, and using a CEMS	i. Collecting the monitoring data according to §63.6625(a), reducing the measurements to 1-hour averages, calculating the percent reduction or concentration of CO emissions according to §63.6620; and ii. Demonstrating that the catalyst achieves the required percent reduction of CO emissions over the 4-hour averaging period, or that the emission remain at or below the CO concentration limit; and
		iii. Conducting an annual RATA of your CEMS using PS 3 and 4A of 40 CFR part 60, appendix B, as well as daily and periodic data quality checks in accordance with 40 CFR part 60, appendix F, procedure 1.

For each . . .	Complying with the requirement to . . .	You must demonstrate continuous compliance by . . .
4. Non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP	a. Reduce formaldehyde emissions and using NSCR	i. Collecting the catalyst inlet temperature data according to §63.6625(b); and
		ii. Reducing these data to 4-hour rolling averages; and
		iii. Maintaining the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature; and
		iv. Measuring the pressure drop across the catalyst once per month and demonstrating that the pressure drop across the catalyst is within the operating limitation established during the performance test.
5. Non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP	a. Reduce formaldehyde emissions and not using NSCR	i. Collecting the approved operating parameter (if any) data according to §63.6625(b); and
		ii. Reducing these data to 4-hour rolling averages; and
		iii. Maintaining the 4-hour rolling averages within the operating limitations for the operating parameters established during the performance test.
6. Non-emergency 4SRB stationary RICE with a brake HP ≥5,000 located at a major source of HAP	a. Reduce formaldehyde emissions	Conducting semiannual performance tests for formaldehyde to demonstrate that the required formaldehyde percent reduction is achieved, or to demonstrate that the average reduction of emissions of THC determined from the performance test is equal to or greater than 30 percent.[a]
7. New or reconstructed non-emergency stationary RICE >500 HP located at a major source of HAP and new or reconstructed non-emergency 4SLB stationary RICE 250≤HP≤500 located at a major source of HAP	a. Limit the concentration of formaldehyde in the stationary RICE exhaust and using oxidation catalyst or NSCR	i. Conducting semiannual performance tests for formaldehyde to demonstrate that your emissions remain at or below the formaldehyde concentration limit[a]; and ii. Collecting the catalyst inlet temperature data according to §63.6625(b); and
		iii. Reducing these data to 4-hour rolling averages; and
		iv. Maintaining the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature; and
		v. Measuring the pressure drop across the catalyst once per month and demonstrating that the pressure drop across the catalyst is within the operating limitation established during the performance test.

For each . . .	Complying with the requirement to . . .	You must demonstrate continuous compliance by . . .
8. New or reconstructed non-emergency stationary RICE >500 HP located at a major source of HAP and new or reconstructed non-emergency 4SLB stationary RICE 250≤HP≤500 located at a major source of HAP	a. Limit the concentration of formaldehyde in the stationary RICE exhaust and not using oxidation catalyst or NSCR	i. Conducting semiannual performance tests for formaldehyde to demonstrate that your emissions remain at or below the formaldehyde concentration limit[a]; and ii. Collecting the approved operating parameter (if any) data according to §63.6625(b); and
		iii. Reducing these data to 4-hour rolling averages; and
		iv. Maintaining the 4-hour rolling averages within the operating limitations for the operating parameters established during the performance test.
9. Existing emergency and black start stationary RICE ≤500 HP located at a major source of HAP, existing non-emergency stationary RICE <100 HP located at a major source of HAP, existing emergency and black start stationary RICE located at an area source of HAP, existing non-emergency stationary CI RICE ≤300 HP located at an area source of HAP, existing non-emergency 2SLB stationary RICE located at an area source of HAP, existing non-emergency stationary SI RICE located at an area source of HAP which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, existing non-emergency 4SLB and 4SRB stationary RICE ≤500 HP located at an area source of HAP, existing non-emergency 4SLB and 4SRB stationary RICE >500 HP located at an area source of HAP that operate 24 hours or less per calendar year, and existing non-emergency 4SLB and 4SRB stationary RICE >500 HP located at an area source of HAP that are remote stationary RICE	a. Work or Management practices	i. Operating and maintaining the stationary RICE according to the manufacturer's emission-related operation and maintenance instructions; or ii. Develop and follow your own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions.
10. Existing stationary CI RICE >500 HP that are not limited use stationary RICE	a. Reduce CO emissions, or limit the concentration of CO in the stationary RICE exhaust, and using oxidation catalyst	i. Conducting performance tests every 8,760 hours or 3 years, whichever comes first, for CO or formaldehyde, as appropriate, to demonstrate that the required CO or formaldehyde, as appropriate, percent reduction is achieved or that your emissions remain at or below the CO or formaldehyde concentration limit; and
		ii. Collecting the catalyst inlet temperature data according to §63.6625(b); and
		iii. Reducing these data to 4-hour rolling averages; and
		iv. Maintaining the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature; and

For each . . .	Complying with the requirement to . . .	You must demonstrate continuous compliance by . . .
		v. Measuring the pressure drop across the catalyst once per month and demonstrating that the pressure drop across the catalyst is within the operating limitation established during the performance test.
11. Existing stationary CI RICE >500 HP that are not limited use stationary RICE	a. Reduce CO emissions, or limit the concentration of CO in the stationary RICE exhaust, and not using oxidation catalyst	i. Conducting performance tests every 8,760 hours or 3 years, whichever comes first, for CO or formaldehyde, as appropriate, to demonstrate that the required CO or formaldehyde, as appropriate, percent reduction is achieved or that your emissions remain at or below the CO or formaldehyde concentration limit; and
		ii. Collecting the approved operating parameter (if any) data according to §63.6625(b); and
		iii. Reducing these data to 4-hour rolling averages; and
		iv. Maintaining the 4-hour rolling averages within the operating limitations for the operating parameters established during the performance test.
12. Existing limited use CI stationary RICE >500 HP	a. Reduce CO emissions or limit the concentration of CO in the stationary RICE exhaust, and using an oxidation catalyst	i. Conducting performance tests every 8,760 hours or 5 years, whichever comes first, for CO or formaldehyde, as appropriate, to demonstrate that the required CO or formaldehyde, as appropriate, percent reduction is achieved or that your emissions remain at or below the CO or formaldehyde concentration limit; and
		ii. Collecting the catalyst inlet temperature data according to §63.6625(b); and
		iii. Reducing these data to 4-hour rolling averages; and
		iv. Maintaining the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature; and
		v. Measuring the pressure drop across the catalyst once per month and demonstrating that the pressure drop across the catalyst is within the operating limitation established during the performance test.
13. Existing limited use CI stationary RICE >500 HP	a. Reduce CO emissions or limit the concentration of CO in the stationary RICE exhaust, and not using an oxidation catalyst	i. Conducting performance tests every 8,760 hours or 5 years, whichever comes first, for CO or formaldehyde, as appropriate, to demonstrate that the required CO or formaldehyde, as appropriate, percent reduction is achieved or that your emissions remain at or below the CO or formaldehyde concentration limit; and

For each . . .	Complying with the requirement to . . .	You must demonstrate continuous compliance by . . .
		ii. Collecting the approved operating parameter (if any) data according to §63.6625(b); and
		iii. Reducing these data to 4-hour rolling averages; and
		iv. Maintaining the 4-hour rolling averages within the operating limitations for the operating parameters established during the performance test.
14. Existing non-emergency 4SLB stationary RICE >500 HP located at an area source of HAP that are not remote stationary RICE and that are operated more than 24 hours per calendar year	a. Install an oxidation catalyst	i. Conducting annual compliance demonstrations as specified in §63.6640(c) to show that the average reduction of emissions of CO is 93 percent or more, or the average CO concentration is less than or equal to 47 ppmvd at 15 percent O_2; and either ii. Collecting the catalyst inlet temperature data according to §63.6625(b), reducing these data to 4-hour rolling averages; and maintaining the 4-hour rolling averages within the limitation of greater than 450 °F and less than or equal to 1350 °F for the catalyst inlet temperature; or iii. Immediately shutting down the engine if the catalyst inlet temperature exceeds 1350 °F.
15. Existing non-emergency 4SRB stationary RICE >500 HP located at an area source of HAP that are not remote stationary RICE and that are operated more than 24 hours per calendar year	a. Install NSCR	i. Conducting annual compliance demonstrations as specified in §63.6640(c) to show that the average reduction of emissions of CO is 75 percent or more, the average CO concentration is less than or equal to 270 ppmvd at 15 percent O_2, or the average reduction of emissions of THC is 30 percent or more; and either ii. Collecting the catalyst inlet temperature data according to §63.6625(b), reducing these data to 4-hour rolling averages; and maintaining the 4-hour rolling averages within the limitation of greater than or equal to 750 °F and less than or equal to 1250 °F for the catalyst inlet temperature; or iii. Immediately shutting down the engine if the catalyst inlet temperature exceeds 1250 °F.

[a]After you have demonstrated compliance for two consecutive tests, you may reduce the frequency of subsequent performance tests to annually. If the results of any subsequent annual performance test indicate the stationary RICE is not in compliance with the CO or formaldehyde emission limitation, or you deviate from any of your operating limitations, you must resume semiannual performance tests.

[78 FR 6715, Jan. 30, 2013]

Table 7 to Subpart ZZZZ of Part 63—Requirements for Reports

As stated in §63.6650, you must comply with the following requirements for reports:

For each . . .	You must submit a . . .	The report must contain . . .	You must submit the report . . .
1. Existing non-emergency, non-black start stationary RICE 100≤HP≤500 located at a major source of HAP; existing non-emergency, non-black start stationary CI RICE >500 HP located at a major source of HAP; existing non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP; existing non-emergency, non-black start stationary CI RICE >300 HP located at an area source of HAP; new or reconstructed non-emergency stationary RICE >500 HP located at a major source of HAP; and new or reconstructed non-emergency 4SLB stationary RICE 250≤HP≤500 located at a major source of HAP	Compliance report	a. If there are no deviations from any emission limitations or operating limitations that apply to you, a statement that there were no deviations from the emission limitations or operating limitations during the reporting period. If there were no periods during which the CMS, including CEMS and CPMS, was out-of-control, as specified in §63.8(c)(7), a statement that there were not periods during which the CMS was out-of-control during the reporting period; or	i. Semiannually according to the requirements in §63.6650(b)(1)-(5) for engines that are not limited use stationary RICE subject to numerical emission limitations; and ii. Annually according to the requirements in §63.6650(b)(6)-(9) for engines that are limited use stationary RICE subject to numerical emission limitations.
		b. If you had a deviation from any emission limitation or operating limitation during the reporting period, the information in §63.6650(d). If there were periods during which the CMS, including CEMS and CPMS, was out-of-control, as specified in §63.8(c)(7), the information in §63.6650(e); or	i. Semiannually according to the requirements in §63.6650(b).
		c. If you had a malfunction during the reporting period, the information in §63.6650(c)(4).	i. Semiannually according to the requirements in §63.6650(b).
2. New or reconstructed non-emergency stationary RICE that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis	Report	a. The fuel flow rate of each fuel and the heating values that were used in your calculations, and you must demonstrate that the percentage of heat input provided by landfill gas or digester gas, is equivalent to 10 percent or more of the gross heat input on an annual basis; and	i. Annually, according to the requirements in §63.6650.
		b. The operating limits provided in your federally enforceable permit, and any deviations from these limits; and	i. See item 2.a.i.
		c. Any problems or errors suspected with the meters.	i. See item 2.a.i.
3. Existing non-emergency, non-black start 4SLB and 4SRB stationary RICE >500 HP located at an area source of HAP that are not remote stationary RICE and that operate more than 24 hours per calendar year	Compliance report	a. The results of the annual compliance demonstration, if conducted during the reporting period.	i. Semiannually according to the requirements in §63.6650(b)(1)-(5).

For each . . .	You must submit a . . .	The report must contain . . .	You must submit the report . . .
4. Emergency stationary RICE that operate or are contractually obligated to be available for more than 15 hours per year for the purposes specified in §63.6640(f)(2)(ii) and (iii) or that operate for the purposes specified in §63.6640(f)(4)(ii)	Report	a. The information in §63.6650(h)(1)	i. annually according to the requirements in §63.6650(h)(2)-(3).

[78 FR 6719, Jan. 30, 2013]

Table 8 to Subpart ZZZZ of Part 63—Applicability of General Provisions to Subpart ZZZZ.

As stated in §63.6665, you must comply with the following applicable general provisions.

General provisions citation	Subject of citation	Applies to subpart	Explanation
§63.1	General applicability of the General Provisions	Yes.	
§63.2	Definitions	Yes	Additional terms defined in §63.6675.
§63.3	Units and abbreviations	Yes.	
§63.4	Prohibited activities and circumvention	Yes.	
§63.5	Construction and reconstruction	Yes.	
§63.6(a)	Applicability	Yes.	
§63.6(b)(1)-(4)	Compliance dates for new and reconstructed sources	Yes.	
§63.6(b)(5)	Notification	Yes.	
§63.6(b)(6)	[Reserved]		
§63.6(b)(7)	Compliance dates for new and reconstructed area sources that become major sources	Yes.	
§63.6(c)(1)-(2)	Compliance dates for existing sources	Yes.	
§63.6(c)(3)-(4)	[Reserved]		
§63.6(c)(5)	Compliance dates for existing area sources that become major sources	Yes.	
§63.6(d)	[Reserved]		
§63.6(e)	Operation and maintenance	No.	
§63.6(f)(1)	Applicability of standards	No.	
§63.6(f)(2)	Methods for determining compliance	Yes.	
§63.6(f)(3)	Finding of compliance	Yes.	
§63.6(g)(1)-(3)	Use of alternate standard	Yes.	
§63.6(h)	Opacity and visible emission standards	No	Subpart ZZZZ does not contain opacity or visible emission standards.
§63.6(i)	Compliance extension procedures and criteria	Yes.	

General provisions citation	Subject of citation	Applies to subpart	Explanation
§63.6(j)	Presidential compliance exemption	Yes.	
§63.7(a)(1)-(2)	Performance test dates	Yes	Subpart ZZZZ contains performance test dates at §§63.6610, 63.6611, and 63.6612.
§63.7(a)(3)	CAA section 114 authority	Yes.	
§63.7(b)(1)	Notification of performance test	Yes	Except that §63.7(b)(1) only applies as specified in §63.6645.
§63.7(b)(2)	Notification of rescheduling	Yes	Except that §63.7(b)(2) only applies as specified in §63.6645.
§63.7(c)	Quality assurance/test plan	Yes	Except that §63.7(c) only applies as specified in §63.6645.
§63.7(d)	Testing facilities	Yes.	
§63.7(e)(1)	Conditions for conducting performance tests	No.	Subpart ZZZZ specifies conditions for conducting performance tests at §63.6620.
§63.7(e)(2)	Conduct of performance tests and reduction of data	Yes	Subpart ZZZZ specifies test methods at §63.6620.
§63.7(e)(3)	Test run duration	Yes.	
§63.7(e)(4)	Administrator may require other testing under section 114 of the CAA	Yes.	
§63.7(f)	Alternative test method provisions	Yes.	
§63.7(g)	Performance test data analysis, recordkeeping, and reporting	Yes.	
§63.7(h)	Waiver of tests	Yes.	
§63.8(a)(1)	Applicability of monitoring requirements	Yes	Subpart ZZZZ contains specific requirements for monitoring at §63.6625.
§63.8(a)(2)	Performance specifications	Yes.	
§63.8(a)(3)	[Reserved]		
§63.8(a)(4)	Monitoring for control devices	No.	
§63.8(b)(1)	Monitoring	Yes.	
§63.8(b)(2)-(3)	Multiple effluents and multiple monitoring systems	Yes.	
§63.8(c)(1)	Monitoring system operation and maintenance	Yes.	
§63.8(c)(1)(i)	Routine and predictable SSM	No	
§63.8(c)(1)(ii)	SSM not in Startup Shutdown Malfunction Plan	Yes.	
§63.8(c)(1)(iii)	Compliance with operation and maintenance requirements	No	
§63.8(c)(2)-(3)	Monitoring system installation	Yes.	
§63.8(c)(4)	Continuous monitoring system (CMS) requirements	Yes	Except that subpart ZZZZ does not require Continuous Opacity Monitoring System (COMS).
§63.8(c)(5)	COMS minimum procedures	No	Subpart ZZZZ does not require COMS.
§63.8(c)(6)-(8)	CMS requirements	Yes	Except that subpart ZZZZ does not require COMS.

General provisions citation	Subject of citation	Applies to subpart	Explanation
§63.8(d)	CMS quality control	Yes.	
§63.8(e)	CMS performance evaluation	Yes	Except for §63.8(e)(5)(ii), which applies to COMS.
		Except that §63.8(e) only applies as specified in §63.6645.	
§63.8(f)(1)-(5)	Alternative monitoring method	Yes	Except that §63.8(f)(4) only applies as specified in §63.6645.
§63.8(f)(6)	Alternative to relative accuracy test	Yes	Except that §63.8(f)(6) only applies as specified in §63.6645.
§63.8(g)	Data reduction	Yes	Except that provisions for COMS are not applicable. Averaging periods for demonstrating compliance are specified at §§63.6635 and 63.6640.
§63.9(a)	Applicability and State delegation of notification requirements	Yes.	
§63.9(b)(1)-(5)	Initial notifications	Yes	Except that §63.9(b)(3) is reserved.
		Except that §63.9(b) only applies as specified in §63.6645.	
§63.9(c)	Request for compliance extension	Yes	Except that §63.9(c) only applies as specified in §63.6645.
§63.9(d)	Notification of special compliance requirements for new sources	Yes	Except that §63.9(d) only applies as specified in §63.6645.
§63.9(e)	Notification of performance test	Yes	Except that §63.9(e) only applies as specified in §63.6645.
§63.9(f)	Notification of visible emission (VE)/opacity test	No	Subpart ZZZZ does not contain opacity or VE standards.
§63.9(g)(1)	Notification of performance evaluation	Yes	Except that §63.9(g) only applies as specified in §63.6645.
§63.9(g)(2)	Notification of use of COMS data	No	Subpart ZZZZ does not contain opacity or VE standards.
§63.9(g)(3)	Notification that criterion for alternative to RATA is exceeded	Yes	If alternative is in use.
		Except that §63.9(g) only applies as specified in §63.6645.	
§63.9(h)(1)-(6)	Notification of compliance status	Yes	Except that notifications for sources using a CEMS are due 30 days after completion of performance evaluations. §63.9(h)(4) is reserved.
			Except that §63.9(h) only applies as specified in §63.6645.
§63.9(i)	Adjustment of submittal deadlines	Yes.	
§63.9(j)	Change in previous information	Yes.	
§63.10(a)	Administrative provisions for recordkeeping/reporting	Yes.	

General provisions citation	Subject of citation	Applies to subpart	Explanation
§63.10(b)(1)	Record retention	Yes	Except that the most recent 2 years of data do not have to be retained on site.
§63.10(b)(2)(i)-(v)	Records related to SSM	No.	
§63.10(b)(2)(vi)-(xi)	Records	Yes.	
§63.10(b)(2)(xii)	Record when under waiver	Yes.	
§63.10(b)(2)(xiii)	Records when using alternative to RATA	Yes	For CO standard if using RATA alternative.
§63.10(b)(2)(xiv)	Records of supporting documentation	Yes.	
§63.10(b)(3)	Records of applicability determination	Yes.	
§63.10(c)	Additional records for sources using CEMS	Yes	Except that §63.10(c)(2)-(4) and (9) are reserved.
§63.10(d)(1)	General reporting requirements	Yes.	
§63.10(d)(2)	Report of performance test results	Yes.	
§63.10(d)(3)	Reporting opacity or VE observations	No	Subpart ZZZZ does not contain opacity or VE standards.
§63.10(d)(4)	Progress reports	Yes.	
§63.10(d)(5)	Startup, shutdown, and malfunction reports	No.	
§63.10(e)(1) and (2)(i)	Additional CMS Reports	Yes.	
§63.10(e)(2)(ii)	COMS-related report	No	Subpart ZZZZ does not require COMS.
§63.10(e)(3)	Excess emission and parameter exceedances reports	Yes.	Except that §63.10(e)(3)(i) (C) is reserved.
§63.10(e)(4)	Reporting COMS data	No	Subpart ZZZZ does not require COMS.
§63.10(f)	Waiver for recordkeeping/reporting	Yes.	
§63.11	Flares	No.	
§63.12	State authority and delegations	Yes.	
§63.13	Addresses	Yes.	
§63.14	Incorporation by reference	Yes.	
§63.15	Availability of information	Yes.	

[75 FR 9688, Mar. 3, 2010, as amended at 78 FR 6720, Jan. 30, 2013]

Appendix A—Protocol for Using an Electrochemical Analyzer to Determine Oxygen and Carbon Monoxide Concentrations From Certain Engines

1.0 Scope and Application. What is this Protocol?

This protocol is a procedure for using portable electrochemical (EC) cells for measuring carbon monoxide (CO) and oxygen (O_2) concentrations in controlled and uncontrolled emissions from existing stationary 4-stroke lean burn and 4-stroke rich burn reciprocating internal combustion engines as specified in the applicable rule.

1.1 Analytes. What does this protocol determine?

This protocol measures the engine exhaust gas concentrations of carbon monoxide (CO) and oxygen (O_2).

Analyte	CAS No.	Sensitivity
Carbon monoxide (CO)	630-08-0	Minimum detectable limit should be 2 percent of the nominal range or 1 ppm, whichever is less restrictive.
Oxygen (O_2)	*7782-44-7*	

1.2 Applicability. When is this protocol acceptable?

This protocol is applicable to 40 CFR part 63, subpart ZZZZ. Because of inherent cross sensitivities of EC cells, you must not apply this protocol to other emissions sources without specific instruction to that effect.

1.3 Data Quality Objectives. How good must my collected data be?

Refer to Section 13 to verify and document acceptable analyzer performance.

1.4 Range. What is the targeted analytical range for this protocol?

The measurement system and EC cell design(s) conforming to this protocol will determine the analytical range for each gas component. The nominal ranges are defined by choosing up-scale calibration gas concentrations near the maximum anticipated flue gas concentrations for CO and O_2, or no more than twice the permitted CO level.

1.5 Sensitivity. What minimum detectable limit will this protocol yield for a particular gas component?

The minimum detectable limit depends on the nominal range and resolution of the specific EC cell used, and the signal to noise ratio of the measurement system. The minimum detectable limit should be 2 percent of the nominal range or 1 ppm, whichever is less restrictive.

2.0 Summary of Protocol

In this protocol, a gas sample is extracted from an engine exhaust system and then conveyed to a portable EC analyzer for measurement of CO and O_2 gas concentrations. This method provides measurement system performance specifications and sampling protocols to ensure reliable data. You may use additions to, or modifications of vendor supplied measurement systems (e.g., heated or unheated sample lines, thermocouples, flow meters, selective gas scrubbers, etc.) to meet the design specifications of this protocol. Do not make changes to the measurement system from the as-verified configuration (Section 3.12).

3.0 Definitions

3.1 Measurement System. The total equipment required for the measurement of CO and O_2 concentrations. The measurement system consists of the following major subsystems:

3.1.1 Data Recorder. A strip chart recorder, computer or digital recorder for logging measurement data from the analyzer output. You may record measurement data from the digital data display manually or electronically.

3.1.2 Electrochemical (EC) Cell. A device, similar to a fuel cell, used to sense the presence of a specific analyte and generate an electrical current output proportional to the analyte concentration.

3.1.3 Interference Gas Scrubber. A device used to remove or neutralize chemical compounds that may interfere with the selective operation of an EC cell.

3.1.4 Moisture Removal System. Any device used to reduce the concentration of moisture in the sample stream so as to protect the EC cells from the damaging effects of condensation and to minimize errors in measurements caused by the scrubbing of soluble gases.

3.1.5 Sample Interface. The portion of the system used for one or more of the following: sample acquisition; sample transport; sample conditioning or protection of the EC cell from any degrading effects of the engine exhaust effluent; removal of particulate matter and condensed moisture.

3.2 Nominal Range. The range of analyte concentrations over which each EC cell is operated (normally 25 percent to 150 percent of up-scale calibration gas value). Several nominal ranges can be used for any given cell so long as the calibration and repeatability checks for that range remain within specifications.

3.3 Calibration Gas. A vendor certified concentration of a specific analyte in an appropriate balance gas.

3.4 Zero Calibration Error. The analyte concentration output exhibited by the EC cell in response to zero-level calibration gas.

3.5 Up-Scale Calibration Error. The mean of the difference between the analyte concentration exhibited by the EC cell and the certified concentration of the up-scale calibration gas.

3.6 Interference Check. A procedure for quantifying analytical interference from components in the engine exhaust gas other than the targeted analytes.

3.7 Repeatability Check. A protocol for demonstrating that an EC cell operated over a given nominal analyte concentration range provides a stable and consistent response and is not significantly affected by repeated exposure to that gas.

3.8 Sample Flow Rate. The flow rate of the gas sample as it passes through the EC cell. In some situations, EC cells can experience drift with changes in flow rate. The flow rate must be monitored and documented during all phases of a sampling run.

3.9 Sampling Run. A timed three-phase event whereby an EC cell's response rises and plateaus in a sample conditioning phase, remains relatively constant during a measurement data phase, then declines during a refresh phase. The sample conditioning phase exposes the EC cell to the gas sample for a length of time sufficient to reach a constant response. The measurement data phase is the time interval during which gas sample measurements can be made that meet the acceptance criteria of this protocol. The refresh phase then purges the EC cells with CO-free air. The refresh phase replenishes requisite O_2 and moisture in the electrolyte reserve and provides a mechanism to de-gas or desorb any interference gas scrubbers or filters so as to enable a stable CO EC cell response. There are four primary types of sampling runs: pre- sampling calibrations; stack gas sampling; post-sampling calibration checks; and measurement system repeatability checks. Stack gas sampling runs can be chained together for extended evaluations, providing all other procedural specifications are met.

3.10 Sampling Day. A time not to exceed twelve hours from the time of the pre-sampling calibration to the post-sampling calibration check. During this time, stack gas sampling runs can be repeated without repeated recalibrations, providing all other sampling specifications have been met.

3.11 Pre-Sampling Calibration/Post-Sampling Calibration Check. The protocols executed at the beginning and end of each sampling day to bracket measurement readings with controlled performance checks.

3.12 Performance-Established Configuration. The EC cell and sampling system configuration that existed at the time that it initially met the performance requirements of this protocol.

4.0 Interferences.

When present in sufficient concentrations, NO and NO_2 are two gas species that have been reported to interfere with CO concentration measurements. In the likelihood of this occurrence, it is the protocol user's responsibility to employ and properly maintain an appropriate CO EC cell filter or scrubber for removal of these gases, as described in Section 6.2.12.

5.0 Safety. [Reserved]

6.0 Equipment and Supplies.

6.1 What equipment do I need for the measurement system?

The system must maintain the gas sample at conditions that will prevent moisture condensation in the sample transport lines, both before and as the sample gas contacts the EC cells. The essential components of the measurement system are described below.

6.2 Measurement System Components.

6.2.1 Sample Probe. A single extraction-point probe constructed of glass, stainless steel or other non-reactive material, and of length sufficient to reach any designated sampling point. The sample probe must be designed to prevent plugging due to condensation or particulate matter.

6.2.2 Sample Line. Non-reactive tubing to transport the effluent from the sample probe to the EC cell.

6.2.3 Calibration Assembly (optional). A three-way valve assembly or equivalent to introduce calibration gases at ambient pressure at the exit end of the sample probe during calibration checks. The assembly must be designed such that only stack gas or calibration gas flows in the sample line and all gases flow through any gas path filters.

6.2.4 Particulate Filter (optional). Filters before the inlet of the EC cell to prevent accumulation of particulate material in the measurement system and extend the useful life of the components. All filters must be fabricated of materials that are non-reactive to the gas mixtures being sampled.

6.2.5 Sample Pump. A leak-free pump to provide undiluted sample gas to the system at a flow rate sufficient to minimize the response time of the measurement system. If located upstream of the EC cells, the pump must be constructed of a material that is non-reactive to the gas mixtures being sampled.

6.2.8 Sample Flow Rate Monitoring. An adjustable rotameter or equivalent device used to adjust and maintain the sample flow rate through the analyzer as prescribed.

6.2.9 Sample Gas Manifold (optional). A manifold to divert a portion of the sample gas stream to the analyzer and the remainder to a by-pass discharge vent. The sample gas manifold may also include provisions for introducing calibration gases directly to the analyzer. The manifold must be constructed of a material that is non-reactive to the gas mixtures being sampled.

6.2.10 EC cell. A device containing one or more EC cells to determine the CO and O_2 concentrations in the sample gas stream. The EC cell(s) must meet the applicable performance specifications of Section 13 of this protocol.

6.2.11 Data Recorder. A strip chart recorder, computer or digital recorder to make a record of analyzer output data. The data recorder resolution (i.e., readability) must be no greater than 1 ppm for CO; 0.1 percent for O_2; and one degree (either °C or °F) for temperature. Alternatively, you may use a digital or analog meter having the same resolution to observe and manually record the analyzer responses.

6.2.12 Interference Gas Filter or Scrubber. A device to remove interfering compounds upstream of the CO EC cell. Specific interference gas filters or scrubbers used in the performance-established configuration of the analyzer must continue to be used. Such a filter or scrubber must have a means to determine when the removal agent is exhausted. Periodically replace or replenish it in accordance with the manufacturer's recommendations.

7.0 Reagents and Standards. What calibration gases are needed?

7.1 Calibration Gases. CO calibration gases for the EC cell must be CO in nitrogen or CO in a mixture of nitrogen and O_2. Use CO calibration gases with labeled concentration values certified by the manufacturer to be within ±5 percent of the label value. Dry ambient air (20.9 percent O_2) is acceptable for calibration of the O_2 cell. If needed, any lower percentage O_2 calibration gas must be a mixture of O_2 in nitrogen.

7.1.1 Up-Scale CO Calibration Gas Concentration. Choose one or more up-scale gas concentrations such that the average of the stack gas measurements for each stack gas sampling run are between 25 and 150 percent of those concentrations. Alternatively, choose an up-scale gas that does not exceed twice the concentration of the applicable outlet standard. If a measured gas value exceeds 150 percent of the up-scale CO calibration gas value at any time during the stack gas sampling run, the run must be discarded and repeated.

7.1.2 Up-Scale O_2 Calibration Gas Concentration.

Select an O_2 gas concentration such that the difference between the gas concentration and the average stack gas measurement or reading for each sample run is less than 15 percent O_2. When the average exhaust gas O_2 readings are above 6 percent, you may use dry ambient air (20.9 percent O_2) for the up-scale O_2 calibration gas.

7.1.3 Zero Gas. Use an inert gas that contains less than 0.25 percent of the up-scale CO calibration gas concentration. You may use dry air that is free from ambient CO and other combustion gas products (e.g., CO_2).

8.0 Sample Collection and Analysis

8.1 Selection of Sampling Sites.

8.1.1 Control Device Inlet. Select a sampling site sufficiently downstream of the engine so that the combustion gases should be well mixed. Use a single sampling extraction point near the center of the duct (e.g., within the 10 percent centroidal area), unless instructed otherwise.

8.1.2 Exhaust Gas Outlet. Select a sampling site located at least two stack diameters downstream of any disturbance (e.g., turbocharger exhaust, crossover junction or recirculation take-off) and at least one-half stack diameter upstream of the gas discharge to the atmosphere. Use a single sampling extraction point near the center of the duct (e.g., within the 10 percent centroidal area), unless instructed otherwise.

8.2 Stack Gas Collection and Analysis. Prior to the first stack gas sampling run, conduct that the pre-sampling calibration in accordance with Section 10.1. Use Figure 1 to record all data. Zero the analyzer with zero gas. Confirm and record that the scrubber media color is correct and not exhausted. Then position the probe at the sampling point and begin the sampling run at the same flow rate used during the up-scale calibration. Record the start time. Record all EC cell output responses and the flow rate during the “sample conditioning phase” once per minute until constant readings are obtained. Then begin the “measurement data phase” and record readings every 15 seconds for at least two minutes (or eight readings), or as otherwise required to achieve two continuous minutes of data that meet the specification given in Section 13.1. Finally, perform the “refresh phase” by introducing dry air, free from CO and other combustion gases, until several minute-to-minute readings of consistent value have been obtained. For each run use the “measurement data phase” readings to calculate the average stack gas CO and O_2 concentrations.

8.3 EC Cell Rate. Maintain the EC cell sample flow rate so that it does not vary by more than ±10 percent throughout the pre-sampling calibration, stack gas sampling and post-sampling calibration check. Alternatively, the EC cell sample flow rate can be maintained within a tolerance range that does not affect the gas concentration readings by more than ±3 percent, as instructed by the EC cell manufacturer.

9.0 Quality Control (Reserved)

10.0 Calibration and Standardization

10.1 Pre-Sampling Calibration. Conduct the following protocol once for each nominal range to be used on each EC cell before performing a stack gas sampling run on each field sampling day. Repeat the calibration if you replace an EC cell before completing all of the sampling runs. There is no prescribed order for calibration of the EC cells; however, each cell must complete the measurement data phase during calibration. Assemble the measurement system by following the manufacturer's recommended protocols including for preparing and preconditioning the EC cell. Assure the measurement system has no leaks and verify the gas scrubbing agent is not depleted. Use Figure 1 to record all data.

10.1.1 Zero Calibration. For both the O_2 and CO cells, introduce zero gas to the measurement system (e.g., at the calibration assembly) and record the concentration reading every minute until readings are constant for at least two

consecutive minutes. Include the time and sample flow rate. Repeat the steps in this section at least once to verify the zero calibration for each component gas.

10.1.2 Zero Calibration Tolerance. For each zero gas introduction, the zero level output must be less than or equal to ±3 percent of the up-scale gas value or ±1 ppm, whichever is less restrictive, for the CO channel and less than or equal to ±0.3 percent O_2 for the O_2 channel.

10.1.3 Up-Scale Calibration. Individually introduce each calibration gas to the measurement system (e.g., at the calibration assembly) and record the start time. Record all EC cell output responses and the flow rate during this "sample conditioning phase" once per minute until readings are constant for at least two minutes. Then begin the "measurement data phase" and record readings every 15 seconds for a total of two minutes, or as otherwise required. Finally, perform the "refresh phase" by introducing dry air, free from CO and other combustion gases, until readings are constant for at least two consecutive minutes. Then repeat the steps in this section at least once to verify the calibration for each component gas. Introduce all gases to flow through the entire sample handling system (i.e., at the exit end of the sampling probe or the calibration assembly).

10.1.4 Up-Scale Calibration Error. The mean of the difference of the "measurement data phase" readings from the reported standard gas value must be less than or equal to ±5 percent or ±1 ppm for CO or ±0.5 percent O_2, whichever is less restrictive, respectively. The maximum allowable deviation from the mean measured value of any single "measurement data phase" reading must be less than or equal to ±2 percent or ±1 ppm for CO or ±0.5 percent O_2, whichever is less restrictive, respectively.

10.2 Post-Sampling Calibration Check. Conduct a stack gas post-sampling calibration check after the stack gas sampling run or set of runs and within 12 hours of the initial calibration. Conduct up-scale and zero calibration checks using the protocol in Section 10.1. Make no changes to the sampling system or EC cell calibration until all post-sampling calibration checks have been recorded. If either the zero or up-scale calibration error exceeds the respective specification in Sections 10.1.2 and 10.1.4 then all measurement data collected since the previous successful calibrations are invalid and re-calibration and re-sampling are required. If the sampling system is disassembled or the EC cell calibration is adjusted, repeat the calibration check before conducting the next analyzer sampling run.

11.0 Analytical Procedure

The analytical procedure is fully discussed in Section 8.

12.0 Calculations and Data Analysis

Determine the CO and O_2 concentrations for each stack gas sampling run by calculating the mean gas concentrations of the data recorded during the "measurement data phase".

13.0 Protocol Performance

Use the following protocols to verify consistent analyzer performance during each field sampling day.

13.1 Measurement Data Phase Performance Check. Calculate the mean of the readings from the "measurement data phase". The maximum allowable deviation from the mean for each of the individual readings is ±2 percent, or ±1 ppm, whichever is less restrictive. Record the mean value and maximum deviation for each gas monitored. Data must conform to Section 10.1.4. The EC cell flow rate must conform to the specification in Section 8.3.

Example: A measurement data phase is invalid if the maximum deviation of any single reading comprising that mean is greater than ±2 percent *or* ±1 ppm (the default criteria). For example, if the mean = 30 ppm, single readings of below 29 ppm and above 31 ppm are disallowed).

13.2 Interference Check. Before the initial use of the EC cell and interference gas scrubber in the field, and semi-annually thereafter, challenge the interference gas scrubber with NO and NO_2 gas standards that are generally recognized as representative of diesel-fueled engine NO and NO_2 emission values. Record the responses displayed by the CO EC cell and other pertinent data on Figure 1 or a similar form.

13.2.1 Interference Response. The combined NO and NO_2 interference response should be less than or equal to ±5 percent of the up-scale CO calibration gas concentration.

13.3 Repeatability Check. Conduct the following check once for each nominal range that is to be used on the CO EC cell within 5 days prior to each field sampling program. If a field sampling program lasts longer than 5 days, repeat this check every 5 days. Immediately repeat the check if the EC cell is replaced or if the EC cell is exposed to gas concentrations greater than 150 percent of the highest up-scale gas concentration.

13.3.1 Repeatability Check Procedure. Perform a complete EC cell sampling run (all three phases) by introducing the CO calibration gas to the measurement system and record the response. Follow Section 10.1.3. Use Figure 1 to record all data. Repeat the run three times for a total of four complete runs. During the four repeatability check runs, do not adjust the system except where necessary to achieve the correct calibration gas flow rate at the analyzer.

13.3.2 Repeatability Check Calculations. Determine the highest and lowest average “measurement data phase” CO concentrations from the four repeatability check runs and record the results on Figure 1 or a similar form. The absolute value of the difference between the maximum and minimum average values recorded must not vary more than ±3 percent or ±1 ppm of the up-scale gas value, whichever is less restrictive.

14.0 Pollution Prevention (Reserved)

15.0 Waste Management (Reserved)

16.0 Alternative Procedures (Reserved)

17.0 References

(1) “Development of an Electrochemical Cell Emission Analyzer Test Protocol”, Topical Report, Phil Juneau, Emission Monitoring, Inc., July 1997.

(2) “Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Emissions from Natural Gas-Fired Engines, Boilers, and Process Heaters Using Portable Analyzers”, EMC Conditional Test Protocol 30 (CTM-30), Gas Research Institute Protocol GRI-96/0008, Revision 7, October 13, 1997.

(3) “ICAC Test Protocol for Periodic Monitoring”, EMC Conditional Test Protocol 34 (CTM-034), The Institute of Clean Air Companies, September 8, 1999.

(4) “Code of Federal Regulations”, Protection of Environment, 40 CFR, Part 60, Appendix A, Methods 1-4; 10.

Table 1: Appendix A—Sampling Run Data.

Facility_____ Engine I.D._____ Date_____											
Run Type:	(_)		(_)		(_)			(_)			
(X)	Pre-Sample Calibration		Stack Gas Sample		Post-Sample Cal. Check			Repeatability Check			
Run #	1	1	2	2	3	3	4	4	Time	Scrub. OK	Flow- Rate
Gas	O_2	CO	O_2	CO	O_2	CO	O_2	CO			
Sample Cond. Phase											
″											
″											
″											
″											

Measurement Data Phase											
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Mean											
Refresh Phase											
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[78 FR 6721, Jan. 30, 2013]

Attachment G

Part 70 Operating Permit Renewal No: 089-31293-00497

[Downloaded from the eCFR on May 13, 2013]

Electronic Code of Federal Regulations

Title 40: Protection of Environment

PART 60—STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES

Subpart JJJJ—Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

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

What This Subpart Covers

§ 60.4230 Am I subject to this subpart?

(a) The provisions of this subpart are applicable to manufacturers, owners, and operators of stationary spark ignition (SI) internal combustion engines (ICE) as specified in paragraphs (a)(1) through (6) of this section. For the purposes of this subpart, the date that construction commences is the date the engine is ordered by the owner or operator.

(1) Manufacturers of stationary SI ICE with a maximum engine power less than or equal to 19 kilowatt (KW) (25 horsepower (HP)) that are manufactured on or after July 1, 2008.

(2) Manufacturers of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) that are gasoline fueled or that are rich burn engines fueled by liquefied petroleum gas (LPG), where the date of manufacture is:

(i) On or after July 1, 2008; or

(ii) On or after January 1, 2009, for emergency engines.

(3) Manufacturers of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) that are not gasoline fueled and are not rich burn engines fueled by LPG, where the manufacturer participates in the voluntary manufacturer certification program described in this subpart and where the date of manufacture is:

(i) On or after July 1, 2007, for engines with a maximum engine power greater than or equal to 500 HP (except lean burn engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP);

(ii) On or after January 1, 2008, for lean burn engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP;

(iii) On or after July 1, 2008, for engines with a maximum engine power less than 500 HP; or

(iv) On or after January 1, 2009, for emergency engines.

(4) Owners and operators of stationary SI ICE that commence construction after June 12, 2006, where the stationary SI ICE are manufactured:

(i) On or after July 1, 2007, for engines with a maximum engine power greater than or equal to 500 HP (except lean burn engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP);

(ii) on or after January 1, 2008, for lean burn engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP;

(iii) on or after July 1, 2008, for engines with a maximum engine power less than 500 HP; or

(iv) on or after January 1, 2009, for emergency engines with a maximum engine power greater than 19 KW (25 HP).

(5) Owners and operators of stationary SI ICE that are modified or reconstructed after June 12, 2006, and any person that modifies or reconstructs any stationary SI ICE after June 12, 2006.

(6) The provisions of § 60.4236 of this subpart are applicable to all owners and operators of stationary SI ICE that commence construction after June 12, 2006.

(b) The provisions of this subpart are not applicable to stationary SI ICE being tested at an engine test cell/stand.

(c) If you are an owner or operator of an area source subject to this subpart, you are exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71, provided you are not required to obtain a permit under 40 CFR 70.3(a) or 40 CFR 71.3(a) for a reason other than your status as an area source under this subpart. Notwithstanding the previous sentence, you must continue to comply with the provisions of this subpart as applicable.

(d) For the purposes of this subpart, stationary SI ICE using alcohol-based fuels are considered gasoline engines.

(e) Stationary SI ICE may be eligible for exemption from the requirements of this subpart as described in 40 CFR part 1068, subpart C (or the exemptions described in 40 CFR parts 90 and 1048, for engines that would need to be certified to standards in those parts), except that owners and operators, as well as manufacturers, may be eligible to request an exemption for national security.

(f) Owners and operators of facilities with internal combustion engines that are acting as temporary replacement units and that are located at a stationary source for less than 1 year and that have been properly certified as meeting the standards that would be applicable to such engine under the appropriate nonroad engine provisions, are not required to meet any other provisions under this subpart with regard to such engines.

[73 FR 3591, Jan. 18, 2008, as amended at 76 FR 37972, June 28, 2011]

Emission Standards for Manufacturers

§ 60.4231 What emission standards must I meet if I am a manufacturer of stationary SI internal combustion engines or equipment containing such engines?

(a) Stationary SI internal combustion engine manufacturers must certify their stationary SI ICE with a maximum engine power less than or equal to 19 KW (25 HP) manufactured on or after July 1, 2008 to the certification emission standards and other requirements for new nonroad SI engines in 40 CFR part 90 or 1054, as follows:

If engine displacement is * * *	**and manufacturing dates are * * ***	**the engine must meet emission standards and related requirements for nonhandheld engines under * * ***
(1) below 225 cc	July 1, 2008 to December 31, 2011	40 CFR part 90.
(2) below 225 cc	January 1, 2012 or later	40 CFR part 1054.
(3) at or above 225 cc	July 1, 2008 to December 31, 2010	40 CFR part 90.
(4) at or above 225 cc	January 1, 2011 or later	40 CFR part 1054.

(b) Stationary SI internal combustion engine manufacturers must certify their stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) (except emergency stationary ICE with a maximum engine power greater than 25 HP and less than 130 HP) that use gasoline and that are manufactured on or after the applicable date in § 60.4230(a)(2), or manufactured on or after the applicable date in § 60.4230(a)(4) for emergency stationary ICE with a maximum engine power greater than or equal to 130 HP, to the certification emission standards and other requirements for new nonroad SI engines in 40 CFR part 1048. Stationary SI internal combustion engine manufacturers must certify their emergency stationary SI ICE with a maximum engine power greater than 25 HP and less than 130 HP that use gasoline and that are manufactured on or after the applicable date in § 60.4230(a)(4) to the Phase 1 emission standards in 40 CFR 90.103, applicable to class II engines, and other requirements for new nonroad SI engines in 40 CFR part 90. Stationary SI internal combustion engine manufacturers may certify their stationary SI ICE with a maximum engine power less than or equal to 30 KW (40 HP) with a total displacement less than or equal to 1,000 cubic centimeters (cc) that use gasoline to the certification emission standards and other requirements for new nonroad SI engines in 40 CFR part 90 or 1054, as appropriate.

(c) Stationary SI internal combustion engine manufacturers must certify their stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) (except emergency stationary ICE with a maximum engine power greater than 25 HP and less than 130 HP) that are rich burn engines that use LPG and that are manufactured on or after the applicable date in § 60.4230(a)(2), or manufactured on or after the applicable date in § 60.4230(a)(4) for emergency stationary ICE with a maximum engine power greater than or equal to 130 HP, to the certification emission standards and other requirements for new nonroad SI engines in 40 CFR part 1048. Stationary SI internal combustion engine manufacturers must certify their emergency stationary SI ICE greater than 25 HP and less than 130 HP that are rich burn engines that use LPG and that are manufactured on or after the applicable date in § 60.4230(a)(4) to the Phase 1 emission standards in 40 CFR 90.103, applicable to class II engines, and other requirements for new nonroad SI engines in 40 CFR part 90. Stationary SI internal combustion engine manufacturers may certify their stationary SI ICE with a maximum engine power less than or equal to 30 KW (40 HP) with a total displacement less than or equal to 1,000 cc that are rich burn engines that use LPG to the certification emission standards and other requirements for new nonroad SI engines in 40 CFR part 90 or 1054, as appropriate.

(d) Stationary SI internal combustion engine manufacturers who choose to certify their stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) and less than 75 KW (100 HP) (except gasoline and rich burn engines that use LPG and emergency stationary ICE with a maximum engine power greater than 25 HP and less than 130 HP) under the voluntary manufacturer certification program described in this subpart must certify those engines to the certification emission standards for new nonroad SI engines in 40 CFR part 1048. Stationary SI internal combustion engine manufacturers who choose to certify their emergency stationary SI ICE greater than 25 HP and less than 130 HP (except gasoline and rich burn engines that use LPG), must certify those engines to the Phase 1 emission standards in 40 CFR 90.103, applicable to class II engines, for new nonroad SI engines in 40 CFR part 90. Stationary SI internal combustion engine manufacturers may certify their stationary SI ICE with a maximum engine power less than or equal to 30 KW (40 HP) with a total displacement less than or equal to 1,000 cc (except gasoline and rich burn engines that use LPG) to the certification emission standards for new nonroad SI engines in 40 CFR part 90 or 1054, as appropriate. For stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) and less than 75 KW (100 HP) (except gasoline and rich burn engines that use LPG and emergency stationary ICE with a maximum engine power greater than 25 HP and less than 130 HP) manufactured prior to January 1, 2011, manufacturers may choose to certify these engines to the standards in Table 1 to this subpart applicable to engines with a maximum engine power greater than or equal to 100 HP and less than 500 HP.

(e) Stationary SI internal combustion engine manufacturers who choose to certify their stationary SI ICE with a maximum engine power greater than or equal to 75 KW (100 HP) (except gasoline and rich burn engines that use LPG) under the voluntary manufacturer certification program described in this subpart must certify those engines to the emission standards in Table 1 to this subpart. Stationary SI internal combustion engine manufacturers may certify their stationary SI ICE with a maximum engine power greater than or equal to 75 KW (100 HP) that are lean burn engines that use LPG to the certification emission standards for new nonroad SI engines in 40 CFR part 1048. For stationary SI ICE with a maximum engine power greater than or equal to 100 HP (75 KW) and less than 500 HP (373 KW) manufactured prior to January 1, 2011, and for stationary SI ICE with a maximum engine power greater than or equal to 500 HP (373 KW) manufactured prior to July 1, 2010, manufacturers may choose to certify these engines to the certification emission standards for new nonroad SI engines in 40 CFR part 1048 applicable to engines that are not severe duty engines.

(f) Manufacturers of equipment containing stationary SI internal combustion engines meeting the provisions of 40 CFR part 1054 must meet the provisions of 40 CFR part 1060, to the extent they apply to equipment manufacturers.

(g) Notwithstanding the requirements in paragraphs (a) through (c) of this section, stationary SI internal combustion engine manufacturers are not required to certify reconstructed engines; however manufacturers may elect to do so. The reconstructed engine must be certified to the emission standards specified in paragraphs (a) through (e) of this section that are applicable to the model year, maximum engine power and displacement of the reconstructed stationary SI ICE.

[73 FR 3591, Jan. 18, 2008, as amended at 73 FR 59175, Oct. 8, 2008; 76 FR 37973, June 28, 2011; 78 FR 6697, Jan. 30, 2013]

§ 60.4232 How long must my engines meet the emission standards if I am a manufacturer of stationary SI internal combustion engines?

Engines manufactured by stationary SI internal combustion engine manufacturers must meet the emission standards as required in § 60.4231 during the certified emissions life of the engines.

Emission Standards for Owners and Operators

§ 60.4233 What emission standards must I meet if I am an owner or operator of a stationary SI internal combustion engine?

(a) Owners and operators of stationary SI ICE with a maximum engine power less than or equal to 19 KW (25 HP) manufactured on or after July 1, 2008, must comply with the emission standards in § 60.4231(a) for their stationary SI ICE.

(b) Owners and operators of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) manufactured on or after the applicable date in § 60.4230(a)(4) that use gasoline must comply with the emission standards in § 60.4231(b) for their stationary SI ICE.

(c) Owners and operators of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) manufactured on or after the applicable date in § 60.4230(a)(4) that are rich burn engines that use LPG must comply with the emission standards in § 60.4231(c) for their stationary SI ICE.

(d) Owners and operators of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) and less than 75 KW (100 HP) (except gasoline and rich burn engines that use LPG) must comply with the emission standards for field testing in 40 CFR 1048.101(c) for their non-emergency stationary SI ICE and with the emission standards in Table 1 to this subpart for their emergency stationary SI ICE. Owners and operators of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) and less than 75 KW (100 HP) manufactured prior to January 1, 2011, that were certified to the standards in Table 1 to this subpart applicable to engines with a maximum engine power greater than or equal to 100 HP and less than 500 HP, may optionally choose to meet those standards.

(e) Owners and operators of stationary SI ICE with a maximum engine power greater than or equal to 75 KW (100 HP) (except gasoline and rich burn engines that use LPG) must comply with the emission standards in Table 1 to this subpart for their stationary SI ICE. For owners and operators of stationary SI ICE with a maximum engine power greater than or equal to 100 HP (except gasoline and rich burn engines that use LPG) manufactured prior to January 1, 2011 that were certified to the certification emission standards in 40 CFR part 1048 applicable to engines that are not severe duty engines, if such stationary SI ICE was certified to a carbon monoxide (CO) standard above the standard in Table 1 to this subpart, then the owners and operators may meet the CO certification (not field testing) standard for which the engine was certified.

(f) Owners and operators of any modified or reconstructed stationary SI ICE subject to this subpart must meet the requirements as specified in paragraphs (f)(1) through (5) of this section.

(1) Owners and operators of stationary SI ICE with a maximum engine power less than or equal to 19 KW (25 HP), that are modified or reconstructed after June 12, 2006, must comply with emission standards in § 60.4231(a) for their stationary SI ICE. Engines with a date of manufacture prior to July 1, 2008 must comply with the emission standards specified in § 60.4231(a) applicable to engines manufactured on July 1, 2008.

(2) Owners and operators of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) that are gasoline engines and are modified or reconstructed after June 12, 2006, must comply with the emission standards in § 60.4231(b) for their stationary SI ICE. Engines with a date of manufacture prior to July 1, 2008 (or January 1, 2009 for emergency engines) must comply with the emission standards specified in § 60.4231(b) applicable to engines manufactured on July 1, 2008 (or January 1, 2009 for emergency engines).

(3) Owners and operators of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) that are rich burn engines that use LPG, that are modified or reconstructed after June 12, 2006, must comply with the same emission standards as those specified in § 60.4231(c). Engines with a date of manufacture prior to July 1, 2008 (or January 1, 2009 for emergency engines) must comply with the emission standards specified in § 60.4231(c) applicable to engines manufactured on July 1, 2008 (or January 1, 2009 for emergency engines).

(4) Owners and operators of stationary SI natural gas and lean burn LPG engines with a maximum engine power greater than 19 KW (25 HP), that are modified or reconstructed after June 12, 2006, must comply with the same emission standards as those specified in paragraph (d) or (e) of this section, except that such owners and operators of non-emergency engines and emergency engines greater than or equal to 130 HP must meet a nitrogen oxides (NO_X) emission standard of 3.0 grams per HP-hour (g/HP-hr), a CO emission standard of 4.0 g/HP-hr (5.0 g/HP-hr for non-emergency engines less than 100 HP), and a volatile organic compounds (VOC) emission standard of 1.0 g/HP-hr, or a NO_X emission standard of 250 ppmvd at 15 percent oxygen (O_2), a CO emission standard 540 ppmvd at 15 percent O_2 (675 ppmvd at 15 percent O_2 for non-emergency engines less than 100 HP), and a VOC emission standard of 86 ppmvd at 15 percent O_2 , where the date of manufacture of the engine is:

(i) Prior to July 1, 2007, for non-emergency engines with a maximum engine power greater than or equal to 500 HP (except lean burn natural gas engines and LPG engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP);

(ii) Prior to July 1, 2008, for non-emergency engines with a maximum engine power less than 500 HP;

(iii) Prior to January 1, 2009, for emergency engines;

(iv) Prior to January 1, 2008, for non-emergency lean burn natural gas engines and LPG engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP.

(5) Owners and operators of stationary SI landfill/digester gas ICE engines with a maximum engine power greater than 19 KW (25 HP), that are modified or reconstructed after June 12, 2006, must comply with the same emission standards as those specified in paragraph (e) of this section for stationary landfill/digester gas engines. Engines with maximum engine power less than 500 HP and a date of manufacture prior to July 1, 2008 must comply with the emission standards specified in paragraph (e) of this section for stationary landfill/digester gas ICE with a maximum engine power less than 500 HP manufactured on July 1, 2008. Engines with a maximum engine power greater than or equal to 500 HP (except lean burn engines greater than or equal to 500 HP and less than 1,350 HP) and a date of manufacture prior to July 1, 2007 must comply with the emission standards specified in paragraph (e) of this section for stationary landfill/digester gas ICE with a maximum engine power greater than or equal to 500 HP (except lean burn engines greater than or equal to 500 HP and less than 1,350 HP) manufactured on July 1, 2007. Lean burn engines greater than or equal to 500 HP and less than 1,350 HP with a date of manufacture prior to January 1, 2008 must comply with the emission standards specified in paragraph (e) of this section for stationary landfill/digester gas ICE that are lean burn engines greater than or equal to 500 HP and less than 1,350 HP and manufactured on January 1, 2008.

(g) Owners and operators of stationary SI wellhead gas ICE engines may petition the Administrator for approval on a case-by-case basis to meet emission standards no less stringent than the emission standards that apply to stationary emergency SI engines greater than 25 HP and less than 130 HP due to the presence of high sulfur levels in the fuel, as specified in Table 1 to this subpart. The request must, at a minimum, demonstrate that the fuel has high sulfur levels that prevent the use of aftertreatment controls and also that the owner has reasonably made all attempts possible to obtain an engine that will meet the standards without the use of aftertreatment controls. The petition must request the most stringent standards reasonably applicable to the engine using the fuel.

(h) Owners and operators of stationary SI ICE that are required to meet standards that reference 40 CFR 1048.101 must, if testing their engines in use, meet the standards in that section applicable to field testing, except as indicated in paragraph (e) of this section.

[73 FR 3591, Jan. 18, 2008, as amended at 76 FR 37973, June 28, 2011]

§ 60.4234 How long must I meet the emission standards if I am an owner or operator of a stationary SI internal combustion engine?

Owners and operators of stationary SI ICE must operate and maintain stationary SI ICE that achieve the emission standards as required in § 60.4233 over the entire life of the engine.

Other Requirements for Owners and Operators

§ 60.4235 What fuel requirements must I meet if I am an owner or operator of a stationary SI gasoline fired internal combustion engine subject to this subpart?

Owners and operators of stationary SI ICE subject to this subpart that use gasoline must use gasoline that meets the per gallon sulfur limit in 40 CFR 80.195.

§ 60.4236 What is the deadline for importing or installing stationary SI ICE produced in previous model years?

(a) After July 1, 2010, owners and operators may not install stationary SI ICE with a maximum engine power of less than 500 HP that do not meet the applicable requirements in § 60.4233.

(b) After July 1, 2009, owners and operators may not install stationary SI ICE with a maximum engine power of greater than or equal to 500 HP that do not meet the applicable requirements in § 60.4233, except that lean burn engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP that do not meet the applicable requirements in § 60.4233 may not be installed after January 1, 2010.

(c) For emergency stationary SI ICE with a maximum engine power of greater than 19 KW (25 HP), owners and operators may not install engines that do not meet the applicable requirements in § 60.4233 after January 1, 2011.

(d) In addition to the requirements specified in §§ 60.4231 and 60.4233, it is prohibited to import stationary SI ICE less than or equal to 19 KW (25 HP), stationary rich burn LPG SI ICE, and stationary gasoline SI ICE that do not meet the applicable requirements specified in paragraphs (a), (b), and (c) of this section, after the date specified in paragraph (a), (b), and (c) of this section.

(e) The requirements of this section do not apply to owners and operators of stationary SI ICE that have been modified or reconstructed, and they do not apply to engines that were removed from one existing location and reinstalled at a new location.

§ 60.4237 What are the monitoring requirements if I am an owner or operator of an emergency stationary SI internal combustion engine?

(a) Starting on July 1, 2010, if the emergency stationary SI internal combustion engine that is greater than or equal to 500 HP that was built on or after July 1, 2010, does not meet the standards applicable to non-emergency engines, the owner or operator must install a non-resettable hour meter.

(b) Starting on January 1, 2011, if the emergency stationary SI internal combustion engine that is greater than or equal to 130 HP and less than 500 HP that was built on or after January 1, 2011, does not meet the standards applicable to non-emergency engines, the owner or operator must install a non-resettable hour meter.

(c) If you are an owner or operator of an emergency stationary SI internal combustion engine that is less than 130 HP, was built on or after July 1, 2008, and does not meet the standards applicable to non-emergency engines, you must install a non-resettable hour meter upon startup of your emergency engine.

Compliance Requirements for Manufacturers

§ 60.4238 What are my compliance requirements if I am a manufacturer of stationary SI internal combustion engines ≤19 KW (25 HP) or a manufacturer of equipment containing such engines?

Stationary SI internal combustion engine manufacturers who are subject to the emission standards specified in § 60.4231(a) must certify their stationary SI ICE using the certification procedures required in 40 CFR part 90, subpart B, or 40 CFR part 1054, subpart C, as applicable, and must test their engines as specified in those parts. Manufacturers of equipment containing stationary SI internal combustion engines meeting the provisions of 40 CFR part 1054 must meet the provisions of 40 CFR part 1060, subpart C, to the extent they apply to equipment manufacturers.

[73 FR 59176, Oct. 8, 2008]

§ 60.4239 What are my compliance requirements if I am a manufacturer of stationary SI internal combustion engines >19 KW (25 HP) that use gasoline or a manufacturer of equipment containing such engines?

Stationary SI internal combustion engine manufacturers who are subject to the emission standards specified in § 60.4231(b) must certify their stationary SI ICE using the certification procedures required in 40 CFR part 1048, subpart C, and must test their engines as specified in that part. Stationary SI internal combustion engine manufacturers who certify their stationary SI ICE with a maximum engine power less than or equal to 30 KW (40 HP) with a total displacement less than or equal to 1,000 cc to the certification emission standards and other requirements for new nonroad SI engines in 40 CFR part 90 or 40 CFR part 1054, and manufacturers of stationary SI emergency engines that are greater than 25 HP and less than 130 HP who meet the Phase 1 emission standards in 40 CFR 90.103, applicable to class II engines, must certify their stationary SI ICE using the certification procedures required in 40 CFR part 90, subpart B, or 40 CFR part 1054, subpart C, as applicable, and must test their engines as specified in those parts. Manufacturers of equipment containing stationary SI internal combustion engines meeting the provisions of 40 CFR part 1054 must meet the provisions of 40 CFR part 1060, subpart C, to the extent they apply to equipment manufacturers.

[73 FR 59176, Oct. 8, 2008]

§ 60.4240 What are my compliance requirements if I am a manufacturer of stationary SI internal combustion engines >19 KW (25 HP) that are rich burn engines that use LPG or a manufacturer of equipment containing such engines?

Stationary SI internal combustion engine manufacturers who are subject to the emission standards specified in § 60.4231(c) must certify their stationary SI ICE using the certification procedures required in 40 CFR part 1048, subpart C, and must test their engines as specified in that part. Stationary SI internal combustion engine manufacturers who certify their stationary SI ICE with a maximum engine power less than or equal to 30 KW (40 HP) with a total displacement less than or equal to 1,000 cc to the certification emission standards and other requirements for new nonroad SI engines in 40 CFR part 90 or 40 CFR part 1054, and manufacturers of stationary SI emergency engines that are greater than 25 HP and less than 130 HP who meet the Phase 1 emission standards in 40 CFR 90.103, applicable to class II engines, must certify their stationary SI ICE using the certification procedures required in 40 CFR part 90, subpart B, or 40 CFR part 1054, subpart C, as applicable, and must test their engines as specified in those parts. Manufacturers of equipment containing stationary SI internal combustion engines meeting the provisions of 40 CFR part 1054 must meet the provisions of 40 CFR part 1060, subpart C, to the extent they apply to equipment manufacturers.

[73 FR 59176, Oct. 8, 2008]

§ 60.4241 What are my compliance requirements if I am a manufacturer of stationary SI internal combustion engines participating in the voluntary certification program or a manufacturer of equipment containing such engines?

(a) Manufacturers of stationary SI internal combustion engines with a maximum engine power greater than 19 KW (25 HP) that do not use gasoline and are not rich burn engines that use LPG can choose to certify their engines to the emission standards in § 60.4231(d) or (e), as applicable, under the voluntary certification program described in this

subpart. Manufacturers who certify their engines under the voluntary certification program must meet the requirements as specified in paragraphs (b) through (g) of this section. In addition, manufacturers of stationary SI internal combustion engines who choose to certify their engines under the voluntary certification program, must also meet the requirements as specified in § 60.4247.

(b) Manufacturers of engines other than those certified to standards in 40 CFR part 90 or 40 CFR part 1054 must certify their stationary SI ICE using the certification procedures required in 40 CFR part 1048, subpart C, and must follow the same test procedures that apply to large SI nonroad engines under 40 CFR part 1048, but must use the D-1 cycle of International Organization of Standardization 8178-4: 1996(E) (incorporated by reference, see 40 CFR 60.17) or the test cycle requirements specified in Table 3 to 40 CFR 1048.505, except that Table 3 of 40 CFR 1048.505 applies to high load engines only. Stationary SI internal combustion engine manufacturers who certify their stationary SI ICE with a maximum engine power less than or equal to 30 KW (40 HP) with a total displacement less than or equal to 1,000 cc to the certification emission standards and other requirements for new nonroad SI engines in 40 CFR part 90 or 40 CFR part 1054, and manufacturers of emergency engines that are greater than 25 HP and less than 130 HP who meet the Phase 1 standards in 40 CFR 90.103, applicable to class II engines, must certify their stationary SI ICE using the certification procedures required in 40 CFR part 90, subpart B, or 40 CFR part 1054, subpart C, as applicable, and must test their engines as specified in those parts. Manufacturers of equipment containing stationary SI internal combustion engines meeting the provisions of 40 CFR part 1054 must meet the provisions of 40 CFR part 1060, subpart C, to the extent they apply to equipment manufacturers.

(c) Certification of stationary SI ICE to the emission standards specified in § 60.4231(d) or (e), as applicable, is voluntary, but manufacturers who decide to certify are subject to all of the requirements indicated in this subpart with regard to the engines included in their certification. Manufacturers must clearly label their stationary SI engines as certified or non-certified engines.

(d) Manufacturers of natural gas fired stationary SI ICE who conduct voluntary certification of stationary SI ICE to the emission standards specified in § 60.4231(d) or (e), as applicable, must certify their engines for operation using fuel that meets the definition of pipeline-quality natural gas. The fuel used for certifying stationary SI natural gas engines must meet the definition of pipeline-quality natural gas as described in § 60.4248. In addition, the manufacturer must provide information to the owner and operator of the certified stationary SI engine including the specifications of the pipeline-quality natural gas to which the engine is certified and what adjustments the owner or operator must make to the engine when installed in the field to ensure compliance with the emission standards.

(e) Manufacturers of stationary SI ICE that are lean burn engines fueled by LPG who conduct voluntary certification of stationary SI ICE to the emission standards specified in § 60.4231(d) or (e), as applicable, must certify their engines for operation using fuel that meets the specifications in 40 CFR 1065.720.

(f) Manufacturers may certify their engines for operation using gaseous fuels in addition to pipeline-quality natural gas; however, the manufacturer must specify the properties of that fuel and provide testing information showing that the engine will meet the emission standards specified in § 60.4231(d) or (e), as applicable, when operating on that fuel. The manufacturer must also provide instructions for configuring the stationary engine to meet the emission standards on fuels that do not meet the pipeline-quality natural gas definition. The manufacturer must also provide information to the owner and operator of the certified stationary SI engine regarding the configuration that is most conducive to reduced emissions where the engine will be operated on gaseous fuels with different quality than the fuel that it was certified to.

(g) A stationary SI engine manufacturer may certify an engine family solely to the standards applicable to landfill/digester gas engines as specified in § 60.4231(d) or (e), as applicable, but must certify their engines for operation using landfill/digester gas and must add a permanent label stating that the engine is for use only in landfill/digester gas applications. The label must be added according to the labeling requirements specified in 40 CFR 1048.135(b).

(h) For purposes of this subpart, when calculating emissions of volatile organic compounds, emissions of formaldehyde should not be included.

(i) For engines being certified to the voluntary certification standards in Table 1 of this subpart, the VOC measurement shall be made by following the procedures in 40 CFR 1065.260 and 1065.265 in order to determine the total NMHC emissions by using a flame-ionization detector and non-methane cutter. As an alternative to the

nonmethane cutter, manufacturers may use a gas chromatograph as allowed under 40 CFR 1065.267 and may measure ethane, as well as methane, for excluding such levels from the total VOC measurement.

[73 FR 3591, Jan. 18, 2008, as amended at 73 FR 59176, Oct. 8, 2008; 76 FR 37974, June 28, 2011]

§ 60.4242 What other requirements must I meet if I am a manufacturer of stationary SI internal combustion engines or equipment containing stationary SI internal combustion engines or a manufacturer of equipment containing such engines?

(a) Stationary SI internal combustion engine manufacturers must meet the provisions of 40 CFR part 90, 40 CFR part 1048, or 40 CFR part 1054, as applicable, as well as 40 CFR part 1068 for engines that are certified to the emission standards in 40 CFR part 1048 or 1054, except that engines certified pursuant to the voluntary certification procedures in § 60.4241 are subject only to the provisions indicated in § 60.4247 and are permitted to provide instructions to owners and operators allowing for deviations from certified configurations, if such deviations are consistent with the provisions of paragraphs § 60.4241(c) through (f). Manufacturers of equipment containing stationary SI internal combustion engines meeting the provisions of 40 CFR part 1054 must meet the provisions of 40 CFR part 1060, as applicable. Labels on engines certified to 40 CFR part 1048 must refer to stationary engines, rather than or in addition to nonroad engines, as appropriate.

(b) An engine manufacturer certifying an engine family or families to standards under this subpart that are identical to standards applicable under 40 CFR part 90, 40 CFR part 1048, or 40 CFR part 1054 for that model year may certify any such family that contains both nonroad and stationary engines as a single engine family and/or may include any such family containing stationary engines in the averaging, banking and trading provisions applicable for such engines under those parts. This provision also applies to equipment or component manufacturers certifying to standards under 40 CFR part 1060.

(c) Manufacturers of engine families certified to 40 CFR part 1048 may meet the labeling requirements referred to in paragraph (a) of this section for stationary SI ICE by either adding a separate label containing the information required in paragraph (a) of this section or by adding the words “and stationary” after the word “nonroad” to the label.

(d) For all engines manufactured on or after January 1, 2011, and for all engines with a maximum engine power greater than 25 HP and less than 130 HP manufactured on or after July 1, 2008, a stationary SI engine manufacturer that certifies an engine family solely to the standards applicable to emergency engines must add a permanent label stating that the engines in that family are for emergency use only. The label must be added according to the labeling requirements specified in 40 CFR 1048.135(b).

(e) All stationary SI engines subject to mandatory certification that do not meet the requirements of this subpart must be labeled according to 40 CFR 1068.230 and must be exported under the provisions of 40 CFR 1068.230. Stationary SI engines subject to standards in 40 CFR part 90 may use the provisions in 40 CFR 90.909. Manufacturers of stationary engines with a maximum engine power greater than 25 HP that are not certified to standards and other requirements under 40 CFR part 1048 are subject to the labeling provisions of 40 CFR 1048.20 pertaining to excluded stationary engines.

(f) For manufacturers of gaseous-fueled stationary engines required to meet the warranty provisions in 40 CFR 90.1103 or 1054.120, we may establish an hour-based warranty period equal to at least the certified emissions life of the engines (in engine operating hours) if we determine that these engines are likely to operate for a number of hours greater than the applicable useful life within 24 months. We will not approve an alternate warranty under this paragraph (f) for nonroad engines. An alternate warranty period approved under this paragraph (f) will be the specified number of engine operating hours or two years, whichever comes first. The engine manufacturer shall request this alternate warranty period in its application for certification or in an earlier submission. We may approve an alternate warranty period for an engine family subject to the following conditions:

(1) The engines must be equipped with non-resettable hour meters.

(2) The engines must be designed to operate for a number of hours substantially greater than the applicable certified emissions life.

(3) The emission-related warranty for the engines may not be shorter than any published warranty offered by the manufacturer without charge for the engines. Similarly, the emission-related warranty for any component shall not be shorter than any published warranty offered by the manufacturer without charge for that component.

[73 FR 3591, Jan. 18, 2008, as amended at 73 FR 59177, Oct. 8, 2008]

Compliance Requirements for Owners and Operators

§ 60.4243 What are my compliance requirements if I am an owner or operator of a stationary SI internal combustion engine?

(a) If you are an owner or operator of a stationary SI internal combustion engine that is manufactured after July 1, 2008, and must comply with the emission standards specified in § 60.4233(a) through (c), you must comply by purchasing an engine certified to the emission standards in § 60.4231(a) through (c), as applicable, for the same engine class and maximum engine power. In addition, you must meet one of the requirements specified in (a)(1) and (2) of this section.

(1) If you operate and maintain the certified stationary SI internal combustion engine and control device according to the manufacturer's emission-related written instructions, you must keep records of conducted maintenance to demonstrate compliance, but no performance testing is required if you are an owner or operator. You must also meet the requirements as specified in 40 CFR part 1068, subparts A through D, as they apply to you. If you adjust engine settings according to and consistent with the manufacturer's instructions, your stationary SI internal combustion engine will not be considered out of compliance.

(2) If you do not operate and maintain the certified stationary SI internal combustion engine and control device according to the manufacturer's emission-related written instructions, your engine will be considered a non-certified engine, and you must demonstrate compliance according to (a)(2)(i) through (iii) of this section, as appropriate.

(i) If you are an owner or operator of a stationary SI internal combustion engine less than 100 HP, you must keep a maintenance plan and records of conducted maintenance to demonstrate compliance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions, but no performance testing is required if you are an owner or operator.

(ii) If you are an owner or operator of a stationary SI internal combustion engine greater than or equal to 100 HP and less than or equal to 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, 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 within 1 year of engine startup to demonstrate compliance.

(iii) If you are an owner or operator of a stationary SI internal combustion engine greater than 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, 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 within 1 year of engine startup and conduct subsequent performance testing every 8,760 hours or 3 years, whichever comes first, thereafter to demonstrate compliance.

(b) If you are an owner or operator of a stationary SI internal combustion engine and must comply with the emission standards specified in § 60.4233(d) or (e), you must demonstrate compliance according to one of the methods specified in paragraphs (b)(1) and (2) of this section.

(1) 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 in paragraph (a) of this section.

(2) Purchasing a non-certified engine and demonstrating compliance with the emission standards specified in § 60.4233(d) or (e) and according to the requirements specified in § 60.4244, as applicable, and according to paragraphs (b)(2)(i) and (ii) of this section.

(i) If you are an owner or operator of a stationary SI internal combustion engine greater than 25 HP and less than or equal to 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent

practicable, 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 to demonstrate compliance.

(ii) If you are an owner or operator of a stationary SI internal combustion engine greater than 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, 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 and conduct subsequent performance testing every 8,760 hours or 3 years, whichever comes first, thereafter to demonstrate compliance.

(c) If you are an owner or operator of a stationary SI internal combustion engine that must comply with the emission standards specified in § 60.4233(f), you must demonstrate compliance according paragraph (b)(2)(i) or (ii) of this section, except that if you comply according to paragraph (b)(2)(i) of this section, you demonstrate that your non-certified engine complies with the emission standards specified in § 60.4233(f).

(d) If you own or operate an emergency stationary ICE, you must operate the emergency stationary ICE according to the requirements in paragraphs (d)(1) through (3) of this section. In order for the engine to be considered an emergency stationary ICE under this subpart, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency situations for 50 hours per year, as described in paragraphs (d)(1) through (3) of this section, is prohibited. If you do not operate the engine according to the requirements in paragraphs (d)(1) through (3) of this section, the engine will not be considered an emergency engine under this subpart and must meet all requirements for non-emergency engines.

(1) There is no time limit on the use of emergency stationary ICE in emergency situations.

(2) You may operate your emergency stationary ICE for any combination of the purposes specified in paragraphs (d)(2)(i) through (iii) of this section for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraph (d)(3) of this section counts as part of the 100 hours per calendar year allowed by this paragraph (d)(2).

(i) Emergency stationary ICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency ICE beyond 100 hours per calendar year.

(ii) Emergency stationary ICE may be operated for emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see § 60.17), or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3.

(iii) Emergency stationary ICE may be operated for periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.

(3) Emergency stationary ICE may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in paragraph (d)(2) of this section. Except as provided in paragraph (d)(3)(i) of this section, the 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

(i) The 50 hours per year for non-emergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met:

(A) The engine is dispatched by the local balancing authority or local transmission and distribution system operator;

(B) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.

(C) The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.

(D) The power is provided only to the facility itself or to support the local transmission and distribution system.

(E) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator.

(ii) [Reserved]

(e) Owners and operators of stationary SI natural gas fired engines may operate their engines using propane for a maximum of 100 hours per year as an alternative fuel solely during emergency operations, but must keep records of such use. If propane is used for more than 100 hours per year in an engine that is not certified to the emission standards when using propane, the owners and operators are required to conduct a performance test to demonstrate compliance with the emission standards of § 60.4233.

(f) If you are an owner or operator of a stationary SI internal combustion engine that is less than or equal to 500 HP and you purchase a non-certified engine or you do not operate and maintain your certified stationary SI internal combustion engine and control device according to the manufacturer's written emission-related instructions, you are required to perform initial performance testing as indicated in this section, but you are not required to conduct subsequent performance testing unless the stationary engine is rebuilt or undergoes major repair or maintenance. A rebuilt stationary SI ICE means an engine that has been rebuilt as that term is defined in 40 CFR 94.11(a).

(g) It is expected that air-to-fuel ratio controllers will be used with the operation of three-way catalysts/non-selective catalytic reduction. The AFR controller must be maintained and operated appropriately in order to ensure proper operation of the engine and control device to minimize emissions at all times.

(h) If you are an owner/operator of an stationary SI internal combustion engine with maximum engine power greater than or equal to 500 HP that is manufactured after July 1, 2007 and before July 1, 2008, and must comply with the emission standards specified in sections 60.4233(b) or (c), you must comply by one of the methods specified in paragraphs (h)(1) through (h)(4) of this section.

(1) Purchasing an engine certified according to 40 CFR part 1048. The engine must be installed and configured according to the manufacturer's specifications.

(2) Keeping records of performance test results for each pollutant for a test conducted on a similar engine. The test must have been conducted using the same methods specified in this subpart and these methods must have been followed correctly.

(3) Keeping records of engine manufacturer data indicating compliance with the standards.

(4) Keeping records of control device vendor data indicating compliance with the standards.

(i) If you are an owner or operator of a modified or reconstructed stationary SI internal combustion engine and must comply with the emission standards specified in § 60.4233(f), you must demonstrate compliance according to one of the methods specified in paragraphs (i)(1) or (2) of this section.

(1) Purchasing, or otherwise owning or operating, an engine certified to the emission standards in § 60.4233(f), as applicable.

(2) Conducting a performance test to demonstrate initial compliance with the emission standards according to the requirements specified in § 60.4244. The test must be conducted within 60 days after the engine commences operation after the modification or reconstruction.

[73 FR 3591, Jan. 18, 2008, as amended at 76 FR 37974, June 28, 2011; 78 FR 6697, Jan. 30, 2013]

Testing Requirements for Owners and Operators

§ 60.4244 What test methods and other procedures must I use if I am an owner or operator of a stationary SI internal combustion engine?

Owners and operators of stationary SI ICE who conduct performance tests must follow the procedures in paragraphs (a) through (f) of this section.

(a) Each performance test must be conducted within 10 percent of 100 percent 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.

(b) You may not conduct performance tests during periods of startup, shutdown, or malfunction, as specified in § 60.8(c). If your stationary SI internal combustion 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.

(c) You must conduct three separate test runs for each performance test required in this section, as specified in § 60.8(f). Each test run must be conducted within 10 percent of 100 percent peak (or the highest achievable) load and last at least 1 hour.

(d) To determine compliance with the NO_X mass per unit output emission limitation, convert the concentration of NO_X in the engine exhaust using Equation 1 of this section:

$$ER = \frac{C_d \times 1.912 \times 10^{-3} \times Q \times T}{HP - hr} \qquad (Eq. 1)$$

Where:

ER = Emission rate of NO_X in g/HP-hr.

C_d = Measured NO_X concentration in parts per million by volume (ppmv).

1.912×10^{-3} = Conversion constant for ppm NO_X to grams per standard cubic meter at 20 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meter per hour, dry basis.

T = Time of test run, in hours.

HP-hr = Brake work of the engine, horsepower-hour (HP-hr).

(e) To determine compliance with the CO mass per unit output emission limitation, convert the concentration of CO in the engine exhaust using Equation 2 of this section:

$$ER = \frac{C_d \times 1.164 \times 10^{-3} \times Q \times T}{HP - hr} \qquad (Eq. 2)$$

Where:

ER = Emission rate of CO in g/HP-hr.

C_d = Measured CO concentration in ppmv.

1.164×10^{-3} = Conversion constant for ppm CO to grams per standard cubic meter at 20 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meters per hour, dry basis.

T = Time of test run, in hours.

HP-hr = Brake work of the engine, in HP-hr.

(f) For purposes of this subpart, when calculating emissions of VOC, emissions of formaldehyde should not be included. To determine compliance with the VOC mass per unit output emission limitation, convert the concentration of VOC in the engine exhaust using Equation 3 of this section:

$$ER = \frac{C_d \times 1.833 \times 10^{-3} \times Q \times T}{HP - hr} \qquad \text{(Eq. 3)}$$

Where:

ER = Emission rate of VOC in g/HP-hr.

C_d = VOC concentration measured as propane in ppmv.

1.833×10^{-3} = Conversion constant for ppm VOC measured as propane, to grams per standard cubic meter at 20 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meters per hour, dry basis.

T = Time of test run, in hours.

HP-hr = Brake work of the engine, in HP-hr.

(g) If the owner/operator chooses to measure VOC emissions using either Method 18 of 40 CFR part 60, appendix A, or Method 320 of 40 CFR part 63, appendix A, then it has the option of correcting the measured VOC emissions to account for the potential differences in measured values between these methods and Method 25A. The results from Method 18 and Method 320 can be corrected for response factor differences using Equations 4 and 5 of this section. The corrected VOC concentration can then be placed on a propane basis using Equation 6 of this section.

$$RF_i = \frac{C_{Mi}}{C_{Ai}} \qquad \text{(Eq. 4)}$$

Where:

RF_i = Response factor of compound i when measured with EPA Method 25A.

$C_{M\,i}$ = Measured concentration of compound i in ppmv as carbon.

$C_{A\,i}$ = True concentration of compound i in ppmv as carbon.

$$C_{im} = RF_i \times C_{ima} \qquad \text{(Eq. 5)}$$

Where:

$C_{i\ corr}$ = Concentration of compound i corrected to the value that would have been measured by EPA Method 25A, ppmv as carbon.

$C_{i\ meas}$ = Concentration of compound i measured by EPA Method 320, ppmv as carbon.

$$C_{Peq} = 0.6098 \times C_{i\ corr} \qquad \text{(Eq. 6)}$$

Where:

C_{Peq} = Concentration of compound i in mg of propane equivalent per DSCM.

Notification, Reports, and Records for Owners and Operators

§ 60.4245 What are my notification, reporting, and recordkeeping requirements if I am an owner or operator of a stationary SI internal combustion engine?

Owners or operators of stationary SI ICE must meet the following notification, reporting and recordkeeping requirements.

(a) Owners and operators of all stationary SI ICE must keep records of the information in paragraphs (a)(1) through (4) of this section.

(1) All notifications submitted to comply with this subpart and all documentation supporting any notification.

(2) Maintenance conducted on the engine.

(3) If the stationary SI internal combustion engine is a certified engine, documentation from the manufacturer that the engine is certified to meet the emission standards and information as required in 40 CFR parts 90, 1048, 1054, and 1060, as applicable.

(4) If the stationary SI internal combustion engine is not a certified engine or is a certified engine operating in a non-certified manner and subject to § 60.4243(a)(2), documentation that the engine meets the emission standards.

(b) For all stationary SI emergency ICE greater than or equal to 500 HP manufactured on or after July 1, 2010, that do not meet the standards applicable to non-emergency engines, the owner or operator of must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. For all stationary SI emergency ICE greater than or equal to 130 HP and less than 500 HP manufactured on or after July 1, 2011 that do not meet the standards applicable to non-emergency engines, the owner or operator of must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. For all stationary SI emergency ICE greater than 25 HP and less than 130 HP manufactured on or after July 1, 2008, that do not meet the standards applicable to non-emergency engines, the owner or operator of must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. The owner or operator must document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation.

(c) Owners and operators of stationary SI ICE greater than or equal to 500 HP that have not been certified by an engine manufacturer to meet the emission standards in § 60.4231 must submit an initial notification as required in § 60.7(a)(1). The notification must include the information in paragraphs (c)(1) through (5) of this section.

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

(2) The address of the affected source;

(3) Engine information including make, model, engine family, serial number, model year, maximum engine power, and engine displacement;

(4) Emission control equipment; and

(5) Fuel used.

(d) Owners and operators of stationary SI ICE that are subject to performance testing must submit a copy of each performance test as conducted in § 60.4244 within 60 days after the test has been completed.

(e) If you own or operate an emergency stationary SI ICE with a maximum engine power more than 100 HP that operates or is contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in § 60.4243(d)(2)(ii) and (iii) or that operates for the purposes specified in § 60.4243(d)(3)(i), you must submit an annual report according to the requirements in paragraphs (e)(1) through (3) of this section.

(1) The report must contain the following information:

(i) Company name and address where the engine is located.

(ii) Date of the report and beginning and ending dates of the reporting period.

(iii) Engine site rating and model year.

(iv) Latitude and longitude of the engine in decimal degrees reported to the fifth decimal place.

(v) Hours operated for the purposes specified in § 60.4243(d)(2)(ii) and (iii), including the date, start time, and end time for engine operation for the purposes specified in § 60.4243(d)(2)(ii) and (iii).

(vi) Number of hours the engine is contractually obligated to be available for the purposes specified in § 60.4243(d)(2)(ii) and (iii).

(vii) Hours spent for operation for the purposes specified in § 60.4243(d)(3)(i), including the date, start time, and end time for engine operation for the purposes specified in § 60.4243(d)(3)(i). The report must also identify the entity that dispatched the engine and the situation that necessitated the dispatch of the engine.

(2) The first annual report must cover the calendar year 2015 and must be submitted no later than March 31, 2016. Subsequent annual reports for each calendar year must be submitted no later than March 31 of the following calendar year.

(3) The annual report must be submitted electronically using the subpart specific reporting form in the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) (*www.epa.gov/cdx*). However, if the reporting form specific to this subpart is not available in CEDRI at the time that the report is due, the written report must be submitted to the Administrator at the appropriate address listed in § 60.4.

[73 FR 3591, Jan. 18, 2008, as amended at 73 FR 59177, Oct. 8, 2008; 78 FR 6697, Jan. 30, 2013]

General Provisions

§ 60.4246 What parts of the General Provisions apply to me?

Table 3 to this subpart shows which parts of the General Provisions in §§ 60.1 through 60.19 apply to you.

Mobile Source Provisions

§ 60.4247 What parts of the mobile source provisions apply to me if I am a manufacturer of stationary SI internal combustion engines or a manufacturer of equipment containing such engines?

(a) Manufacturers certifying to emission standards in 40 CFR part 90, including manufacturers certifying emergency engines below 130 HP, must meet the provisions of 40 CFR part 90. Manufacturers certifying to emission standards in 40 CFR part 1054 must meet the provisions of 40 CFR part 1054. Manufacturers of equipment containing stationary SI internal combustion engines meeting the provisions of 40 CFR part 1054 must meet the provisions of 40 CFR part 1060 to the extent they apply to equipment manufacturers.

(b) Manufacturers required to certify to emission standards in 40 CFR part 1048 must meet the provisions of 40 CFR part 1048. Manufacturers certifying to emission standards in 40 CFR part 1048 pursuant to the voluntary certification program must meet the requirements in Table 4 to this subpart as well as the standards in 40 CFR 1048.101.

(c) For manufacturers of stationary SI internal combustion engines participating in the voluntary certification program and certifying engines to Table 1 to this subpart, Table 4 to this subpart shows which parts of the mobile source provisions in 40 CFR parts 1048, 1065, and 1068 apply to you. Compliance with the deterioration factor provisions under 40 CFR 1048.205(n) and 1048.240 will be required for engines built new on and after January 1, 2010. Prior to January 1, 2010, manufacturers of stationary internal combustion engines participating in the voluntary certification program have the option to develop their own deterioration factors based on an engineering analysis.

[73 FR 3591, Jan. 18, 2008, as amended at 73 FR 59177, Oct. 8, 2008]

Definitions

§ 60.4248 What definitions apply to this subpart?

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

Certified emissions life means the period during which the engine is designed to properly function in terms of reliability and fuel consumption, without being remanufactured, specified as a number of hours of operation or calendar years, whichever comes first. The values for certified emissions life for stationary SI ICE with a maximum engine power less than or equal to 19 KW (25 HP) are given in 40 CFR 90.105, 40 CFR 1054.107, and 40 CFR 1060.101, as appropriate. The values for certified emissions life for stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) certified to 40 CFR part 1048 are given in 40 CFR 1048.101(g). The certified emissions life for stationary SI ICE with a maximum engine power greater than 75 KW (100 HP) certified under the voluntary manufacturer certification program of this subpart is 5,000 hours or 7 years, whichever comes first. You may request in your application for certification that we approve a shorter certified emissions life for an engine family. We may approve a shorter certified emissions life, in hours of engine operation but not in years, if we determine that these engines will rarely operate longer than the shorter certified emissions life. If engines identical to those in the engine family have already been produced and are in use, your demonstration must include documentation from such in-use engines. In other cases, your demonstration must include an engineering analysis of information equivalent to such in-use data, such as data from research engines or similar engine models that are already in production. Your demonstration must also include any overhaul interval that you recommend, any mechanical warranty that you offer for the engine or its components, and any relevant customer design specifications. Your demonstration may include any other relevant information. The certified emissions life value may not be shorter than any of the following:

(i) 1,000 hours of operation.

(ii) Your recommended overhaul interval.

(iii) Your mechanical warranty for the engine.

Certified stationary internal combustion engine means an engine that belongs to an engine family that has a certificate of conformity that complies with the emission standards and requirements in this part, or of 40 CFR part 90, 40 CFR part 1048, or 40 CFR part 1054, as appropriate.

Combustion turbine means all equipment, including but not limited to the turbine, the fuel, air, lubrication and exhaust gas systems, control systems (except emissions control equipment), and any ancillary components and sub-components comprising any simple cycle combustion turbine, any regenerative/recuperative cycle combustion turbine, the combustion turbine portion of any cogeneration cycle combustion system, or the combustion turbine portion of any combined cycle steam/electric generating system.

Compression ignition means relating to a type of stationary internal combustion engine that is not a spark ignition engine.

Date of manufacture means one of the following things:

(1) For freshly manufactured engines and modified engines, date of manufacture means the date the engine is originally produced.

(2) For reconstructed engines, date of manufacture means the date the engine was originally produced, except as specified in paragraph (3) of this definition.

(3) Reconstructed engines are assigned a new date of manufacture if the fixed capital cost of the new and refurbished components exceeds 75 percent of the fixed capital cost of a comparable entirely new facility. An engine that is produced from a previously used engine block does not retain the date of manufacture of the engine in which the engine block was previously used if the engine is produced using all new components except for the engine block. In these cases, the date of manufacture is the date of reconstruction or the date the new engine is produced.

Diesel fuel means any liquid obtained from the distillation of petroleum with a boiling point of approximately 150 to 360 degrees Celsius. One commonly used form is number 2 distillate oil.

Digester gas means any gaseous by-product of wastewater treatment typically formed through the anaerobic decomposition of organic waste materials and composed principally of methane and carbon dioxide (CO_2).

Emergency stationary internal combustion engine means any stationary reciprocating internal combustion engine that meets all of the criteria in paragraphs (1) through (3) of this definition. All emergency stationary ICE must comply with the requirements specified in § 60.4243(d) in order to be considered emergency stationary ICE. If the engine does not comply with the requirements specified in § 60.4243(d), then it is not considered to be an emergency stationary ICE under this subpart.

(1) The stationary ICE is operated to provide electrical power or mechanical work during an emergency situation. Examples include stationary ICE used to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility (or the normal power source, if the facility runs on its own power production) is interrupted, or stationary ICE used to pump water in the case of fire or flood, etc.

(2) The stationary ICE is operated under limited circumstances for situations not included in paragraph (1) of this definition, as specified in § 60.4243(d).

(3) The stationary ICE operates as part of a financial arrangement with another entity in situations not included in paragraph (1) of this definition only as allowed in § 60.4243(d)(2)(ii) or (iii) and § 60.4243(d)(3)(i).

Engine manufacturer means the manufacturer of the engine. See the definition of “manufacturer” in this section.

Four-stroke engine means any type of engine which completes the power cycle in two crankshaft revolutions, with intake and compression strokes in the first revolution and power and exhaust strokes in the second revolution.

Freshly manufactured engine means an engine that has not been placed into service. An engine becomes freshly manufactured when it is originally produced.

Gasoline means any fuel sold in any State for use in motor vehicles and motor vehicle engines, or nonroad or stationary engines, and commonly or commercially known or sold as gasoline.

Installed means the engine is placed and secured at the location where it is intended to be operated.

Landfill gas means a gaseous by-product of the land application of municipal refuse typically formed through the anaerobic decomposition of waste materials and composed principally of methane and CO_2 .

Lean burn engine means any two-stroke or four-stroke spark ignited engine that does not meet the definition of a rich burn engine.

Liquefied petroleum gas means any liquefied hydrocarbon gas obtained as a by-product in petroleum refining or natural gas production.

Manufacturer has the meaning given in section 216(1) of the Clean Air Act. In general, this term includes any person who manufactures a stationary engine for sale in the United States or otherwise introduces a new stationary engine into commerce in the United States. This includes importers who import stationary engines for resale.

Maximum engine power means maximum engine power as defined in 40 CFR 1048.801.

Model year means the calendar year in which an engine is manufactured (see “date of manufacture”), except as follows:

(1) Model year means the annual new model production period of the engine manufacturer in which an engine is manufactured (see “date of manufacture”), if the annual new model production period is different than the calendar year and includes January 1 of the calendar year for which the model year is named. It may not begin before January 2 of the previous calendar year and it must end by December 31 of the named calendar year.

(2) For an engine that is converted to a stationary engine after being placed into service as a nonroad or other non-stationary engine, model year means the calendar year or new model production period in which the engine was manufactured (see “date of manufacture”).

Natural gas means a naturally occurring mixture of hydrocarbon and non-hydrocarbon gases found in geologic formations beneath the Earth's surface, of which the principal constituent is methane. Natural gas may be field or pipeline quality.

Other internal combustion engine means any internal combustion engine, except combustion turbines, which is not a reciprocating internal combustion engine or rotary internal combustion engine.

Pipeline-quality natural gas means a naturally occurring fluid mixture of hydrocarbons (e.g., methane, ethane, or propane) produced in geological formations beneath the Earth's surface that maintains a gaseous state at standard atmospheric temperature and pressure under ordinary conditions, and which is provided by a supplier through a pipeline. Pipeline-quality natural gas must either be composed of at least 70 percent methane by volume or have a gross calorific value between 950 and 1,100 British thermal units per standard cubic foot.

Rich burn engine means any four-stroke spark ignited engine where the manufacturer's recommended operating air/fuel ratio divided by the stoichiometric air/fuel ratio at full load conditions is less than or equal to 1.1. Engines originally manufactured as rich burn engines, but modified prior to June 12, 2006, with passive emission control technology for NO_X (such as pre-combustion chambers) will be considered lean burn engines. Also, existing engines where there are no manufacturer's recommendations regarding air/fuel ratio will be considered a rich burn engine if the excess oxygen content of the exhaust at full load conditions is less than or equal to 2 percent.

Rotary internal combustion engine means any internal combustion engine which uses rotary motion to convert heat energy into mechanical work.

Spark ignition means relating to either: a gasoline-fueled engine; or any other type of engine with a spark plug (or other sparking device) and with operating characteristics significantly similar to the theoretical Otto combustion cycle. Spark ignition engines usually use a throttle to regulate intake air flow to control power during normal operation. Dual-fuel engines in which a liquid fuel (typically diesel fuel) is used for compression ignition and gaseous fuel (typically

natural gas) is used as the primary fuel at an annual average ratio of less than 2 parts diesel fuel to 100 parts total fuel on an energy equivalent basis are spark ignition engines.

Stationary internal combustion engine means any internal combustion engine, except combustion turbines, that converts heat energy into mechanical work and is not mobile. Stationary ICE differ from mobile ICE in that a stationary internal combustion engine is not a nonroad engine as defined at 40 CFR 1068.30 (excluding paragraph (2)(ii) of that definition), and is not used to propel a motor vehicle, aircraft, or a vehicle used solely for competition. Stationary ICE include reciprocating ICE, rotary ICE, and other ICE, except combustion turbines.

Stationary internal combustion engine test cell/stand means an engine test cell/stand, as defined in 40 CFR part 63, subpart PPPPP, that tests stationary ICE.

Stoichiometric means the theoretical air-to-fuel ratio required for complete combustion.

Subpart means 40 CFR part 60, subpart JJJJ.

Two-stroke engine means a type of engine which completes the power cycle in single crankshaft revolution by combining the intake and compression operations into one stroke and the power and exhaust operations into a second stroke. This system requires auxiliary scavenging and inherently runs lean of stoichiometric.

Volatile organic compounds means volatile organic compounds as defined in 40 CFR 51.100(s).

Voluntary certification program means an optional engine certification program that manufacturers of stationary SI internal combustion engines with a maximum engine power greater than 19 KW (25 HP) that do not use gasoline and are not rich burn engines that use LPG can choose to participate in to certify their engines to the emission standards in § 60.4231(d) or (e), as applicable.

[73 FR 3591, Jan. 18, 2008, as amended at 73 FR 59177, Oct. 8, 2008; 76 FR 37974, June 28, 2011; 78 FR 6698, Jan. 30, 2013]

Table 1 to Subpart JJJJ of Part 60—NOX , CO, and VOC Emission Standards for Stationary Non-Emergency SI Engines ≥100 HP (Except Gasoline and Rich Burn LPG), Stationary SI Landfill/Digester Gas Engines, and Stationary Emergency Engines >25 HP

Engine type and fuel	Maximum engine power	Manufacture date	Emission standards [a]					
			g/HP-hr			ppmvd at 15% O_2		
			NO_X	CO	VOC [d]	NO_X	CO	VOC [d]
Non-Emergency SI Natural Gas [b] and Non-Emergency SI Lean Burn LPG [b]	100≤HP<500	7/1/2008	2.0	4.0	1.0	160	540	86
		1/1/2011	1.0	2.0	0.7	82	270	60
Non-Emergency SI Lean Burn Natural Gas and LPG	500≤HP<1,350	1/1/2008	2.0	4.0	1.0	160	540	86
		7/1/2010	1.0	2.0	0.7	82	270	60
Non-Emergency SI Natural Gas and Non-Emergency SI Lean Burn LPG (except lean burn 500≤HP<1,350)	HP≥500	7/1/2007	2.0	4.0	1.0	160	540	86
	HP≥500	7/1/2010	1.0	2.0	0.7	82	270	60
Landfill/Digester Gas (except lean burn 500≤HP<1,350)	HP<500	7/1/2008	3.0	5.0	1.0	220	610	80
		1/1/2011	2.0	5.0	1.0	150	610	80
	HP≥500	7/1/2007	3.0	5.0	1.0	220	610	80

Engine type and fuel	Maximum engine power	Manufacture date	Emission standards [a]					
			g/HP-hr			ppmvd at 15% O_2		
			NO_X	CO	VOC [d]	NO_X	CO	VOC [d]
		7/1/2010	2.0	5.0	1.0	150	610	80
Landfill/Digester Gas Lean Burn	500≤HP<1,350	1/1/2008	3.0	5.0	1.0	220	610	80
		7/1/2010	2.0	5.0	1.0	150	610	80
Emergency	25<HP<130	1/1/2009	[c] 10	387	N/A	N/A	N/A	N/A
	HP≥130		2.0	4.0	1.0	160	540	86

[a] Owners and operators of stationary non-certified SI engines may choose to comply with the emission standards in units of either g/HP-hr or ppmvd at 15 percent O_2.

[b] Owners and operators of new or reconstructed non-emergency lean burn SI stationary engines with a site rating of greater than or equal to 250 brake HP located at a major source that are meeting the requirements of 40 CFR part 63, subpart ZZZZ, Table 2a do not have to comply with the CO emission standards of Table 1 of this subpart.

[c] The emission standards applicable to emergency engines between 25 HP and 130 HP are in terms of NO_X+ HC.

[d] For purposes of this subpart, when calculating emissions of volatile organic compounds, emissions of formaldehyde should not be included.

[76 FR 37975, June 28, 2011]

Table 2 to Subpart JJJJ of Part 60—Requirements for Performance Tests

Table 2 to Subpart JJJJ of Part 60—Requirements for Performance Tests

For each	Complying with the requirement to	You must	Using	According to the following requirements
1. Stationary SI internal combustion engine demonstrating compliance according to § 60.4244.	a. limit the concentration of NO_Xin the stationary SI internal combustion engine exhaust	i. Select the sampling port location and the number of traverse points;	(1) Method 1 or 1A of 40 CFR part 60, Appendix A or ASTM Method D6522-00 (Reapproved 2005).a e	(a) If using a control device, the sampling site must be located at the outlet of the control device.
		ii. Determine the O_2concentration of the stationary internal combustion engine exhaust at the sampling port location;	(2) Method 3, 3A, or 3B [b]of 40 CFR part 60, appendix A or ASTM Method D6522-00 (Reapproved 2005). a e	(b) Measurements to determine O_2concentration must be made at the same time as the measurements for NO_Xconcentration.
		iii. If necessary, determine the exhaust flowrate of the stationary internal combustion engine exhaust;	(3) Method 2 or 19 of 40 CFR part 60, appendix A.	

For each	Complying with the requirement to	You must	Using	According to the following requirements
		iv. If necessary, measure moisture content of the stationary internal combustion engine exhaust at the sampling port location; and	(4) Method 4 of 40 CFR part 60, appendix A, Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03. [e]	(c) Measurements to determine moisture must be made at the same time as the measurementfor NO_Xconcentration.
		v. Measure NO_Xat the exhaust of the stationary internal combustion engine.	(5) Method 7E of 40 CFR part 60, appendix A, Method D6522-00 (Reapproved 2005) a e, Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03. [e]	(d) Results of this test consist of the average of the three 1-hour or longer runs.
	b. limit the concentration of CO in the stationary SI internal combustion engine exhaust	i. Select the sampling port location and the number of traverse points;	(1) Method 1 or 1A of 40 CFR part 60, appendix A or ASTM Method D6522-00 (Reapproved 2005). a e	(a) If using a control device, the sampling site must be located at the outlet of the control device.
		ii. Determine the O_2concentration of the stationary internal combustion engine exhaust at the sampling port location;	(2) Method 3, 3A, or 3B [b]of 40 CFR part 60, appendix A or ASTM Method D6522-00 (Reapproved 2005). a e	(b) Measurements to determine O_2concentration must be made at the same time as the measurements for CO concentration.
		iii. If necessary, determine the exhaust flowrate of the stationary internal combustion engine exhaust;	(3) Method 2 or 19 of 40 CFR part 60, appendix A.	
		iv. If necessary, measure moisture content of the stationary internal combustion engine exhaust at the sampling port location; and	(4) Method 4 of 40 CFR part 60, appendix A, Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03. [e]	(c) Measurements to determine moisture must be made at the same time as the measurement for CO concentration.
		v. Measure CO at the exhaust of the stationary internal combustion engine.	(5) Method 10 of 40 CFR part 60, appendix A, ASTM Method D6522-00 (Reapproved 2005) a e, Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03. [e]	(d) Results of this test consist of the average of the three 1-hour or longer runs.

For each	Complying with the requirement to	You must	Using	According to the following requirements
	c. limit the concentration of VOC in the stationary SI internal combustion engine exhaust	i. Select the sampling port location and the number of traverse points;	(1) Method 1 or 1A of 40 CFR part 60, appendix A.	(a) If using a control device, the sampling site must be located at the outlet of the control device.
		ii. Determine the O_2concentration of the stationary internal combustion engine exhaust at the sampling port location;	(2) Method 3, 3A, or 3B [b]of 40 CFR part 60, appendix A or ASTM Method D6522-00 (Reapproved 2005). a e	(b) Measurements to determine O_2concentration must be made at the same time as the measurements for VOC concentration.
		iii. If necessary, determine the exhaust flowrate of the stationary internal combustion engine exhaust;	(3) Method 2 or 19 of 40 CFR part 60, appendix A.	
		iv. If necessary, measure moisture content of the stationary internal combustion engine exhaust at the sampling port location; and	(4) Method 4 of 40 CFR part 60, appendix A, Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03. [e]	(c) Measurements to determine moisture must be made at the same time as the measurementfor VOC concentration.
		v. Measure VOC at the exhaust of the stationary internal combustion engine.	(5) Methods 25A and 18 of 40 CFR part 60, appendix A, Method 25A with the use of a methane cutter as described in 40 CFR 1065.265, Method 18 of 40 CFR part 60, appendix A, c d Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03. [e]	(d) Results of this test consist of the average of the three 1-hour or longer runs.

[a] You may petition the Administrator for approval to use alternative methods for portable analyzer.

[b] You may use ASME PTC 19.10-1981, Flue and Exhaust Gas Analyses, for measuring the O_2content of the exhaust gas as an alternative to EPA Method 3B.

[c] You may use EPA Method 18 of 40 CFR part 60, appendix, provided that you conduct an adequate presurvey test prior to the emissions test, such as the one described in OTM 11 on EPA's Web site (*http://www.epa.gov/ttn/emc/prelim/otm11.pdf*).

[d] You may use ASTM D6420-99 (2004), Test Method for Determination of Gaseous Organic Compounds by Direct Interface Gas Chromatography/Mass Spectrometry as an alternative to EPA Method 18 for measuring total nonmethane organic.

[e] Incorporated by reference, see 40 CFR 60.17.

[76 FR 37975, June 28, 2011, as amended at 78 FR 6698, Jan. 30, 2013]

Table 3 to Subpart JJJJ of Part 60—Applicability of General Provisions to Subpart JJJJ

[As stated in § 60.4246, you must comply with the following applicable General Provisions]

General provisions citation	Subject of citation	Applies to subpart	Explanation
§ 60.1	General applicability of the General Provisions	Yes	
§ 60.2	Definitions	Yes	Additional terms defined in § 60.4248.
§ 60.3	Units and abbreviations	Yes	
§ 60.4	Address	Yes	
§ 60.5	Determination of construction or modification	Yes	
§ 60.6	Review of plans	Yes	
§ 60.7	Notification and Recordkeeping	Yes	Except that § 60.7 only applies as specified in § 60.4245.
§ 60.8	Performance tests	Yes	Except that § 60.8 only applies to owners and operators who are subject to performance testing in subpart JJJJ.
§ 60.9	Availability of information	Yes	
§ 60.10	State Authority	Yes	
§ 60.11	Compliance with standards and maintenance requirements	Yes	Requirements are specified in subpart JJJJ.
§ 60.12	Circumvention	Yes	
§ 60.13	Monitoring requirements	No	
§ 60.14	Modification	Yes	
§ 60.15	Reconstruction	Yes	
§ 60.16	Priority list	Yes	
§ 60.17	Incorporations by reference	Yes	
§ 60.18	General control device requirements	No	
§ 60.19	General notification and reporting requirements	Yes	

Table 4 to Subpart JJJJ of Part 60—Applicability of Mobile Source Provisions for Manufacturers Participating in the Voluntary Certification Program and Certifying Stationary SI ICE to Emission Standards in Table 1 of Subpart JJJJ

[As stated in § 60.4247, you must comply with the following applicable mobile source provisions if you are a manufacturer participating in the voluntary certification program and certifying stationary SI ICE to emission standards in Table 1 of subpart JJJJ]

Mobile source provisions citation	Subject of citation	Applies to subpart	Explanation
1048 subpart A	Overview and Applicability	Yes	
1048 subpart B	Emission Standards and Related Requirements	Yes	Except for the specific sections below.
1048.101	Exhaust Emission Standards	No	
1048.105	Evaporative Emission Standards	No	
1048.110	Diagnosing Malfunctions	No	
1048.140	Certifying Blue Sky Series Engines	No	
1048.145	Interim Provisions	No	
1048 subpart C	Certifying Engine Families	Yes	Except for the specific sections below.
1048.205(b)	AECD reporting	Yes	
1048.205(c)	OBD Requirements	No	
1048.205(n)	Deterioration Factors	Yes	Except as indicated in 60.4247(c).
1048.205(p)(1)	Deterioration Factor Discussion	Yes	
1048.205(p)(2)	Liquid Fuels as they require	No	
1048.240(b)(c)(d)	Deterioration Factors	Yes	
1048 subpart D	Testing Production-Line Engines	Yes	
1048 subpart E	Testing In-Use Engines	No	
1048 subpart F	Test Procedures	Yes	
1065.5(a)(4)	Raw sampling (refers reader back to the specific emissions regulation for guidance)	Yes	
1048 subpart G	Compliance Provisions	Yes	
1048 subpart H	Reserved		
1048 subpart I	Definitions and Other Reference Information	Yes	
1048 appendix I and II	Yes		
1065 (all subparts)	Engine Testing Procedures	Yes	Except for the specific section below.
1065.715	Test Fuel Specifications for Natural Gas	No	
1068 (all subparts)	General Compliance Provisions for Nonroad Programs	Yes	Except for the specific sections below.
1068.245	Hardship Provisions for Unusual Circumstances	No	

Mobile source provisions citation	Subject of citation	Applies to subpart	Explanation
1068.250	Hardship Provisions for Small-Volume Manufacturers	No	
1068.255	Hardship Provisions for Equipment Manufacturers and Secondary Engine Manufacturers	No	

Indiana Department of Environmental Management
Office of Air Quality

Technical Support Document (TSD) for a Part 70 Significant Permit Modification

Source Description and Location

Source Name:	Enbridge Energy-Hartsdale/Griffith Terminal
Source Location:	1500 W. Main St., Griffith, IN 46319 & Central Ave. and Division St., Schererville, IN 46375
County:	Lake
SIC Code:	4612
Operation Permit No.:	T 089-31293-00497
Operation Permit Issuance Date:	August 29, 2012
Significant Permit Modification No.:	089-34494-00497
Permit Reviewer:	Celeste Wanner

Source Definition

This bulk petroleum storage company consists of two (2) plants:

(a) Hartsdale Terminal with Plant ID 089-00081 is located at Central Avenue and Division Street, Schererville, Indiana 46375; and

(b) Griffith Terminal with Plant ID 089-00059 is located at 1500 West Main Street and Lakehead Road, Griffith, Indiana 46319.

IDEM, OAQ has determined that these two (2) terminals are considered one plant and therefore, the two (2) Part 70 permits are combined into one permit. Therefore, the term “source” in the Part 70 documents refers to both the Hartsdale Terminal and the Griffith Terminal as one source. This conclusion was initially determined under Minor Permit Modification No. 089-21442-00497 on November 1, 2005.

Existing Approvals

The source was issued Part 70 Operating Permit No. T 089-31293-00497 on August 29, 2012. The source has since received the following approvals:

(a) Minor Source Modification No. 089-33306-00497, issued on July 18, 2013; and

(b) Significant Permit Modification No. 089-33314-00497, issued on September 11, 2013.

County Attainment Status

The source is located in Lake County.

Pollutant	Designation
SO_2	Better than national standards.
CO	Attainment effective February 18, 2000, for the part of the city of East Chicago bounded by Columbus Drive on the north; the Indiana Harbor Canal on the west; 148th Street, if extended, on the south; and Euclid Avenue on the east. Unclassifiable or attainment effective November 15, 1990, for the remainder of East Chicago and Lake County.
O_3	On June 11, 2012, the U.S. EPA designated Lake County nonattainment, for the 8-hour ozone standard. [12]
$PM_{2.5}$	Unclassifiable or attainment effective February 6, 2012, for the annual $PM_{2.5}$ standard.
$PM_{2.5}$	Unclassifiable or attainment effective December 13, 2009, for the 24-hour $PM_{2.5}$ standard.
PM_{10}	Attainment effective March 11, 2003, for the cities of East Chicago, Hammond, Whiting, and Gary. Unclassifiable effective November 15, 1990, for the remainder of Lake County.
NO_2	Cannot be classified or better than national standards.
Pb	Unclassifiable or attainment effective December 31, 2011.

[1]The U. S. EPA has acknowledged in both the proposed and final rulemaking for this redesignation that the anti-backsliding provisions for the 1-hour ozone standard no longer apply as a result of the redesignation under the 8-hour ozone standard. Therefore, permits in Lake County are no longer subject to review pursuant to Emission Offset, 326 IAC 2-3 for the 1-hour standard.
[2]The department has filed a legal challenge to U.S. EPA's designation in 77 FR 34228.

(a) Ozone Standards
U.S. EPA, in the Federal Register Notice 77 FR 112 dated June 11, 2012, has designated Lake County as nonattainment for ozone. On August 1, 2012, the air pollution control board issued an emergency rule adopting the U.S. EPA's designation. This rule became effective August 9, 2012. IDEM does not agree with U.S. EPA's designation of nonattainment. IDEM filed a suit against U.S. EPA in the U.S. Court of Appeals for the DC Circuit on July 19, 2012. However, in order to ensure that sources are not potentially liable for a violation of the Clean Air Act, the OAQ is following the U.S. EPA's designation. Volatile organic compounds (VOC) and Nitrogen Oxides (NO_x) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone. Therefore, VOC and NO_x emissions are considered when evaluating the rule applicability relating to ozone. Therefore, VOC and NO_x emissions were evaluated pursuant to the requirements of Emission Offset, 326 IAC 2-3.

(b) $PM_{2.5}$
Lake County has been classified as attainment for $PM_{2.5}$. Therefore, direct $PM_{2.5}$, SO_2, and NOx emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

(c) Other Criteria Pollutants
Lake County has been classified as attainment or unclassifiable in Indiana for all other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

Fugitive Emissions

Since this source is classified as a petroleum storage and transfer units with a total storage capacity exceeding three hundred thousand (300,000) barrels, it is considered one of the twenty-eight (28) listed source categories, as specified in 326 IAC 2-2, 326 IAC 2-3, or 326 IAC 2-7. Therefore, fugitive emissions are counted toward the determination of PSD, Emission Offset, and Part 70 Permit applicability.

Source Status - Existing Source

The table below summarizes the potential to emit of the entire source, prior to the proposed modification, after consideration of all enforceable limits established in the effective permits:

Pollutant	**Emissions** (ton/yr)
PM	<100
PM_{10}	<100
$PM_{2.5}$	<100
SO_2	<100
VOC	>100
CO	<100
NO_X	<100
GHGs as CO_2e	<100,000
Single HAP	<10
Total HAPs	<25

(a) This existing source is not a major stationary source, under PSD (326 IAC 2-2), because no PSD regulated pollutant, excluding GHGs, is emitted at a rate of one hundred (100) tons per year or more and it is one of the twenty-eight (28) listed source categories, as specified in 326 IAC 2-2-1(ff)(1).

(b) The source wide GHG emissions are less than one hundred thousand (<100,000) tons of CO_2 equivalent (CO_2e) emissions per year. GHG emissions do not affect the source PSD status.

(c) This existing source is a major stationary source, under Emission Offset (326 IAC 2-3), because VOC, a precursor for ozone, a nonattainment regulated pollutant, is emitted at a rate of 100 tons per year or more.

(c) These emissions are based upon MSM 089-33306-00497 and SPM 089-33314-00497.

(d) This existing source is not a major source of HAPs, as defined in 40 CFR 63.2, because HAPs emissions are less than ten (10) tons per year for any single HAP and less than twenty-five (25) tons per year of a combination of HAPs. Therefore, this source is an area source under Section 112 of the Clean Air Act (CAA).

Description of Proposed Modification

The Office of Air Quality (OAQ) has reviewed a modification application, submitted by Enbridge Energy-Hartsdale/Griffith Terminal on May 2, 2014 relating to the installation of two liquid propane emergency generators. The following is a list of the proposed emission units:

(a) Two (2) liquid propane-fired emergency generators, installed in 2014, identified as Hartsdale Emergency Generator #2 and Hartsdale Emergency Generator #3, each with a maximum capacity of 14 kW.

Enforcement Issues

There are no pending enforcement actions.

Emission Calculations

See Appendix A of this Technical Support Document for detailed emission calculations.

Permit Level Determination – Part 70 Modification to an Existing Source

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as "the maximum capacity of a stationary source or emission unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA, IDEM, or the appropriate local air pollution control agency."

The following table is used to determine the appropriate permit level under 326 IAC 2-7-10.5. This table reflects the PTE before controls. Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit. If the control equipment has been determined to be integral, the table reflects the PTE after consideration of the integral control device.

Increase in PTE Before Controls of the Modification	
Pollutant	**Potential To Emit** (ton/yr)
PM	1.33E-03
PM_{10}	2.72E-03
$PM_{2.5}$	2.72E-03
SO_2	8.23E-05
VOC	0.12
CO	9.41
NO_X	0.12
Single HAPs	<10
Total HAPs	<25

Appendix A of this TSD reflects the unrestricted potential emissions of the modification.

This modification is not subject to the source modification requirements under 326 IAC 2-7-10.5. The changes will be incorporated into the permit as a Significant Permit Modification under 326 IAC 2-7-12, because the generators will be subject to federal New Source Performance Standards for Stationary Spark Ignition Internal Combustion Engines (40 CFR 60, Subpart JJJJ).

Permit Level Determination – PSD and Emission Offset

The table below summarizes the potential to emit, reflecting all limits, of the emission units. Any control equipment is considered federally enforceable only after issuance of this Part 70 permit modification, and only to the extent that the effect of the control equipment is made practically enforceable in the permit.

	Potential to Emit (ton/yr)							
Process / Emission Unit	**PM**	**PM_{10}**	**$PM_{2.5}$***	**SO_2**	**VOC**	**CO**	**NO_X**	**GHGs**
Hartsdale Emergency Generators #2 and #3	1.33E-03	2.72E-03	2.72E-03	8.23E-05	0.12	9.41	0.12	20
Total for Modification	1.33E-03	2.72E-03	2.72E-03	8.23E-05	0.12	9.41	0.12	20
Significant Thresholds - PSD	25	15	10	40	NA	100	40	75,000 CO_2e
Significant Thresholds - EO	NA	NA	NA	NA	40	NA	40	NA

*$PM_{2.5}$ listed is direct $PM_{2.5}$.

This modification to an existing minor PSD stationary source is not major because:

(a) The emissions increase of each PSD regulated pollutant, excluding GHGs, are less than the PSD major source thresholds; and

(b) The emissions increase of GHGs from this modification to an existing minor PSD source are less than one hundred thousand (100,000) tons of CO_2 equivalent (CO_2e) emissions per year.

Therefore, pursuant to 326 IAC 2-2, the GHG emissions are not subject to regulation and the PSD requirements do not apply.

This modification to an existing major Emission Offset stationary source is not major because the emissions increase of VOC and NOx is less than the Emission Offset major source thresholds. Therefore, pursuant to 326 IAC 2-3, the Emission Offset requirements do not apply.

Federal Rule Applicability Determination

The following federal rules are applicable to the source due to this modification:

NSPS:

(a) The two new emergency generators are not subject to the requirements of the New Source Performance Standards for Stationary Compression Ignition Internal Combustion Engines, (40 CFR 60.4200), Subpart IIII, because they are not compression ignition engines. Therefore,the requirements of the Subpart are not included in the permit for these engines.

(b) The two new emergency generators are subject to the New Source Performance Standards for Stationary Spark Ignition Internal Combustion Engines (40 CFR 60.4230), Subpart JJJJ, which is incorporated by reference as 326 IAC 12. The units subject to this rule include the following:

(1) Two (2) liquid propane-fired emergency generators, installed in 2014, identified as Hartsdale Emergency Generator #2 and Hartsdale Emergency Generator #3, each with a maximum capacity of 14 kW.

Nonapplicable portions of the NSPS will not be included in the permit. The units are subject to the following portions of Subpart JJJJ.

(1) 40 CFR 60.4230(a)(4)(iii)
(2) 40 CFR 60.4231(a)
(3) 40 CFR 60.4233(a)
(4) 40 CFR 60.4234
(5) 40 CFR 60.4236
(6) 40 CFR 60.4237(c)
(7) 40 CFR 60.4243(a)(1) & (2)(i), and (d)
(8) 40 CFR 60.4245(a)
(9) 40 CFR 60.4246
(10) 40 CFR 60.4248
(11) Table 3 - As Applicable

NESHAP:

(c) The two emergency generators are subject to the National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (40 CFR 63.6580, Subpart ZZZZ), which is incorporated by reference as 326 IAC 20-82. The units subject to this rule include the following:

(1) Two (2) liquid propane-fired emergency generators, installed in 2014, identified as Hartsdale Emergency Generator #2 and Emergency Generator #3, each with a maximum capacity of 14 kW.

Nonapplicable portions of the NESHAP will not be included in the permit. These units are subject to the following portions of Subpart ZZZZ:

(1) 40 CFR 63.6580
(2) 40 CFR 63.6585(a),(c),(d)
(3) 40 CFR 63.6590(a)(2)(iii) and (c)(1)
(4) 40 CFR 63.6595(a)(7)
(5) 40 CFR 63.6665
(6) 40 CFR 63.6670
(7) 40 CFR 63.6675

The provisions of 40 CFR 63 Subpart A – General Provisions, which are incorporated as 326 IAC 20-1-1, apply to the facility described in this section except when otherwise specified in 40 CFR 63 Subpart ZZZZ.

(d) Pursuant to 40 CFR 64.2, Compliance Assurance Monitoring (CAM) is applicable to new or modified emission units that involve a pollutant-specific emission unit and meet the following criteria:

(1) has a potential to emit before controls equal to or greater than the Part 70 major source threshold for the pollutant involved;

(2) is subject to an emission limitation or standard for that pollutant; and

(3) uses a control device, as defined in 40 CFR 64.1, to comply with that emission limitation or standard.

Based on this evaluation, the requirements of 40 CFR Part 64, CAM are not applicable to any of the new units as part of this modification permit. The units do not have a control device, so CAM does not apply.

State Rule Applicability Determination

The following state rules are applicable to the source due to the modification:

326 IAC 2-2 and 2-3 (PSD and Emission Offset)
PSD and Emission Offset applicability is discussed under the Permit Level Determination – PSD and Emission Offset section.

326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))
The operation of this facility will emit less than ten (10) tons per year for a single HAP and less than twenty-five (25) tons per year for a combination of HAPs. Therefore, 326 IAC 2-4.1 does not apply.

326 IAC 2-6 (Emission Reporting)
Since this source is located in Lake County, and has a potential to emit VOC greater than or equal to twenty-five (25) tons per year, an emission statement covering the previous calendar year must be submitted by July 1 of each year. The emission statement shall contain, at a minimum, the information specified in 326 IAC 2-6-4.

326 IAC 6-2 (Particulate Emission Limitations for Sources of Indirect Heating)
The new emergency generators are not subject to the requirements of 326 IAC 6-2 because they are not sources of indirect heating.

326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes)
The new emergency generators are not subject to the requirements of 326 IAC 6-3 because they are not a manufacturing process as defined in 326 IAC 6-3-1.5.

326 IAC 6.8-1-2 (Particulate Matter Limitations for Lake County)
The new emergency generators are subject to the requirements of 326 IAC 6.8-1-2 because the source has the potential for actual emissions of 10 tons or more of particulate matter per year. The particulate emissions from each emergency generator shall not exceed 0.03 grains per dry standard cubic foot.

326 IAC 7-1.1 Sulfur Dioxide Emission Limitations
The new emergency generator is not subject to 326 IAC 326 IAC 7-1.1 because its SO_2 PTE is less than 25 tons/year and 10 pounds/hour.

Compliance Determination and Monitoring Requirements

Permits issued under 326 IAC 2-7 are required to ensure that sources can demonstrate compliance with all applicable state and federal rules on a continuous basis. All state and federal rules contain compliance provisions; however, these provisions do not always fulfill the requirement for a continuous demonstration. When this occurs, IDEM, OAQ, in conjunction with the source, must develop specific conditions to satisfy 326 IAC 2-7-5. As a result, Compliance Determination Requirements are included in the permit. The Compliance Determination Requirements in Section D of the permit are those conditions that are found directly within state and federal rules and the violation of which serves as grounds for enforcement action.

If the Compliance Determination Requirements are not sufficient to demonstrate continuous compliance, they will be supplemented with Compliance Monitoring Requirements, also in Section D of the permit. Unlike Compliance Determination Requirements, failure to meet Compliance Monitoring conditions would serve as a trigger for corrective actions and not grounds for enforcement action. However, a violation in relation to a compliance monitoring condition will arise through a source's failure to take the appropriate corrective actions within a specific time period.

Changes to the compliance determination and monitoring requirements are detailed in the Proposed Changes section of this document.

Proposed Changes

The changes listed below have been made to Part 70 Operating Permit No. T089-31293-00497. Deleted language appears as ~~strikethroughs~~ and new language appears in **bold**.

Summary of IDEM Updates Throughout the Permit

(a) On October 27, 2010, the Indiana Air Pollution Control Board issued revisions to 326 IAC 2. These revisions resulted in changes to the rule citations listed in the permit. These changes are not changes to the underlining provisions. The change is only to cite of these rules in Section B - Permit Renewal, and Section B - Operational Flexibility.

Section A - Modifications

(a) Condition A.3 has been updated to include the new emergency generators.

(b) Section A - Specifically Regulated Insignificant Activities has been updated to incorporate the applicability of 326 IAC 6.8-1-2.

Section A has been Modified as follows:

A.3 Specifically Regulated Insignificant Activities
[326 IAC 2-7-1(21)][326 IAC 2-7-4(c)][326 IAC 2-7-5(14)]

This stationary source also includes the following insignificant activities which are specifically regulated, as defined in 326 IAC 2-7-1(21):

(a) Paved and unpaved roads and parking lots with public access. [326 IAC 6-4]

(b) The following equipment related to manufacturing activities not resulting in the emission of HAPs; brazing equipment, cutting torches, soldering equipment, welding equipment ~~[326 IAC 6-3-2]~~. **[326 IAC 6.8-1-2]**

(c) Two (2) emergency diesel generators: **[326 IAC 6.8-1-2]** [40 CFR 63, Subpart ZZZZ]
(1) Griffith emergency generator constructed in 1993 rated at 207 horsepower.
(2) Hartsdale emergency generator constructed in 1998 rated at 207 horsepower.

(d) One (1) emergency diesel generator, approved in 2013 for construction, with a maximum capacity of 266 hp. **[326 IAC 6.8-1-2]** [40 CFR 60, Subpart IIII] [40 CFR 63, Subpart ZZZZ]

(e) Two (2) stationary diesel fire pumps: **[326 IAC 6.8-1-2]** [40 CFR 63, Subpart ZZZZ]
(1) Griffith fire pump constructed in 1971 rated at 175 horsepower.
(2) Hartsdale fire pump constructed in 2002 rated at 300 horsepower.

(f) Portable blast-cleaning equipment with enclosures. ~~[326 IAC 6-3-2]~~ **[326 IAC 6.8-1-2]**

(g) Two (2) liquid propane-fired emergency generators, installed in 2014, identified as Hartsdale Emergency Generator #2 and Hartsdale Emergency Generator #3, each with a maximum capacity of 14 kW. [326 IAC 6.8-1-2] [40 CFR 60, Subpart JJJJ] [40 CFR 63, Subpart ZZZZ]

Section B and Section C - Modifications

Summary of Updates Specific to this Modification

(a) Condition C.1 – Particulate Emission Limitations For Processes with Process Weight Rates Less Than One Hundred (100) Pounds per Hour has been removed as the source

is no longer subject to 326 IAC 6-3-2. The remaining C conditions have been renumbered to accommodate this change.

Summary of Model Updates to B and C Sections

(b) **Section B – Annual Compliance Certification**
Instructions for the original Condition B.9 – Annual Compliance Certification (ACC) have been revised. The emission statement reporting requirements changed. The submission date for the ACC will continue to depend on which county the source is located.

(c) **Section B - Preventive Maintenance Plan**
IDEM, OAQ has decided to clarify Section B - Preventive Maintenance Plan.

(d) **Section C - Compliance Monitoring**
IDEM is changing the Section C - Compliance Monitoring Condition to clearly describe when new monitoring for new and existing units must begin.

(f) Rule cites have been updated for Section C - General Reporting Requirements.

Section B and Section C have been revised to incorporate the appropriate IDEM updates detailed above under "Summary of IDEM Updates Throughout the Permit."

Section B and Section C have been Modified as follows:

B.9 Annual Compliance Certification [326 IAC 2-7-6(5)]

(a) The Permittee shall annually submit a compliance certification report which addresses the status of the source's compliance with the terms and conditions contained in this permit, including emission limitations, standards, or work practices. ~~All~~**The initial certification shall cover the time period from the date of final permit issuance through December 31 of the same year. All subsequent** certifications shall cover the time period from January 1 to December 31 of the previous year, and shall be submitted no later than April 15 of each year to:

(b) ***

(c) The annual compliance certification report shall include the following:

***

B.10 Preventive Maintenance Plan [326 IAC 2-7-5(12)][326 IAC 1-6-3]

~~(a) A Preventive Maintenance Plan meets the requirements of 326 IAC 1-6-3 if it includes, at a minimum:~~

~~(1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;~~

~~(2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions; and~~

~~(3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.~~

~~The Permittee shall implement the PMPs.~~

(~~b~~**a**) If required by specific condition(s) in Section D of this permit ~~where no PMP was previously required~~, the Permittee shall prepare and maintain Preventive Maintenance Plans (PMPs) no later than ninety (90) days after issuance of this permit or ninety (90)

days after initial start-up, whichever is later, including the following information on each facility:

***

(~~c~~**b**) ***

(~~d~~)**c)** ***

B.16 Permit Renewal [326 IAC 2-7-3][326 IAC 2-7-4][326 IAC 2-7-8(e)]

(a) The application for renewal shall be submitted using the application form or forms prescribed by IDEM, OAQ and shall include the information specified in 326 IAC 2-7-4. Such information shall be included in the application for each emission unit at this source, except those emission units included on the trivial or insignificant activities list contained in 326 IAC 2-7-1(21) and 326 IAC 2-7-1(~~40~~**42**). The renewal application does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

***

B.19 Operational Flexibility [326 IAC 2-7-20][326 IAC 2-7-10.5]

(a) ***

(b) The Permittee may make Section 502(b)(10) of the Clean Air Act changes (this term is defined at 326 IAC 2-7-1(~~36~~**37**)) without a permit revision, subject to the constraint of 326 IAC 2-7-20(a). For each such Section 502(b)(10) of the Clean Air Act change, the required written notification shall include the following:

***

Emission Limitations and Standards [326 IAC 2-7-5(1)]

~~C.1 Particulate Emission Limitations For Processes with Process Weight Rates Less Than One Hundred (100) Pounds per Hour [326 IAC 6-3-2]~~

~~Pursuant to 326 IAC 6-3-2(e)(2), particulate emissions from any process not exempt under 326 IAC 6-3-1(b) or (c) which has a maximum process weight rate less than 100 pounds per hour and the methods in 326 IAC 6-3-2(b) through (d) do not apply shall not exceed 0.551 pounds per hour.~~

C.~~2~~**1** Opacity [326 IAC 5-1]

***

C.~~10~~**9** Compliance Monitoring [326 IAC 2-7-5(3)][326 IAC 2-7-6(1)]

(a) For new units:
Unless otherwise specified in the approval for the new emission unit(s), compliance monitoring for new emission units shall be implemented on and after the date of initial start-up.

(b) For existing units:
Unless otherwise specified in this permit, for all monitoring requirements not already legally required, the Permittee shall be allowed up to ninety (90) days from the date of permit issuance ~~or of initial start-up, whichever is later,~~ to begin such monitoring. I**f,** due to circumstances beyond the Permittee's control, any monitoring equipment required by this permit cannot be installed and operated no later than ninety (90) days after permit issuance ~~or the date of initial startup, whichever is later~~, the Permittee may extend the

compliance schedule related to the equipment for an additional ninety (90) days provided the Permittee notifies:

***

~~Unless otherwise specified in the approval for the new emission unit(s), compliance monitoring for new emission units or emission units added through a source modification shall be implemented when operation begins.~~

C.~~18~~**17** General Reporting Requirements [326 IAC 2-7-5(3)(C)] [326 IAC 2-1.1-11] **[326 IAC 2-2]** [326 IAC 2-3]

***

Section D.2 - Modifications

(a) Condition D.2.1 has been updated to reflect a change in rule applicability. Based on revised fugitive emission calculations, the actual emissions of particulate matter is over 10 tons per year, therefore 326 IAC 6.8-1-2 now applies. This source was previously not subject to 326 IAC 6.8-1-2, therefore it was previously subject to 326 IAC 6-3-2.

(b) Condition D.2.1 has been updated to include the new and existing emergency generators that are subject to 326 IAC 6.8-1-2.

Section D.2 has been Modified as follows:

SECTION D.2 **EMISSIONS UNIT**~~FACILITY~~ OPERATION CONDITIONS

Emissions Unit~~Facility~~ Description~~[326 IAC 2-7-5(14)]~~:

(b) The following equipment related to manufacturing activities not resulting in the emission of HAPs; brazing equipment, cutting torches, soldering equipment, welding equipment ~~[326 IAC 6-3-2]~~**[326 IAC 6.8-1-2]**.

(c) Two (2) emergency diesel generators: [326 IAC 6.8-1-2] [40 CFR 63, Subpart ZZZZ]
(1) Griffith emergency generator constructed in 1993 rated at 207 horsepower.
(2) Hartsdale emergency generator constructed in 1998 rated at 207 horsepower.

(d) One (1) emergency diesel generator, approved in 2013 for construction, with a maximum capacity of 266 hp. [326 IAC 6.8-1-2] [40 CFR 60, Subpart IIII] [40 CFR 63, Subpart ZZZZ]

(e) Two (2) stationary diesel fire pumps: [326 IAC 6.8-1-2] [40 CFR 63, Subpart ZZZZ]
(1) Griffith fire pump constructed in 1971 rated at 175 horsepower.
(2) Hartsdale fire pump constructed in 2002 rated at 300 horsepower.

(f) Portable blast-cleaning equipment with enclosures. ~~[326 IAC 6-3-2]~~ **[326 IAC 6.8-1-2]**

(g) Two (2) liquid propane-fired emergency generators, installed in 2014, identified as Hartsdale Emergency Generator #2 and Hartsdale Emergency Generator #3, each with a maximum capacity of 14 kW. [326 IAC 6.8-1-2] [40 CFR 60, Subpart JJJJ] [40 CFR 63, Subpart ZZZZ]

(The information describing the process in this facility description is descriptive information and does not constitute enforceable condition.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

~~D.2.1 Particulate Emission Limitations for Processes with Process Weight Rates Less Than One Hundred (100) Pounds per Hour [326 IAC 6-3-2(e)]~~

~~Pursuant to 326 IAC 6-3-2(e), the allowable particulate emissions rate for any process which has a maximum process weight rate less than 100 pounds per hour shall not exceed 0.551 pounds per hour. These include the brazing equipment, cutting torches, soldering equipment, welding equipment, walk behind grinder, belt grinders, plasma torch cutters, shears, and portable blast-cleaning equipment.~~

D.2.1 Particulate Emissions [326 IAC 6.8-1-2]

Pursuant to 326 IAC 6.8-1-2(a), the particulate matter emissions from the above listed emissions units shall not exceed 0.03 grains per dry standard cubic foot.

E Sections Modifications

(a) Section E.3 has been updated to reflect the new emergency generators.

(b) Section E.5 has been added to include the applicability of 40 CFR 60, Subpart JJJJ.

(b) Emission unit descriptions in Sections E.3 and E.4 have been updated to match Section A - Specifically Regulated Insignificant Activities.

(c) IDEM, OAQ has revised the language in the E conditions to clarify the intent.

E Sections have been Modified as follows:

SECTION E.1 ~~EMISSIONS UNIT OPERATION CONDITIONS~~ **NSPS**

Emissions Unit Description: *** (The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

New Source Performance Standards (NSPS) Requirements [326 IAC 2-7-5(1)]

E.1.1 General Provisions Relating to New Source Performance Standards [40 CFR Part 60**, Subpart A**] [326 IAC 12-1]

(a) Pursuant to 40 CFR 60.1, the Permittee shall comply with ~~T~~**t**he provisions of 40 CFR Part 60, Subpart A - General Provisions, which are incorporated by reference ~~in~~ **as** 326 IAC 12-1~~-1~~, ~~apply to tank EU78~~ **for the above listed emissions units,** except ~~when~~ **as** otherwise specified in 40 CFR Part 60, Subpart Ka.

(b) Pursuant to 40 CFR 60.4, the Permittee shall submit all required notifications and reports to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

and

United States Environmental Protection Agency, Region V
Air and Radiation Division, Air Enforcement Branch - Indiana (AE-17J)
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

E.1.2 **Storage Vessels for** Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and Prior to July 23, 1984 NSPS ~~Requirements~~ [40 CFR Part 60, Subpart Ka] [326 IAC 12]

Pursuant to 40 CFR Part 60, Subpart Ka, the Permittee shall comply with the ~~following~~ provisions of 40 CFR Part 60, Subpart Ka**, which are incorporated by reference as 326 IAC 12** (included as Attachment C **to this permit**), ~~which are incorporated by reference as 326 IAC 12, for tank EU78:~~ **for the above listed emissions units as specified as follows.**

***

SECTION E.2 ~~EMISSIONS UNIT OPERATION CONDITIONS~~ **NSPS**

Emissions Unit Description:

****

New Source Performance Standards (NSPS) Requirements [326 IAC 2-7-5(1)]

E.2.1 General Provisions Relating to New Source Performance Standards [40 CFR Part 60**, Subpart A**] [326 IAC 12-1]

(a) **Pursuant to 40 CFR 60.1, the Permittee shall comply with t**~~T~~he provisions of 40 CFR Part 60, Subpart A - General Provisions, which are incorporated by reference ~~in~~ **as** 326 IAC 12-1~~-1~~, ~~apply to tanks EU79, EU80, and EU1601 through EU1611~~ **for the above listed emissions units,** except when otherwise specified in 40 CFR Part 60, Subpart Kb.

Note: Tanks 1601 – 1609 will become subject to 40 CFR Part 60, Subpart A upon modification.

E.2.2 Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984 NSPS ~~Requirements~~ [40 CFR Part 60, Subpart Kb] [326 IAC 12]

Pursuant to 40 CFR Part 60, Subpart Kb, the Permittee shall comply with the ~~following~~ provisions of 40 CFR Part 60, Subpart Kb**, which are incorporated by reference as 326 IAC 12** (included as Attachment D **to this permit**), ~~which are incorporated by reference as 326 IAC 12,~~ for ~~tanks EU79, EU80, and EU1601 through EU1611:~~ **the above listed emissions units as specified as follows.**

(1) 40 CFR 60.110b(a), (b)
(2) 40 CFR 60.111b
(3) 40 CFR 60.112b(a)(2)
(4) 40 CFR 60.113b(b)
(5) 40 CFR 60.115b(b)
(6) 40 CFR 60.116b(a), (b), (c), (d), (e)
(7) 40 CFR 60.117b

Note: Tanks 1601 – 1609 will become subject to 40 CFR Part 60, Subpart Kb upon modification.

SECTION E.3 ~~EMISSIONS UNIT OPERATION CONDITIONS~~ **NESHAP**

Emissions Unit Description: Insignificant Activities

(c) Two (2) emergency diesel generators: **[326 IAC 6.8-1-2]** [40 CFR 63, Subpart ZZZZ]
(1) Griffith emergency generator constructed in 1993 rated at 207 horsepower.
(2) Hartsdale emergency generator constructed in 1998 rated at 207 horsepower.

(d) One (1) emergency diesel generator, approved in 2013 for construction, with a maximum capacity of 266 hp. **[326 IAC 6.8-1-2]** [40 CFR 60, Subpart IIII] [40 CFR 63, Subpart ZZZZ]

(e) Two (2) stationary diesel fire pumps: **[326 IAC 6.8-1-2]** [40 CFR 63, Subpart ZZZZ]
(1) Griffith fire pump constructed in 1971 rated at 175 horsepower.
(2) Hartsdale fire pump constructed in 2002 rated at 300 horsepower.

(g) Two (2) liquid propane-fired emergency generators, installed in 2014, identified as Hartsdale Emergency Generator #2 and Hartsdale Emergency Generator #3, each with a maximum capacity of 14 kW. [326 IAC 6.8-1-2] [40 CFR 60, Subpart JJJJ] [40 CFR 63, Subpart ZZZZ]

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

~~Emission Limitations and Standards~~ **National Emission Standards for Hazardous Air Pollutants (NESHAP) Requirements** [326 IAC 2-7-5(1)]

E.3.1 General Provisions Relating to National Emission Standards for Hazardous Air Pollutants **under 40 CFR Part 63** ~~(NESHAP)~~ [326 IAC 20-~~82~~**1**] [40 CFR 63, Subpart A]

(a) Pursuant to 40 CFR *63*.6665, the Permittee shall comply with the ~~The~~ provisions of 40 CFR **Part** 63, Subpart A - General Provisions, which are incorporated by reference in 326 IAC 20-**~~82~~-1-1**, **for the above listed emissions units,** ~~apply to the three (3) emergency generators and two (2) stationary fire pumps, except when otherwise~~ **as** specified in 40 CFR **Part** 63, Subpart ZZZZ~~.~~**, in accordance with the schedule in 40 CFR Part 63, Subpart ZZZZ.**

(b) Pursuant to 40 CFR 63.10, the Permittee shall submit all required notifications and reports to:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204

and

United States Environmental Protection Agency, Region V
Air and Radiation Division, Air Enforcement Branch - Indiana (AE-17J)
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

E.3.2 Stationary Reciprocating Internal Combustion Engines ~~(RICE)~~ NESHAP [326 IAC 20-82] [40 CFR **Part** 63, Subpart ZZZZ]

Pursuant to 40 CFR **Part** 63**,** Subpart ZZZZ, the Permittee shall comply with the provisions of 40 CFR **Part** 63**,** Subpart ZZZZ, ~~(included as Attachment E),~~ which are incorporated **by reference** as 326 IAC 20-82 **(included as Attachment E to this permit),** for the ~~three (3) emergency generators and two (2) stationary fire pumps~~**above listed emissions units**, as specified as follows~~:~~**.**

***

SECTION E.4 ~~EMISSIONS UNIT OPERATION CONDITIONS~~ **NSPS**

Emissions Unit Description: Insignificant Activities

(d) One (1) emergency diesel generator, approved in 2013 for construction, with a maximum capacity of 266 hp. **[326 IAC 6.8-1-2]** [40 CFR 60, Subpart IIII] [40 CFR 63, Subpart ZZZZ]

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

New Source Performance Standards (NSPS) Requirements [326 IAC 2-7-5(1)]

E.4.1 General Provisions Relating to New Source Performance Standards [40 CFR Part 60**, Subpart A**] [326 IAC 12-1]

(a) **Pursuant to 40 CFR 60.1, the Permittee shall comply with the** ~~The~~ provisions of 40 CFR Part 60, Subpart A - General Provisions, which are incorporated by reference ~~in~~ **as** 326 IAC 12-1~~-1~~, **for the above listed emissions units,** ~~apply to the emergency diesel generator~~ except ~~when~~ **as** otherwise specified in 40 CFR Part 60, Subpart IIII.

(b) **Pursuant to 40 CFR 60.4, the Permittee shall submit all required notifications and reports to:**

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

and

United States Environmental Protection Agency, Region V
Air and Radiation Division, Air Enforcement Branch - Indiana (AE-17J)
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

E.4.2 ~~New Source Performance Standards for~~ Stationary Compression Ignition Internal Combustion Engines **NSPS** [40 CFR Part 60, Subpart IIII] [326 IAC 12]

Pursuant to 40 CFR Part 60, Subpart IIII, the Permittee shall comply with the ~~following~~ provisions of 40 CFR Part 60, Subpart IIII ~~(included as Attachment F)~~, which are incorporated by reference as 326 IAC 12, **(included as Attachment F to this permit),** for the ~~emergency diesel generator:~~**above listed emissions units as specified as follows.**

***

SECTION E.5 NSPS

Emissions Unit Description:

(g) Two (2) liquid propane-fired emergency generators, installed in 2014, identified as Hartsdale Emergency Generator #2 and Hartsdale Emergency Generator #3, each with a maximum capacity of 14 kW. [326 IAC 6.8-1-2] [40 CFR 60, Subpart JJJJ] [40 CFR 63, Subpart ZZZZ]

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

New Source Performance Standards (NSPS) Requirements [326 IAC 2-7-5(1)]

E.5.1 General Provisions Relating to New Source Performance Standards [326 IAC 12-1] [40 CFR Part 60, Subpart A]

(a) Pursuant to 40 CFR 60.1, the Permittee shall comply with the provisions of 40 CFR Part 60, Subpart A – General Provisions, which are incorporated by reference as 326 IAC 12-1, for the above listed emissions units, except as otherwise specified in 40 CFR Part 60, Subpart JJJJ.

(b) Pursuant to 40 CFR 60.4, the Permittee shall submit all required notifications and reports to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

and

United States Environmental Protection Agency, Region V
Air and Radiation Division, Air Enforcement Branch - Indiana (AE-17J)
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

E.5.2 Stationary Spark Ignition Internal Combustion Engines NSPS [326 IAC 12] [40 CFR Part 60, Subpart JJJJ]

Pursuant to 40 CFR Part 60, Subpart JJJJ, the Permittee shall comply with the provisions of 40 CFR Part 60, Subpart JJJJ, which are incorporated by reference as 326 IAC 12 (included as Attachment G to this permit), for the above listed emissions units as specified as follows.

(1) 40 CFR 60.4230(a)(4)(iii)
(2) 40 CFR 60.4231(a)
(3) 40 CFR 60.4233(a)
(4) 40 CFR 60.4234
(5) 40 CFR 60.4236
(6) 40 CFR 60.4237(c)
(7) 40 CFR 60.4243(a)(1) & (2)(i), and (d)
(8) 40 CFR 60.4245(a)
(9) 40 CFR 60.4246
(10) 40 CFR 60.4248
(11) Table 3 - As Applicable

Conclusion and Recommendation

This proposed modification shall be subject to the conditions of the attached proposed Part 70 Significant Permit Modification No. 089-34494-00497. The staff recommend to the Commissioner that this Part 70 Significant Permit Modification be approved.

IDEM Contact

(a) Questions regarding this proposed permit can be directed to Celeste Wanner at the Indiana Department Environmental Management, Office of Air Quality, Permits Branch, 100 North Senate Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana 46204-2251 or by telephone at (317) 234-5376 or toll free at 1-800-451-6027 extension 4-5376.

(b) A copy of the findings is available on the Internet at: http://www.in.gov/ai/appfiles/idem-caats/

(c) For additional information about air permits and how the public and interested parties can participate, refer to the IDEM Permit Guide on the Internet at: http://www.in.gov/idem/5881.htm; and the Citizens' Guide to IDEM on the Internet at: http://www.in.gov/idem/6900.htm.

Appendix A: Emission Calculations
Project Summary

Source Name: Enbridge Energy-Hartsdale/Griffith Terminal
Source Location: Griffith, IN and Schererville, IN
Significant Permit Modification No.: 089-34494-00497
Permit Reviewer: Celeste Wanner

Potential to Emit of the New Units

Process / Emission Unit	PM (ton/yr)	PM_{10} (ton/yr)	$PM_{2.5}$ (ton/yr)	SO2 (ton/yr)	NOx (ton/yr)	VOC (ton/yr)	CO (ton/yr)	CO_2e (ton/yr)	n-Hexane (ton/yr)	HAPs (ton/yr)
New Hartsdale Emergency Generators (liquid propane)	1.33E-03	2.72E-03	2.72E-03	8.23E-05	0.12	0.12	9.41	20	-	4.50E-03
Total	1.33E-03	2.72E-03	2.72E-03	8.23E-05	0.12	0.12	9.41	20	-	4.50E-03

Enbridge Energy - Hartsdale/Griffith Terminal
Griffith, IN and Schererville, IN
Table 2-1: Facility-Wide Emissions Summary

	Emissions[1] (ton/yr)													
Emission Unit ID	**VOC**	**Total HAPs**	**Highest Single HAP[2]**	**PM**	**PM10**	**PM2.5**	**Pb**	**SO_2**	**NOx**	**CO**	**CO_2**	**CH_4**	**N_2O**	**CO_2e[3]**
GT-70	6.13	0.31	0.18	-	-	-	-	-	-	-	0	1	0	31
GT-71	8.05	0.41	0.24	-	-	-	-	-	-	-	0	3	0	56
GT-72	8.81	0.44	0.27	-	-	-	-	-	-	-	0	3	0	56
GT-73	8.04	0.41	0.24	-	-	-	-	-	-	-	0	3	0	56
GT-74	7.43	0.39	0.22	-	-	-	-	-	-	-	0	3	0	56
GT-75	7.43	0.39	0.22	-	-	-	-	-	-	-	0	3	0	56
GT-76	10.74	0.57	0.32	-	-	-	-	-	-	-	0	5	0	102
GT-77	10.74	0.57	0.32	-	-	-	-	-	-	-	0	5	0	102
GT-78	7.44	0.39	0.22	-	-	-	-	-	-	-	0	3	0	56
GT-79	7.28	0.41	0.21	-	-	-	-	-	-	-	0	5	0	101
GT-80	5.41	0.31	0.15	-	-	-	-	-	-	-	0	3	0	62
GT-1601	4.79	0.25	0.14	-	-	-	-	-	-	-	0	1	0	26
GT-1602	4.79	0.25	0.14	-	-	-	-	-	-	-		1	0	26
GT-1603	4.97	0.25	0.15	-	-	-	-	-	-	-	0	1	0	26
GT-1604	4.79	0.25	0.14	-	-	-	-	-	-	-	0	1	0	26
GT-1605	4.79	0.25	0.14	-	-	-	-	-	-	-	0	1	0	26
GT-1606	DEMOLISHED													
GT-1607	4.79	0.25	0.14	-	-	-	-	-	-	-	0	1	0	26
GT-1608	4.79	0.25	0.14	-	-	-	-	-	-	-	0	1	0	26
GT-1609	4.79	0.25	0.14	-	-	-	-	-	-	-	0	1	0	26
GT-1610	8.72	0.49	0.25	-	-	-	-	-	-	-	0	7	0	137
GT-1611	6.87	0.39	0.20	-	-	-	-	-	-	-	0	4	0	93
New Emergency Generator[5]	0.05	0.00	0.00	0.01	0.01	0.01	-	0.02	0.54	0.29	71	0	0	71
Griffith Emergency Generator[5]	0.13	0.00	-	0.11	0.11	0.11	-	0.11	1.60	0.35	58	0	0	58
Griffith Fire Pump[5]	0.11	0.00	-	0.10	0.10	0.10	-	0.09	1.36	0.29	49	0	0	49
Hartsdale Emergency Generator[5]	0.13	0.00	-	0.11	0.11	0.11	-	0.11	1.60	0.35	58	0	0	58
Hartsdale Fire Pump[5]	0.20	0.00	-	0.18	0.18	0.18	-	0.17	2.58	0.56	94	0	0	94
Piping Component Fugitive[7]	1.61	0.07	0.05	-	-	-	-	-	-	-	0	0	0	0
Unpaved Roads Fugitive	-	-	-	14.88	4.02	0.40	-	-	-	-	-	-	-	-
Paved Roads Fugitive	-	-	-	9.73	1.95	0.48	-	-	-	-	-	-	-	-
Total Before Modification	143.81	7.54	4.26	25.12	6.48	1.39	-	0.50	7.68	1.83	331	56	0	1,504
New Hartsdale Emergency Generators #2 and #3	0.12	4.50E-03	-	1.33E-03	2.72E-03	2.72E-03	-	8.23E-05	0.12	9.41	15	0	0	20
Total Facility After Modification	143.94	7.54	4.26	25.13	6.48	1.40	-	0.50	7.81	11.25	346	56	0	1,524

Notes:
1. Storage tank emissions were calculated using TANKS 4.09d, and RVP 8 crude oil. See Tables 2-2 through 2-5 for additional detail.
2. See Table 2-7 for VOC HAP calculations and Tables 2-9 to 2-12 for diesel combustion source HAP calculations. The highest emitted (facility-wide) HAP is hexane.
3. See Table 2-8 for GHG emissions from storage vessels and Tables 2-9 to 2-13 for GHG emissions from diesel combustion sources.
4. See Table 2-5 for information regarding roof landing losses.
5. See Tables 2-9 to 2-13 for diesel generator emissions.
6. See Table 2-14 for propane generator emissions.
7. See Table 2-6 for piping component fugitive emissions.

Note: The Source uses "GT" as an internal identifier. This correlates to "EU" in the permit.

Table 2-2: Storage Tank VOC PTE Emissions Summary

Tank Emission Unit ID	Enbridge Tank Number	Tank Volume (bbl)	Annual Tank Throughput[1] (bbl/yr)	Annual Number of Tank Turnovers	Tank Standing Loss[2] (tpy)	Tank Withdrawal Loss[2] (tpy)	Tank Roof Landing Loss[3] (tpy)	Total Loss (tpy)
Griffith Tanks								
GT-70	GT-70	120,000	13,411,888	111.77	1.86	2.01	2.26	6.13
GT-71	GT-71	217,000	24,253,165	111.77	1.89	2.71	3.46	8.05
GT-72	GT-72	217,000	24,253,165	111.77	2.65	2.71	3.46	8.81
GT-73	GT-73	217,000	24,253,165	111.77	1.88	2.71	3.46	8.04
GT-74	GT-74	217,000	24,253,165	111.77	1.27	2.71	3.46	7.43
GT-75	GT-75	217,000	24,253,165	111.77	1.27	2.71	3.46	7.43
GT-76	GT-76	395,000	44,147,466	111.77	2.15	4.22	4.36	10.74
GT-77	GT-77	395,000	44,147,466	111.77	2.15	4.22	4.36	10.74
GT-78	GT-78	217,000	24,253,165	111.77	1.28	2.71	3.46	7.44
GT-79	GT-79	392,169	43,831,057	111.77	1.72	3.93	1.64	7.28
GT-80	GT-80	240,000	26,823,777	111.77	1.36	2.99	1.06	5.41
Hartsdale Tanks[4]								
GT-1601	GT-1601	100,000	11,176,574	111.77	0.85	1.68	2.26	4.79
GT-1602	GT-1602	100,000	11,176,574	111.77	0.85	1.68	2.26	4.79
GT-1603	GT-1603	100,000	11,176,574	111.77	1.04	1.68	2.26	4.97
GT-1604	GT-1604	100,000	11,176,574	111.77	0.85	1.68	2.26	4.79
GT-1605	GT-1605	100,000	11,176,574	111.77	0.85	1.68	2.26	4.79
GT-1606	GT-1606				DEMOLISHED			
GT-1607	GT-1607	100,000	11,176,574	111.77	0.86	1.68	2.26	4.79
GT-1608	GT-1608	100,000	11,176,574	111.77	0.85	1.68	2.26	4.79
GT-1609	GT-1609	100,000	11,176,574	111.77	0.85	1.68	2.26	4.79
New Storage Tanks								
GT-1610	GT-1610	528,705	59,091,104	111.77	1.95	4.40	2.38	8.72
GT-1611	GT-1611	360,000	40,235,665	111.77	1.62	3.62	1.62	6.87
		3,644,169	506,620,000	bbl/yr	30.06	55.04	56.48	141.58
			1,388,000	bpd				

Notes:

1. Tank throughput is based on the proposed terminal throughput limit of 506,620,000 bbls/year (1,388,000 bbl/day) equally distributed to the individual tanks based on tank capacity.
2. Calculated using TANKS 4.0.9d and crude oil with an of RVP 8.0. See TANKS emissions summary report in Attachment C.
3. See Table 2-5 Tank Roof Landing Emission Calculations
4. Emissions shown for the Hartsdale Tanks represents the PTE after modification under permit number 089-32030-00497.

Note: The Source uses "GT" as an internal identifier. This correlates to "EU" in the permit.

Enbridge Energy - Hartsdale/Griffith Terminal
Griffith, IN and Schererville, IN
Table 2-3: Terminal Pipeline Throughput Capacity Summary

		Maximum Pipeline Design Capacity (bbl/day)			
Pipeline Number	**Pipeline Direction**	**Current**	**Proposed Increase**	**Proposed After Project**	**Notes**
Line 6A	Inbound	634,080	-	634,080	
Line 64	Inbound	211,360	-	211,360	
Line 62	Inbound	235,000	-	235,000	
Line 78	Inbound	-	570,000	570,000	Proposed new pipeline
Total inbound capacity		**1,080,440**	**570,000**	**1,650,440**	
Line 6B	Outbound	500,000	70,000	570,000	Proposed increase
Refinery Takeoff	Outbound	450,000	-	450,000	
Buckeye Terminal Takeoff	Outbound	-	-	368,000	Proposed new pipeline
Total outbound capacity[1]		**950,000**		**1,388,000**	

Notes:

1. Potential throughput for the terminals is limited by outbound pipeline capacity which is less than the outbound pipeline capacity.

Note: The Source uses "GT" as an internal identifier. This correlates to "EU" in the permit.

Enbridge Energy - Hartsdale/Griffith Terminal
Griffith, IN and Schererville, IN
Table 2-4: PTE Throughput Summary[(1)]

2013 Permit Application Basis

Total Maximum Throughput (bbl/day): 1,388,000
Maximum Pipeline Throughput (bbl/year): 506,620,000
Crude Oil RVP: 8.0

Tank Number	Product	RVP (psia)	Tank Diameter (ft)	Tank Volume (bbl)	Tank Volume (gal)	Fraction of Total Terminal Tankage Volume	PTE Throughput (bbl/yr)	PTE Throughput (gal/yr)	Potential Annual Tank Turnovers
GT-70	Crude Oil	8.0	134	120,000	5,040,000	3%	13,411,888	563,299,311	111.77
GT-71	Crude Oil	8.0	180	217,000	9,114,000	5%	24,253,165	1,018,632,920	111.77
GT-72	Crude Oil	8.0	180	217,000	9,114,000	5%	24,253,165	1,018,632,920	111.77
GT-73	Crude Oil	8.0	180	217,000	9,114,000	5%	24,253,165	1,018,632,920	111.77
GT-74	Crude Oil	8.0	180	217,000	9,114,000	5%	24,253,165	1,018,632,920	111.77
GT-75	Crude Oil	8.0	180	217,000	9,114,000	5%	24,253,165	1,018,632,920	111.77
GT-76	Crude Oil	8.0	210	395,000	16,590,000	9%	44,147,466	1,854,193,565	111.77
GT-77	Crude Oil	8.0	210	395,000	16,590,000	9%	44,147,466	1,854,193,565	111.77
GT-78	Crude Oil	8.0	180	217,000	9,114,000	5%	24,253,165	1,018,632,920	111.77
GT-79	Crude Oil	8.0	224	392,169	16,471,098	9%	43,831,057	1,840,904,395	111.77
GT-80	Crude Oil	8.0	180	240,000	10,080,000	5%	26,823,777	1,126,598,622	111.77
GT-1601	Crude Oil	8.0	134	100,000	4,200,000	2%	11,176,574	469,416,092	111.77
GT-1602	Crude Oil	8.0	134	100,000	4,200,000	2%	11,176,574	469,416,092	111.77
GT-1603	Crude Oil	8.0	134	100,000	4,200,000	2%	11,176,574	469,416,092	111.77
GT-1604	Crude Oil	8.0	134	100,000	4,200,000	2%	11,176,574	469,416,092	111.77
GT-1605	Crude Oil	8.0	134	100,000	4,200,000	2%	11,176,574	469,416,092	111.77
GT-1606	DEMOLISHED								
GT-1607	Crude Oil	8.0	134	100,000	4,200,000	2%	11,176,574	469,416,092	111.77
GT-1608	Crude Oil	8.0	134	100,000	4,200,000	2%	11,176,574	469,416,092	111.77
GT-1609	Crude Oil	8.0	134	100,000	4,200,000	2%	11,176,574	469,416,092	111.77
GT-1610	Crude Oil	8.0	270	528,705	22,205,610	12%	59,091,104	2,481,826,351	111.77
GT-1611	Crude Oil	8.0	223	360,000	15,120,000	8%	40,235,665	1,689,897,932	111.77
					190,380,708	100%	506,620,000	21,278,040,000	

Notes:

1. Throughput is based on a volume weighted average of the annual limiting throughput flowing through all tanks based on their physical storage capacity.

Note: The Source uses "GT" as an internal identifier. This correlates to "EU" in the permit.

Enbridge Energy - Hartsdale/Griffith Terminal
Griffith, IN and Schererville, IN
Table 2-5: Floating Roof Landing Emissions[(1)]

TANK INFORMATION:											
	Tank Number	**GT-70**	**GT-71**	**GT-72**	**GT-73**	**GT-74**	**GT-75**	**GT-76**	**GT-77**	**GT-78**	**GT-79**
	Tank Color	White/White, Good	White/White, Good	White/White, Good	White/White, Good	White/White, Good	White/White, Good	White/White, Good	White/White, Good	White/White, Good	White/White, Good
	Tank Type	EFRT	EFRT	EFRT	EFRT	EFRT	EFRT	EFRT	EFRT	EFRT	Drain Dry
	Month	July	July	July	July	July	July	July	July	July	July
n_d	Total Number of Days on Roof Legs without Refilling	5	5	5	5	5	5	5	5	5	5
D	Tank Diameter, ft	134	180	180	180	180	180	210	210	180	224
H_d	Height of the deck above the tank bottom, ft	5.20	5.20	5.20	5.20	5.20	5.20	5.20	5.20	5.20	5.20
H_{Le}	Height of the liquid above the tank bottom, ft	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
H_{VO}	Height of the vapor space, ft	3.95	3.95	3.95	3.95	3.95	3.95	3.95	3.95	3.95	3.95
STORED PRODUCT INFORMATION:											
	Product Name:	Crude	Crude	Crude	Crude	Crude	Crude	Crude	Crude	Crude	Crude
RVP	Reid Vapor Pressure of Product, psia	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Mv	Vapor Molecular Weight, lb/lbmole	50	50	50	50	50	50	50	50	50	50
W_l	Liquid Density, lb/gal	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1
A	Vapor Pressure Coefficient, dimensionless	10.809	10.809	10.809	10.809	10.809	10.809	10.809	10.809	10.809	10.809
B	Vapor Pressure Coefficient, dimensionless	4,732.4	4,732.4	4,732.4	4,732.4	4,732.4	4,732.4	4,732.4	4,732.4	4,732.4	4,732.4
P_{VA}	Vapor Pressure at Daily Ave. Surface Temp, psia	6.869	6.869	6.869	6.869	6.869	6.869	6.869	6.869	6.869	6.869
REFILLED PRODUCT INFORMATION:											
	Product Name:	Crude	Crude	Crude	Crude	Crude	Crude	Crude	Crude	Crude	Crude
RVP	Reid Vapor Pressure of Product, psia	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Mv	Vapor Molecular Weight, lb/lbmole	50	50	50	50	50	50	50	50	50	50
W_l	Liquid Density, lb/gal	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1
A	Vapor Pressure Coefficient, dimensionless	10.809	10.809	10.809	10.809	10.809	10.809	10.809	10.809	10.809	10.809
B	Vapor Pressure Coefficient, dimensionless	4,732.4	4,732.4	4,732.4	4,732.4	4,732.4	4,732.4	4,732.4	4,732.4	4,732.4	4,732.4
$P_{VA\ refill}$	Vapor Pressure at Daily Ave. Surface Temp, psia	5.486	5.486	5.486	5.486	5.486	5.486	5.486	5.486	5.486	5.486
T_{refill}	Temperature of the Liquid Refilling, degrees F,	60	60	60	60	60	60	60	60	60	60
T_{refill}	Temperature of the Liquid Refilling, degrees R	520	520	520	520	520	520	520	520	520	520
METEOROLOGICAL INFORMATION:											
	Month	July	July	July	July	July	July	July	July	July	July
Delta Tv	Daily Vapor Temperature Range, degrees R	24.4	24.4	24.4	24.4	24.4	24.4	24.4	24.4	24.4	24.4
T_{AA}	Daily Average Ambient Temperature, degrees R	532.82	532.82	532.82	532.82	532.82	532.82	532.82	532.82	532.82	532.82
T_{AX}	Daily Maximum Average Ambient Temp, degrees F	83.7	83.7	83.7	83.7	83.7	83.7	83.7	83.7	83.7	83.7
T_{AN}	Daily Minimum Average Ambient Temp, degrees F	62.6	62.6	62.6	62.6	62.6	62.6	62.6	62.6	62.6	62.6
Delta T_A	Daily Ambient Temperature Range, degrees R	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1
Pa	Atmospheric Pressure, psia	14.38	14.38	14.38	14.38	14.38	14.38	14.38	14.38	14.38	14.38
I	Daily Total Solar Insulation Factor, BTU/ft^2*d	1,938.5	1,938.5	1,938.5	1,938.5	1,938.5	1,938.5	1,938.5	1,938.5	1,938.5	1,938.5
alpha	Tank Paint Solar Absorptance, dimensionless	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17

STANDING LOSS CALCULATION:											
L_{SL}	Standing Idle Losses per day, lb/day	614	825	825	825	825	825	963	963	825	1763
K_E	Vapor space expansion factor, dimensionless	0.232	0.232	0.232	0.232	0.232	0.232	0.232	0.232	0.232	0.232
P_{VA}	True Vapor Pressure of the stock liquid, psia	6.869	6.869	6.869	6.869	6.869	6.869	6.869	6.869	6.869	6.869
Vv	Vapor Space Volume, ft^3	55,705	100,515	100,515	100,515	100,515	100,515	136,812	136,812	100,515	155,662
R	Ideal Gas Constant, $psia*ft^3/lbmole*R$	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731
T_S	Average Monthly Stock Temperature, degrees R	532.82	532.82	532.82	532.82	532.82	532.82	532.82	532.82	532.82	532.82
Mv	Vapor Molecular Weight, lb/lbmole	50	50	50	50	50	50	50	50	50	50
Ks	Vented vapor saturation factor, dimensionless	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.15
H_{VO}	Height of Vapor Space under Floating Roof, ft	3.95	3.95	3.95	3.95	3.95	3.95	3.95	3.95	3.95	3.95
P*	Vapor pressure function	0.16088	0.16088	0.16088	0.16088	0.16088	0.16088	0.16088	0.16088	0.16088	0.16088
$L_{SL\ max}$	Limit on standing losses, lb/event	940,221	1,696,545	1,696,545	1,696,545	1,696,545	1,696,545	2,309,186	2,309,186	1,696,545	5,610
REFILLING LOSS CALCULATION:											
L_{FL}	Filling Losses per episode, lb	1,444	2,790	2,790	2,790	2,790	2,790	3,902	3,902	2,790	1,512
$P_{VA\ refill}$	True Vapor Pressure Liquid Refilling, psia	5.486	5.486	5.486	5.486	5.486	5.486	5.486	5.486	5.486	5.486
Vv	Vapor Space Volume, ft^3	55,705	100,515	100,515	100,515	100,515	100,515	136,812	136,812	100,515	204,922
H_{VO}	Height of Vapor Space under Floating Roof, ft	3.95	3.95	3.95	3.95	3.95	3.95	3.95	3.95	3.95	5.20
D	Tank Diameter, ft	134	180	180	180	180	180	210	210	180	224
R	Ideal Gas Constant, $psia*ft^3/lbmole*R$	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731
T_{refill}	Temperature of the Liquid Refilling, degrees R	520	520	520	520	520	520	520	520	520	520
Mv	Vapor Molecular Weight, lb/lbmole	50	50	50	50	50	50	50	50	50	50
S	Refilling Saturation Factor, dimensionless	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.15
K_E	Vapor space expansion factor, dimensionless	0.179	0.179	0.179	0.179	0.179	0.179	0.179	0.179	0.179	0.179
Ks	Vented vapor saturation factor, dimensionless	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.15
C_{sf}	Filling saturation correction factor	0.878	0.940	0.940	0.940	0.940	0.940	0.966	0.966	0.940	0.724
$L_{s\ wind}$	Standing loss associated with wind, calculated for C_{sf}	456.38	613.04	613.04	613.04	613.04	613.04	715.22	715.22	613.04	762.90
P*	Vapor pressure function	0.11950	0.11950	0.11950	0.11950	0.11950	0.11950	0.11950	0.11950	0.11950	0.11950
Ls	Standing loss calculated for C_{sf}, lb/day	228.17	411.71	411.71	411.71	411.71	411.71	560.38	560.38	411.71	270.51
L_F	Filling loss calculated for C_{sf}, lb	1,644.04	2,966.53	2,966.53	2,966.53	2,966.53	2,966.53	4,037.78	4,037.78	2,966.53	1,511.98

Summary of Tank Landing Losses:											
	Tank Number	GT-70	GT-71	GT-72	GT-73	GT-74	GT-75	GT-76	GT-77	GT-78	GT-79
	Tank Type	EFRT	EFRT	EFRT	EFRT	EFRT	EFRT	EFRT	EFRT	EFRT	Drain Dry
	Stored Product	Crude	Crude	Crude	Crude	Crude	Crude	Crude	Crude	Crude	Crude
	Refill Product	Crude	Crude	Crude	Crude	Crude	Crude	Crude	Crude	Crude	Crude
	Month of Landing	July	July	July	July	July	July	July	July	July	July
L_{SL}	Cumulative Standing Idle Losses per episode, lb	3,072	4,127	4,127	4,127	4,127	4,127	4,814	4,814	4,127	1,763
L_{FL}	Filling Losses per episode, lb	1,444	2,790	2,790	2,790	2,790	2,790	3,902	3,902	2,790	1,512
L_{TL}	Total Landing Loss per episode, lb	4,516	6,916	6,916	6,916	6,916	6,916	8,716	8,716	6,916	3,275

Total Landing Losses (lb/yr)	4,516	6,916	6,916	6,916	6,916	6,916	8,716	8,716	6,916	3,275
Total Landing Losses (ton/yr)	2.26	3.46	3.46	3.46	3.46	3.46	4.36	4.36	3.46	1.64

Enbridge Energy - Hartsdale/Griffith Terminal
Griffith, IN and Schererville, IN
Table 2-5: Floating Roof Landing Emissions[(1)]

TANK INFORMATION:								
	Tank Number	**GT-80**	**GT-1601**	**GT-1602**	**GT-1603**	**GT-1604**	**GT-1605**	**GT-1606**
	Tank Color	White/White, Good	White/White, Good	White/White, Good	White/White, Good	White/White, Good	White/White, Good	
	Tank Type	Drain Dry	EFRT	EFRT	EFRT	EFRT	EFRT	
	Month	July	July	July	July	July	July	
n_d	Total Number of Days on Roof Legs without Refilling	5	5	5	5	5	5	
D	Tank Diameter, ft	180	134	134	134	134	134	
H_d	Height of the deck above the tank bottom, ft	5.20	5.20	5.20	5.20	5.20	5.20	
H_{Le}	Height of the liquid above the tank bottom, ft	1.25	1.25	1.25	1.25	1.25	1.25	
H_{VO}	Height of the vapor space, ft	3.95	3.95	3.95	3.95	3.95	3.95	
STORED PRODUCT INFORMATION:								
	Product Name:	Crude	Crude	Crude	Crude	Crude	Crude	
RVP	Reid Vapor Pressure of Product, psia	8.0	8.0	8.0	8.0	8.0	8.0	
Mv	Vapor Molecular Weight, lb/lbmole	50	50	50	50	50	50	
W_l	Liquid Density, lb/gal	7.1	7.1	7.1	7.1	7.1	7.1	
A	Vapor Pressure Coefficient, dimensionless	10.809	10.809	10.809	10.809	10.809	10.809	
B	Vapor Pressure Coefficient, dimensionless	4,732.4	4,732.4	4,732.4	4,732.4	4,732.4	4,732.4	
P_{VA}	Vapor Pressure at Daily Ave. Surface Temp, psia	6.869	6.869	6.869	6.869	6.869	6.869	
REFILLED PRODUCT INFORMATION:								
	Product Name:	Crude	Crude	Crude	Crude	Crude	Crude	
RVP	Reid Vapor Pressure of Product, psia	8.0	8.0	8.0	8.0	8.0	8.0	
Mv	Vapor Molecular Weight, lb/lbmole	50	50	50	50	50	50	
W_l	Liquid Density, lb/gal	7.1	7.1	7.1	7.1	7.1	7.1	
A	Vapor Pressure Coefficient, dimensionless	10.809	10.809	10.809	10.809	10.809	10.809	
B	Vapor Pressure Coefficient, dimensionless	4,732.4	4,732.4	4,732.4	4,732.4	4,732.4	4,732.4	
$P_{VA\ refill}$	Vapor Pressure at Daily Ave. Surface Temp, psia	5.486	5.486	5.486	5.486	5.486	5.486	
T_{refill}	Temperature of the Liquid Refilling, degrees F,	60	60	60	60	60	60	
T_{refill}	Temperature of the Liquid Refilling, degrees R	520	520	520	520	520	520	
METEOROLOGICAL INFORMATION:								
	Month	July	July	July	July	July	July	
Delta Tv	Daily Vapor Temperature Range, degrees R	24.4	24.4	24.4	24.4	24.4	24.4	
T_{AA}	Daily Average Ambient Temperature, degrees R	532.82	532.82	532.82	532.82	532.82	532.82	
T_{AX}	Daily Maximum Average Ambient Temp, degrees F	83.7	83.7	83.7	83.7	83.7	83.7	
T_{AN}	Daily Minimum Average Ambient Temp, degrees F	62.6	62.6	62.6	62.6	62.6	62.6	
Delta T_A	Daily Ambient Temperature Range, degrees R	21.1	21.1	21.1	21.1	21.1	21.1	
Pa	Atmospheric Pressure, psia	14.38	14.38	14.38	14.38	14.38	14.38	
I	Daily Total Solar Insulation Factor, BTU/ft^2*d	1,938.5	1,938.5	1,938.5	1,938.5	1,938.5	1,938.5	
alpha	Tank Paint Solar Absorptance, dimensionless	0.17	0.17	0.17	0.17	0.17	0.17	

DEMOLISHED

STANDING LOSS CALCULATION:								
L_{SL}	Standing Idle Losses per day, lb/day	1138	614	614	614	614	614	DEMOLISHED
K_E	Vapor space expansion factor, dimensionless	0.232	0.232	0.232	0.232	0.232	0.232	
P_{VA}	True Vapor Pressure of the stock liquid, psia	6.869	6.869	6.869	6.869	6.869	6.869	
Vv	Vapor Space Volume, ft^3	100,515	55,705	55,705	55,705	55,705	55,705	
R	Ideal Gas Constant, $psia*ft^3/lbmole*R$	10.731	10.731	10.731	10.731	10.731	10.731	
T_S	Average Monthly Stock Temperature, degrees R	532.82	532.82	532.82	532.82	532.82	532.82	
Mv	Vapor Molecular Weight, lb/lbmole	50	50	50	50	50	50	
Ks	Vented vapor saturation factor, dimensionless	0.15	0.41	0.41	0.41	0.41	0.41	
H_{VO}	Height of Vapor Space under Floating Roof, ft	3.95	3.95	3.95	3.95	3.95	3.95	
P*	Vapor pressure function	0.16088	0.16088	0.16088	0.16088	0.16088	0.16088	
$L_{SL\ max}$	Limit on standing losses, lb/event	3,622	940,221	940,221	940,221	940,221	940,221	
REFILLING LOSS CALCULATION:								
L_{FL}	Filling Losses per episode, lb	976	1,444	1,444	1,444	1,444	1,444	DEMOLISHED
$P_{VA\ refill}$	True Vapor Pressure Liquid Refilling, psia	5.486	5.486	5.486	5.486	5.486	5.486	
Vv	Vapor Space Volume, ft^3	132,324	55,705	55,705	55,705	55,705	55,705	
H_{VO}	Height of Vapor Space under Floating Roof, ft	5.20	3.95	3.95	3.95	3.95	3.95	
D	Tank Diameter, ft	180	134	134	134	134	134	
R	Ideal Gas Constant, $psia*ft^3/lbmole*R$	10.731	10.731	10.731	10.731	10.731	10.731	
T_{refill}	Temperature of the Liquid Refilling, degrees R	520	520	520	520	520	520	
Mv	Vapor Molecular Weight, lb/lbmole	50	50	50	50	50	50	
S	Refilling Saturation Factor, dimensionless	0.15	0.60	0.60	0.60	0.60	0.60	
K_E	Vapor space expansion factor, dimensionless	0.179	0.179	0.179	0.179	0.179	0.179	
Ks	Vented vapor saturation factor, dimensionless	0.15	0.47	0.47	0.47	0.47	0.47	
C_{sf}	Filling saturation correction factor	0.619	0.878	0.878	0.878	0.878	0.878	
$L_{s\ wind}$	Standing loss associated with wind, calculated for C_{sf}	613.04	456.38	456.38	456.38	456.38	456.38	
P*	Vapor pressure function	0.11950	0.11950	0.11950	0.11950	0.11950	0.11950	
Ls	Standing loss calculated for C_{sf}, lb/day	174.67	228.17	228.17	228.17	228.17	228.17	
L_F	Filling loss calculated for C_{sf}, lb	976.33	1,644.04	1,644.04	1,644.04	1,644.04	1,644.04	
Summary of Tank Landing Losses:								
	Tank Number	GT-80	GT-1601	GT-1602	GT-1603	GT-1604	GT-1605	DEMOLISHED
	Tank Type	Drain Dry	EFRT	EFRT	EFRT	EFRT	EFRT	
	Stored Product	Crude	Crude	Crude	Crude	Crude	Crude	
	Refill Product	Crude	Crude	Crude	Crude	Crude	Crude	
	Month of Landing	July	July	July	July	July	July	
L_{SL}	Cumulative Standing Idle Losses per episode, lb	1,138	3,072	3,072	3,072	3,072	3,072	
L_{FL}	Filling Losses per episode, lb	976	1,444	1,444	1,444	1,444	1,444	
L_{TL}	Total Landing Loss per episode, lb	2,115	4,516	4,516	4,516	4,516	4,516	
		2,115	4,516	4,516	4,516	4,516	4,516	-
		1.06	2.26	2.26	2.26	2.26	2.26	-

Enbridge Energy - Hartsdale/Griffith Terminal
Griffith, IN and Schererville, IN
Table 2-5: Floating Roof Landing Emissions[(1)]

TANK INFORMATION:						
	Tank Number	**GT-1607**	**GT-1608**	**GT-1609**	**GT-1610**	**GT-1611**
	Tank Color	White/White, Good	White/White, Good	White/White, Good	White/White, Good	White/White, Good
	Tank Type	EFRT	EFRT	EFRT	Drain Dry	Drain Dry
	Month	July	July	July	July	July
n_d	Total Number of Days on Roof Legs without Refilling	5	5	5	5	5
D	Tank Diameter, ft	134	134	134	270	223
H_d	Height of the deck above the tank bottom, ft	5.20	5.20	5.20	5.20	5.20
H_{Le}	Height of the liquid above the tank bottom, ft	1.25	1.25	1.25	1.25	1.25
H_{VO}	Height of the vapor space, ft	3.95	3.95	3.95	3.95	3.95
STORED PRODUCT INFORMATION:						
	Product Name:	Crude	Crude	Crude	Crude	Crude
RVP	Reid Vapor Pressure of Product, psia	8.0	8.0	8.0	8.0	8.0
Mv	Vapor Molecular Weight, lb/lbmole	50	50	50	50	50
W_l	Liquid Density, lb/gal	7.1	7.1	7.1	7.1	7.1
A	Vapor Pressure Coefficient, dimensionless	10.809	10.809	10.809	10.809	10.809
B	Vapor Pressure Coefficient, dimensionless	4,732.4	4,732.4	4,732.4	4,732.4	4,732.4
P_{VA}	Vapor Pressure at Daily Ave. Surface Temp, psia	6.869	6.869	6.869	6.869	6.869
REFILLED PRODUCT INFORMATION:						
	Product Name:	Crude	Crude	Crude	Crude	Crude
RVP	Reid Vapor Pressure of Product, psia	8.0	8.0	8.0	8.0	8.0
Mv	Vapor Molecular Weight, lb/lbmole	50	50	50	50	50
W_l	Liquid Density, lb/gal	7.1	7.1	7.1	7.1	7.1
A	Vapor Pressure Coefficient, dimensionless	10.809	10.809	10.809	10.809	10.809
B	Vapor Pressure Coefficient, dimensionless	4,732.4	4,732.4	4,732.4	4,732.4	4,732.4
$P_{VA\ refill}$	Vapor Pressure at Daily Ave. Surface Temp, psia	5.486	5.486	5.486	5.486	5.486
T_{refill}	Temperature of the Liquid Refilling, degrees F,	60	60	60	60	60
T_{refill}	Temperature of the Liquid Refilling, degrees R	520	520	520	520	520
METEOROLOGICAL INFORMATION:						
	Month	July	July	July	July	July
Delta Tv	Daily Vapor Temperature Range, degrees R	24.4	24.4	24.4	24.4	24.4
T_{AA}	Daily Average Ambient Temperature, degrees R	532.82	532.82	532.82	532.82	532.82
T_{AX}	Daily Maximum Average Ambient Temp, degrees F	83.7	83.7	83.7	83.7	83.7
T_{AN}	Daily Minimum Average Ambient Temp, degrees F	62.6	62.6	62.6	62.6	62.6
Delta T_A	Daily Ambient Temperature Range, degrees R	21.1	21.1	21.1	21.1	21.1
Pa	Atmospheric Pressure, psia	14.38	14.38	14.38	14.38	14.38
I	Daily Total Solar Insulation Factor, BTU/ft^2*d	1,938.5	1,938.5	1,938.5	1,938.5	1,938.5
alpha	Tank Paint Solar Absorptance, dimensionless	0.17	0.17	0.17	0.17	0.17

STANDING LOSS CALCULATION:						
L_{SL}	Standing Idle Losses per day, lb/day	614	614	614	2561	1747
K_E	Vapor space expansion factor, dimensionless	0.232	0.232	0.232	0.232	0.232
P_{VA}	True Vapor Pressure of the stock liquid, psia	6.869	6.869	6.869	6.869	6.869
Vv	Vapor Space Volume, ft^3	55,705	55,705	55,705	226,159	154,275
R	Ideal Gas Constant, psia*ft^3/lbmole*R	10.731	10.731	10.731	10.731	10.731
T_S	Average Monthly Stock Temperature, degrees R	532.82	532.82	532.82	532.82	532.82
Mv	Vapor Molecular Weight, lb/lbmole	50	50	50	50	50
Ks	Vented vapor saturation factor, dimensionless	0.41	0.41	0.41	0.15	0.15
H_{VO}	Height of Vapor Space under Floating Roof, ft	3.95	3.95	3.95	3.95	3.95
P*	Vapor pressure function	0.16088	0.16088	0.16088	0.16088	0.16088
$L_{SL\ max}$	Limit on standing losses, lb/event	940,221	940,221	940,221	8,151	5,560
REFILLING LOSS CALCULATION:						
L_{FL}	Filling Losses per episode, lb	1,444	1,444	1,444	2,197	1,499
$P_{VA\ refill}$	True Vapor Pressure Liquid Refilling, psia	5.486	5.486	5.486	5.486	5.486
Vv	Vapor Space Volume, ft^3	55,705	55,705	55,705	297,729	203,097
H_{VO}	Height of Vapor Space under Floating Roof, ft	3.95	3.95	3.95	5.20	5.20
D	Tank Diameter, ft	134	134	134	270	223
R	Ideal Gas Constant, psia*ft^3/lbmole*R	10.731	10.731	10.731	10.731	10.731
T_{refill}	Temperature of the Liquid Refilling, degrees R	520	520	520	520	520
Mv	Vapor Molecular Weight, lb/lbmole	50	50	50	50	50
S	Refilling Saturation Factor, dimensionless	0.60	0.60	0.60	0.15	0.15
K_E	Vapor space expansion factor, dimensionless	0.179	0.179	0.179	0.179	0.179
Ks	Vented vapor saturation factor, dimensionless	0.47	0.47	0.47	0.15	0.15
C_{sf}	Filling saturation correction factor	0.878	0.878	0.878	0.797	0.722
$L_{s\ wind}$	Standing loss associated with wind, calculated for C_{sf}	456.38	456.38	456.38	919.56	759.49
P*	Vapor pressure function	0.11950	0.11950	0.11950	0.11950	0.11950
Ls	Standing loss calculated for C_{sf}, lb/day	228.17	228.17	228.17	393.02	268.10
L_F	Filling loss calculated for C_{sf}, lb	1,644.04	1,644.04	1,644.04	2,196.74	1,498.51
Summary of Tank Landing Losses:						
	Tank Number	GT-1607	GT-1608	GT-1609	GT-1610	GT-1611
	Tank Type	EFRT	EFRT	EFRT	Drain Dry	Drain Dry
	Stored Product	Crude	Crude	Crude	Crude	Crude
	Refill Product	Crude	Crude	Crude	Crude	Crude
	Month of Landing	July	July	July	July	July
L_{SL}	Cumulative Standing Idle Losses per episode, lb	3,072	3,072	3,072	2,561	1,747
L_{FL}	Filling Losses per episode, lb	1,444	1,444	1,444	2,197	1,499
L_{TL}	Total Landing Loss per episode, lb	4,516	4,516	4,516	4,758	3,246
		4,516	4,516	4,516	4,758	3,246
		2.26	2.26	2.26	2.38	1.62

Total Roof Landing Emissions per episode (lb VOC/yr) 104,961

Total Roof Landing Emissions per episode (ton VOC/yr) 56.48

Notes:

1. Tank landing emissions calculated using US Environmental Protection Agency, Compilation of Air Pollutant Emission Factors, Volume 1, 5th edition, AP-42, Chapter 7.1 Liquid Storage Tanks, November 2006.

Base equations for roof landing loss calculations:

External Floating Roof Tank

EFRT Standing Loss $L_{SL} = 0.57\ n_d\ D\ P^*\ Mv$ (Maximum standing loss can not exceed LS max = $5.9\ D^2\ h_{le}\ W_l$)

EFRT Filling Loss $L_{FL} = (P_{VA\ refill}\ V_V / R\ T_{refill})\ Mv\ (C_{sf}\ S)$

Drain-Dry Tanks (Tank with a bottom that slopes to a sump where there is no liquid heel)

Drain-Dry Standing Loss $L_{SL} = 42\ C_S\ W_l\ (\pi\ D^2 / 4)$ (Maximum standing loss can not exceed LS max = $0.60\ (P_{VA}\ V_V / R\ T)\ Mv$

Drain-Dry Filling Loss $L_{FL} = (P_{VA\ refill}\ V_V / R\ T_{refill})\ Mv\ S$

Note: The Source uses "GT" as an internal identifier. This correlates to "EU" in the permit.

Enbridge Energy - Hartsdale/Griffith Terminal
Griffith, IN and Schererville, IN
Table 2-5: Floating Roof Landing Emissions[(1)]

TANK INFORMATION:		
	Tank Number	**Notes**
	Tank Color	
	Tank Type	Enter tank type
	Month	Enter the month the tank landed
n_d	Total Number of Days on Roof Legs without Refilling	Enter the number of days roof was on Legs
D	Tank Diameter, ft	Enter tank diameter
H_d	Height of the deck above the tank bottom, ft	Enter the height of tank legs
H_{Le}	Height of the liquid above the tank bottom, ft	Enter the height of liquid remaining in the tank, based on low level alarm setting
H_{VO}	Height of the vapor space, ft	AP-42, Chapter 7.1, Formula 1-15
STORED PRODUCT INFORMATION:		
	Product Name:	Enter stored product name
RVP	Reid Vapor Pressure of Product, psia	Enter crude oil RVP
Mv	Vapor Molecular Weight, lb/lbmole	Enter vapor molecular weight of product stored
W_l	Liquid Density, lb/gal	Enter density of product stored.
A	Vapor Pressure Coefficient, dimensionless	AP-42, Chapter 7.1, Figures 7.1-15, 7.1-16 and Table 7.1-5
B	Vapor Pressure Coefficient, dimensionless	AP-42, Chapter 7.1, Figures 7.1-15, 7.1-16 and Table 7.1-5
P_{VA}	Vapor Pressure at Daily Ave. Surface Temp, psia	AP-42 Chapter 7.1, Figure 7.1-13b, where T = temperature of stock liquid
REFILLED PRODUCT INFORMATION:		
	Product Name:	Enter refilled product name
RVP	Reid Vapor Pressure of Product, psia	Enter crude oil RVP
Mv	Vapor Molecular Weight, lb/lbmole	Enter vapor molecular weight of product stored
W_l	Liquid Density, lb/gal	Enter density of product stored.
A	Vapor Pressure Coefficient, dimensionless	AP-42, Chapter 7.1, Figures 7.1-15, 7.1-16 and Table 7.1-5
B	Vapor Pressure Coefficient, dimensionless	AP-42, Chapter 7.1, Figures 7.1-15, 7.1-16 and Table 7.1-5
$P_{VA\ refill}$	Vapor Pressure at Daily Ave. Surface Temp, psia	AP-42 Chapter 7.1, Figure 7.1-13b, where T = temperature of refill liquid
T_{refill}	Temperature of the Liquid Refilling, degrees F,	Assume refilled proudct is at 60 ^{o}F
T_{refill}	Temperature of the Liquid Refilling, degrees R	Trefill +459.67
METEOROLOGICAL INFORMATION:		
	Month	Enter month tank landed
Delta Tv	Daily Vapor Temperature Range, degrees R	AP-42, Chapter 7.1, Formula 1-8
T_{AA}	Daily Average Ambient Temperature, degrees R	AP-42, Chapter 7.1, Formula 1-27
T_{AX}	Daily Maximum Average Ambient Temp, degrees F	Tanks 4.09d Meteorological Data
T_{AN}	Daily Minimum Average Ambient Temp, degrees F	Tanks 4.09d Meteorological Data
Delta T_A	Daily Ambient Temperature Range, degrees R	AP-42, Chapter 7.1, Formula 1-12
Pa	Atmospheric Pressure, psia	Tanks 4.09d Meteorological Data
I	Daily Total Solar Insulation Factor, BTU/ft^2*d	Tanks 4.09d Meteorological Data
alpha	Tank Paint Solar Absorptance, dimensionless	AP-42, Chapter 7.1, Table 7.1-6

STANDING LOSS CALCULATION:		
L_{SL}	Standing Idle Losses per day, lb/day	AP-42, Chapter 7.1, IFRT Formula 2-16, EFRT Formula 2-19, Drain Dry Formula 2-22.
K_E	Vapor space expansion factor, dimensionless	AP-42, Chapter 7.1, Formula 2-31
P_{VA}	True Vapor Pressure of the stock liquid, psia	AP-42 Chapter 7.1, Figure 7.1-13b, where T = temperature of stock liquid
Vv	Vapor Space Volume, ft^3	AP-42, Chapter 7.1, Formula 2-32
R	Ideal Gas Constant, $psia*ft^3/lbmole*R$	
T_S	Average Monthly Stock Temperature, degrees R	AP-42, Formula 2-3, Note 3
Mv	Vapor Molecular Weight, lb/lbmole	
Ks	Vented vapor saturation factor, dimensionless	AP-42, Chapter 7.1, Formula 1-20, For IFRT must be < Saturation factor, S
H_{VO}	Height of Vapor Space under Floating Roof, ft	AP-42, Chapter 7.1, Formula 1-15
P*	Vapor pressure function	AP-42, Chapter 7.1, Formula 2-18
$L_{SL\ max}$	Limit on standing losses, lb/event	AP-42, Chapter 7.1, IFRT and EFRT Formula 2-13, Drain Dry Formula 2-23
REFILLING LOSS CALCULATION:		
L_{FL}	Filling Losses per episode, lb	AP-42, Chapter 7.1, IFRT Formula 2-26, EFRT Formula 2-27, Drain Dry Formula 2-26; where nd = 1
$P_{VA\ refill}$	True Vapor Pressure Liquid Refilling, psia	AP-42 Chapter 7.1, Figure 7.1-13b,, with T = Temperate of refill liquid
Vv	Vapor Space Volume, ft^3	AP-42, Chapter 7.1, Formula 2-32
H_{VO}	Height of Vapor Space under Floating Roof, ft	For flat bottom drain dry, Hvo = hd; for liquid heel, Hvo = hd-hl
D	Tank Diameter, ft	
R	Ideal Gas Constant, $psia*ft^3/lbmole*R$	
T_{refill}	Temperature of the Liquid Refilling, degrees R	
Mv	Vapor Molecular Weight, lb/lbmole	
S	Refilling Saturation Factor, dimensionless	Defaults: IFRT = 0.60, EFRT = 0.60, Drain Dry = 0.15
K_E	Vapor space expansion factor, dimensionless	AP-42, Chapter 7.1, Formula 2-31
Ks	Vented vapor saturation factor, dimensionless	AP-42, Chapter 7.1, Formula 1-20, For IFRT must be < Saturation factor, S
C_{sf}	Filling saturation correction factor	AP-42, Chapter 7.1, Formula 2-29, where nd = 1
$L_{s\ wind}$	Standing loss associated with wind, calculated for C_{sf}	AP-42, Chapter 7.1, Formula 2-19
P*	Vapor pressure function	AP-42, Chapter 7.1, Formula 2-18
Ls	Standing loss calculated for C_{sf}, lb/day	AP-42, Chapter 7.1, Formula 2-16
L_F	Filling loss calculated for C_{sf}, lb	AP-42, Chapter 7.1, Formula 2-26

Summary of Tank Landing Losses:	
	Tank Number
	Tank Type
	Stored Product
	Refill Product
	Month of Landing
L_{SL}	Cumulative Standing Idle Losses per episode, lb
L_{FL}	Filling Losses per episode, lb
L_{TL}	Total Landing Loss per episode, lb

Enbridge Energy - Hartsdale/Griffith Terminal
Griffith, IN and Schererville, IN
Table 2-6: Piping Component Fugitive Volatile Organic Compound Emission Calculations

Project Piping Component Potential to Emit

Piping Component Type	Component Count[1]	Service	Emission Factor[2] (kg/hr/source)	Emission Factor (lb/hr/source)	Emissions[3] (lb/yr)	Emissions (tpy)
Valves	250	Crude/ Light Liquid	4.30E-05	9.47E-05	207	0.10
Flanges	750	Crude/ Light Liquid	8.00E-06	1.76E-05	116	0.06
Orifices	-	Crude/ Light Liquid	1.30E-04	2.86E-04	-	-
Sample Points[4]	-	Crude/ Light Liquid	1.30E-04	2.86E-04	-	-
Pump Seals	30	Crude/ Light Liquid	5.40E-04	1.19E-03	313	0.16
	1,030			Total	636	**0.32**

Existing Hartsdale/Griffith Terminal Piping Component Potential to Emit

Piping Component Type	Component Count	Service	Emission Factor[2] (kg/hr/source)	Emission Factor (lb/hr/source)	Emissions[3] (lb/yr)	Emissions (tpy)
Valves	1,381	Crude/ Light Liquid	4.30E-05	9.47E-05	1,146	0.573
Flanges	4,642	Crude/ Light Liquid	8.00E-06	1.76E-05	717	0.358
Orifices	10	Crude/ Light Liquid	1.30E-04	2.86E-04	25	0.013
Sample Points[4]	27	Crude/ Light Liquid	1.30E-04	2.86E-04	68	0.034
Pump Seals	61	Crude/ Light Liquid	5.40E-04	1.19E-03	636	0.318
	6,121			Total	2,591	**1.30**

Proposed Total Hartsdale/Griffith Terminal Piping Component Potential to Emit

Piping Component Type	Component Count	Service	Emission Factor[2] (kg/hr/source)	Emission Factor (lb/hr/source)	Emissions[3] (lb/yr)	Emissions (tpy)
Valves	1,631	Crude/ Light Liquid	4.30E-05	9.47E-05	1,353	0.677
Flanges	5,392	Crude/ Light Liquid	8.00E-06	1.76E-05	832	0.416
Orifices	10	Crude/ Light Liquid	1.30E-04	2.86E-04	25	0.013
Sample Points[4]	27	Crude/ Light Liquid	1.30E-04	2.86E-04	68	0.034
Pump Seals	91	Crude/ Light Liquid	5.40E-04	1.19E-03	948	0.474
	7,151			Total	3,227	**1.61**

Notes:
1. Estimated number of project piping components that may be constructed at the terminal for the terminal enhancement project.
2. Table 2-3 Light liquid emission factors, Marketing Terminal Average Emission Factors from Protocol for Equipment Leak Emission Estimates, USEPA Office of Air Quality Planning and Standards, November 1995 (EPA-453/R-95-017).
3. Assumes 8760 hour of operation per year.
4. Sample points uses the "Other" equipment type to determine the emission factor.
Note: The Source uses "GT" as an internal identifier. This correlates to "EU" in the permit.

Enbridge Energy - Hartsdale/Griffith Terminal
Griffith, IN and Schererville, IN
Table 2-7: VOC Hazardous Air Pollutant Emission Summary[1]

					HAP Emissions[1,2] (lb/yr)												
					1,2,4-Trimethylbenzene	Benzene	Cumene/Isopropylbenzene	Cyclohexane	Ethylbenzene	n-Hexane	Toluene	Xylenes	Isooctane/2,2,4-Trimethylpentane	Biphenyl	Naphthalene	Phenol	TOTAL HAP
				Crude Oil - Vapor Weight Fraction[3]	4.15E-05	4.82E-03	3.03E-05	5.87E-03	2.80E-04	3.29E-02	2.20E-03	8.25E-04	4.06E-04	7.75E-08	3.21E-06	4.91E-06	
				Crude Oil - Liquid Weight Fraction[4]	3.30E-03	6.00E-03	1.00E-03	7.00E-03	4.00E-03	2.46E-02	1.00E-02	1.42E-02	1.00E-03	6.00E-04	2.19E-03	3.23E-03	
Tank ID	Total Standing Loss (lb VOC/yr)	Total Withdrawal Loss (lb VOC/yr)	Total Landing Loss (lb VOC/yr)	Total Loss (lb VOC/yr)	HAP	HAP	HAP	No	HAP	HAP	HAP	HAP	HAP	HAP	HAP	HAP	HAP
GT-70	3,716	4,021	4,516	12,253	13.61	63.79	4.27	76.43	18.39	370.00	58.33	63.89	7.36	2.41	8.83	13.03	623.90
GT-71	3,775	5,413	6,916	16,104	18.31	83.99	5.74	100.60	24.64	485.24	77.66	85.68	9.75	3.25	11.89	17.54	823.68
GT-72	5,293	5,413	6,916	17,622.51	18.37	91.31	5.78	109.51	25.07	535.22	81.01	86.94	10.37	3.25	11.89	17.54	886.74
GT-73	3,756	5,413	6,916	16,085	18.30	83.90	5.74	100.49	24.64	484.60	77.62	85.67	9.74	3.25	11.89	17.54	822.88
GT-74	2,531	5,413	6,916	14,860	18.25	78.00	5.70	93.30	24.30	444.27	74.92	84.66	9.24	3.25	11.88	17.53	772.01
GT-75	2,531	5,413	6,916	14,860	18.25	78.00	5.70	93.30	24.30	444.27	74.92	84.66	9.24	3.25	11.88	17.53	772.01
GT-76	4,310	8,445	8,716	21,471	28.41	113.44	8.84	135.52	37.43	636.77	113.13	130.67	13.73	5.07	18.54	27.34	1,133.36
GT-77	4,310	8,445	8,716	21,471	28.41	113.44	8.84	135.52	37.43	636.77	113.13	130.67	13.73	5.07	18.54	27.34	1,133.36
GT-78	2,558	5,413	6,916	14,887	18.25	78.13	5.70	93.46	24.30	445.17	74.98	84.68	9.26	3.25	11.88	17.53	773.14
GT-79	3,431	7,861	3,275	14,566	26.22	79.48	8.06	94.36	33.32	414.33	93.37	117.15	10.58	4.72	17.24	25.42	829.89
GT-80	2,716	5,986	2,115	10,817	19.96	59.19	6.13	70.24	25.30	306.44	70.50	88.99	7.95	3.59	13.13	19.36	620.53
GT-1601	1,710	3,351	4,516	9,576	11.32	50.10	3.54	59.97	15.15	287.44	47.21	52.72	5.88	2.01	7.36	10.85	493.56
GT-1602	1,710	3,351	4,516	9,576	11.32	50.10	3.54	59.97	15.15	287.44	47.21	52.72	5.88	2.01	7.36	10.85	493.56
GT-1603	2,081	3,351	4,516	9,947	11.33	51.89	3.55	62.15	15.25	299.66	48.03	53.02	6.03	2.01	7.36	10.85	508.98
GT-1604	1,710	3,351	4,516	9,576	11.32	50.10	3.54	59.97	15.15	287.44	47.21	52.72	5.88	2.01	7.36	10.85	493.56
GT-1605	1,710	3,351	4,516	9,576	11.32	50.10	3.54	59.97	15.15	287.44	47.21	52.72	5.88	2.01	7.36	10.85	493.56
GT-1606	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GT-1607	1,715	3,351	4,516	9,582	11.32	50.13	3.54	60.00	15.15	287.63	47.22	52.72	5.88	2.01	7.36	10.85	493.80
GT-1608	1,710	3,351	4,516	9,576	11.32	50.10	3.54	59.97	15.15	287.44	47.21	52.72	5.88	2.01	7.36	10.85	493.56
GT-1609	1,710	3,351	4,516	9,576	11.32	50.10	3.54	59.97	15.15	287.44	47.21	52.72	5.88	2.01	7.36	10.85	493.56
GT-1610	3,896	8,792	4,758	17,446	29.37	94.45	9.05	112.30	37.59	501.39	106.97	131.98	12.30	5.28	19.28	28.44	976.11
GT-1611	3,241	7,248	3,246	13,735	24.19	74.74	7.44	88.79	30.81	392.04	86.76	108.28	9.88	4.35	15.89	23.44	777.83
Piping Component Fugitive New Piping[5]				636	0.03	3.06	0.02	3.73	0.18	20.93	1.40	0.52	0.26	0.00	0.00	0.00	26.40
Piping Component Fugitive Total[5]				3,227	0.13	15.55	0.10	18.93	0.90	106.21	7.10	2.66	1.31	0.00	0.01	0.02	133.99
Totals (lb)	60,115	110,079	112,964	286,386	370.57	1510.02	115.42	1804.72	489.68	8514.65	1488.91	1708.61	181.60	66.06	241.64	356.42	**15,069.98**
Totals (ton)	30.06	55.04	56.48	143.19	0.19	0.76	0.06	0.90	0.24	4.26	0.74	0.85	0.09	0.03	0.12	0.18	**7.53**

Notes:
1. Calculated per US Environmental Protection Agency, Compilation of Air Pollutant Emission Factors, Volume 1, 5th edition, AP-42, Chapter 7.1 Liquid Storage Tanks, September 1997, Hazardous Air Pollutant Speciation Methodology, Section 7.1.4.

2. See tables below for the crude oil speciation vapor weight fraction calculations using the TANKS and EPCRA Section 313 Industry Guidance.
3. Standing and landing loss HAP emissions are calculated using vapor weight fraction.
4. Withdrawal loss HAP emissions are calculated using liquid weight fraction.
5. Piping component fugitive HAP emissions are calculated using vapor weight fraction.
Note: The Source uses "GT" as an internal identifier. This correlates to "EU" in the permit.

Facility-wide HAP Emissions Summary

	Lb/yr	Ton/yr	
Total HAPS	**15,043.58**	**7.52**	**Less than major source thresholds**
Individual HAP with the Highest Emissions: n-Hexane	**8,515**	**4.26**	**Less than major source thresholds**

HAP Speciation Vapor Weight Fraction Calculations

Crude Oil

Data Source: TANKS 4.09b

	Z_{Li}	M_l		x_i	P	P_i	y_i	M_V	Z_{vi}
Chemical Component	**Liquid Weight Percent**	**Mole Weight**	**Moles**	**Liquid Mole Fraction**	**True Vapor Pressure**	**Partial Pressure**	**Vapor Mole Fraction**	**Vapor Mole Weight**	**Vapor Weight Fraction**
1,2,4-Trimethylbenzene	0.3300%	120.19	0.0000	0.0057	0.01423	0.0001	0.0000		4.15E-05
Benzene	0.6000%	78.11	0.0001	0.0159	0.90933	0.0145	0.0031		4.82E-03
Cyclohexane	0.7000%	84.16	0.0001	0.0172	0.94880	0.0163	0.0035		5.87E-03
Ethylbenzene	0.4000%	106.17	0.0000	0.0078	0.07925	0.0006	0.0001		2.80E-04
n-Hexane	0.4000%	86.17	0.0000	0.0096	1.51322	0.0145	0.0031		5.35E-03
Isooctane/2,2,4-Trimethylpentane	0.1000%	114.23	0.0000	0.0018	0.45930	0.0008	0.0002		4.06E-04
Cumene/Isopropyl benzene	0.1000%	120.20	0.0000	0.0017	0.03429	0.0001	0.0000		3.03E-05
Toluene	1.0000%	92.13	0.0001	0.0225	0.24926	0.0056	0.0012		2.20E-03
Xylenes	1.4000%	106.17	0.0001	0.0273	0.06579	0.0018	0.0004		8.14E-04
Crude Oil - Unspeciated		207.00			4.69			50.00	
Totals	0.05		0.001	0.1095		0.0543	0.01	50.00	0.02

Data Source: EPCRA Section 313 Industry Guide Petroleum Terminal and Bulk Storage Facilities Table 3-4

Chemical Component	**Liquid Weight Percent**	**Mole Weight**	**Moles** (on a 1 lb basis)	**Liquid Mole Fraction**	**True Vapor Pressure**	**Partial Pressure**	**Vapor Mole Fraction**	**Vapor Mole Weight**	**Vapor Weight Fraction**
Benzene	0.4460%	78.11	0.0001	0.0118	0.90933	0.0107	0.0023		0.0036
Biphenyl	0.0600%	154.21	0.0000	0.0008	0.00015	0.0000	0.0000		0.0000
Cyclohexane	0.7000%	84.16	0.0001	0.0172	0.94880	0.0163	0.0035		0.0059
Ethylbenzene	0.3460%	106.17	0.0000	0.0067	0.07925	0.0005	0.0001		0.0002
n-Hexane	2.4630%	86.17	0.0003	0.0592	1.51322	0.0895	0.0191		0.0329
Naphthalene	0.2190%	128.20	0.0000	0.0035	0.00166	0.0000	0.0000		0.0000
Phenol	0.3230%	94.11	0.0000	0.0071	0.00172	0.0000	0.0000		0.0000
Toluene	0.8780%	92.13	0.0001	0.0197	0.24926	0.0049	0.0010		0.0019
1,2,4-Trimethylbenzene	0.3260%	120.19	0.0000	0.0056	0.01423	0.0001	0.0000		0.0000
Xylenes	1.4200%	106.17	0.0001	0.0277	0.06579	0.0018	0.0004		0.0008
Crude Oil - Unspeciated		207.00			4.69			50.00	
Totals	0.07		0.0008	0.16		0.12	0.03		0.05

Liquid Surface Temperature for TVP Calculation

$T = T_{LA}$

Daily Liquid Surface Temperature, ^{o}R = 510.33

Daily Liquid Surface Temperature, ^{o}F = 50.73

Daily Liquid Surface Temperature, ^{o}C = 10.64

Annual average calculated from all monthly daily average liquid surface temperatures calculated for each of the tanks.

Chemical	Antoine's coefficients[1]			True Vapor Pressure at Daily Average Liquid Surface Temperature (psia)	Molecular Weight	CAS #	Notes
	A	B	C				
1,2,4-Trimethylbenzene	7.04383	1573.267	208.56	0.0142	120.19	95636	
Benzene	6.905	1211.033	220.79	0.9093	78.11	71432	
Cumene/Isopropylbenzene	6.93666	1460.793	207.78	0.0343	120.20	98828	
Cyclohexane	6.841	1201.530	222.65	0.9488	84.16	110827	
Ethyl alcohol	8.321	1718.210	237.52	0.4828	46.07	64175	
Ethylbenzene	6.975	1424.255	213.21	0.0793	106.17	100414	
Naphthalene	7.3729	1968.360	222.61	0.0017	128.20	91203	
n-Hexane	6.876	1171.170	224.41	1.5132	86.17	110543	
Toluene	6.954	1344.800	219.48	0.2493	92.13	108883	
Xylenes	7.009	1462.266	215.11	0.0658	106.17	1330207	Equal to m-Xylene
Biphenyl	7.2454	1998.72	202.74	0.0001	154.211	92524	
Phenol	7.1345	1516.07	174.57	0.0017	94.1128	108952	
Isooctane/2,2,4-Trimethylpentane	6.8118	1257.840	220.74	0.4593	114.23	540841	
Crude Oil - Unspeciated				4.6876	207		AP-42 Table 7.1-2 and Figure 7.1-16

Notes:

1) Source of data: Yaws and Yang (Yaws, C. L. and Yang, H. C., "To estimate vapor pressure easily" *Hydrocarbon Processing*, October, 1989, page 65.)

	Description, Units of Measure	Formula/ Constant Value	Equation Number[1]
Z_{Li}	Liquid weight fraction of component, lb/lb	Input Value	
M_i	Molecular weight of component, lb/lb-mole	Input Value	
	Moles	Moles = $Z_{li\ Normalized}$/ M_i	
x_i	Liquid mole fraction of component, lb-mole/lb-mole	x_i = Moles$_i$/ Summation Moles	10
P	True vapor pressure of pure component at daily average liquid	Input Value	
P_i	Partial pressure of component, psia	$P_i = P * x_i$	11
P_{VA}	temperature, psia	P_{VA} = Summation P_i	12
y_i	Vapor mole fraction of component, lb-mole/lb-mole	$y_i = P_i / P_{VA}$	13
M_V	Vapor molecular weight, lb/lb-mole	M_V = Summation ($M_i * y_i$)	9
Z_i	Vapor weight fraction of component, lb/lb	$Z_i = y_i * M_i / M_V$	14
L_i	Annual Emission Rate of component, lb/yr	$L_i = Z_i * L_T$	15

Notes:

1). Calculated per API Manual of Petroleum Measurement Standards Chapter 19.4 - Recommended Practice for Speciation of Evaporative Losses, Second Edition, September 2005.

Enbridge Energy - Hartsdale/Griffith Terminal
Griffith, IN and Schererville, IN
Table 2-8: Storage Tank GHG Emissions

Tank Number	Product	PTE Throughput (bbl/yr)	PTE Throughput (MMbbl/yr)	CH_4 Emissions[(1)] (metric tons)	CH_4 Emissions (tons)	CO_2e[(2)] (ton)
GT-70	Crude Oil	13,411,888.35	13.41	1.34	1.48	31.05
GT-71	Crude Oil	24,253,164.77	24.25	2.43	2.67	56.14
GT-72	Crude Oil	24,253,164.77	24.25	2.43	2.67	56.14
GT-73	Crude Oil	24,253,164.77	24.25	2.43	2.67	56.14
GT-74	Crude Oil	24,253,164.77	24.25	2.43	2.67	56.14
GT-75	Crude Oil	24,253,164.77	24.25	2.43	2.67	56.14
GT-76	Crude Oil	44,147,465.82	44.15	4.41	4.87	102.19
GT-77	Crude Oil	44,147,465.82	44.15	4.41	4.87	102.19
GT-78	Crude Oil	24,253,164.77	24.25	2.43	2.67	56.14
GT-79	Crude Oil	43,831,057.02	43.83	4.38	4.83	101.46
GT-80	Crude Oil	26,823,776.70	26.82	2.68	2.96	62.09
GT-1601	Crude Oil	11,176,573.63	11.18	1.12	1.23	25.87
GT-1602	Crude Oil	11,176,573.63	11.18	1.12	1.23	25.87
GT-1603	Crude Oil	11,176,573.63	11.18	1.12	1.23	25.87
GT-1604	Crude Oil	11,176,573.63	11.18	1.12	1.23	25.87
GT-1605	Crude Oil	11,176,573.63	11.18	1.12	1.23	25.87
GT-1606	DEMOLISHED					
GT-1607	Crude Oil	11,176,573.63	11.18	1.12	1.23	25.87
GT-1608	Crude Oil	11,176,573.63	11.18	1.12	1.23	25.87
GT-1609	Crude Oil	11,176,573.63	11.18	1.12	1.23	25.87
GT-1610	Crude Oil	59,091,103.59	59.09	5.91	6.51	136.79
GT-1611	Crude Oil	40,235,665.05	40.24	4.02	4.44	93.14
				Total GHG Emissions:	**55.85**	**1,172.75**

Notes:
1. Methane emission calculation and emission factor obtained from 40 CFR 98 Subpart Y, equation Y-22 for crude oil storage tanks.
2. Global Warming Potential (CO_2e) factor obtained from 40 CFR 98 Subpart A Table A-1.
Note: The Source uses "GT" as an internal identifier. This correlates to "EU" in the permit.

Enbridge Energy - Hartsdale/Griffith Terminal
Griffith, IN and Scherville, IN
Table 2-9: Existing Diesel Engine Emissions

Engine horsepower[1]:	266
Fuel consumption[1], gal/hr	12.8
Fuel consumption, lb/hr	90.88
Diesel fuel heat content[2], Btu/lb:	19,300
Density[3], lb/gal:	7.10
Fuel Consumption Rate, mmBtu/hr	1.75
Hours of operation[8]:	500

Pollutant Category	Pollutant	Emission Factor (grams/hP-hour)[4]	Emission Factor (lb/mmBtu)[5]	Emission Factor (lb/hr)	Emissions (ton/year)[6]
Criteria Pollutants	NOx	3.69	4.41	2.16	0.5410
	SO_2	0.17	0.29	0.10	0.0249
	CO	2.00	0.95	1.17	0.2932
	VOC	0.35	0.35	0.21	0.0513
	PM	0.07	0.31	0.04	0.0103
	PM10	0.07	0.31	0.04	0.0103
	PM2.5	0.07	0.31	0.04	0.0103
	PM Condensible	0.07	0.31	0.04	0.0103
	CO_2	--	160.93	282.27	70.5672
	CH_4	--	0.0066	0.0116	0.0029
	N_2O	--	0.00132	0.00232	0.0006
	Total CO_2e	--	--	--	70.5706
HAPS	Benzene	--	9.33E-04	1.64E-03	0.000409
	Toluene	--	4.09E-04	7.17E-04	0.000179
	Xylenes	--	2.85E-04	5.00E-04	0.000125
	Propylene	--	2.58E-03	4.53E-03	0.001131
	1,3 Butadiene	--	3.91E-05	6.86E-05	0.000017
	Formaldehyde	--	1.18E-03	2.07E-03	0.000517
	Acetaldehyde	--	7.67E-04	1.35E-03	0.000336
	Acrolein	--	9.25E-05	1.62E-04	0.000041
	Naphthalene	--	8.48E-05	1.49E-04	0.000037
	Acenapthylene	--	5.06E-06	8.88E-06	0.000002
	Acenapthene	--	1.42E-06	2.49E-06	0.000001
	Fluorene	--	2.92E-05	5.12E-05	0.000013
	Phenanthrene	--	2.94E-05	5.16E-05	0.000013
	Anthracene	--	1.87E-06	3.28E-06	0.000001
	Fluoranthene	--	7.61E-06	1.33E-05	0.000003
	Pyrene	--	4.78E-06	8.38E-06	0.000002
	Benzo(a)anthracene	--	1.68E-06	2.95E-06	0.000001
	Chrysene	--	3.53E-07	6.19E-07	0.000000
	Benzo(b)fluoranthene	--	9.91E-08	1.74E-07	0.000000
	Benzo(k)fluoranthene	--	1.55E-07	2.72E-07	0.000000
	Benzo(a)pyrene	--	1.88E-07	3.30E-07	0.000000
	Inden(1,2,3-cd)pyrene	--	3.75E-07	6.58E-07	0.000000
	Dibenz(a,h)anthracene	--	5.83E-07	1.02E-06	0.000000
	Benzo(g,h,l)perylene	--	4.89E-07	8.58E-07	0.000000
	Total HAPS	--	--	--	0.002830

Notes:
(1) Information from Exhaust Emissions Data Sheet, Cummins Model QSB7-G5 NR3, 60 Hz.
(2) HHV of fuel and lb/mmBtu emission factors from AP-42 fifth edition Chapter 3: Stationary Internal Combustion Sources Section 3.3.

(3) Density of fuel is from AP -42 Table 7.1-2. Properties Of Selected Petroleum Liquids.

(4) Gram/hP-hour emission factors obtained from Exhaust Emission Data Sheet for engine model QSB7-G3 NR3. VOC emission factor is based on emission factor for "total unburned hydrocarbons". PM10, PM2.5, and condensable PM is assumed to be equal to total PM.
(5) Emission factors for GHGs are from The Climate Registry General Reporting Protocol Version 1.1 (2008), Tables 12.1 & 12.9.
Emission factors for HAPS from AP-42 fifth edition Chapter 3: Stationary Internal Combustion Sources Section 3.3 Table 3.3-2.
(6) $CO_2e = CO_2 + 21 \times CH_4 + 310 \times N_2O$

Enbridge Energy - Hartsdale/Griffith Terminal
Griffith, IN and Schererville, IN
Table 2-10: Existing Griffith Emergency Generator

			Engine horsepower[1]:	207
			Hours of operation:	500
Pollutant Category	**Pollutant**	**Emission Factor (lb/mmBtu)[2,3]**	**Emission Factor (lb/hp-hr)[2]**	**Emissions (ton/year)[4]**
Criteria Pollutants	NOx	--	0.03100	1.6043
	SO_2	--	0.00205	0.1061
	CO	--	0.00668	0.3457
	VOC	--	0.00247	0.1278
	PM	--	0.00220	0.1139
	PM10	--	0.00220	0.1139
	PM2.5	--	0.00220	0.1139
	PM Condensible	--	0.00220	0.1139
	CO_2	160.93	1.126510	58.2969
	CH_4	0.0066	0.000046	0.0024
	N_2O	0.00132	0.000009	0.0005
	Total CO_2e	--	--	58.2998
HAPS	Benzene	9.33E-04	6.53E-06	0.000338
	Toluene	4.09E-04	2.86E-06	0.000148
	Xylenes	2.85E-04	2.00E-06	0.000103
	Propylene	2.58E-03	1.81E-05	0.000935
	1,3 Butadiene	3.91E-05	2.74E-07	0.000014
	Formaldehyde	1.18E-03	8.26E-06	0.000427
	Acetaldehyde	7.67E-04	5.37E-06	0.000278
	Acrolein	9.25E-05	6.48E-07	0.000034
	Naphthalene	8.48E-05	5.94E-07	0.000031
	Acenapthylene	5.06E-06	3.54E-08	0.000002
	Acenapthene	1.42E-06	9.94E-09	0.000001
	Fluorene	2.92E-05	2.04E-07	0.000011
	Phenanthrene	2.94E-05	2.06E-07	0.000011
	Anthracene	1.87E-06	1.31E-08	0.000001
	Fluoranthene	7.61E-06	5.33E-08	0.000003
	Pyrene	4.78E-06	3.35E-08	0.000002
	Benzo(a)anthracene	1.68E-06	1.18E-08	0.000001
	Chrysene	3.53E-07	2.47E-09	0.000000
	Benzo(b)fluoranthene	9.91E-08	6.94E-10	0.000000
	Benzo(k)fluoranthene	1.55E-07	1.09E-09	0.000000
	Benzo(a)pyrene	1.88E-07	1.32E-09	0.000000
	Inden(1,2,3-cd)pyrene	3.75E-07	2.63E-09	0.000000
	Dibenz(a,h)anthracene	5.83E-07	4.08E-09	0.000000
	Benzo(g,h,I)perylene	4.89E-07	3.42E-09	0.000000
	Total HAPS	--	--	0.002338

Notes:
(1) Information from engine nameplate.
(2) Emission factors and conversion factor from lb/mmbtu to lb/hp-hr (7000 btu/hp-hr) from AP-42 fifth edition Chapter 3: Stationary Internal Combustion Sources Section 3.3, Table 3.3-1.
(3) Emission factors for GHGs are from The Climate Registry General Reporting Protocol Version 1.1 (2008), Tables 12.1 & 12.9.
Emission factors for HAPS from AP-42 fifth edition Chapter 3: Stationary Internal Combustion Sources Section 3.3 Table 3.3-2.
(4) $CO_2e = CO_2 + 21 \times CH_4 + 310 \times N_2O$

Enbridge Energy - Hartsdale/Griffith Terminal
Griffith, IN and Schererville, IN
Table 2-11: Existing Griffith Fire Pump

			Engine horsepower[1]:	175
			Hours of operation:	500
Pollutant Category	**Pollutant**	**Emission Factor (lb/mmBtu)[2,3]**	**Emission Factor (lb/hp-hr)[2]**	**Emissions (ton/year)[4]**
Criteria Pollutants	NOx		0.031000	1.3563
	SO_2		0.002050	0.0897
	CO		0.006680	0.2923
	VOC		0.002470	0.1081
	PM		0.002200	0.0963
	PM10		0.002200	0.0963
	PM2.5		0.002200	0.0963
	PM Condensible		0.002200	0.0963
	CO_2	160.93	1.126510	49.2848
	CH_4	0.0066	0.000046	0.0020
	N_2O	0.00132	0.000009	0.0004
	Total CO_2e	--	--	49.2872
HAPS	Benzene	9.33E-04	6.53E-06	0.000286
	Toluene	4.09E-04	2.86E-06	0.000125
	Xylenes	2.85E-04	2.00E-06	0.000087
	Propylene	2.58E-03	1.81E-05	0.000790
	1,3 Butadiene	3.91E-05	2.74E-07	0.000012
	Formaldehyde	1.18E-03	8.26E-06	0.000361
	Acetaldehyde	7.67E-04	5.37E-06	0.000235
	Acrolein	9.25E-05	6.48E-07	0.000028
	Naphthalene	8.48E-05	5.94E-07	0.000026
	Acenapthylene	5.06E-06	3.54E-08	0.000002
	Acenapthene	1.42E-06	9.94E-09	0.000000
	Fluorene	2.92E-05	2.04E-07	0.000009
	Phenanthrene	2.94E-05	2.06E-07	0.000009
	Anthracene	1.87E-06	1.31E-08	0.000001
	Fluoranthene	7.61E-06	5.33E-08	0.000002
	Pyrene	4.78E-06	3.35E-08	0.000001
	Benzo(a)anthracene	1.68E-06	1.18E-08	0.000001
	Chrysene	3.53E-07	2.47E-09	0.000000
	Benzo(b)fluoranthene	9.91E-08	6.94E-10	0.000000
	Benzo(k)fluoranthene	1.55E-07	1.09E-09	0.000000
	Benzo(a)pyrene	1.88E-07	1.32E-09	0.000000
	Inden(1,2,3-cd)pyrene	3.75E-07	2.63E-09	0.000000
	Dibenz(a,h)anthracene	5.83E-07	4.08E-09	0.000000
	Benzo(g,h,I)perylene	4.89E-07	3.42E-09	0.000000
	Total HAPS	--	--	0.001976

Notes:
(1) Information from Enbrigde US RICE inventory.
(2) Emission factors and conversion factor from lb/mmbtu to lb/hp-hr (7000 btu/hp-hr) from AP-42 fifth edition Chapter 3: Stationary Internal Combustion Sources Section 3.3, Table 3.3-1.
(3) Emission factors for GHGs are from The Climate Registry General Reporting Protocol Version 1.1 (2008), Tables 12.1 & 12.9.
Emission factors for HAPS from AP-42 fifth edition Chapter 3: Stationary Internal Combustion Sources Section 3.3 Table 3.3-2.
(4) $CO_2e = CO_2 + 21 \times CH_4 + 310 \times N_2O$

Enbridge Energy - Hartsdale/Griffith Terminal
Griffith, IN and Schererville, IN
Table 2-12: Existing Hartsdale Emergency Generator

			Engine horsepower[1]:	207
			Hours of operation:	500
Pollutant Category	**Pollutant**	**Emission Factor (lb/mmBtu)[2,3]**	**Emission Factor (lb/hp-hr)[2]**	**Emissions (ton/year)[4]**
Criteria Pollutants	NOx	--	0.031000	1.6043
	SO_2	--	0.002050	0.1061
	CO	--	0.006680	0.3457
	VOC	--	0.002470	0.1278
	PM	--	0.002200	0.1139
	PM10	--	0.002200	0.1139
	PM2.5	--	0.002200	0.1139
	PM Condensible	--	0.002200	0.1139
	CO_2	160.93	1.126510	58.2969
	CH_4	0.0066	0.000046	0.0024
	N_2O	0.00132	0.000009	0.0005
	Total CO_2e	--	--	58.2998
HAPS	Benzene	9.33E-04	6.53E-06	0.000338
	Toluene	4.09E-04	2.86E-06	0.000148
	Xylenes	2.85E-04	2.00E-06	0.000103
	Propylene	2.58E-03	1.81E-05	0.000935
	1,3 Butadiene	3.91E-05	2.74E-07	0.000014
	Formaldehyde	1.18E-03	8.26E-06	0.000427
	Acetaldehyde	7.67E-04	5.37E-06	0.000278
	Acrolein	9.25E-05	6.48E-07	0.000034
	Naphthalene	8.48E-05	5.94E-07	0.000031
	Acenapthylene	5.06E-06	3.54E-08	0.000002
	Acenapthene	1.42E-06	9.94E-09	0.000001
	Fluorene	2.92E-05	2.04E-07	0.000011
	Phenanthrene	2.94E-05	2.06E-07	0.000011
	Anthracene	1.87E-06	1.31E-08	0.000001
	Fluoranthene	7.61E-06	5.33E-08	0.000003
	Pyrene	4.78E-06	3.35E-08	0.000002
	Benzo(a)anthracene	1.68E-06	1.18E-08	0.000001
	Chrysene	3.53E-07	2.47E-09	0.000000
	Benzo(b)fluoranthene	9.91E-08	6.94E-10	0.000000
	Benzo(k)fluoranthene	1.55E-07	1.09E-09	0.000000
	Benzo(a)pyrene	1.88E-07	1.32E-09	0.000000
	Inden(1,2,3-cd)pyrene	3.75E-07	2.63E-09	0.000000
	Dibenz(a,h)anthracene	5.83E-07	4.08E-09	0.000000
	Benzo(g,h,I)perylene	4.89E-07	3.42E-09	0.000000
	Total HAPS	--	--	0.002338

Notes:

(1) Information from engine nameplate.

(2) Emission factors and conversion factor from lb/mmbtu to lb/hp-hr (7000 btu/hp-hr) from AP-42 fifth edition Chapter 3: Stationary Internal Combustion Sources Section 3.3, Table 3.3-1.

(3) Emission factors for GHGs are from The Climate Registry General Reporting Protocol Version 1.1 (2008), Tables 12.1 & 12.9.
Emission factors for HAPS from AP-42 fifth edition Chapter 3: Stationary Internal Combustion Sources Section 3.3 Table 3.3-2.

(4) $CO_2e = CO_2 + 21 \times CH_4 + 310 \times N_2O$

Enbridge Energy - Hartsdale/Griffith Terminal
Griffith, IN and Schererville, IN
Table 2-13: Existing Hartsdale Fire Pump

Engine horsepower[1]:	300
Fuel consumption[1], gal/hr	17.1
Fuel consumption, lb/hr	121.2
Diesel fuel heat content[2], Btu/lb:	19,300
Density[3], lb/gal:	7.10
Fuel Consumption Rate, mmBtu/hr	2.34
Hours of operation:	500

Pollutant Category	Pollutant	Emission Factor (lb/mmBtu)[2,4]	Emission Factor (lb/hr)	Emissions (ton/year)[5]
Criteria Pollutants	NOx	4.41	10.32	2.5789
	SO_2	0.29	0.68	0.1696
	CO	0.95	2.22	0.5556
	VOC	0.35	0.82	0.2047
	PM	0.31	0.73	0.1813
	PM10	0.31	0.73	0.1813
	PM2.5	0.31	0.73	0.1813
	PM Condensible	0.31	0.73	0.1813
	CO_2	160.93	376.44	94.1103
	CH_4	0.0066	0.0154	0.0039
	N_2O	0.00132	0.00309	0.0008
	Total CO_2e	--	--	94.1149
HAPS	Benzene	9.33E-04	2.18E-03	0.000546
	Toluene	4.09E-04	9.57E-04	0.000239
	Xylenes	2.85E-04	6.67E-04	0.000167
	Propylene	2.58E-03	6.04E-03	0.001509
	1,3 Butadiene	3.91E-05	9.15E-05	0.000023
	Formaldehyde	1.18E-03	2.76E-03	0.000690
	Acetaldehyde	7.67E-04	1.79E-03	0.000449
	Acrolein	9.25E-05	2.16E-04	0.000054
	Naphthalene	8.48E-05	1.98E-04	0.000050
	Acenapthylene	5.06E-06	1.18E-05	0.000003
	Acenapthene	1.42E-06	3.32E-06	0.000001
	Fluorene	2.92E-05	6.83E-05	0.000017
	Phenanthrene	2.94E-05	6.88E-05	0.000017
	Anthracene	1.87E-06	4.37E-06	0.000001
	Fluoranthene	7.61E-06	1.78E-05	0.000004
	Pyrene	4.78E-06	1.12E-05	0.000003
	Benzo(a)anthracene	1.68E-06	3.93E-06	0.000001
	Chrysene	3.53E-07	8.26E-07	0.000000
	Benzo(b)fluoranthene	9.91E-08	2.32E-07	0.000000
	Benzo(k)fluoranthene	1.55E-07	3.63E-07	0.000000
	Benzo(a)pyrene	1.88E-07	4.40E-07	0.000000
	Inden(1,2,3-cd)pyrene	3.75E-07	8.77E-07	0.000000
	Dibenz(a,h)anthracene	5.83E-07	1.36E-06	0.000000
	Benzo(g,h,I)perylene	4.89E-07	1.14E-06	0.000000
	Total HAPS	--	--	0.003774

Notes:
(1) Information from Engine Specification Data sheet for John Deere model 6081HF001, 50 Hz.
(2) HHV of fuel and lb/mmbtu emission factors from AP-42 fifth edition Chapter 3: Stationary Internal Combustion Sources Section 3.3.
(3) Density of fuel is from AP -42 Table 7.1-2. Properties Of Selected Petroleum Liquids.
(4) Emission factors for GHGs are from The Climate Registry General Reporting Protocol Version 1.1 (2008), Tables 12.1 & 12.9.
Emission factors for HAPS from AP-42 fifth edition Chapter 3: Stationary Internal Combustion Sources Section 3.3 Table 3.3-2.
(5) $CO_2e = CO_2 + 21 \times CH_4 + 310 \times N_2O$

Enbridge Energy - Hartsdale/Griffith Terminal
Griffith, IN and Schererville, IN
Table 2-14: New Hartsdale Generators

Appendix A: Emission Calculations
Reciprocating Internal Combustion Engines - Natural Gas
4-Stroke Rich-Burn (4SRB) Engines

Permit Number: 089-34494-00497
Reviewer: Celeste Wanner

Engine Power (kW)	14	x 2 units
Engine Power (MMBtu/hr)	0.28	x 2 units
Maximum Heat Input Capacity (MMBtu/hr)	0.56	
Maximum Hours Operated per Year (hr/yr)	500	
Potential Fuel Usage (MMBtu/yr)	280	
High Heat Value (MMBtu/MMscf)	1020	
Potential Fuel Usage (MMcf/yr)	0.27	

	Pollutant						
Criteria Pollutants	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor (g/kWh)					8	8	610
Emission Factor (lb/MMBtu)	9.50E-03	1.94E-02	1.94E-02	5.88E-04	2.21E+00	2.96E-02	3.72E+00
Potential Emissions (tons/yr)	1.33E-03	2.72E-03	2.72E-03	8.23E-05	0.12	0.12	9.41

*PM emission factor is for filterable PM-10. PM10 emission factor is filterable PM10 + condensable PM.
PM2.5 emission factor is filterable PM2.5 + condensable PM.
Note: Engine Power in both kW/hr and Mmbtu/hr from engine data sheet
Note: NOx, CO, and VOC emission factors from Table 1 to 40 CFR 1054.105—Phase 3 Emission Standards for Nonhandheld Engines (g/kW-hr). The 8 g/kW-hr is for NOx + VOC; however, for this calculation it was assumed that both are emitted at 8 g/kW-hr as a worse-case estimate.
Note: Table and emission factors are for natural gas because none are currently available for liquid propane

Hazardous Air Pollutants (HAPs)

Pollutant	Emission Factor (lb/MMBtu)	Potential Emissions (tons/yr)
Acetaldehyde	2.79E-03	3.91E-04
Acrolein	2.63E-03	3.68E-04
Benzene	1.58E-03	2.21E-04
1,3-Butadiene	6.63E-04	9.28E-05
Formaldehyde	2.05E-02	2.87E-03
Methanol	3.06E-03	4.28E-04
Total PAH**	1.41E-04	1.97E-05
Toluene	5.58E-04	7.81E-05
Xylene	1.95E-04	2.73E-05
	Total	**4.50E-03**

HAP pollutants consist of the nine highest HAPs included in AP-42 Table 3.2-3.
**PAH = Polyaromatic Hydrocarbon (PAHs are considered HAPs, since they are considered Polycyclic Organic Matter)

Methodology
Emission Factors are from AP-42 (Supplement F, July 2000), Table 3.2-3
Potential Fuel Usage (MMBtu/yr) = [Maximum Heat Input Capacity (MMBtu/hr)] * [Maximum Hours Operated per Year (hr/yr)]
Potential Emissions PM/PM10/PM2.5/SO2 (tons/yr) = [Potential Fuel Usage (MMBtu/yr)] * [Emission Factor (lb/MMBtu)] / [2000 lb/ton]
Potential Emissions NOx/VOC/CO (tons/yr) = [Engine Power (kW)] * [2 (engines)] * [Maximum Hours Operated per Year (hr/yr)] * [Emission Factor (g/kWh)]/[453.6 g/lb]/[2000 lb/ton]

	Greenhouse Gas (GHG)		
Greenhouse Gases (GHGs)	CO2	CH4	N2O
Emission Factor in lb/MMBtu*	110	1.25	
Emission Factor in lb/MMcf**			2.2
Potential Emission in tons/yr	15.40	0.18	0.00
Summed Potential Emissions in tons/yr	15.58		
CO2e Total in tons/yr	19.86		

Methodology
*The CO2 and CH4 emission factors are from Emission Factors are from AP-42 (Supplement F, July 2000), Table 3.2-2
**The N2O emission factor is from AP 42, Table 1.4-2. The N2O Emission Factor for uncontrolled is 2.2. The N2O Emission Factor for low Nox burner is 0.64.
Global Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.
For CO2 and CH4: Emission (tons/yr) = [Potential Fuel Usage (MMBtu/yr)] * [Emission Factor (lb/MMBtu)] / [2,000 lb/ton]
For N2O: Emission (tons/yr) = [Potential Fuel Usage (MMCF/yr)] * [Emission Factor (lb/MMCF)] / [2,000 lb/ton]
CO2e (tons/yr) = CO2 Potential Emission ton/yr x CO2 GWP (1) + CH4 Potential Emission ton/yr x CH4 GWP (25) + N2O Potential Emission ton/yr x N2O GWP (298).

Abbreviations
PM = Particulate Matter
PM10 = Particulate Matter (<10 um)
SO2 = Sulfur Dioxide
NOx = Nitrous Oxides
VOC - Volatile Organic Compounds
CO = Carbon Monoxide
CO2 = Cabon Dioxide
CH4 = Methane
N2O = Nitrous Oxide
CO2e = CO2 equivalent emissions

Enbridge Energy - Hartsdale/Griffith Terminal
Griffith, IN and Schererville, IN
Unpaved Road Emissions

1. Emission Factors: AP-42

According to AP-42, Chapter 13.2.2 - Unpaved Roads (11/06), the PM/PM10 emission factors for unpaved roads can be estimated from the following equation:

$$E = k \times (s/12)^a \times (w/3)^b \times ((365 - p)/365)$$

where:

E =	emission factor (lb/vehicle mile traveled)		
s =	surface material silt content (%) =	6.4	% (AP-42, Table 13.2.2-1)
w =	mean vehicle weight (tons) =	4.9	tons
k =	empirical constant =	4.9 for PM and 1.5 for PM10 and 0.15 for PM2.5	
a =	empirical constant =	0.7 for PM and 0.9 for PM10 and 0.9 for PM2.5	
b =	empirical constant =	0.45 for PM and PM10 and PM2.5	
p =	number of days per year with 0.01 inches precipitation	120	

PM Emission Factor =	**2.64**	lbs/mile
PM10 Emission Factor =	**0.71**	lbs/mile
PM2.5 Emission Factor=	**0.07**	lbs/mile

Length of Unpaved Roads in One Direction[(2)] = **0.5** miles

2. Potential to Emit (PTE) of PM/PM10 Before Control from Unpaved Roads:

Vehicle Type	Trucks per day[(1)]	Average Vehicle Weight[(3)]	Total Trip Number[(1)]	Traffic Component	Vehicle Mile Traveled (VMT)	PTE of PM	PTE of PM10	PTE of PM2.5	Contribution to Mean Vehicle Weight	
		(tons)	(trips/yr)	(%)	(miles/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons)	
Private vehicle	30	4	10,950	97.1%	10,950	14.44	3.90	0.39	3.88	
Roll-Off Container	ee column	16	33	0.3%	33	0.04	0.01	0.00	0.05	
Quad Dump Truck	ee column	36.5	100	0.9%	100	0.13	0.04	0.00	0.32	
Lead Dump Truck	ee column	36.5	20	0.2%	20	0.03	0.01	0.00	0.06	
Front End Loader	ee column	36.5	8	0.1%	8	0.01	0.00	0.00	0.03	
Transfer Trailer	see column	36.5	167	1.5%	167	0.22	0.06	0.01	0.54	
Total	**30**		**11,278**	**100%**	**11,278**	**14.9**	**4.0**	**0.40**	**4.89**	<= mean vehicle weight (tons)

Methodology

Average Vehicle Weight (ton) = (Weight of Unloaded Vehicles + Weight of Loaded Vehicles) / 2
Total Trip Number (trips/yr) = Trucks per day x 365 (days/yr)
VMT(miles/yr) = Length of Unpaved Roads in One Direction (miles) x 2 x Total Trip Numbers (trips/yr)
PTE (tons/yr) = VMT (miles/yr) x Emission Factors (lbs/mile) x 1 tons/ 2000 lbs

Notes:

(1) Number of vehicles per day/year per Marc Curry, Terminal Supervisor on June 28, 2012.
(2) Conservative assumption of round-trip distance on unpaved roads.
(3) Conservative assumption of vehicle weights. For private vehicles, assumes typical weight of a heavy duty truck plus 25% to account for hauled equipment, material, etc.

Enbridge Energy - Hartsdale/Griffith Terminal
Griffith, IN and Schererville, IN
Paved Road Emissions

1. Emission Factors: AP-42

AP-42, Chapter 13.2.1 - Paved Roads (1/11), the PM/PM10 emission factors for paved roads can be estimated from the following equation:

$$E = (k \times (sL)^{0.91} \times (w)^{1.02}) \times (1 - p/(4 \times 365))$$

where:

E =	emission factor (lb/vehicle mile traveled)		
sL =	road surface silt loading (g/m^2) =	7.4	(g/m^2)
w =	mean vehicle weight (tons) =	3.4	tons
k =	empirical constant =	0.011 for PM; 0.0022 for PM10; 0.00054 for PM2.5	
p =	number of days per year with 0.01 inches precipitation	120	

PM Emission Factor =	**0.22**	lbs/mile
PM10 Emission Factor =	**0.04**	lbs/mile
PM2.5 Emission Factor=	**0.01**	lbs/mile
Length of Unpaved Roads in One Direction(2) =	**0.6**	miles

2. Potential to Emit (PTE) of PM/PM10 Before Control from Paved Roads:

Vehicle Type	Trucks per day(1)	Average Vehicle Weight(3)	Total Trip Number(1)	Traffic Component	Vehicle Mile Traveled (VMT)	PTE of PM	PTE of PM10	PTE of PM2.5	Contribution to Mean Vehicle Weight	
		(tons)	(trips/yr)	(%)	(miles/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons)	
Private vehicle	200	3.2	73,000	99.2%	87,600	9.66	1.93	0.474	3.17	
Roll-Off Container	see column E	16	67	0.1%	80	0.01	0.00	0.000	0.01	
Quad Dump Truck	see column E	36.5	100	0.1%	120	0.01	0.00	0.001	0.05	
Lead Dump Truck	see column E	36.5	20	0.0%	24	0.00	0.00	0.000	0.01	
Front End Loader	see column E	36.5	17	0.0%	20	0.00	0.00	0.000	0.01	
Garbage Truck	see column E	36.5	50	0.1%	60	0.01	0.00	0.000	0.02	
Transfer Trailer	see column E	36.5	333	0.5%	400	0.04	0.01	0.002	0.17	
Total	**200**		**73587**	**100%**	**88304**	**9.7**	**1.9**	**0.5**	**3.45**	<= mean vehicle weight (tons)

Methodology

Average Vehicle Weight (ton) = (Weight of Unloaded Vehicles + Weight of Loaded Vehicles) / 2
Total Trip Number (trips/yr) = Trucks per day x 365 (days/yr)
VMT(miles/yr) = Length of Paved Roads in One Direction (miles) x 2 x Total Trip Numbers (trips/yr)
PTE of PM/PM10 (tons/yr) = VMT (miles/yr) x Emission Factors (lbs/mile) x 1 tons/ 2000 lbs

Notes:

(1) Number of vehicles per day/year per Marc Curry, Terminal Supervisor on June 28, 2012.
(2) Approximate distance from West Main Street to Terminal Operations building.
(3) Conservative assumption of vehicle weights. For private vehicles, assumes typical weight of a heavy duty truck.

a. Roll Off Containers: 100, 1/3 unpaved
b. Quad Dump Trucks: 100 paved, 100 unpaved
c. Lead Dump Trucks: 20 paved, 200 un
d. Front End Loaders: 25, 1/3 un
e. Garbage Trucks: 50
f. Tractor Truck and Trailer: 500, 1/3 unpaved

Enbridge Energy - Hartsdale/Griffith Terminal
Griffith, IN and Schererville, IN
Storage Tank Properties

This Table is an Output Data Table used by the Source to calcualte tank emissions. They have submitted TANKS 4.09 data to confirm the results of this input.

1	2	3	4	5	6	7	8	9	10
NSPS	**Tank Number**	**Tank Type**	**Tank Type**	**Working Volume (bbl)**	**Tank Diameter (ft)**	**Working Volume (gal)**	**Shell Color/Shade**	**Shell Condition**	**Internal Shell Condition**	**Shell Color/Shade + Internal Shell Condition Lookup**
Grandfathered	GT-70	External Floating Roof Tank	EFRT	120,000	134	5,040,000	White/White	Light Rust	Good	White/White, Good
Grandfathered	GT-71	External Floating Roof Tank	EFRT	217,000	180	9,114,000	White/White	Light Rust	Good	White/White, Good
Grandfathered	GT-72	External Floating Roof Tank	EFRT	217,000	180	9,114,000	White/White	Light Rust	Good	White/White, Good
Grandfathered	GT-73	External Floating Roof Tank	EFRT	217,000	180	9,114,000	White/White	Light Rust	Good	White/White, Good
Grandfathered	GT-74	External Floating Roof Tank	EFRT	217,000	180	9,114,000	White/White	Light Rust	Good	White/White, Good
Grandfathered	GT-75	External Floating Roof Tank	EFRT	217,000	180	9,114,000	White/White	Light Rust	Good	White/White, Good
Grandfathered	GT-76	External Floating Roof Tank	EFRT	395,000	210	16,590,000	White/White	Light Rust	Good	White/White, Good
Grandfathered	GT-77	External Floating Roof Tank	EFRT	395,000	210	16,590,000	White/White	Light Rust	Good	White/White, Good
Ka	GT-78	External Floating Roof Tank	EFRT	217,000	180	9,114,000	White/White	Light Rust	Good	White/White, Good
Kb	GT-79	External Floating Roof Tank	EFRT	392,169	224	16,471,098	White/White	Light Rust	Good	White/White, Good
Kb	GT-80	External Floating Roof Tank	EFRT	240,000	180	10,080,000	White/White	Light Rust	Good	White/White, Good
Grandfathered	GT-1601	External Floating Roof Tank	EFRT	100,000	134	4,200,000	White/White	Light Rust	Good	White/White, Good
Grandfathered	GT-1602	External Floating Roof Tank	EFRT	100,000	134	4,200,000	White/White	Light Rust	Good	White/White, Good
Grandfathered	GT-1603	External Floating Roof Tank	EFRT	100,000	134	4,200,000	White/White	Light Rust	Good	White/White, Good
Grandfathered	GT-1604	External Floating Roof Tank	EFRT	100,000	134	4,200,000	White/White	Light Rust	Good	White/White, Good
Grandfathered	GT-1605	External Floating Roof Tank	EFRT	100,000	134	4,200,000	White/White	Light Rust	Good	White/White, Good
Grandfathered	GT-1606	External Floating Roof Tank	EFRT	100,000	134	4,200,000	White/White	Light Rust	Good	White/White, Good
Grandfathered	GT-1607	External Floating Roof Tank	EFRT	100,000	134	4,200,000	White/White	Light Rust	Good	White/White, Good
Grandfathered	GT-1608	External Floating Roof Tank	EFRT	100,000	134	4,200,000	White/White	Light Rust	Good	White/White, Good
Grandfathered	GT-1609	External Floating Roof Tank	EFRT	100,000	134	4,200,000	White/White	Light Rust	Good	White/White, Good
Kb	GT-1610	External Floating Roof Tank	EFRT	528,705	270	22,205,610	White/White	Light Rust	Good	White/White, Good
Kb	GT-1611	External Floating Roof Tank	EFRT	360,000	223	15,120,000	White/White	Light Rust	Good	White/White, Good

11	12	13	14	15	16	17	18	19	20	21	22
Roof Color	**Roof Condition**	**Roof Type**	**Tank Construction**	**Primary Rim Seal**	**Secondary Rim Seal**	**Rim Seal Lookup**	**Deck Construction**	**Deck Construction**	**Deak Seam Construction**	**Deck Seam Construction Lookup**	**Roof Fitting Category**
		Pontoon	Welded	Mechanical Shoe	Rim-mounted	Welded, Mechanical Shoe, Rim-mounted	Welded				Detail
		Pontoon	Welded	Mechanical Shoe	Rim-mounted	Welded, Mechanical Shoe, Rim-mounted	Welded				Detail
		Pontoon	Welded	Mechanical Shoe	Rim-mounted	Welded, Mechanical Shoe, Rim-mounted	Welded				Detail
		Pontoon	Welded	Mechanical Shoe	Rim-mounted	Welded, Mechanical Shoe, Rim-mounted	Welded				Detail
		Pontoon	Welded	Mechanical Shoe	Rim-mounted	Welded, Mechanical Shoe, Rim-mounted	Welded				Detail
		Pontoon	Welded	Mechanical Shoe	Rim-mounted	Welded, Mechanical Shoe, Rim-mounted	Welded				Detail
		Pontoon	Welded	Mechanical Shoe	Rim-mounted	Welded, Mechanical Shoe, Rim-mounted	Welded				Detail
		Pontoon	Welded	Mechanical Shoe	Rim-mounted	Welded, Mechanical Shoe, Rim-mounted	Welded				Detail
		Pontoon	Welded	Mechanical Shoe	Rim-mounted	Welded, Mechanical Shoe, Rim-mounted	Welded				Detail
		Pontoon	Welded	Mechanical Shoe	Rim-mounted	Welded, Mechanical Shoe, Rim-mounted	Welded				Detail
		Pontoon	Welded	Mechanical Shoe	Rim-mounted	Welded, Mechanical Shoe, Rim-mounted	Welded				Detail
		Double Deck	Welded	Mechanical Shoe	Rim-mounted	Welded, Mechanical Shoe, Rim-mounted	Welded				Detail
		Double Deck	Welded	Mechanical Shoe	Rim-mounted	Welded, Mechanical Shoe, Rim-mounted	Welded				Detail
		Pontoon	Welded	Mechanical Shoe	Rim-mounted	Welded, Mechanical Shoe, Rim-mounted	Welded				Detail
		Double Deck	Welded	Mechanical Shoe	Rim-mounted	Welded, Mechanical Shoe, Rim-mounted	Welded				Detail
		Double Deck	Welded	Mechanical Shoe	Rim-mounted	Welded, Mechanical Shoe, Rim-mounted	Welded				Detail
		Double Deck	Welded	Mechanical Shoe	Rim-mounted	Welded, Mechanical Shoe, Rim-mounted	Welded				Detail
		Double Deck	Welded	Mechanical Shoe	Rim-mounted	Welded, Mechanical Shoe, Rim-mounted	Welded				Detail
		Double Deck	Welded	Mechanical Shoe	Rim-mounted	Welded, Mechanical Shoe, Rim-mounted	Welded				Detail
		Double Deck	Welded	Mechanical Shoe	Rim-mounted	Welded, Mechanical Shoe, Rim-mounted	Welded				Detail
		Pontoon	Welded	Mechanical Shoe	Rim-mounted	Welded, Mechanical Shoe, Rim-mounted	Welded				Detail
		Pontoon	Welded	Mechanical Shoe	Rim-mounted	Welded, Mechanical Shoe, Rim-mounted	Welded				Detail

23	F_F 2-6 24	25	26	27	28	29	30	31	32	33	34
Self Supporting Roof	**Total Deck Fitting Loss Factor (lb-mole/yr)**			**Tank Height/Length (ft)**	**Maximum Liquid Height (ft)**	**Cone or Dome Roof [Cone/Dome]**	**Is Temperature Controlled and Recorded? (Chilled,Heated,Ambient)**	**If Chilled or Heated, Average Liquid Surface Temperature (R)**	**Breather Vent Pressure Setting (psi) (default 0.03)**	**Breather Vent Vacuum Setting (psi) (default -0.03)**	**Number of fixed roof support columns (Calculate using Formula 2-4 Note 2 if not known)**
No	-	-	-				Ambient				
No	-	-	-				Ambient				
No	-	-	-				Ambient				
No	-	-	-				Ambient				
No	-	-	-				Ambient				
No	-	-	-				Ambient				
No	-	-	-				Ambient				
No	-	-	-				Ambient				
No	-	-	-				Ambient				
No	-	-	-				Ambient				
No	-	-	-				Ambient				
No	-	-	-				Ambient				
No	-	-	-				Ambient				
No	-	-	-				Ambient				
No	-	-	-				Ambient				
No	-	-	-				Ambient				
No	-	-	-				Ambient				
No	-	-	-				Ambient				
No	-	-	-				Ambient				
No	-	-	-				Ambient				
No							Ambient				
No							Ambient				

35	36	37	38
Effective column diameter (ft) (Note: Assumes default 1.0, see Formula 2-4 Note 3)	**Tank Roof Height (ft)**	**Tank Cone Roof Slope (ft/ft) (default 0.0625)**	**Tank Floor Configuration**
			Non Drain Dry
			Non Drain Dry
			Non Drain Dry
			Non Drain Dry
			Non Drain Dry
			Non Drain Dry
			Non Drain Dry
			Non Drain Dry
			Non Drain Dry
			Drain Dry
			Drain Dry
			Non Drain Dry
			Non Drain Dry
			Non Drain Dry
			Non Drain Dry
			Non Drain Dry
			Non Drain Dry
			Non Drain Dry
			Non Drain Dry
			Drain Dry
			Drain Dry

Deck Fitting Loss Factor (lb-mole/yr)	**K_{Fa}**
Deck Fitting Loss Factor (lb-mole/yr)	**K_{Fb}**
Deck Fitting Loss Factor	**m**

Enbridge Energy - Hartsdale/Griffith Terminal
Griffith, IN and Schererville, IN

These Tables are Output Data Tables used by the Source to calcualte tank emissions. They have submitted TANKS 4.09 data to

Tank Types	
Horizontal Fixed Roof Tank	HFRT
Vertical Fixed Roof Tank	VFRT
Internal Floating Roof Tank	IFRT
External Floating Roof Tank	EFRT
Domed External Floating Roof Tank	DEFRT

Table 7.1-6 Paint Solar Absorptance for Fixed Roof Tanks

Paint Color	Paint Shade	Paint Condition	VLOOKUP Parameter	Paint Factors (alpha)	Average Annual Stock Storage Temperature Factor	From AP-42, Formula 2-3, Note 3
Aluminum	Specular	Good	Aluminum/Specular, Good	0.39	2.5	
Aluminum	Diffuse	Good	Aluminum/Diffuse, Good	0.60	2.5	
Gray	Light	Good	Gray/Light, Good	0.54	3.5	
Gray	Medium	Good	Gray/Medium, Good	0.68	3.5	
Red	Primer	Good	Red/Primer, Good	0.89	5.0	Assumed Black
White	White	Good	White/White, Good	0.17	-	
Aluminum	Specular	Poor	Aluminum/Specular, Poor	0.49	2.5	
Aluminum	Diffuse	Poor	Aluminum/Diffuse, Poor	0.68	2.5	
Gray	Light	Poor	Gray/Light, Poor	0.63	3.5	
Gray	Medium	Poor	Gray/Medium, Poor	0.74	3.5	
Red	Primer	Poor	Red/Primer, Poor	0.91	5.0	Assumed Black
White	White	Poor	White/White, Poor	0.34	-	

Data Source: AP-42, Table 7.1-6, September 1997

Table 7.1-8 Rim-Seal Loss Factors for Floating Roof Tanks

Primary Seal	Secondary Seal	VLOOKUP Parameter	K_{RA} (lb-mole/ft-yr)	K_{RB} (lb-mole/(mph)^n-ft-yr)	n (dimensionless)
Welded Tanks					
Mechanical Shoe	None	Welded, Mechanical Shoe, None	5.8	0.3	2.1
Mechanical Shoe	Shoe-mounted	Welded, Mechanical Shoe, Shoe-mounted	1.6	0.3	1.6
Liquid-mounted	None	Welded, Liquid-mounted, None	1.6	0.3	1.5
Mechanical Shoe	Rim-mounted	Welded, Mechanical Shoe, Rim-mounted	0.6	0.4	1.0
Liquid-mounted	Weather Shield	Welded, Liquid-mounted, Weather Shield	0.7	0.3	1.2
Liquid-mounted	Rim-mounted	Welded, Liquid-mounted, Rim-mounted	0.3	0.6	0.3
Vapor-mounted	None	Welded, Vapor-mounted, None	6.7	0.2	3.0
Vapor-mounted	Weather Shield	Welded, Vapor-mounted, Weather Shield	3.3	0.1	3.0
Vapor-mounted	Rim-mounted	Welded, Vapor-mounted, Rim-mounted	2.2	0.003	4.3
Riveted Tanks					
Mechanical Shoe	None	Riveted, Mechanical Shoe, None	10.8	0.4	2
Mechanical Shoe	Shoe-mounted	Riveted, Mechanical Shoe, Shoe-mounted	9.2	0.2	1.9
Mechanical Shoe	Rim-mounted	Riveted, Mechanical Shoe, Rim-mounted	1.1	0.3	1.5

Data Source: From TANKS, also AP-42, Table 7.1-8 Rim-Seal Loss Factors for Floating Roof Tanks, September 1997

Table 7.1-10 Average Clingage Factors

Product Stored, Shell Condition	Clingage Factor
Gasoline, Light Rust	0.0015
Single-Component Stocks, Light Rust	0.0015
Crude, Light Rust	0.0060
Gasoline, Dense Rust	0.0075
Single-Component Stocks, Dense Rust	0.0075
Crude, Dense Rust	0.030
Gasoline, Gunite Lining	0.15
Single-Component Stocks, Gunite Lining	0.15
Crude, Gunite Lining	0.60

Data Source: AP-42, Table 7.1-10, Average Clingage Factors, September 1997

Table 7.1-11, IFR Tank Typical Support Column Numbers

Tank Diameter Range D, (ft)	Lookup Value	Typical Number of Columns, N_C
0 < D <= 85	0	1
85 < D <= 100	85.01	6
100 < D <= 120	100.01	7
120 < D <= 135	120.01	8
135 < D <= 150	135.01	9
150 < D <= 170	150.01	16
170 < D <= 190	170.01	19
190 < D <= 220	190.01	22
220 < D <= 235	220.01	31
235 < D <= 270	235.01	37
270 < D <= 275	270.01	43
275 < D <= 290	275.01	49
290 < D <= 330	290.01	61
330 < D <= 360	330.01	71
360 < D <= 400	360.01	81

Data from AP-42, Table 7.1-11 Typical Number of Columns as a Function of Tank Diameter for IFRs with Columnsupported Roofs, September 1997

Table 7.1-16, Deck Seal Length Factors for IFRs

NAME	SD
Sheet, 5 Ft Wide	0.2
Sheet, 6 Ft Wide	0.17
Sheet, 7 Ft Wide	0.14
Panel, 5 x 7.5 Ft	0.33
Panel, 5 x 12 Ft	0.28

Data from AP-42, Table 7.1-16 Deck Seal Length Factors for IFRs, September 1997

Enbridge Energy - Hartsdale/Griffith Terminal
Griffith, IN and Schererville, IN
Met data from US EPA TANKS 4.09d for Chicago, IL

These Tables are Output Data Tables used by the Source to calcualte tank emissions. They have submitted TANKS 4.09 data to confirm the results of this input.

		Monthly Average												
Property	**Symbol**	**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**	**Annual**
Daily Maximum Ambient Temperature (F)	TAX	29	33.5	45.8	58.6	70.1	79.6	83.7	81.8	74.8	63.3	48.4	34	58.55
Daily Minimum Ambient Temperature (F)	TAN	12.9	17.2	28.5	38.6	47.7	57.5	62.6	61.6	53.9	42.2	31.6	19.1	39.45
Daily Total Solar Insolation Factor (Btu/ft2-day)	I	574.89	826.49	1102.83	1456.27	1803.36	1988.33	1938.52	1698.98	1331.90	948.64	575.53	461.31	1225.59
Average Wind Speed (mph)		11.7	11.5	11.9	12	10.5	9.3	8.4	8.2	8.9	10.1	11.2	11	10.39
Number of Days per Month (Days)		31	28	31	30	31	30	31	31	30	31	30	31	365
	Count	1	2	3	4	5	6	7	8	9	10	11	12	13
Daily Ambient Temperature Range (R)	DeltaTA	16.1	16.3	17.3	20	22.4	22.1	21.1	20.2	20.9	21.1	16.8	14.9	19.10
Daily Average Ambient Temperature (F)	TAA	20.95	25.35	37.15	48.6	58.9	68.55	73.15	71.7	64.35	52.75	40	26.55	49.00
Stock temperature at tank color, °F[3]														
White/White	T_S	20.95	25.35	37.15	48.60	58.90	68.55	73.15	71.70	64.35	52.75	40.00	26.55	
Aluminum/Specular	T_S	23.45	27.85	39.65	51.10	61.40	71.05	75.65	74.20	66.85	55.25	42.50	29.05	
Grey	T_S	24.45	28.85	40.65	52.10	62.40	72.05	76.65	75.20	67.85	56.25	43.50	30.05	
Red/Primer	T_S	25.15	29.55	41.35	52.80	63.10	72.75	77.35	75.90	68.55	56.95	44.20	30.75	
Black	T_S	25.95	30.35	42.15	53.60	63.90	73.55	78.15	76.70	69.35	57.75	45.00	31.55	

Facility Location

Chicago, Illinois

Annual Average Data for Chicago, Illinois	
Atmospheric Pressure (psia)	14.384
Daily Average Ambient Temperature (F)	49.00

Table 16 - Average Annual Stock Storage Temperature, T_S, as a Function of Paint Color[1]

Tank Color	**Average Annual Stock**	
White/White	T_a + 0	0
Aluminum/Specul	T_a + 2.5	2.5
Grey	T_a + 3.5	3.5
Red/Primer	T_a + 4.2	4.2
Black	T_a + 5.0	5.0

Notes

1. From API Manual of Petroleum Measurement Standards Chapter 19, Section 2, Evaporative Loss from Floating-roof Tanks, second edition, September 2003, Table 16.

Enbridge Energy - Hartsdale/Griffith Terminal
Griffith, IN and Schererville, IN
TANKS Output

These Tables are Output Data Tables used by the Source to calcualte tank emissions. They have submitted TANKS 4.09 data to confirm the results of this input.

		S_LOSS	W_LOSS	RIM_LOSS	WD_LOSS	DECKF_LOSS	DECKS_LOSS	**Standing Loss[(1)] (lb VOC/yr)**	**Withdrawal Loss[(1)] (lb VOC/yr)**	**Total Emissions**	**Tanks Throughput (gal)**
GT-70	GT-70	-	-	1,238.37	4,020.74	2,477.83	-	3,716.21	4,020.74	7,736.95	563,299,311
GT-71	GT-71	-	-	1,663.49	5,412.74	2,111.47	-	3,774.96	5,412.74	9,187.70	1,018,632,920
GT-72	GT-72	-	-	1,663.49	5,412.74	3,629.92	-	5,293.41	5,412.74	10,706.15	1,018,632,920
GT-73	GT-73	-	-	1,663.49	5,412.74	2,092.19	-	3,755.67	5,412.74	9,168.41	1,018,632,920
GT-74	GT-74	-	-	1,663.49	5,412.74	867.04	-	2,530.53	5,412.74	7,943.27	1,018,632,920
GT-75	GT-75	-	-	1,663.49	5,412.74	867.04	-	2,530.53	5,412.74	7,943.27	1,018,632,920
GT-76	GT-76	-	-	1,940.73	8,445.16	2,368.93	-	4,309.66	8,445.16	12,754.82	1,854,193,564
GT-77	GT-77	-	-	1,940.73	8,445.16	2,368.93	-	4,309.66	8,445.16	12,754.82	1,854,193,564
GT-78	GT-78	-	-	1,663.49	5,412.74	894.33	-	2,557.82	5,412.74	7,970.56	1,018,632,920
GT-79	GT-79	-	-	2,070.12	7,860.59	1,360.83	-	3,430.94	7,860.59	11,291.53	1,840,904,394
GT-80	GT-80	-	-	1,663.49	5,986.44	1,052.10	-	2,715.58	5,986.44	8,702.03	1,126,598,622
GT-1601	GT-1601	-	-	1,238.37	3,350.62	471.20	-	1,709.57	3,350.62	5,060.19	469,416,092
GT-1602	GT-1602	-	-	1,238.37	3,350.62	471.20	-	1,709.57	3,350.62	5,060.19	469,416,092
GT-1603	GT-1603	-	-	1,238.37	3,350.62	842.42	-	2,080.80	3,350.62	5,431.42	469,416,092
GT-1604	GT-1604	-	-	1,238.37	3,350.62	471.20	-	1,709.57	3,350.62	5,060.19	469,416,092
GT-1605	GT-1605	-	-	1,238.37	3,350.62	471.20	-	1,709.57	3,350.62	5,060.19	469,416,092
GT-1606	GT-1606	DEMOLISHED									
GT-1607	GT-1607	-	-	1,238.37	3,350.62	476.83	-	1,715.20	3,350.62	5,065.82	469,416,092
GT-1608	GT-1608	-	-	1,238.37	3,350.62	471.20	-	1,709.57	3,350.62	5,060.19	469,416,092
GT-1609	GT-1609	-	-	1,238.37	3,350.62	471.20	-	1,709.57	3,350.62	5,060.19	469,416,092
GT-1610	GT-1610	-	-	2,495.23	8,791.84	1,400.70	-	3,895.93	8,791.84	12,687.77	2,481,826,350
GT-1611	GT-1611	-	-	2,060.87	7,248.16	1,180.12	-	3,241.00	7,248.16	10,489.15	1,689,897,931

PASTE BELOW

ID	MIX ID		PRIMARY	NAME	CAS	MONTH	TANK_TYPE	USER ID	CITY	STATE	COMPANY	DESC	MET CTYS	AMB_T	
112		1	TRUE	Crude oil (RVP 8)		March	External Floatin	GT-1601	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		37.15
112		1	TRUE	Crude oil (RVP 8)		April	External Floatin	GT-1601	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		48.6
112		1	TRUE	Crude oil (RVP 8)		July	External Floatin	GT-1601	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		73.15
112		1	TRUE	Crude oil (RVP 8)		August	External Floatin	GT-1601	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		71.7
112		1	TRUE	Crude oil (RVP 8)		January	External Floatin	GT-1601	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		20.95
112		1	TRUE	Crude oil (RVP 8)		February	External Floatin	GT-1601	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		25.35
112		1	TRUE	Crude oil (RVP 8)		May	External Floatin	GT-1601	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		58.9
112		1	TRUE	Crude oil (RVP 8)		June	External Floatin	GT-1601	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		68.55
112		1	TRUE	Crude oil (RVP 8)		September	External Floatin	GT-1601	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		64.35
112		1	TRUE	Crude oil (RVP 8)		October	External Floatin	GT-1601	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		52.75
112		1	TRUE	Crude oil (RVP 8)		November	External Floatin	GT-1601	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		40
112		1	TRUE	Crude oil (RVP 8)		December	External Floatin	GT-1601	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		26.55
113		1	TRUE	Crude oil (RVP 8)		January	External Floatin	GT-1602	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		20.95
113		1	TRUE	Crude oil (RVP 8)		February	External Floatin	GT-1602	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		25.35
113		1	TRUE	Crude oil (RVP 8)		May	External Floatin	GT-1602	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		58.9
113		1	TRUE	Crude oil (RVP 8)		June	External Floatin	GT-1602	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		68.55
113		1	TRUE	Crude oil (RVP 8)		September	External Floatin	GT-1602	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		64.35
113		1	TRUE	Crude oil (RVP 8)		October	External Floatin	GT-1602	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		52.75
113		1	TRUE	Crude oil (RVP 8)		March	External Floatin	GT-1602	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		37.15
113		1	TRUE	Crude oil (RVP 8)		April	External Floatin	GT-1602	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		48.6
113		1	TRUE	Crude oil (RVP 8)		July	External Floatin	GT-1602	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		73.15
113		1	TRUE	Crude oil (RVP 8)		August	External Floatin	GT-1602	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		71.7
113		1	TRUE	Crude oil (RVP 8)		November	External Floatin	GT-1602	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		40
113		1	TRUE	Crude oil (RVP 8)		December	External Floatin	GT-1602	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		26.55
114		1	TRUE	Crude oil (RVP 8)		January	External Floatin	GT-1603	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		20.95
114		1	TRUE	Crude oil (RVP 8)		February	External Floatin	GT-1603	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		25.35
114		1	TRUE	Crude oil (RVP 8)		March	External Floatin	GT-1603	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		37.15
114		1	TRUE	Crude oil (RVP 8)		April	External Floatin	GT-1603	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		48.6
114		1	TRUE	Crude oil (RVP 8)		July	External Floatin	GT-1603	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		73.15
114		1	TRUE	Crude oil (RVP 8)		August	External Floatin	GT-1603	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		71.7
114		1	TRUE	Crude oil (RVP 8)		November	External Floatin	GT-1603	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		40
114		1	TRUE	Crude oil (RVP 8)		December	External Floatin	GT-1603	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		26.55
114		1	TRUE	Crude oil (RVP 8)		May	External Floatin	GT-1603	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		58.9
114		1	TRUE	Crude oil (RVP 8)		June	External Floatin	GT-1603	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		68.55
114		1	TRUE	Crude oil (RVP 8)		September	External Floatin	GT-1603	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		64.35
114		1	TRUE	Crude oil (RVP 8)		October	External Floatin	GT-1603	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		52.75
115		1	TRUE	Crude oil (RVP 8)		March	External Floatin	GT-1604	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		37.15
115		1	TRUE	Crude oil (RVP 8)		April	External Floatin	GT-1604	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		48.6
115		1	TRUE	Crude oil (RVP 8)		January	External Floatin	GT-1604	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		20.95
115		1	TRUE	Crude oil (RVP 8)		February	External Floatin	GT-1604	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		25.35
115		1	TRUE	Crude oil (RVP 8)		May	External Floatin	GT-1604	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		58.9
115		1	TRUE	Crude oil (RVP 8)		June	External Floatin	GT-1604	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		68.55
115		1	TRUE	Crude oil (RVP 8)		September	External Floatin	GT-1604	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		64.35
115		1	TRUE	Crude oil (RVP 8)		October	External Floatin	GT-1604	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		52.75
115		1	TRUE	Crude oil (RVP 8)		July	External Floatin	GT-1604	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		73.15
115		1	TRUE	Crude oil (RVP 8)		August	External Floatin	GT-1604	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		71.7
115		1	TRUE	Crude oil (RVP 8)		November	External Floatin	GT-1604	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		40
115		1	TRUE	Crude oil (RVP 8)		December	External Floatin	GT-1604	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		26.55
116		1	TRUE	Crude oil (RVP 8)		January	External Floatin	GT-1605	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		20.95
116		1	TRUE	Crude oil (RVP 8)		February	External Floatin	GT-1605	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		25.35
116		1	TRUE	Crude oil (RVP 8)		May	External Floatin	GT-1605	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		58.9
116		1	TRUE	Crude oil (RVP 8)		June	External Floatin	GT-1605	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		68.55
116		1	TRUE	Crude oil (RVP 8)		September	External Floatin	GT-1605	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		64.35
116		1	TRUE	Crude oil (RVP 8)		October	External Floatin	GT-1605	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		52.75
116		1	TRUE	Crude oil (RVP 8)		March	External Floatin	GT-1605	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		37.15
116		1	TRUE	Crude oil (RVP 8)		April	External Floatin	GT-1605	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill		48.6

116	1	TRUE	Crude oil (RVP 8)	July	External Floatin GT-1605	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill	73.15
116	1	TRUE	Crude oil (RVP 8)	August	External Floatin GT-1605	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill	71.7
116	1	TRUE	Crude oil (RVP 8)	November	External Floatin GT-1605	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill	40
116	1	TRUE	Crude oil (RVP 8)	December	External Floatin GT-1605	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill	26.55
117	1	TRUE	Crude oil (RVP 8)	March	External Floatin GT-1607	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill	37.15
117	1	TRUE	Crude oil (RVP 8)	April	External Floatin GT-1607	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill	48.6
117	1	TRUE	Crude oil (RVP 8)	July	External Floatin GT-1607	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill	73.15
117	1	TRUE	Crude oil (RVP 8)	August	External Floatin GT-1607	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill	71.7
117	1	TRUE	Crude oil (RVP 8)	November	External Floatin GT-1607	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill	40
117	1	TRUE	Crude oil (RVP 8)	December	External Floatin GT-1607	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill	26.55
117	1	TRUE	Crude oil (RVP 8)	January	External Floatin GT-1607	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill	20.95
117	1	TRUE	Crude oil (RVP 8)	February	External Floatin GT-1607	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill	25.35
117	1	TRUE	Crude oil (RVP 8)	May	External Floatin GT-1607	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill	58.9
117	1	TRUE	Crude oil (RVP 8)	June	External Floatin GT-1607	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill	68.55
117	1	TRUE	Crude oil (RVP 8)	September	External Floatin GT-1607	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill	64.35
117	1	TRUE	Crude oil (RVP 8)	October	External Floatin GT-1607	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill	52.75
118	1	TRUE	Crude oil (RVP 8)	January	External Floatin GT-1608	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill	20.95
118	1	TRUE	Crude oil (RVP 8)	February	External Floatin GT-1608	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill	25.35
118	1	TRUE	Crude oil (RVP 8)	May	External Floatin GT-1608	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill	58.9
118	1	TRUE	Crude oil (RVP 8)	June	External Floatin GT-1608	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill	68.55
118	1	TRUE	Crude oil (RVP 8)	September	External Floatin GT-1608	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill	64.35
118	1	TRUE	Crude oil (RVP 8)	October	External Floatin GT-1608	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill	52.75
118	1	TRUE	Crude oil (RVP 8)	March	External Floatin GT-1608	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill	37.15
118	1	TRUE	Crude oil (RVP 8)	April	External Floatin GT-1608	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill	48.6
118	1	TRUE	Crude oil (RVP 8)	July	External Floatin GT-1608	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill	73.15
118	1	TRUE	Crude oil (RVP 8)	August	External Floatin GT-1608	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill	71.7
118	1	TRUE	Crude oil (RVP 8)	November	External Floatin GT-1608	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill	40
118	1	TRUE	Crude oil (RVP 8)	December	External Floatin GT-1608	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill	26.55
119	1	TRUE	Crude oil (RVP 8)	January	External Floatin GT-1609	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill	20.95
119	1	TRUE	Crude oil (RVP 8)	February	External Floatin GT-1609	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill	25.35
119	1	TRUE	Crude oil (RVP 8)	May	External Floatin GT-1609	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill	58.9
119	1	TRUE	Crude oil (RVP 8)	June	External Floatin GT-1609	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill	68.55
119	1	TRUE	Crude oil (RVP 8)	March	External Floatin GT-1609	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill	37.15
119	1	TRUE	Crude oil (RVP 8)	April	External Floatin GT-1609	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill	48.6
119	1	TRUE	Crude oil (RVP 8)	July	External Floatin GT-1609	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill	73.15
119	1	TRUE	Crude oil (RVP 8)	August	External Floatin GT-1609	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill	71.7
119	1	TRUE	Crude oil (RVP 8)	November	External Floatin GT-1609	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill	40
119	1	TRUE	Crude oil (RVP 8)	December	External Floatin GT-1609	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill	26.55
119	1	TRUE	Crude oil (RVP 8)	September	External Floatin GT-1609	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill	64.35
119	1	TRUE	Crude oil (RVP 8)	October	External Floatin GT-1609	Hartsdale	Indiana	Enbridge	Hartsdale T	Chicago, Ill	52.75
120	1	TRUE	Crude oil (RVP 8)	March	External Floatin GT-1610	Hartsdale	Indiana	Enbridge	New Tank	Chicago, Ill	37.15
120	1	TRUE	Crude oil (RVP 8)	April	External Floatin GT-1610	Hartsdale	Indiana	Enbridge	New Tank	Chicago, Ill	48.6
120	1	TRUE	Crude oil (RVP 8)	July	External Floatin GT-1610	Hartsdale	Indiana	Enbridge	New Tank	Chicago, Ill	73.15
120	1	TRUE	Crude oil (RVP 8)	August	External Floatin GT-1610	Hartsdale	Indiana	Enbridge	New Tank	Chicago, Ill	71.7
120	1	TRUE	Crude oil (RVP 8)	January	External Floatin GT-1610	Hartsdale	Indiana	Enbridge	New Tank	Chicago, Ill	20.95
120	1	TRUE	Crude oil (RVP 8)	February	External Floatin GT-1610	Hartsdale	Indiana	Enbridge	New Tank	Chicago, Ill	25.35
120	1	TRUE	Crude oil (RVP 8)	May	External Floatin GT-1610	Hartsdale	Indiana	Enbridge	New Tank	Chicago, Ill	58.9
120	1	TRUE	Crude oil (RVP 8)	June	External Floatin GT-1610	Hartsdale	Indiana	Enbridge	New Tank	Chicago, Ill	68.55
120	1	TRUE	Crude oil (RVP 8)	September	External Floatin GT-1610	Hartsdale	Indiana	Enbridge	New Tank	Chicago, Ill	64.35
120	1	TRUE	Crude oil (RVP 8)	October	External Floatin GT-1610	Hartsdale	Indiana	Enbridge	New Tank	Chicago, Ill	52.75
120	1	TRUE	Crude oil (RVP 8)	November	External Floatin GT-1610	Hartsdale	Indiana	Enbridge	New Tank	Chicago, Ill	40
120	1	TRUE	Crude oil (RVP 8)	December	External Floatin GT-1610	Hartsdale	Indiana	Enbridge	New Tank	Chicago, Ill	26.55
121	1	TRUE	Crude oil (RVP 8)	January	External Floatin GT-1611	Hartsdale	Indiana	Enbridge	New Tank	Chicago, Ill	20.95
121	1	TRUE	Crude oil (RVP 8)	February	External Floatin GT-1611	Hartsdale	Indiana	Enbridge	New Tank	Chicago, Ill	25.35
121	1	TRUE	Crude oil (RVP 8)	May	External Floatin GT-1611	Hartsdale	Indiana	Enbridge	New Tank	Chicago, Ill	58.9
121	1	TRUE	Crude oil (RVP 8)	June	External Floatin GT-1611	Hartsdale	Indiana	Enbridge	New Tank	Chicago, Ill	68.55
121	1	TRUE	Crude oil (RVP 8)	September	External Floatin GT-1611	Hartsdale	Indiana	Enbridge	New Tank	Chicago, Ill	64.35
121	1	TRUE	Crude oil (RVP 8)	October	External Floatin GT-1611	Hartsdale	Indiana	Enbridge	New Tank	Chicago, Ill	52.75

121	1	TRUE	Crude oil (RVP 8)	March	External Floatin GT-1611	Hartsdale	Indiana	Enbridge	New Tank Chicago, Ill	37.15
121	1	TRUE	Crude oil (RVP 8)	April	External Floatin GT-1611	Hartsdale	Indiana	Enbridge	New Tank Chicago, Ill	48.6
121	1	TRUE	Crude oil (RVP 8)	July	External Floatin GT-1611	Hartsdale	Indiana	Enbridge	New Tank Chicago, Ill	73.15
121	1	TRUE	Crude oil (RVP 8)	August	External Floatin GT-1611	Hartsdale	Indiana	Enbridge	New Tank Chicago, Ill	71.7
121	1	TRUE	Crude oil (RVP 8)	November	External Floatin GT-1611	Hartsdale	Indiana	Enbridge	New Tank Chicago, Ill	40
121	1	TRUE	Crude oil (RVP 8)	December	External Floatin GT-1611	Hartsdale	Indiana	Enbridge	New Tank Chicago, Ill	26.55
122	1	TRUE	Crude oil (RVP 8)	January	External Floatin GT-70	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	20.95
122	1	TRUE	Crude oil (RVP 8)	February	External Floatin GT-70	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	25.35
122	1	TRUE	Crude oil (RVP 8)	March	External Floatin GT-70	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	37.15
122	1	TRUE	Crude oil (RVP 8)	April	External Floatin GT-70	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	48.6
122	1	TRUE	Crude oil (RVP 8)	July	External Floatin GT-70	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	73.15
122	1	TRUE	Crude oil (RVP 8)	August	External Floatin GT-70	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	71.7
122	1	TRUE	Crude oil (RVP 8)	November	External Floatin GT-70	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	40
122	1	TRUE	Crude oil (RVP 8)	December	External Floatin GT-70	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	26.55
122	1	TRUE	Crude oil (RVP 8)	May	External Floatin GT-70	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	58.9
122	1	TRUE	Crude oil (RVP 8)	June	External Floatin GT-70	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	68.55
122	1	TRUE	Crude oil (RVP 8)	September	External Floatin GT-70	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	64.35
122	1	TRUE	Crude oil (RVP 8)	October	External Floatin GT-70	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	52.75
123	1	TRUE	Crude oil (RVP 8)	March	External Floatin GT-71	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	37.15
123	1	TRUE	Crude oil (RVP 8)	April	External Floatin GT-71	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	48.6
123	1	TRUE	Crude oil (RVP 8)	January	External Floatin GT-71	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	20.95
123	1	TRUE	Crude oil (RVP 8)	February	External Floatin GT-71	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	25.35
123	1	TRUE	Crude oil (RVP 8)	May	External Floatin GT-71	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	58.9
123	1	TRUE	Crude oil (RVP 8)	June	External Floatin GT-71	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	68.55
123	1	TRUE	Crude oil (RVP 8)	September	External Floatin GT-71	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	64.35
123	1	TRUE	Crude oil (RVP 8)	October	External Floatin GT-71	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	52.75
123	1	TRUE	Crude oil (RVP 8)	July	External Floatin GT-71	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	73.15
123	1	TRUE	Crude oil (RVP 8)	August	External Floatin GT-71	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	71.7
123	1	TRUE	Crude oil (RVP 8)	November	External Floatin GT-71	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	40
123	1	TRUE	Crude oil (RVP 8)	December	External Floatin GT-71	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	26.55
124	1	TRUE	Crude oil (RVP 8)	January	External Floatin GT-72	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	20.95
124	1	TRUE	Crude oil (RVP 8)	February	External Floatin GT-72	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	25.35
124	1	TRUE	Crude oil (RVP 8)	May	External Floatin GT-72	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	58.9
124	1	TRUE	Crude oil (RVP 8)	June	External Floatin GT-72	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	68.55
124	1	TRUE	Crude oil (RVP 8)	September	External Floatin GT-72	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	64.35
124	1	TRUE	Crude oil (RVP 8)	October	External Floatin GT-72	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	52.75
124	1	TRUE	Crude oil (RVP 8)	March	External Floatin GT-72	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	37.15
124	1	TRUE	Crude oil (RVP 8)	April	External Floatin GT-72	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	48.6
124	1	TRUE	Crude oil (RVP 8)	July	External Floatin GT-72	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	73.15
124	1	TRUE	Crude oil (RVP 8)	August	External Floatin GT-72	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	71.7
124	1	TRUE	Crude oil (RVP 8)	November	External Floatin GT-72	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	40
124	1	TRUE	Crude oil (RVP 8)	December	External Floatin GT-72	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	26.55
125	1	TRUE	Crude oil (RVP 8)	March	External Floatin GT-73	Griffith	Indiana	Hartsdale	Griffith Tan Chicago, Ill	37.15
125	1	TRUE	Crude oil (RVP 8)	April	External Floatin GT-73	Griffith	Indiana	Hartsdale	Griffith Tan Chicago, Ill	48.6
125	1	TRUE	Crude oil (RVP 8)	July	External Floatin GT-73	Griffith	Indiana	Hartsdale	Griffith Tan Chicago, Ill	73.15
125	1	TRUE	Crude oil (RVP 8)	August	External Floatin GT-73	Griffith	Indiana	Hartsdale	Griffith Tan Chicago, Ill	71.7
125	1	TRUE	Crude oil (RVP 8)	November	External Floatin GT-73	Griffith	Indiana	Hartsdale	Griffith Tan Chicago, Ill	40
125	1	TRUE	Crude oil (RVP 8)	December	External Floatin GT-73	Griffith	Indiana	Hartsdale	Griffith Tan Chicago, Ill	26.55
125	1	TRUE	Crude oil (RVP 8)	January	External Floatin GT-73	Griffith	Indiana	Hartsdale	Griffith Tan Chicago, Ill	20.95
125	1	TRUE	Crude oil (RVP 8)	February	External Floatin GT-73	Griffith	Indiana	Hartsdale	Griffith Tan Chicago, Ill	25.35
125	1	TRUE	Crude oil (RVP 8)	May	External Floatin GT-73	Griffith	Indiana	Hartsdale	Griffith Tan Chicago, Ill	58.9
125	1	TRUE	Crude oil (RVP 8)	June	External Floatin GT-73	Griffith	Indiana	Hartsdale	Griffith Tan Chicago, Ill	68.55
125	1	TRUE	Crude oil (RVP 8)	September	External Floatin GT-73	Griffith	Indiana	Hartsdale	Griffith Tan Chicago, Ill	64.35
125	1	TRUE	Crude oil (RVP 8)	October	External Floatin GT-73	Griffith	Indiana	Hartsdale	Griffith Tan Chicago, Ill	52.75
126	1	TRUE	Crude oil (RVP 8)	January	External Floatin GT-74	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	20.95
126	1	TRUE	Crude oil (RVP 8)	February	External Floatin GT-74	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	25.35
126	1	TRUE	Crude oil (RVP 8)	May	External Floatin GT-74	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	58.9
126	1	TRUE	Crude oil (RVP 8)	June	External Floatin GT-74	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	68.55

126	1	TRUE	Crude oil (RVP 8)	September	External Floatin GT-74	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	64.35
126	1	TRUE	Crude oil (RVP 8)	October	External Floatin GT-74	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	52.75
126	1	TRUE	Crude oil (RVP 8)	March	External Floatin GT-74	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	37.15
126	1	TRUE	Crude oil (RVP 8)	April	External Floatin GT-74	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	48.6
126	1	TRUE	Crude oil (RVP 8)	July	External Floatin GT-74	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	73.15
126	1	TRUE	Crude oil (RVP 8)	August	External Floatin GT-74	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	71.7
126	1	TRUE	Crude oil (RVP 8)	November	External Floatin GT-74	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	40
126	1	TRUE	Crude oil (RVP 8)	December	External Floatin GT-74	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	26.55
128	1	TRUE	Crude oil (RVP 8)	January	External Floatin GT-75	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	20.95
128	1	TRUE	Crude oil (RVP 8)	February	External Floatin GT-75	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	25.35
128	1	TRUE	Crude oil (RVP 8)	May	External Floatin GT-75	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	58.9
128	1	TRUE	Crude oil (RVP 8)	June	External Floatin GT-75	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	68.55
128	1	TRUE	Crude oil (RVP 8)	March	External Floatin GT-75	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	37.15
128	1	TRUE	Crude oil (RVP 8)	April	External Floatin GT-75	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	48.6
128	1	TRUE	Crude oil (RVP 8)	July	External Floatin GT-75	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	73.15
128	1	TRUE	Crude oil (RVP 8)	August	External Floatin GT-75	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	71.7
128	1	TRUE	Crude oil (RVP 8)	November	External Floatin GT-75	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	40
128	1	TRUE	Crude oil (RVP 8)	December	External Floatin GT-75	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	26.55
128	1	TRUE	Crude oil (RVP 8)	September	External Floatin GT-75	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	64.35
128	1	TRUE	Crude oil (RVP 8)	October	External Floatin GT-75	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	52.75
129	1	TRUE	Crude oil (RVP 8)	March	External Floatin GT-76	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	37.15
129	1	TRUE	Crude oil (RVP 8)	April	External Floatin GT-76	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	48.6
129	1	TRUE	Crude oil (RVP 8)	July	External Floatin GT-76	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	73.15
129	1	TRUE	Crude oil (RVP 8)	August	External Floatin GT-76	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	71.7
129	1	TRUE	Crude oil (RVP 8)	January	External Floatin GT-76	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	20.95
129	1	TRUE	Crude oil (RVP 8)	February	External Floatin GT-76	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	25.35
129	1	TRUE	Crude oil (RVP 8)	May	External Floatin GT-76	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	58.9
129	1	TRUE	Crude oil (RVP 8)	June	External Floatin GT-76	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	68.55
129	1	TRUE	Crude oil (RVP 8)	September	External Floatin GT-76	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	64.35
129	1	TRUE	Crude oil (RVP 8)	October	External Floatin GT-76	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	52.75
129	1	TRUE	Crude oil (RVP 8)	November	External Floatin GT-76	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	40
129	1	TRUE	Crude oil (RVP 8)	December	External Floatin GT-76	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	26.55
130	1	TRUE	Crude oil (RVP 8)	January	External Floatin GT-77	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	20.95
130	1	TRUE	Crude oil (RVP 8)	February	External Floatin GT-77	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	25.35
130	1	TRUE	Crude oil (RVP 8)	May	External Floatin GT-77	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	58.9
130	1	TRUE	Crude oil (RVP 8)	June	External Floatin GT-77	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	68.55
130	1	TRUE	Crude oil (RVP 8)	September	External Floatin GT-77	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	64.35
130	1	TRUE	Crude oil (RVP 8)	October	External Floatin GT-77	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	52.75
130	1	TRUE	Crude oil (RVP 8)	March	External Floatin GT-77	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	37.15
130	1	TRUE	Crude oil (RVP 8)	April	External Floatin GT-77	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	48.6
130	1	TRUE	Crude oil (RVP 8)	July	External Floatin GT-77	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	73.15
130	1	TRUE	Crude oil (RVP 8)	August	External Floatin GT-77	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	71.7
130	1	TRUE	Crude oil (RVP 8)	November	External Floatin GT-77	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	40
130	1	TRUE	Crude oil (RVP 8)	December	External Floatin GT-77	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	26.55
131	1	TRUE	Crude oil (RVP 8)	January	External Floatin GT-78	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	20.95
131	1	TRUE	Crude oil (RVP 8)	February	External Floatin GT-78	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	25.35
131	1	TRUE	Crude oil (RVP 8)	March	External Floatin GT-78	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	37.15
131	1	TRUE	Crude oil (RVP 8)	April	External Floatin GT-78	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	48.6
131	1	TRUE	Crude oil (RVP 8)	July	External Floatin GT-78	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	73.15
131	1	TRUE	Crude oil (RVP 8)	August	External Floatin GT-78	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	71.7
131	1	TRUE	Crude oil (RVP 8)	November	External Floatin GT-78	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	40
131	1	TRUE	Crude oil (RVP 8)	December	External Floatin GT-78	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	26.55
131	1	TRUE	Crude oil (RVP 8)	May	External Floatin GT-78	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	58.9
131	1	TRUE	Crude oil (RVP 8)	June	External Floatin GT-78	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	68.55
131	1	TRUE	Crude oil (RVP 8)	September	External Floatin GT-78	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	64.35
131	1	TRUE	Crude oil (RVP 8)	October	External Floatin GT-78	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	52.75
132	1	TRUE	Crude oil (RVP 8)	March	External Floatin GT-79	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	37.15
132	1	TRUE	Crude oil (RVP 8)	April	External Floatin GT-79	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	48.6

132	1	TRUE	Crude oil (RVP 8)	January	External Floatin GT-79	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	20.95
132	1	TRUE	Crude oil (RVP 8)	February	External Floatin GT-79	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	25.35
132	1	TRUE	Crude oil (RVP 8)	May	External Floatin GT-79	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	58.9
132	1	TRUE	Crude oil (RVP 8)	June	External Floatin GT-79	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	68.55
132	1	TRUE	Crude oil (RVP 8)	September	External Floatin GT-79	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	64.35
132	1	TRUE	Crude oil (RVP 8)	October	External Floatin GT-79	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	52.75
132	1	TRUE	Crude oil (RVP 8)	July	External Floatin GT-79	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	73.15
132	1	TRUE	Crude oil (RVP 8)	August	External Floatin GT-79	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	71.7
132	1	TRUE	Crude oil (RVP 8)	November	External Floatin GT-79	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	40
132	1	TRUE	Crude oil (RVP 8)	December	External Floatin GT-79	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	26.55
133	1	TRUE	Crude oil (RVP 8)	January	External Floatin GT-80	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	20.95
133	1	TRUE	Crude oil (RVP 8)	February	External Floatin GT-80	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	25.35
133	1	TRUE	Crude oil (RVP 8)	May	External Floatin GT-80	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	58.9
133	1	TRUE	Crude oil (RVP 8)	June	External Floatin GT-80	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	68.55
133	1	TRUE	Crude oil (RVP 8)	September	External Floatin GT-80	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	64.35
133	1	TRUE	Crude oil (RVP 8)	October	External Floatin GT-80	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	52.75
133	1	TRUE	Crude oil (RVP 8)	March	External Floatin GT-80	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	37.15
133	1	TRUE	Crude oil (RVP 8)	April	External Floatin GT-80	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	48.6
133	1	TRUE	Crude oil (RVP 8)	July	External Floatin GT-80	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	73.15
133	1	TRUE	Crude oil (RVP 8)	August	External Floatin GT-80	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	71.7
133	1	TRUE	Crude oil (RVP 8)	November	External Floatin GT-80	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	40
133	1	TRUE	Crude oil (RVP 8)	December	External Floatin GT-80	Griffith	Indiana	Enbridge	Griffith Tan Chicago, Ill	26.55

Spreadsheet Throughput (gal)	Difference (gal)	TANKS Turnovers	Spreadsheet Turnovers	Difference
563,299,311	(0.01)	111.77	111.77	0.00
1,018,632,920	(0.03)	111.77	111.77	0.00
1,018,632,920	(0.03)	111.77	111.77	0.00
1,018,632,920	(0.03)	111.77	111.77	0.00
1,018,632,920	(0.03)	111.77	111.77	0.00
1,018,632,920	(0.03)	111.77	111.77	0.00
1,854,193,565	(1.01)	111.77	111.77	0.00
1,854,193,565	(1.01)	111.77	111.77	0.00
1,018,632,920	(0.03)	111.77	111.77	0.00
1,840,904,395	(1.04)	111.77	111.77	0.00
1,126,598,622	(0.02)	111.77	111.77	0.00
469,416,092	(0.03)	111.77	111.77	0.00
469,416,092	(0.03)	111.77	111.77	0.00
469,416,092	(0.03)	111.77	111.77	0.00
469,416,092	(0.03)	111.77	111.77	0.00
469,416,092	(0.03)	111.77	111.77	0.00
DEMOLISHED				
469,416,092	(0.03)	111.77	111.77	0.00
469,416,092	(0.03)	111.77	111.77	0.00
469,416,092	(0.03)	111.77	111.77	0.00
2,481,826,351	(0.83)	111.77	111.77	0.00
1,689,897,932	(1.11)	111.77	111.77	0.00

T_MIN	T_MAX	INSOL	P_A	S_LOSS	W_LOSS	RIM_LOSS	WD_LOSS	DECKF_LC	DECKS_LC	MOLES	L_WT_FR/	V_WT_FR/	L_MO_FR/	V_MO_FR/	MOLWT
28.5	45.8	1102.83052	14.384	0	0	103.2807	279.2183	39.10805	0	0	0	0	0	0	207
38.6	58.6	1456.2693	14.384	0	0	117.5123	279.2183	44.50528	0	0	0	0	0	0	207
62.6	83.7	1938.5197	14.384	0	0	111.1075	279.2183	42.7763	0	0	0	0	0	0	207
61.6	81.8	1698.98085	14.384	0	0	106.5531	279.2183	41.14005	0	0	0	0	0	0	207
12.9	29	574.89324	14.384	0	0	85.56208	279.2183	32.38925	0	0	0	0	0	0	207
17.2	33.5	826.48835	14.384	0	0	88.61419	279.2183	33.53856	0	0	0	0	0	0	207
47.7	70.1	1803.36268	14.384	0	0	116.6647	279.2183	44.19937	0	0	0	0	0	0	207
57.5	79.6	1988.33109	14.384	0	0	116.0259	279.2183	44.23922	0	0	0	0	0	0	207
53.9	74.8	1331.89946	14.384	0	0	105.1461	279.2183	40.23992	0	0	0	0	0	0	207
42.2	63.3	948.6373	14.384	0	0	103.5582	279.2183	39.28975	0	0	0	0	0	0	207
31.6	48.4	575.52778	14.384	0	0	99.07148	279.2183	37.49466	0	0	0	0	0	0	207
19.1	34	461.31058	14.384	0	0	85.27676	279.2183	32.278	0	0	0	0	0	0	207
12.9	29	574.89324	14.384	0	0	85.56208	279.2183	32.38925	0	0	0	0	0	0	207
17.2	33.5	826.48835	14.384	0	0	88.61419	279.2183	33.53856	0	0	0	0	0	0	207
47.7	70.1	1803.36268	14.384	0	0	116.6647	279.2183	44.19937	0	0	0	0	0	0	207
57.5	79.6	1988.33109	14.384	0	0	116.0259	279.2183	44.23922	0	0	0	0	0	0	207
53.9	74.8	1331.89946	14.384	0	0	105.1461	279.2183	40.23992	0	0	0	0	0	0	207
42.2	63.3	948.6373	14.384	0	0	103.5582	279.2183	39.28975	0	0	0	0	0	0	207
28.5	45.8	1102.83052	14.384	0	0	103.2807	279.2183	39.10805	0	0	0	0	0	0	207
38.6	58.6	1456.2693	14.384	0	0	117.5123	279.2183	44.50528	0	0	0	0	0	0	207
62.6	83.7	1938.5197	14.384	0	0	111.1075	279.2183	42.7763	0	0	0	0	0	0	207
61.6	81.8	1698.98085	14.384	0	0	106.5531	279.2183	41.14005	0	0	0	0	0	0	207
31.6	48.4	575.52778	14.384	0	0	99.07148	279.2183	37.49466	0	0	0	0	0	0	207
19.1	34	461.31058	14.384	0	0	85.27676	279.2183	32.278	0	0	0	0	0	0	207
12.9	29	574.89324	14.384	0	0	85.56208	279.2183	58.8609	0	0	0	0	0	0	207
17.2	33.5	826.48835	14.384	0	0	88.61419	279.2183	60.82358	0	0	0	0	0	0	207
28.5	45.8	1102.83052	14.384	0	0	103.2807	279.2183	71.21479	0	0	0	0	0	0	207
38.6	58.6	1456.2693	14.384	0	0	117.5123	279.2183	81.12359	0	0	0	0	0	0	207
62.6	83.7	1938.5197	14.384	0	0	111.1075	279.2183	74.60776	0	0	0	0	0	0	207
61.6	81.8	1698.98085	14.384	0	0	106.5531	279.2183	71.53695	0	0	0	0	0	0	207
31.6	48.4	575.52778	14.384	0	0	99.07148	279.2183	67.78128	0	0	0	0	0	0	207
19.1	34	461.31058	14.384	0	0	85.27676	279.2183	58.22308	0	0	0	0	0	0	207
47.7	70.1	1803.36268	14.384	0	0	116.6647	279.2183	79.27319	0	0	0	0	0	0	207
57.5	79.6	1988.33109	14.384	0	0	116.0259	279.2183	78.15355	0	0	0	0	0	0	207
53.9	74.8	1331.89946	14.384	0	0	105.1461	279.2183	70.69649	0	0	0	0	0	0	207
42.2	63.3	948.6373	14.384	0	0	103.5582	279.2183	70.1295	0	0	0	0	0	0	207
28.5	45.8	1102.83052	14.384	0	0	103.2807	279.2183	39.10805	0	0	0	0	0	0	207
38.6	58.6	1456.2693	14.384	0	0	117.5123	279.2183	44.50528	0	0	0	0	0	0	207
12.9	29	574.89324	14.384	0	0	85.56208	279.2183	32.38925	0	0	0	0	0	0	207
17.2	33.5	826.48835	14.384	0	0	88.61419	279.2183	33.53856	0	0	0	0	0	0	207
47.7	70.1	1803.36268	14.384	0	0	116.6647	279.2183	44.19937	0	0	0	0	0	0	207
57.5	79.6	1988.33109	14.384	0	0	116.0259	279.2183	44.23922	0	0	0	0	0	0	207
53.9	74.8	1331.89946	14.384	0	0	105.1461	279.2183	40.23992	0	0	0	0	0	0	207
42.2	63.3	948.6373	14.384	0	0	103.5582	279.2183	39.28975	0	0	0	0	0	0	207
62.6	83.7	1938.5197	14.384	0	0	111.1075	279.2183	42.7763	0	0	0	0	0	0	207
61.6	81.8	1698.98085	14.384	0	0	106.5531	279.2183	41.14005	0	0	0	0	0	0	207
31.6	48.4	575.52778	14.384	0	0	99.07148	279.2183	37.49466	0	0	0	0	0	0	207
19.1	34	461.31058	14.384	0	0	85.27676	279.2183	32.278	0	0	0	0	0	0	207
12.9	29	574.89324	14.384	0	0	85.56208	279.2183	32.38925	0	0	0	0	0	0	207
17.2	33.5	826.48835	14.384	0	0	88.61419	279.2183	33.53856	0	0	0	0	0	0	207
47.7	70.1	1803.36268	14.384	0	0	116.6647	279.2183	44.19937	0	0	0	0	0	0	207
57.5	79.6	1988.33109	14.384	0	0	116.0259	279.2183	44.23922	0	0	0	0	0	0	207
53.9	74.8	1331.89946	14.384	0	0	105.1461	279.2183	40.23992	0	0	0	0	0	0	207
42.2	63.3	948.6373	14.384	0	0	103.5582	279.2183	39.28975	0	0	0	0	0	0	207
28.5	45.8	1102.83052	14.384	0	0	103.2807	279.2183	39.10805	0	0	0	0	0	0	207
38.6	58.6	1456.2693	14.384	0	0	117.5123	279.2183	44.50528	0	0	0	0	0	0	207

62.6	83.7	1938.5197	14.384	0	0	111.1075	279.2183	42.7763	0	0	0	0	0	0	207
61.6	81.8	1698.98085	14.384	0	0	106.5531	279.2183	41.14005	0	0	0	0	0	0	207
31.6	48.4	575.52778	14.384	0	0	99.07148	279.2183	37.49466	0	0	0	0	0	0	207
19.1	34	461.31058	14.384	0	0	85.27676	279.2183	32.278	0	0	0	0	0	0	207
28.5	45.8	1102.83052	14.384	0	0	103.2807	279.2183	39.5518	0	0	0	0	0	0	207
38.6	58.6	1456.2693	14.384	0	0	117.5123	279.2183	45.00872	0	0	0	0	0	0	207
62.6	83.7	1938.5197	14.384	0	0	111.1075	279.2183	43.31986	0	0	0	0	0	0	207
61.6	81.8	1698.98085	14.384	0	0	106.5531	279.2183	41.66634	0	0	0	0	0	0	207
31.6	48.4	575.52778	14.384	0	0	99.07148	279.2183	37.92953	0	0	0	0	0	0	207
19.1	34	461.31058	14.384	0	0	85.27676	279.2183	32.65475	0	0	0	0	0	0	207
12.9	29	574.89324	14.384	0	0	85.56208	279.2183	32.75906	0	0	0	0	0	0	207
17.2	33.5	826.48835	14.384	0	0	88.61419	279.2183	33.9239	0	0	0	0	0	0	207
47.7	70.1	1803.36268	14.384	0	0	116.6647	279.2183	44.72357	0	0	0	0	0	0	207
57.5	79.6	1988.33109	14.384	0	0	116.0259	279.2183	44.78479	0	0	0	0	0	0	207
53.9	74.8	1331.89946	14.384	0	0	105.1461	279.2183	40.74279	0	0	0	0	0	0	207
42.2	63.3	948.6373	14.384	0	0	103.5582	279.2183	39.76177	0	0	0	0	0	0	207
12.9	29	574.89324	14.384	0	0	85.56208	279.2183	32.38925	0	0	0	0	0	0	207
17.2	33.5	826.48835	14.384	0	0	88.61419	279.2183	33.53856	0	0	0	0	0	0	207
47.7	70.1	1803.36268	14.384	0	0	116.6647	279.2183	44.19937	0	0	0	0	0	0	207
57.5	79.6	1988.33109	14.384	0	0	116.0259	279.2183	44.23922	0	0	0	0	0	0	207
53.9	74.8	1331.89946	14.384	0	0	105.1461	279.2183	40.23992	0	0	0	0	0	0	207
42.2	63.3	948.6373	14.384	0	0	103.5582	279.2183	39.28975	0	0	0	0	0	0	207
28.5	45.8	1102.83052	14.384	0	0	103.2807	279.2183	39.10805	0	0	0	0	0	0	207
38.6	58.6	1456.2693	14.384	0	0	117.5123	279.2183	44.50528	0	0	0	0	0	0	207
62.6	83.7	1938.5197	14.384	0	0	111.1075	279.2183	42.7763	0	0	0	0	0	0	207
61.6	81.8	1698.98085	14.384	0	0	106.5531	279.2183	41.14005	0	0	0	0	0	0	207
31.6	48.4	575.52778	14.384	0	0	99.07148	279.2183	37.49466	0	0	0	0	0	0	207
19.1	34	461.31058	14.384	0	0	85.27676	279.2183	32.278	0	0	0	0	0	0	207
12.9	29	574.89324	14.384	0	0	85.56208	279.2183	32.38925	0	0	0	0	0	0	207
17.2	33.5	826.48835	14.384	0	0	88.61419	279.2183	33.53856	0	0	0	0	0	0	207
47.7	70.1	1803.36268	14.384	0	0	116.6647	279.2183	44.19937	0	0	0	0	0	0	207
57.5	79.6	1988.33109	14.384	0	0	116.0259	279.2183	44.23922	0	0	0	0	0	0	207
28.5	45.8	1102.83052	14.384	0	0	103.2807	279.2183	39.10805	0	0	0	0	0	0	207
38.6	58.6	1456.2693	14.384	0	0	117.5123	279.2183	44.50528	0	0	0	0	0	0	207
62.6	83.7	1938.5197	14.384	0	0	111.1075	279.2183	42.7763	0	0	0	0	0	0	207
61.6	81.8	1698.98085	14.384	0	0	106.5531	279.2183	41.14005	0	0	0	0	0	0	207
31.6	48.4	575.52778	14.384	0	0	99.07148	279.2183	37.49466	0	0	0	0	0	0	207
19.1	34	461.31058	14.384	0	0	85.27676	279.2183	32.278	0	0	0	0	0	0	207
53.9	74.8	1331.89946	14.384	0	0	105.1461	279.2183	40.23992	0	0	0	0	0	0	207
42.2	63.3	948.6373	14.384	0	0	103.5582	279.2183	39.28975	0	0	0	0	0	0	207
28.5	45.8	1102.83052	14.384	0	0	208.1029	732.6531	113.4771	0	0	0	0	0	0	207
38.6	58.6	1456.2693	14.384	0	0	236.7786	732.6531	128.961	0	0	0	0	0	0	207
62.6	83.7	1938.5197	14.384	0	0	223.8733	732.6531	131.1245	0	0	0	0	0	0	207
61.6	81.8	1698.98085	14.384	0	0	214.6965	732.6531	126.5625	0	0	0	0	0	0	207
12.9	29	574.89324	14.384	0	0	172.4012	732.6531	94.24241	0	0	0	0	0	0	207
17.2	33.5	826.48835	14.384	0	0	178.551	732.6531	97.86125	0	0	0	0	0	0	207
47.7	70.1	1803.36268	14.384	0	0	235.0706	732.6531	130.8762	0	0	0	0	0	0	207
57.5	79.6	1988.33109	14.384	0	0	233.7834	732.6531	133.5223	0	0	0	0	0	0	207
53.9	74.8	1331.89946	14.384	0	0	211.8616	732.6531	122.2757	0	0	0	0	0	0	207
42.2	63.3	948.6373	14.384	0	0	208.6621	732.6531	117.0602	0	0	0	0	0	0	207
31.6	48.4	575.52778	14.384	0	0	199.6216	732.6531	109.8754	0	0	0	0	0	0	207
19.1	34	461.31058	14.384	0	0	171.8263	732.6531	94.86452	0	0	0	0	0	0	207
12.9	29	574.89324	14.384	0	0	142.3906	604.0131	80.42273	0	0	0	0	0	0	207
17.2	33.5	826.48835	14.384	0	0	147.4699	604.0131	83.3732	0	0	0	0	0	0	207
47.7	70.1	1803.36268	14.384	0	0	194.1509	604.0131	110.5372	0	0	0	0	0	0	207
57.5	79.6	1988.33109	14.384	0	0	193.0878	604.0131	111.4921	0	0	0	0	0	0	207
53.9	74.8	1331.89946	14.384	0	0	174.982	604.0131	101.6867	0	0	0	0	0	0	207
42.2	63.3	948.6373	14.384	0	0	172.3394	604.0131	98.50528	0	0	0	0	0	0	207

28.5	45.8	1102.83052	14.384	0	0	171.8776	604.0131	96.99416	0	0	0	0	0	0	207
38.6	58.6	1456.2693	14.384	0	0	195.5616	604.0131	110.3174	0	0	0	0	0	0	207
62.6	83.7	1938.5197	14.384	0	0	184.9028	604.0131	108.4716	0	0	0	0	0	0	207
61.6	81.8	1698.98085	14.384	0	0	177.3234	604.0131	104.4706	0	0	0	0	0	0	207
31.6	48.4	575.52778	14.384	0	0	164.8727	604.0131	93.37242	0	0	0	0	0	0	207
19.1	34	461.31058	14.384	0	0	141.9158	604.0131	80.47756	0	0	0	0	0	0	207
12.9	29	574.89324	14.384	0	0	85.56208	335.062	175.6337	0	0	0	0	0	0	207
17.2	33.5	826.48835	14.384	0	0	88.61419	335.062	181.217	0	0	0	0	0	0	207
28.5	45.8	1102.83052	14.384	0	0	103.2807	335.062	212.7993	0	0	0	0	0	0	207
38.6	58.6	1456.2693	14.384	0	0	117.5123	335.062	242.5739	0	0	0	0	0	0	207
62.6	83.7	1938.5197	14.384	0	0	111.1075	335.062	214.2212	0	0	0	0	0	0	207
61.6	81.8	1698.98085	14.384	0	0	106.5531	335.062	204.679	0	0	0	0	0	0	207
31.6	48.4	575.52778	14.384	0	0	99.07148	335.062	201.459	0	0	0	0	0	0	207
19.1	34	461.31058	14.384	0	0	85.27676	335.062	172.7522	0	0	0	0	0	0	207
47.7	70.1	1803.36268	14.384	0	0	116.6647	335.062	234.0996	0	0	0	0	0	0	207
57.5	79.6	1988.33109	14.384	0	0	116.0259	335.062	227.5395	0	0	0	0	0	0	207
53.9	74.8	1331.89946	14.384	0	0	105.1461	335.062	204.6417	0	0	0	0	0	0	207
42.2	63.3	948.6373	14.384	0	0	103.5582	335.062	206.2182	0	0	0	0	0	0	207
28.5	45.8	1102.83052	14.384	0	0	138.7353	451.0617	181.6964	0	0	0	0	0	0	207
38.6	58.6	1456.2693	14.384	0	0	157.8524	451.0617	207.1422	0	0	0	0	0	0	207
12.9	29	574.89324	14.384	0	0	114.9341	451.0617	149.929	0	0	0	0	0	0	207
17.2	33.5	826.48835	14.384	0	0	119.034	451.0617	154.6593	0	0	0	0	0	0	207
47.7	70.1	1803.36268	14.384	0	0	156.7138	451.0617	199.5467	0	0	0	0	0	0	207
57.5	79.6	1988.33109	14.384	0	0	155.8556	451.0617	193.6332	0	0	0	0	0	0	207
53.9	74.8	1331.89946	14.384	0	0	141.2411	451.0617	174.0417	0	0	0	0	0	0	207
42.2	63.3	948.6373	14.384	0	0	139.1081	451.0617	175.6878	0	0	0	0	0	0	207
62.6	83.7	1938.5197	14.384	0	0	149.2489	451.0617	182.0423	0	0	0	0	0	0	207
61.6	81.8	1698.98085	14.384	0	0	143.131	451.0617	173.8749	0	0	0	0	0	0	207
31.6	48.4	575.52778	14.384	0	0	133.0811	451.0617	171.8738	0	0	0	0	0	0	207
19.1	34	461.31058	14.384	0	0	114.5509	451.0617	147.3469	0	0	0	0	0	0	207
12.9	29	574.89324	14.384	0	0	114.9341	451.0617	261.6871	0	0	0	0	0	0	207
17.2	33.5	826.48835	14.384	0	0	119.034	451.0617	269.4386	0	0	0	0	0	0	207
47.7	70.1	1803.36268	14.384	0	0	156.7138	451.0617	344.0879	0	0	0	0	0	0	207
57.5	79.6	1988.33109	14.384	0	0	155.8556	451.0617	329.0103	0	0	0	0	0	0	207
53.9	74.8	1331.89946	14.384	0	0	141.2411	451.0617	294.0627	0	0	0	0	0	0	207
42.2	63.3	948.6373	14.384	0	0	139.1081	451.0617	301.5611	0	0	0	0	0	0	207
28.5	45.8	1102.83052	14.384	0	0	138.7353	451.0617	317.7111	0	0	0	0	0	0	207
38.6	58.6	1456.2693	14.384	0	0	157.8524	451.0617	362.5275	0	0	0	0	0	0	207
62.6	83.7	1938.5197	14.384	0	0	149.2489	451.0617	305.2419	0	0	0	0	0	0	207
61.6	81.8	1698.98085	14.384	0	0	143.131	451.0617	290.5985	0	0	0	0	0	0	207
31.6	48.4	575.52778	14.384	0	0	133.0811	451.0617	298.5569	0	0	0	0	0	0	207
19.1	34	461.31058	14.384	0	0	114.5509	451.0617	255.4357	0	0	0	0	0	0	207
28.5	45.8	1102.83052	14.384	0	0	138.7353	451.0617	180.1111	0	0	0	0	0	0	207
38.6	58.6	1456.2693	14.384	0	0	157.8524	451.0617	205.34	0	0	0	0	0	0	207
62.6	83.7	1938.5197	14.384	0	0	149.2489	451.0617	180.2787	0	0	0	0	0	0	207
61.6	81.8	1698.98085	14.384	0	0	143.131	451.0617	172.1797	0	0	0	0	0	0	207
31.6	48.4	575.52778	14.384	0	0	133.0811	451.0617	170.3441	0	0	0	0	0	0	207
19.1	34	461.31058	14.384	0	0	114.5509	451.0617	146.0279	0	0	0	0	0	0	207
12.9	29	574.89324	14.384	0	0	114.9341	451.0617	148.6135	0	0	0	0	0	0	207
17.2	33.5	826.48835	14.384	0	0	119.034	451.0617	153.2947	0	0	0	0	0	0	207
47.7	70.1	1803.36268	14.384	0	0	156.7138	451.0617	197.7341	0	0	0	0	0	0	207
57.5	79.6	1988.33109	14.384	0	0	155.8556	451.0617	191.8093	0	0	0	0	0	0	207
53.9	74.8	1331.89946	14.384	0	0	141.2411	451.0617	172.3819	0	0	0	0	0	0	207
42.2	63.3	948.6373	14.384	0	0	139.1081	451.0617	174.0727	0	0	0	0	0	0	207
12.9	29	574.89324	14.384	0	0	114.9341	451.0617	58.23638	0	0	0	0	0	0	207
17.2	33.5	826.48835	14.384	0	0	119.034	451.0617	60.49224	0	0	0	0	0	0	207
47.7	70.1	1803.36268	14.384	0	0	156.7138	451.0617	81.01852	0	0	0	0	0	0	207
57.5	79.6	1988.33109	14.384	0	0	155.8556	451.0617	82.76501	0	0	0	0	0	0	207

53.9	74.8	1331.89946	14.384	0	0	141.2411	451.0617	75.81663	0	0	0	0	0	0	207
42.2	63.3	948.6373	14.384	0	0	139.1081	451.0617	72.50184	0	0	0	0	0	0	207
28.5	45.8	1102.83052	14.384	0	0	138.7353	451.0617	70.0989	0	0	0	0	0	0	207
38.6	58.6	1456.2693	14.384	0	0	157.8524	451.0617	79.65032	0	0	0	0	0	0	207
62.6	83.7	1938.5197	14.384	0	0	149.2489	451.0617	81.32479	0	0	0	0	0	0	207
61.6	81.8	1698.98085	14.384	0	0	143.131	451.0617	78.50069	0	0	0	0	0	0	207
31.6	48.4	575.52778	14.384	0	0	133.0811	451.0617	67.95049	0	0	0	0	0	0	207
19.1	34	461.31058	14.384	0	0	114.5509	451.0617	58.68479	0	0	0	0	0	0	207
12.9	29	574.89324	14.384	0	0	114.9341	451.0617	58.23638	0	0	0	0	0	0	207
17.2	33.5	826.48835	14.384	0	0	119.034	451.0617	60.49224	0	0	0	0	0	0	207
47.7	70.1	1803.36268	14.384	0	0	156.7138	451.0617	81.01852	0	0	0	0	0	0	207
57.5	79.6	1988.33109	14.384	0	0	155.8556	451.0617	82.76501	0	0	0	0	0	0	207
28.5	45.8	1102.83052	14.384	0	0	138.7353	451.0617	70.0989	0	0	0	0	0	0	207
38.6	58.6	1456.2693	14.384	0	0	157.8524	451.0617	79.65032	0	0	0	0	0	0	207
62.6	83.7	1938.5197	14.384	0	0	149.2489	451.0617	81.32479	0	0	0	0	0	0	207
61.6	81.8	1698.98085	14.384	0	0	143.131	451.0617	78.50069	0	0	0	0	0	0	207
31.6	48.4	575.52778	14.384	0	0	133.0811	451.0617	67.95049	0	0	0	0	0	0	207
19.1	34	461.31058	14.384	0	0	114.5509	451.0617	58.68479	0	0	0	0	0	0	207
53.9	74.8	1331.89946	14.384	0	0	141.2411	451.0617	75.81663	0	0	0	0	0	0	207
42.2	63.3	948.6373	14.384	0	0	139.1081	451.0617	72.50184	0	0	0	0	0	0	207
28.5	45.8	1102.83052	14.384	0	0	161.8578	703.7632	201.1353	0	0	0	0	0	0	207
38.6	58.6	1456.2693	14.384	0	0	184.1611	703.7632	229.1424	0	0	0	0	0	0	207
62.6	83.7	1938.5197	14.384	0	0	174.1237	703.7632	208.1832	0	0	0	0	0	0	207
61.6	81.8	1698.98085	14.384	0	0	166.9862	703.7632	199.3353	0	0	0	0	0	0	207
12.9	29	574.89324	14.384	0	0	134.0898	703.7632	166.2075	0	0	0	0	0	0	207
17.2	33.5	826.48835	14.384	0	0	138.873	703.7632	171.7047	0	0	0	0	0	0	207
47.7	70.1	1803.36268	14.384	0	0	182.8327	703.7632	223.3308	0	0	0	0	0	0	207
57.5	79.6	1988.33109	14.384	0	0	181.8316	703.7632	219.2026	0	0	0	0	0	0	207
53.9	74.8	1331.89946	14.384	0	0	164.7812	703.7632	197.8775	0	0	0	0	0	0	207
42.2	63.3	948.6373	14.384	0	0	162.2928	703.7632	197.3319	0	0	0	0	0	0	207
31.6	48.4	575.52778	14.384	0	0	155.2613	703.7632	191.2547	0	0	0	0	0	0	207
19.1	34	461.31058	14.384	0	0	133.6427	703.7632	164.2223	0	0	0	0	0	0	207
12.9	29	574.89324	14.384	0	0	134.0898	703.7632	166.2075	0	0	0	0	0	0	207
17.2	33.5	826.48835	14.384	0	0	138.873	703.7632	171.7047	0	0	0	0	0	0	207
47.7	70.1	1803.36268	14.384	0	0	182.8327	703.7632	223.3308	0	0	0	0	0	0	207
57.5	79.6	1988.33109	14.384	0	0	181.8316	703.7632	219.2026	0	0	0	0	0	0	207
53.9	74.8	1331.89946	14.384	0	0	164.7812	703.7632	197.8775	0	0	0	0	0	0	207
42.2	63.3	948.6373	14.384	0	0	162.2928	703.7632	197.3319	0	0	0	0	0	0	207
28.5	45.8	1102.83052	14.384	0	0	161.8578	703.7632	201.1353	0	0	0	0	0	0	207
38.6	58.6	1456.2693	14.384	0	0	184.1611	703.7632	229.1424	0	0	0	0	0	0	207
62.6	83.7	1938.5197	14.384	0	0	174.1237	703.7632	208.1832	0	0	0	0	0	0	207
61.6	81.8	1698.98085	14.384	0	0	166.9862	703.7632	199.3353	0	0	0	0	0	0	207
31.6	48.4	575.52778	14.384	0	0	155.2613	703.7632	191.2547	0	0	0	0	0	0	207
19.1	34	461.31058	14.384	0	0	133.6427	703.7632	164.2223	0	0	0	0	0	0	207
12.9	29	574.89324	14.384	0	0	114.9341	451.0617	60.0338	0	0	0	0	0	0	207
17.2	33.5	826.48835	14.384	0	0	119.034	451.0617	62.3647	0	0	0	0	0	0	207
28.5	45.8	1102.83052	14.384	0	0	138.7353	451.0617	72.25616	0	0	0	0	0	0	207
38.6	58.6	1456.2693	14.384	0	0	157.8524	451.0617	82.09794	0	0	0	0	0	0	207
62.6	83.7	1938.5197	14.384	0	0	149.2489	451.0617	83.95141	0	0	0	0	0	0	207
61.6	81.8	1698.98085	14.384	0	0	143.131	451.0617	81.04245	0	0	0	0	0	0	207
31.6	48.4	575.52778	14.384	0	0	133.0811	451.0617	70.06293	0	0	0	0	0	0	207
19.1	34	461.31058	14.384	0	0	114.5509	451.0617	60.51441	0	0	0	0	0	0	207
47.7	70.1	1803.36268	14.384	0	0	156.7138	451.0617	83.56242	0	0	0	0	0	0	207
57.5	79.6	1988.33109	14.384	0	0	155.8556	451.0617	85.407	0	0	0	0	0	0	207
53.9	74.8	1331.89946	14.384	0	0	141.2411	451.0617	78.24965	0	0	0	0	0	0	207
42.2	63.3	948.6373	14.384	0	0	139.1081	451.0617	74.79109	0	0	0	0	0	0	207
28.5	45.8	1102.83052	14.384	0	0	172.6483	655.0493	113.7519	0	0	0	0	0	0	207
38.6	58.6	1456.2693	14.384	0	0	196.4385	655.0493	129.5027	0	0	0	0	0	0	207

12.9	29	574.89324	14.384	0	0	143.0291	655.0493	94.13242	0	0	0	0	0	0	207
17.2	33.5	826.48835	14.384	0	0	148.1312	655.0493	97.39173	0	0	0	0	0	0	207
47.7	70.1	1803.36268	14.384	0	0	195.0216	655.0493	127.7892	0	0	0	0	0	0	207
57.5	79.6	1988.33109	14.384	0	0	193.9537	655.0493	127.1723	0	0	0	0	0	0	207
53.9	74.8	1331.89946	14.384	0	0	175.7667	655.0493	115.4414	0	0	0	0	0	0	207
42.2	63.3	948.6373	14.384	0	0	173.1123	655.0493	113.384	0	0	0	0	0	0	207
62.6	83.7	1938.5197	14.384	0	0	185.7319	655.0493	122.3982	0	0	0	0	0	0	207
61.6	81.8	1698.98085	14.384	0	0	178.1186	655.0493	117.5911	0	0	0	0	0	0	207
31.6	48.4	575.52778	14.384	0	0	165.612	655.0493	108.7412	0	0	0	0	0	0	207
19.1	34	461.31058	14.384	0	0	142.5522	655.0493	93.5308	0	0	0	0	0	0	207
12.9	29	574.89324	14.384	0	0	114.9341	498.8701	72.19196	0	0	0	0	0	0	207
17.2	33.5	826.48835	14.384	0	0	119.034	498.8701	74.77283	0	0	0	0	0	0	207
47.7	70.1	1803.36268	14.384	0	0	156.7138	498.8701	98.66685	0	0	0	0	0	0	207
57.5	79.6	1988.33109	14.384	0	0	155.8556	498.8701	98.90734	0	0	0	0	0	0	207
53.9	74.8	1331.89946	14.384	0	0	141.2411	498.8701	90.01227	0	0	0	0	0	0	207
42.2	63.3	948.6373	14.384	0	0	139.1081	498.8701	87.75183	0	0	0	0	0	0	207
28.5	45.8	1102.83052	14.384	0	0	138.7353	498.8701	87.14498	0	0	0	0	0	0	207
38.6	58.6	1456.2693	14.384	0	0	157.8524	498.8701	99.15896	0	0	0	0	0	0	207
62.6	83.7	1938.5197	14.384	0	0	149.2489	498.8701	95.7481	0	0	0	0	0	0	207
61.6	81.8	1698.98085	14.384	0	0	143.131	498.8701	92.10987	0	0	0	0	0	0	207
31.6	48.4	575.52778	14.384	0	0	133.0811	498.8701	83.62494	0	0	0	0	0	0	207
19.1	34	461.31058	14.384	0	0	114.5509	498.8701	72.00858	0	0	0	0	0	0	207

VP_MOLW	L_DENS	ALPHA	ALPHA_2	ALS_TEMP	MLS_TEMI	XLS_TEMP	BULK_T	A_VP	M_VP	X_VP	DIAMETEF	EFF_DIAM	HEIGHT_S	HEIGHT_R	HEIGHT_L	HEIGHT_A	VOLUME
50	7.1	0.17	0	504.9483	500.5219	509.3747	508.69	4.206864	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	510.461	505.128	515.7939	508.69	4.654944	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	521.9106	515.8058	528.0155	508.69	5.70483	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	520.9509	515.2931	526.6087	508.69	5.610327	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	497.1113	493.5292	500.6934	508.69	3.629032	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	499.3852	495.4677	503.3027	508.69	3.7898	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	515.4591	509.2811	521.6371	508.69	5.092783	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	519.9535	513.6094	526.2976	508.69	5.51341	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	517.2239	511.877	522.5709	508.69	5.254846	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	511.6052	506.6783	516.5321	508.69	4.752472	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	505.4941	501.7853	509.203	508.69	4.249653	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	499.4227	496.1918	502.6537	508.69	3.792502	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	497.1113	493.5292	500.6934	508.69	3.629032	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	499.3852	495.4677	503.3027	508.69	3.7898	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	515.4591	509.2811	521.6371	508.69	5.092783	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	519.9535	513.6094	526.2976	508.69	5.51341	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	517.2239	511.877	522.5709	508.69	5.254846	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	511.6052	506.6783	516.5321	508.69	4.752472	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	504.9483	500.5219	509.3747	508.69	4.206864	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	510.461	505.128	515.7939	508.69	4.654944	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	521.9106	515.8058	528.0155	508.69	5.70483	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	520.9509	515.2931	526.6087	508.69	5.610327	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	505.4941	501.7853	509.203	508.69	4.249653	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	499.4227	496.1918	502.6537	508.69	3.792502	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	497.1113	493.5292	500.6934	508.69	3.629032	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	499.3852	495.4677	503.3027	508.69	3.7898	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	504.9483	500.5219	509.3747	508.69	4.206864	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	510.461	505.128	515.7939	508.69	4.654944	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	521.9106	515.8058	528.0155	508.69	5.70483	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	520.9509	515.2931	526.6087	508.69	5.610327	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	505.4941	501.7853	509.203	508.69	4.249653	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	499.4227	496.1918	502.6537	508.69	3.792502	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	515.4591	509.2811	521.6371	508.69	5.092783	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	519.9535	513.6094	526.2976	508.69	5.51341	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	517.2239	511.877	522.5709	508.69	5.254846	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	511.6052	506.6783	516.5321	508.69	4.752472	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	504.9483	500.5219	509.3747	508.69	4.206864	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	510.461	505.128	515.7939	508.69	4.654944	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	497.1113	493.5292	500.6934	508.69	3.629032	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	499.3852	495.4677	503.3027	508.69	3.7898	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	515.4591	509.2811	521.6371	508.69	5.092783	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	519.9535	513.6094	526.2976	508.69	5.51341	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	517.2239	511.877	522.5709	508.69	5.254846	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	511.6052	506.6783	516.5321	508.69	4.752472	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	521.9106	515.8058	528.0155	508.69	5.70483	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	520.9509	515.2931	526.6087	508.69	5.610327	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	505.4941	501.7853	509.203	508.69	4.249653	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	499.4227	496.1918	502.6537	508.69	3.792502	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	497.1113	493.5292	500.6934	508.69	3.629032	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	499.3852	495.4677	503.3027	508.69	3.7898	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	515.4591	509.2811	521.6371	508.69	5.092783	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	519.9535	513.6094	526.2976	508.69	5.51341	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	517.2239	511.877	522.5709	508.69	5.254846	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	511.6052	506.6783	516.5321	508.69	4.752472	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	504.9483	500.5219	509.3747	508.69	4.206864	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	510.461	505.128	515.7939	508.69	4.654944	0	0	134	0	0	0	0	0	4200000

50	7.1	0.17	0	521.9106	515.8058	528.0155	508.69	5.70483	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	520.9509	515.2931	526.6087	508.69	5.610327	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	505.4941	501.7853	509.203	508.69	4.249653	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	499.4227	496.1918	502.6537	508.69	3.792502	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	504.9483	500.5219	509.3747	508.69	4.206864	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	510.461	505.128	515.7939	508.69	4.654944	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	521.9106	515.8058	528.0155	508.69	5.70483	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	520.9509	515.2931	526.6087	508.69	5.610327	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	505.4941	501.7853	509.203	508.69	4.249653	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	499.4227	496.1918	502.6537	508.69	3.792502	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	497.1113	493.5292	500.6934	508.69	3.629032	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	499.3852	495.4677	503.3027	508.69	3.7898	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	515.4591	509.2811	521.6371	508.69	5.092783	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	519.9535	513.6094	526.2976	508.69	5.51341	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	517.2239	511.877	522.5709	508.69	5.254846	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	511.6052	506.6783	516.5321	508.69	4.752472	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	497.1113	493.5292	500.6934	508.69	3.629032	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	499.3852	495.4677	503.3027	508.69	3.7898	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	515.4591	509.2811	521.6371	508.69	5.092783	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	519.9535	513.6094	526.2976	508.69	5.51341	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	517.2239	511.877	522.5709	508.69	5.254846	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	511.6052	506.6783	516.5321	508.69	4.752472	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	504.9483	500.5219	509.3747	508.69	4.206864	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	510.461	505.128	515.7939	508.69	4.654944	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	521.9106	515.8058	528.0155	508.69	5.70483	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	520.9509	515.2931	526.6087	508.69	5.610327	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	505.4941	501.7853	509.203	508.69	4.249653	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	499.4227	496.1918	502.6537	508.69	3.792502	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	497.1113	493.5292	500.6934	508.69	3.629032	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	499.3852	495.4677	503.3027	508.69	3.7898	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	515.4591	509.2811	521.6371	508.69	5.092783	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	519.9535	513.6094	526.2976	508.69	5.51341	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	504.9483	500.5219	509.3747	508.69	4.206864	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	510.461	505.128	515.7939	508.69	4.654944	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	521.9106	515.8058	528.0155	508.69	5.70483	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	520.9509	515.2931	526.6087	508.69	5.610327	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	505.4941	501.7853	509.203	508.69	4.249653	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	499.4227	496.1918	502.6537	508.69	3.792502	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	517.2239	511.877	522.5709	508.69	5.254846	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	511.6052	506.6783	516.5321	508.69	4.752472	0	0	134	0	0	0	0	0	4200000
50	7.1	0.17	0	504.9483	500.5219	509.3747	508.69	4.206864	0	0	270	0	0	0	0	0	22205610
50	7.1	0.17	0	510.461	505.128	515.7939	508.69	4.654944	0	0	270	0	0	0	0	0	22205610
50	7.1	0.17	0	521.9106	515.8058	528.0155	508.69	5.70483	0	0	270	0	0	0	0	0	22205610
50	7.1	0.17	0	520.9509	515.2931	526.6087	508.69	5.610327	0	0	270	0	0	0	0	0	22205610
50	7.1	0.17	0	497.1113	493.5292	500.6934	508.69	3.629032	0	0	270	0	0	0	0	0	22205610
50	7.1	0.17	0	499.3852	495.4677	503.3027	508.69	3.7898	0	0	270	0	0	0	0	0	22205610
50	7.1	0.17	0	515.4591	509.2811	521.6371	508.69	5.092783	0	0	270	0	0	0	0	0	22205610
50	7.1	0.17	0	519.9535	513.6094	526.2976	508.69	5.51341	0	0	270	0	0	0	0	0	22205610
50	7.1	0.17	0	517.2239	511.877	522.5709	508.69	5.254846	0	0	270	0	0	0	0	0	22205610
50	7.1	0.17	0	511.6052	506.6783	516.5321	508.69	4.752472	0	0	270	0	0	0	0	0	22205610
50	7.1	0.17	0	505.4941	501.7853	509.203	508.69	4.249653	0	0	270	0	0	0	0	0	22205610
50	7.1	0.17	0	499.4227	496.1918	502.6537	508.69	3.792502	0	0	270	0	0	0	0	0	22205610
50	7.1	0.17	0	497.1113	493.5292	500.6934	508.69	3.629032	0	0	223	0	0	0	0	0	15120000
50	7.1	0.17	0	499.3852	495.4677	503.3027	508.69	3.7898	0	0	223	0	0	0	0	0	15120000
50	7.1	0.17	0	515.4591	509.2811	521.6371	508.69	5.092783	0	0	223	0	0	0	0	0	15120000
50	7.1	0.17	0	519.9535	513.6094	526.2976	508.69	5.51341	0	0	223	0	0	0	0	0	15120000
50	7.1	0.17	0	517.2239	511.877	522.5709	508.69	5.254846	0	0	223	0	0	0	0	0	15120000
50	7.1	0.17	0	511.6052	506.6783	516.5321	508.69	4.752472	0	0	223	0	0	0	0	0	15120000

50	7.1	0.17	0	504.9483	500.5219	509.3747	508.69	4.206864	0	0	223	0	0	0	0	0	15120000
50	7.1	0.17	0	510.461	505.128	515.7939	508.69	4.654944	0	0	223	0	0	0	0	0	15120000
50	7.1	0.17	0	521.9106	515.8058	528.0155	508.69	5.70483	0	0	223	0	0	0	0	0	15120000
50	7.1	0.17	0	520.9509	515.2931	526.6087	508.69	5.610327	0	0	223	0	0	0	0	0	15120000
50	7.1	0.17	0	505.4941	501.7853	509.203	508.69	4.249653	0	0	223	0	0	0	0	0	15120000
50	7.1	0.17	0	499.4227	496.1918	502.6537	508.69	3.792502	0	0	223	0	0	0	0	0	15120000
50	7.1	0.17	0	497.1113	493.5292	500.6934	508.69	3.629032	0	0	134	0	0	0	0	0	5040000
50	7.1	0.17	0	499.3852	495.4677	503.3027	508.69	3.7898	0	0	134	0	0	0	0	0	5040000
50	7.1	0.17	0	504.9483	500.5219	509.3747	508.69	4.206864	0	0	134	0	0	0	0	0	5040000
50	7.1	0.17	0	510.461	505.128	515.7939	508.69	4.654944	0	0	134	0	0	0	0	0	5040000
50	7.1	0.17	0	521.9106	515.8058	528.0155	508.69	5.70483	0	0	134	0	0	0	0	0	5040000
50	7.1	0.17	0	520.9509	515.2931	526.6087	508.69	5.610327	0	0	134	0	0	0	0	0	5040000
50	7.1	0.17	0	505.4941	501.7853	509.203	508.69	4.249653	0	0	134	0	0	0	0	0	5040000
50	7.1	0.17	0	499.4227	496.1918	502.6537	508.69	3.792502	0	0	134	0	0	0	0	0	5040000
50	7.1	0.17	0	515.4591	509.2811	521.6371	508.69	5.092783	0	0	134	0	0	0	0	0	5040000
50	7.1	0.17	0	519.9535	513.6094	526.2976	508.69	5.51341	0	0	134	0	0	0	0	0	5040000
50	7.1	0.17	0	517.2239	511.877	522.5709	508.69	5.254846	0	0	134	0	0	0	0	0	5040000
50	7.1	0.17	0	511.6052	506.6783	516.5321	508.69	4.752472	0	0	134	0	0	0	0	0	5040000
50	7.1	0.17	0	504.9483	500.5219	509.3747	508.69	4.206864	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	510.461	505.128	515.7939	508.69	4.654944	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	497.1113	493.5292	500.6934	508.69	3.629032	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	499.3852	495.4677	503.3027	508.69	3.7898	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	515.4591	509.2811	521.6371	508.69	5.092783	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	519.9535	513.6094	526.2976	508.69	5.51341	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	517.2239	511.877	522.5709	508.69	5.254846	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	511.6052	506.6783	516.5321	508.69	4.752472	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	521.9106	515.8058	528.0155	508.69	5.70483	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	520.9509	515.2931	526.6087	508.69	5.610327	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	505.4941	501.7853	509.203	508.69	4.249653	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	499.4227	496.1918	502.6537	508.69	3.792502	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	497.1113	493.5292	500.6934	508.69	3.629032	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	499.3852	495.4677	503.3027	508.69	3.7898	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	515.4591	509.2811	521.6371	508.69	5.092783	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	519.9535	513.6094	526.2976	508.69	5.51341	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	517.2239	511.877	522.5709	508.69	5.254846	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	511.6052	506.6783	516.5321	508.69	4.752472	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	504.9483	500.5219	509.3747	508.69	4.206864	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	510.461	505.128	515.7939	508.69	4.654944	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	521.9106	515.8058	528.0155	508.69	5.70483	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	520.9509	515.2931	526.6087	508.69	5.610327	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	505.4941	501.7853	509.203	508.69	4.249653	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	499.4227	496.1918	502.6537	508.69	3.792502	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	504.9483	500.5219	509.3747	508.69	4.206864	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	510.461	505.128	515.7939	508.69	4.654944	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	521.9106	515.8058	528.0155	508.69	5.70483	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	520.9509	515.2931	526.6087	508.69	5.610327	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	505.4941	501.7853	509.203	508.69	4.249653	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	499.4227	496.1918	502.6537	508.69	3.792502	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	497.1113	493.5292	500.6934	508.69	3.629032	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	499.3852	495.4677	503.3027	508.69	3.7898	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	515.4591	509.2811	521.6371	508.69	5.092783	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	519.9535	513.6094	526.2976	508.69	5.51341	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	517.2239	511.877	522.5709	508.69	5.254846	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	511.6052	506.6783	516.5321	508.69	4.752472	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	497.1113	493.5292	500.6934	508.69	3.629032	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	499.3852	495.4677	503.3027	508.69	3.7898	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	515.4591	509.2811	521.6371	508.69	5.092783	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	519.9535	513.6094	526.2976	508.69	5.51341	0	0	180	0	0	0	0	0	9114000

50	7.1	0.17	0	517.2239	511.877	522.5709	508.69	5.254846	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	511.6052	506.6783	516.5321	508.69	4.752472	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	504.9483	500.5219	509.3747	508.69	4.206864	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	510.461	505.128	515.7939	508.69	4.654944	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	521.9106	515.8058	528.0155	508.69	5.70483	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	520.9509	515.2931	526.6087	508.69	5.610327	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	505.4941	501.7853	509.203	508.69	4.249653	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	499.4227	496.1918	502.6537	508.69	3.792502	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	497.1113	493.5292	500.6934	508.69	3.629032	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	499.3852	495.4677	503.3027	508.69	3.7898	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	515.4591	509.2811	521.6371	508.69	5.092783	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	519.9535	513.6094	526.2976	508.69	5.51341	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	504.9483	500.5219	509.3747	508.69	4.206864	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	510.461	505.128	515.7939	508.69	4.654944	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	521.9106	515.8058	528.0155	508.69	5.70483	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	520.9509	515.2931	526.6087	508.69	5.610327	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	505.4941	501.7853	509.203	508.69	4.249653	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	499.4227	496.1918	502.6537	508.69	3.792502	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	517.2239	511.877	522.5709	508.69	5.254846	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	511.6052	506.6783	516.5321	508.69	4.752472	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	504.9483	500.5219	509.3747	508.69	4.206864	0	0	210	0	0	0	0	0	16590000
50	7.1	0.17	0	510.461	505.128	515.7939	508.69	4.654944	0	0	210	0	0	0	0	0	16590000
50	7.1	0.17	0	521.9106	515.8058	528.0155	508.69	5.70483	0	0	210	0	0	0	0	0	16590000
50	7.1	0.17	0	520.9509	515.2931	526.6087	508.69	5.610327	0	0	210	0	0	0	0	0	16590000
50	7.1	0.17	0	497.1113	493.5292	500.6934	508.69	3.629032	0	0	210	0	0	0	0	0	16590000
50	7.1	0.17	0	499.3852	495.4677	503.3027	508.69	3.7898	0	0	210	0	0	0	0	0	16590000
50	7.1	0.17	0	515.4591	509.2811	521.6371	508.69	5.092783	0	0	210	0	0	0	0	0	16590000
50	7.1	0.17	0	519.9535	513.6094	526.2976	508.69	5.51341	0	0	210	0	0	0	0	0	16590000
50	7.1	0.17	0	517.2239	511.877	522.5709	508.69	5.254846	0	0	210	0	0	0	0	0	16590000
50	7.1	0.17	0	511.6052	506.6783	516.5321	508.69	4.752472	0	0	210	0	0	0	0	0	16590000
50	7.1	0.17	0	505.4941	501.7853	509.203	508.69	4.249653	0	0	210	0	0	0	0	0	16590000
50	7.1	0.17	0	499.4227	496.1918	502.6537	508.69	3.792502	0	0	210	0	0	0	0	0	16590000
50	7.1	0.17	0	497.1113	493.5292	500.6934	508.69	3.629032	0	0	210	0	0	0	0	0	16590000
50	7.1	0.17	0	499.3852	495.4677	503.3027	508.69	3.7898	0	0	210	0	0	0	0	0	16590000
50	7.1	0.17	0	515.4591	509.2811	521.6371	508.69	5.092783	0	0	210	0	0	0	0	0	16590000
50	7.1	0.17	0	519.9535	513.6094	526.2976	508.69	5.51341	0	0	210	0	0	0	0	0	16590000
50	7.1	0.17	0	517.2239	511.877	522.5709	508.69	5.254846	0	0	210	0	0	0	0	0	16590000
50	7.1	0.17	0	511.6052	506.6783	516.5321	508.69	4.752472	0	0	210	0	0	0	0	0	16590000
50	7.1	0.17	0	504.9483	500.5219	509.3747	508.69	4.206864	0	0	210	0	0	0	0	0	16590000
50	7.1	0.17	0	510.461	505.128	515.7939	508.69	4.654944	0	0	210	0	0	0	0	0	16590000
50	7.1	0.17	0	521.9106	515.8058	528.0155	508.69	5.70483	0	0	210	0	0	0	0	0	16590000
50	7.1	0.17	0	520.9509	515.2931	526.6087	508.69	5.610327	0	0	210	0	0	0	0	0	16590000
50	7.1	0.17	0	505.4941	501.7853	509.203	508.69	4.249653	0	0	210	0	0	0	0	0	16590000
50	7.1	0.17	0	499.4227	496.1918	502.6537	508.69	3.792502	0	0	210	0	0	0	0	0	16590000
50	7.1	0.17	0	497.1113	493.5292	500.6934	508.69	3.629032	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	499.3852	495.4677	503.3027	508.69	3.7898	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	504.9483	500.5219	509.3747	508.69	4.206864	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	510.461	505.128	515.7939	508.69	4.654944	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	521.9106	515.8058	528.0155	508.69	5.70483	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	520.9509	515.2931	526.6087	508.69	5.610327	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	505.4941	501.7853	509.203	508.69	4.249653	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	499.4227	496.1918	502.6537	508.69	3.792502	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	515.4591	509.2811	521.6371	508.69	5.092783	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	519.9535	513.6094	526.2976	508.69	5.51341	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	517.2239	511.877	522.5709	508.69	5.254846	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	511.6052	506.6783	516.5321	508.69	4.752472	0	0	180	0	0	0	0	0	9114000
50	7.1	0.17	0	504.9483	500.5219	509.3747	508.69	4.206864	0	0	224	0	0	0	0	0	16471098
50	7.1	0.17	0	510.461	505.128	515.7939	508.69	4.654944	0	0	224	0	0	0	0	0	16471098

50	7.1	0.17	0	497.1113	493.5292	500.6934	508.69	3.629032	0	0	224	0	0	0	0	0	16471098
50	7.1	0.17	0	499.3852	495.4677	503.3027	508.69	3.7898	0	0	224	0	0	0	0	0	16471098
50	7.1	0.17	0	515.4591	509.2811	521.6371	508.69	5.092783	0	0	224	0	0	0	0	0	16471098
50	7.1	0.17	0	519.9535	513.6094	526.2976	508.69	5.51341	0	0	224	0	0	0	0	0	16471098
50	7.1	0.17	0	517.2239	511.877	522.5709	508.69	5.254846	0	0	224	0	0	0	0	0	16471098
50	7.1	0.17	0	511.6052	506.6783	516.5321	508.69	4.752472	0	0	224	0	0	0	0	0	16471098
50	7.1	0.17	0	521.9106	515.8058	528.0155	508.69	5.70483	0	0	224	0	0	0	0	0	16471098
50	7.1	0.17	0	520.9509	515.2931	526.6087	508.69	5.610327	0	0	224	0	0	0	0	0	16471098
50	7.1	0.17	0	505.4941	501.7853	509.203	508.69	4.249653	0	0	224	0	0	0	0	0	16471098
50	7.1	0.17	0	499.4227	496.1918	502.6537	508.69	3.792502	0	0	224	0	0	0	0	0	16471098
50	7.1	0.17	0	497.1113	493.5292	500.6934	508.69	3.629032	0	0	180	0	0	0	0	0	10080000
50	7.1	0.17	0	499.3852	495.4677	503.3027	508.69	3.7898	0	0	180	0	0	0	0	0	10080000
50	7.1	0.17	0	515.4591	509.2811	521.6371	508.69	5.092783	0	0	180	0	0	0	0	0	10080000
50	7.1	0.17	0	519.9535	513.6094	526.2976	508.69	5.51341	0	0	180	0	0	0	0	0	10080000
50	7.1	0.17	0	517.2239	511.877	522.5709	508.69	5.254846	0	0	180	0	0	0	0	0	10080000
50	7.1	0.17	0	511.6052	506.6783	516.5321	508.69	4.752472	0	0	180	0	0	0	0	0	10080000
50	7.1	0.17	0	504.9483	500.5219	509.3747	508.69	4.206864	0	0	180	0	0	0	0	0	10080000
50	7.1	0.17	0	510.461	505.128	515.7939	508.69	4.654944	0	0	180	0	0	0	0	0	10080000
50	7.1	0.17	0	521.9106	515.8058	528.0155	508.69	5.70483	0	0	180	0	0	0	0	0	10080000
50	7.1	0.17	0	520.9509	515.2931	526.6087	508.69	5.610327	0	0	180	0	0	0	0	0	10080000
50	7.1	0.17	0	505.4941	501.7853	509.203	508.69	4.249653	0	0	180	0	0	0	0	0	10080000
50	7.1	0.17	0	499.4227	496.1918	502.6537	508.69	3.792502	0	0	180	0	0	0	0	0	10080000

Q_NET	TURNOVE	SHL COLS	SHL_CONI	PT_COND	RF_COLSI	RF_COND	RF_TYPE	VP_RANGI	T_RANGE	VT_RANGI	RF_OUT	VS_OUT	VS_VOL	V_DENS	BV_RANGI	K_E	K_S
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good				0	0	0	0	0	0	0	0	0	0

39118008	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
39118008	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
2.07E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
2.07E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
2.07E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
2.07E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
2.07E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
2.07E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
2.07E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
2.07E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
2.07E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
2.07E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
2.07E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
2.07E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.41E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.41E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.41E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.41E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.41E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.41E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0

1.41E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.41E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.41E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.41E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.41E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.41E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
46941609	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
46941609	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
46941609	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
46941609	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
46941609	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
46941609	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
46941609	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
46941609	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
46941609	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
46941609	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
46941609	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
46941609	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0

84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.55E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.55E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.55E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.55E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.55E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.55E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.55E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.55E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.55E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.55E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.55E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.55E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.55E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.55E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.55E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.55E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.55E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.55E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.55E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.55E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.55E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.55E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.55E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.55E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
84886077	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.53E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.53E+08	111.7657	White/Whit	Light Rust	Good	0	0	0	0	0	0	0	0	0	0

1.53E+08	111.7657	White/Whit Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.53E+08	111.7657	White/Whit Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.53E+08	111.7657	White/Whit Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.53E+08	111.7657	White/Whit Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.53E+08	111.7657	White/Whit Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.53E+08	111.7657	White/Whit Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.53E+08	111.7657	White/Whit Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.53E+08	111.7657	White/Whit Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.53E+08	111.7657	White/Whit Light Rust	Good	0	0	0	0	0	0	0	0	0	0
1.53E+08	111.7657	White/Whit Light Rust	Good	0	0	0	0	0	0	0	0	0	0
93883218	111.7657	White/Whit Light Rust	Good	0	0	0	0	0	0	0	0	0	0
93883218	111.7657	White/Whit Light Rust	Good	0	0	0	0	0	0	0	0	0	0
93883218	111.7657	White/Whit Light Rust	Good	0	0	0	0	0	0	0	0	0	0
93883218	111.7657	White/Whit Light Rust	Good	0	0	0	0	0	0	0	0	0	0
93883218	111.7657	White/Whit Light Rust	Good	0	0	0	0	0	0	0	0	0	0
93883218	111.7657	White/Whit Light Rust	Good	0	0	0	0	0	0	0	0	0	0
93883218	111.7657	White/Whit Light Rust	Good	0	0	0	0	0	0	0	0	0	0
93883218	111.7657	White/Whit Light Rust	Good	0	0	0	0	0	0	0	0	0	0
93883218	111.7657	White/Whit Light Rust	Good	0	0	0	0	0	0	0	0	0	0
93883218	111.7657	White/Whit Light Rust	Good	0	0	0	0	0	0	0	0	0	0
93883218	111.7657	White/Whit Light Rust	Good	0	0	0	0	0	0	0	0	0	0
93883218	111.7657	White/Whit Light Rust	Good	0	0	0	0	0	0	0	0	0	0

K_N	K_P	M_KR	M_P	M_KC	M_C	VENT_P	VENT_V	C_SLOPE	D_RADIUS	NC	FC	M_FF	SD	KD	N_FACT	TANK_COI	RIM_PRIM
0	0	5.36	0.086278	0.4	0.006	0	0	0	0	8	0	271.9672	0	0	1	Welded	Mechanica
0	0	5.4	0.09744	0.4	0.006	0	0	0	0	8	0	274.048	0	0	1	Welded	Mechanica
0	0	3.96	0.12563	0.4	0.006	0	0	0	0	8	0	204.296	0	0	1	Welded	Mechanica
0	0	3.88	0.122965	0.4	0.006	0	0	0	0	8	0	200.7406	0	0	1	Welded	Mechanica
0	0	5.28	0.072559	0.4	0.006	0	0	0	0	8	0	267.8295	0	0	1	Welded	Mechanica
0	0	5.2	0.076304	0.4	0.006	0	0	0	0	8	0	263.7238	0	0	1	Welded	Mechanica
0	0	4.8	0.108829	0.4	0.006	0	0	0	0	8	0	243.6816	0	0	1	Welded	Mechanica
0	0	4.32	0.120259	0.4	0.006	0	0	0	0	8	0	220.7198	0	0	1	Welded	Mechanica
0	0	4.16	0.113174	0.4	0.006	0	0	0	0	8	0	213.3349	0	0	1	Welded	Mechanica
0	0	4.64	0.099934	0.4	0.006	0	0	0	0	8	0	235.8943	0	0	1	Welded	Mechanica
0	0	5.08	0.087324	0.4	0.006	0	0	0	0	8	0	257.6257	0	0	1	Welded	Mechanica
0	0	5	0.076367	0.4	0.006	0	0	0	0	8	0	253.6009	0	0	1	Welded	Mechanica
0	0	5.28	0.072559	0.4	0.006	0	0	0	0	8	0	267.8295	0	0	1	Welded	Mechanica
0	0	5.2	0.076304	0.4	0.006	0	0	0	0	8	0	263.7238	0	0	1	Welded	Mechanica
0	0	4.8	0.108829	0.4	0.006	0	0	0	0	8	0	243.6816	0	0	1	Welded	Mechanica
0	0	4.32	0.120259	0.4	0.006	0	0	0	0	8	0	220.7198	0	0	1	Welded	Mechanica
0	0	4.16	0.113174	0.4	0.006	0	0	0	0	8	0	213.3349	0	0	1	Welded	Mechanica
0	0	4.64	0.099934	0.4	0.006	0	0	0	0	8	0	235.8943	0	0	1	Welded	Mechanica
0	0	5.36	0.086278	0.4	0.006	0	0	0	0	8	0	271.9672	0	0	1	Welded	Mechanica
0	0	5.4	0.09744	0.4	0.006	0	0	0	0	8	0	274.048	0	0	1	Welded	Mechanica
0	0	3.96	0.12563	0.4	0.006	0	0	0	0	8	0	204.296	0	0	1	Welded	Mechanica
0	0	3.88	0.122965	0.4	0.006	0	0	0	0	8	0	200.7406	0	0	1	Welded	Mechanica
0	0	5.08	0.087324	0.4	0.006	0	0	0	0	8	0	257.6257	0	0	1	Welded	Mechanica
0	0	5	0.076367	0.4	0.006	0	0	0	0	8	0	253.6009	0	0	1	Welded	Mechanica
0	0	5.28	0.072559	0.4	0.006	0	0	0	0	8	0	486.7257	0	0	1	Welded	Mechanica
0	0	5.2	0.076304	0.4	0.006	0	0	0	0	8	0	478.274	0	0	1	Welded	Mechanica
0	0	5.36	0.086278	0.4	0.006	0	0	0	0	8	0	495.2455	0	0	1	Welded	Mechanica
0	0	5.4	0.09744	0.4	0.006	0	0	0	0	8	0	499.5308	0	0	1	Welded	Mechanica
0	0	3.96	0.12563	0.4	0.006	0	0	0	0	8	0	356.3203	0	0	1	Welded	Mechanica
0	0	3.88	0.122965	0.4	0.006	0	0	0	0	8	0	349.0607	0	0	1	Welded	Mechanica
0	0	5.08	0.087324	0.4	0.006	0	0	0	0	8	0	465.7251	0	0	1	Welded	Mechanica
0	0	5	0.076367	0.4	0.006	0	0	0	0	8	0	457.4454	0	0	1	Welded	Mechanica
0	0	4.8	0.108829	0.4	0.006	0	0	0	0	8	0	437.0519	0	0	1	Welded	Mechanica
0	0	4.32	0.120259	0.4	0.006	0	0	0	0	8	0	389.9263	0	0	1	Welded	Mechanica
0	0	4.16	0.113174	0.4	0.006	0	0	0	0	8	0	374.8027	0	0	1	Welded	Mechanica
0	0	4.64	0.099934	0.4	0.006	0	0	0	0	8	0	421.055	0	0	1	Welded	Mechanica
0	0	5.36	0.086278	0.4	0.006	0	0	0	0	8	0	271.9672	0	0	1	Welded	Mechanica
0	0	5.4	0.09744	0.4	0.006	0	0	0	0	8	0	274.048	0	0	1	Welded	Mechanica
0	0	5.28	0.072559	0.4	0.006	0	0	0	0	8	0	267.8295	0	0	1	Welded	Mechanica
0	0	5.2	0.076304	0.4	0.006	0	0	0	0	8	0	263.7238	0	0	1	Welded	Mechanica
0	0	4.8	0.108829	0.4	0.006	0	0	0	0	8	0	243.6816	0	0	1	Welded	Mechanica
0	0	4.32	0.120259	0.4	0.006	0	0	0	0	8	0	220.7198	0	0	1	Welded	Mechanica
0	0	4.16	0.113174	0.4	0.006	0	0	0	0	8	0	213.3349	0	0	1	Welded	Mechanica
0	0	4.64	0.099934	0.4	0.006	0	0	0	0	8	0	235.8943	0	0	1	Welded	Mechanica
0	0	3.96	0.12563	0.4	0.006	0	0	0	0	8	0	204.296	0	0	1	Welded	Mechanica
0	0	3.88	0.122965	0.4	0.006	0	0	0	0	8	0	200.7406	0	0	1	Welded	Mechanica
0	0	5.08	0.087324	0.4	0.006	0	0	0	0	8	0	257.6257	0	0	1	Welded	Mechanica
0	0	5	0.076367	0.4	0.006	0	0	0	0	8	0	253.6009	0	0	1	Welded	Mechanica
0	0	5.28	0.072559	0.4	0.006	0	0	0	0	8	0	267.8295	0	0	1	Welded	Mechanica
0	0	5.2	0.076304	0.4	0.006	0	0	0	0	8	0	263.7238	0	0	1	Welded	Mechanica
0	0	4.8	0.108829	0.4	0.006	0	0	0	0	8	0	243.6816	0	0	1	Welded	Mechanica
0	0	4.32	0.120259	0.4	0.006	0	0	0	0	8	0	220.7198	0	0	1	Welded	Mechanica
0	0	4.16	0.113174	0.4	0.006	0	0	0	0	8	0	213.3349	0	0	1	Welded	Mechanica
0	0	4.64	0.099934	0.4	0.006	0	0	0	0	8	0	235.8943	0	0	1	Welded	Mechanica
0	0	5.36	0.086278	0.4	0.006	0	0	0	0	8	0	271.9672	0	0	1	Welded	Mechanica
0	0	5.4	0.09744	0.4	0.006	0	0	0	0	8	0	274.048	0	0	1	Welded	Mechanica

0	0	3.96	0.12563	0.4	0.006	0	0	0	0	8	0	204.296	0	0	1	Welded Mechanica
0	0	3.88	0.122965	0.4	0.006	0	0	0	0	8	0	200.7406	0	0	1	Welded Mechanica
0	0	5.08	0.087324	0.4	0.006	0	0	0	0	8	0	257.6257	0	0	1	Welded Mechanica
0	0	5	0.076367	0.4	0.006	0	0	0	0	8	0	253.6009	0	0	1	Welded Mechanica
0	0	5.36	0.086278	0.4	0.006	0	0	0	0	8	0	275.0532	0	0	1	Welded Mechanica
0	0	5.4	0.09744	0.4	0.006	0	0	0	0	8	0	277.148	0	0	1	Welded Mechanica
0	0	3.96	0.12563	0.4	0.006	0	0	0	0	8	0	206.892	0	0	1	Welded Mechanica
0	0	3.88	0.122965	0.4	0.006	0	0	0	0	8	0	203.3086	0	0	1	Welded Mechanica
0	0	5.08	0.087324	0.4	0.006	0	0	0	0	8	0	260.6137	0	0	1	Welded Mechanica
0	0	5	0.076367	0.4	0.006	0	0	0	0	8	0	256.5609	0	0	1	Welded Mechanica
0	0	5.28	0.072559	0.4	0.006	0	0	0	0	8	0	270.8875	0	0	1	Welded Mechanica
0	0	5.2	0.076304	0.4	0.006	0	0	0	0	8	0	266.7538	0	0	1	Welded Mechanica
0	0	4.8	0.108829	0.4	0.006	0	0	0	0	8	0	246.5716	0	0	1	Welded Mechanica
0	0	4.32	0.120259	0.4	0.006	0	0	0	0	8	0	223.4418	0	0	1	Welded Mechanica
0	0	4.16	0.113174	0.4	0.006	0	0	0	0	8	0	216.0009	0	0	1	Welded Mechanica
0	0	4.64	0.099934	0.4	0.006	0	0	0	0	8	0	238.7283	0	0	1	Welded Mechanica
0	0	5.28	0.072559	0.4	0.006	0	0	0	0	8	0	267.8295	0	0	1	Welded Mechanica
0	0	5.2	0.076304	0.4	0.006	0	0	0	0	8	0	263.7238	0	0	1	Welded Mechanica
0	0	4.8	0.108829	0.4	0.006	0	0	0	0	8	0	243.6816	0	0	1	Welded Mechanica
0	0	4.32	0.120259	0.4	0.006	0	0	0	0	8	0	220.7198	0	0	1	Welded Mechanica
0	0	4.16	0.113174	0.4	0.006	0	0	0	0	8	0	213.3349	0	0	1	Welded Mechanica
0	0	4.64	0.099934	0.4	0.006	0	0	0	0	8	0	235.8943	0	0	1	Welded Mechanica
0	0	5.36	0.086278	0.4	0.006	0	0	0	0	8	0	271.9672	0	0	1	Welded Mechanica
0	0	5.4	0.09744	0.4	0.006	0	0	0	0	8	0	274.048	0	0	1	Welded Mechanica
0	0	3.96	0.12563	0.4	0.006	0	0	0	0	8	0	204.296	0	0	1	Welded Mechanica
0	0	3.88	0.122965	0.4	0.006	0	0	0	0	8	0	200.7406	0	0	1	Welded Mechanica
0	0	5.08	0.087324	0.4	0.006	0	0	0	0	8	0	257.6257	0	0	1	Welded Mechanica
0	0	5	0.076367	0.4	0.006	0	0	0	0	8	0	253.6009	0	0	1	Welded Mechanica
0	0	5.28	0.072559	0.4	0.006	0	0	0	0	8	0	267.8295	0	0	1	Welded Mechanica
0	0	5.2	0.076304	0.4	0.006	0	0	0	0	8	0	263.7238	0	0	1	Welded Mechanica
0	0	4.8	0.108829	0.4	0.006	0	0	0	0	8	0	243.6816	0	0	1	Welded Mechanica
0	0	4.32	0.120259	0.4	0.006	0	0	0	0	8	0	220.7198	0	0	1	Welded Mechanica
0	0	5.36	0.086278	0.4	0.006	0	0	0	0	8	0	271.9672	0	0	1	Welded Mechanica
0	0	5.4	0.09744	0.4	0.006	0	0	0	0	8	0	274.048	0	0	1	Welded Mechanica
0	0	3.96	0.12563	0.4	0.006	0	0	0	0	8	0	204.296	0	0	1	Welded Mechanica
0	0	3.88	0.122965	0.4	0.006	0	0	0	0	8	0	200.7406	0	0	1	Welded Mechanica
0	0	5.08	0.087324	0.4	0.006	0	0	0	0	8	0	257.6257	0	0	1	Welded Mechanica
0	0	5	0.076367	0.4	0.006	0	0	0	0	8	0	253.6009	0	0	1	Welded Mechanica
0	0	4.16	0.113174	0.4	0.006	0	0	0	0	8	0	213.3349	0	0	1	Welded Mechanica
0	0	4.64	0.099934	0.4	0.006	0	0	0	0	8	0	235.8943	0	0	1	Welded Mechanica
0	0	5.36	0.086278	0.4	0.006	0	0	0	0	37	0	789.1483	0	0	1	Welded Mechanica
0	0	5.4	0.09744	0.4	0.006	0	0	0	0	37	0	794.0971	0	0	1	Welded Mechanica
0	0	3.96	0.12563	0.4	0.006	0	0	0	0	37	0	626.2393	0	0	1	Welded Mechanica
0	0	3.88	0.122965	0.4	0.006	0	0	0	0	37	0	617.5547	0	0	1	Welded Mechanica
0	0	5.28	0.072559	0.4	0.006	0	0	0	0	37	0	779.2984	0	0	1	Welded Mechanica
0	0	5.2	0.076304	0.4	0.006	0	0	0	0	37	0	769.5124	0	0	1	Welded Mechanica
0	0	4.8	0.108829	0.4	0.006	0	0	0	0	37	0	721.5516	0	0	1	Welded Mechanica
0	0	4.32	0.120259	0.4	0.006	0	0	0	0	37	0	666.174	0	0	1	Welded Mechanica
0	0	4.16	0.113174	0.4	0.006	0	0	0	0	37	0	648.2538	0	0	1	Welded Mechanica
0	0	4.64	0.099934	0.4	0.006	0	0	0	0	37	0	702.8256	0	0	1	Welded Mechanica
0	0	5.08	0.087324	0.4	0.006	0	0	0	0	37	0	754.9538	0	0	1	Welded Mechanica
0	0	5	0.076367	0.4	0.006	0	0	0	0	37	0	745.3289	0	0	1	Welded Mechanica
0	0	5.28	0.072559	0.4	0.006	0	0	0	0	31	0	665.0223	0	0	1	Welded Mechanica
0	0	5.2	0.076304	0.4	0.006	0	0	0	0	31	0	655.5885	0	0	1	Welded Mechanica
0	0	4.8	0.108829	0.4	0.006	0	0	0	0	31	0	609.4177	0	0	1	Welded Mechanica
0	0	4.32	0.120259	0.4	0.006	0	0	0	0	31	0	556.2599	0	0	1	Welded Mechanica
0	0	4.16	0.113174	0.4	0.006	0	0	0	0	31	0	539.0997	0	0	1	Welded Mechanica
0	0	4.64	0.099934	0.4	0.006	0	0	0	0	31	0	591.4223	0	0	1	Welded Mechanica

0	0	5.36	0.086278	0.4	0.006	0	0	0	0	31	0	674.5218	0	0	1	Welded	Mechanica
0	0	5.4	0.09744	0.4	0.006	0	0	0	0	31	0	679.2961	0	0	1	Welded	Mechanica
0	0	3.96	0.12563	0.4	0.006	0	0	0	0	31	0	518.0513	0	0	1	Welded	Mechanica
0	0	3.88	0.122965	0.4	0.006	0	0	0	0	31	0	509.7584	0	0	1	Welded	Mechanica
0	0	5.08	0.087324	0.4	0.006	0	0	0	0	31	0	641.5618	0	0	1	Welded	Mechanica
0	0	5	0.076367	0.4	0.006	0	0	0	0	31	0	632.2938	0	0	1	Welded	Mechanica
0	0	5.28	0.072559	0.4	0.006	0	0	0	0	8	0	1452.33	0	0	1	Welded	Mechanica
0	0	5.2	0.076304	0.4	0.006	0	0	0	0	8	0	1424.964	0	0	1	Welded	Mechanica
0	0	5.36	0.086278	0.4	0.006	0	0	0	0	8	0	1479.86	0	0	1	Welded	Mechanica
0	0	5.4	0.09744	0.4	0.006	0	0	0	0	8	0	1493.686	0	0	1	Welded	Mechanica
0	0	3.96	0.12563	0.4	0.006	0	0	0	0	8	0	1023.102	0	0	1	Welded	Mechanica
0	0	3.88	0.122965	0.4	0.006	0	0	0	0	8	0	998.7198	0	0	1	Welded	Mechanica
0	0	5.08	0.087324	0.4	0.006	0	0	0	0	8	0	1384.225	0	0	1	Welded	Mechanica
0	0	5	0.076367	0.4	0.006	0	0	0	0	8	0	1357.275	0	0	1	Welded	Mechanica
0	0	4.8	0.108829	0.4	0.006	0	0	0	0	8	0	1290.646	0	0	1	Welded	Mechanica
0	0	4.32	0.120259	0.4	0.006	0	0	0	0	8	0	1135.248	0	0	1	Welded	Mechanica
0	0	4.16	0.113174	0.4	0.006	0	0	0	0	8	0	1084.923	0	0	1	Welded	Mechanica
0	0	4.64	0.099934	0.4	0.006	0	0	0	0	8	0	1238.127	0	0	1	Welded	Mechanica
0	0	5.36	0.086278	0.4	0.006	0	0	0	0	19	0	1263.562	0	0	1	Welded	Mechanica
0	0	5.4	0.09744	0.4	0.006	0	0	0	0	19	0	1275.51	0	0	1	Welded	Mechanica
0	0	5.28	0.072559	0.4	0.006	0	0	0	0	19	0	1239.775	0	0	1	Welded	Mechanica
0	0	5.2	0.076304	0.4	0.006	0	0	0	0	19	0	1216.133	0	0	1	Welded	Mechanica
0	0	4.8	0.108829	0.4	0.006	0	0	0	0	19	0	1100.148	0	0	1	Welded	Mechanica
0	0	4.32	0.120259	0.4	0.006	0	0	0	0	19	0	966.0811	0	0	1	Welded	Mechanica
0	0	4.16	0.113174	0.4	0.006	0	0	0	0	19	0	922.695	0	0	1	Welded	Mechanica
0	0	4.64	0.099934	0.4	0.006	0	0	0	0	19	0	1054.823	0	0	1	Welded	Mechanica
0	0	3.96	0.12563	0.4	0.006	0	0	0	0	19	0	869.4188	0	0	1	Welded	Mechanica
0	0	3.88	0.122965	0.4	0.006	0	0	0	0	19	0	848.4133	0	0	1	Welded	Mechanica
0	0	5.08	0.087324	0.4	0.006	0	0	0	0	19	0	1180.945	0	0	1	Welded	Mechanica
0	0	5	0.076367	0.4	0.006	0	0	0	0	19	0	1157.671	0	0	1	Welded	Mechanica
0	0	5.28	0.072559	0.4	0.006	0	0	0	0	19	0	2163.912	0	0	1	Welded	Mechanica
0	0	5.2	0.076304	0.4	0.006	0	0	0	0	19	0	2118.677	0	0	1	Welded	Mechanica
0	0	4.8	0.108829	0.4	0.006	0	0	0	0	19	0	1897.038	0	0	1	Welded	Mechanica
0	0	4.32	0.120259	0.4	0.006	0	0	0	0	19	0	1641.509	0	0	1	Welded	Mechanica
0	0	4.16	0.113174	0.4	0.006	0	0	0	0	19	0	1558.995	0	0	1	Welded	Mechanica
0	0	4.64	0.099934	0.4	0.006	0	0	0	0	19	0	1810.563	0	0	1	Welded	Mechanica
0	0	5.36	0.086278	0.4	0.006	0	0	0	0	19	0	2209.443	0	0	1	Welded	Mechanica
0	0	5.4	0.09744	0.4	0.006	0	0	0	0	19	0	2232.318	0	0	1	Welded	Mechanica
0	0	3.96	0.12563	0.4	0.006	0	0	0	0	19	0	1457.81	0	0	1	Welded	Mechanica
0	0	3.88	0.122965	0.4	0.006	0	0	0	0	19	0	1417.96	0	0	1	Welded	Mechanica
0	0	5.08	0.087324	0.4	0.006	0	0	0	0	19	0	2051.384	0	0	1	Welded	Mechanica
0	0	5	0.076367	0.4	0.006	0	0	0	0	19	0	2006.9	0	0	1	Welded	Mechanica
0	0	5.36	0.086278	0.4	0.006	0	0	0	0	19	0	1252.538	0	0	1	Welded	Mechanica
0	0	5.4	0.09744	0.4	0.006	0	0	0	0	19	0	1264.412	0	0	1	Welded	Mechanica
0	0	3.96	0.12563	0.4	0.006	0	0	0	0	19	0	860.996	0	0	1	Welded	Mechanica
0	0	3.88	0.122965	0.4	0.006	0	0	0	0	19	0	840.1417	0	0	1	Welded	Mechanica
0	0	5.08	0.087324	0.4	0.006	0	0	0	0	19	0	1170.434	0	0	1	Welded	Mechanica
0	0	5	0.076367	0.4	0.006	0	0	0	0	19	0	1147.308	0	0	1	Welded	Mechanica
0	0	5.28	0.072559	0.4	0.006	0	0	0	0	19	0	1228.897	0	0	1	Welded	Mechanica
0	0	5.2	0.076304	0.4	0.006	0	0	0	0	19	0	1205.402	0	0	1	Welded	Mechanica
0	0	4.8	0.108829	0.4	0.006	0	0	0	0	19	0	1090.155	0	0	1	Welded	Mechanica
0	0	4.32	0.120259	0.4	0.006	0	0	0	0	19	0	956.9813	0	0	1	Welded	Mechanica
0	0	4.16	0.113174	0.4	0.006	0	0	0	0	19	0	913.8953	0	0	1	Welded	Mechanica
0	0	4.64	0.099934	0.4	0.006	0	0	0	0	19	0	1045.126	0	0	1	Welded	Mechanica
0	0	5.28	0.072559	0.4	0.006	0	0	0	0	19	0	481.5615	0	0	1	Welded	Mechanica
0	0	5.2	0.076304	0.4	0.006	0	0	0	0	19	0	475.6686	0	0	1	Welded	Mechanica
0	0	4.8	0.108829	0.4	0.006	0	0	0	0	19	0	446.6743	0	0	1	Welded	Mechanica
0	0	4.32	0.120259	0.4	0.006	0	0	0	0	19	0	412.9339	0	0	1	Welded	Mechanica

0	0	4.16	0.113174	0.4	0.006	0	0	0	0	19	0	401.9475	0	0	1	Welded	Mechanica
0	0	4.64	0.099934	0.4	0.006	0	0	0	0	19	0	435.2985	0	0	1	Welded	Mechanica
0	0	5.36	0.086278	0.4	0.006	0	0	0	0	19	0	487.4854	0	0	1	Welded	Mechanica
0	0	5.4	0.09744	0.4	0.006	0	0	0	0	19	0	490.4589	0	0	1	Welded	Mechanica
0	0	3.96	0.12563	0.4	0.006	0	0	0	0	19	0	388.4003	0	0	1	Welded	Mechanica
0	0	3.88	0.122965	0.4	0.006	0	0	0	0	19	0	383.0398	0	0	1	Welded	Mechanica
0	0	5.08	0.087324	0.4	0.006	0	0	0	0	19	0	466.8877	0	0	1	Welded	Mechanica
0	0	5	0.076367	0.4	0.006	0	0	0	0	19	0	461.073	0	0	1	Welded	Mechanica
0	0	5.28	0.072559	0.4	0.006	0	0	0	0	19	0	481.5615	0	0	1	Welded	Mechanica
0	0	5.2	0.076304	0.4	0.006	0	0	0	0	19	0	475.6686	0	0	1	Welded	Mechanica
0	0	4.8	0.108829	0.4	0.006	0	0	0	0	19	0	446.6743	0	0	1	Welded	Mechanica
0	0	4.32	0.120259	0.4	0.006	0	0	0	0	19	0	412.9339	0	0	1	Welded	Mechanica
0	0	5.36	0.086278	0.4	0.006	0	0	0	0	19	0	487.4854	0	0	1	Welded	Mechanica
0	0	5.4	0.09744	0.4	0.006	0	0	0	0	19	0	490.4589	0	0	1	Welded	Mechanica
0	0	3.96	0.12563	0.4	0.006	0	0	0	0	19	0	388.4003	0	0	1	Welded	Mechanica
0	0	3.88	0.122965	0.4	0.006	0	0	0	0	19	0	383.0398	0	0	1	Welded	Mechanica
0	0	5.08	0.087324	0.4	0.006	0	0	0	0	19	0	466.8877	0	0	1	Welded	Mechanica
0	0	5	0.076367	0.4	0.006	0	0	0	0	19	0	461.073	0	0	1	Welded	Mechanica
0	0	4.16	0.113174	0.4	0.006	0	0	0	0	19	0	401.9475	0	0	1	Welded	Mechanica
0	0	4.64	0.099934	0.4	0.006	0	0	0	0	19	0	435.2985	0	0	1	Welded	Mechanica
0	0	5.36	0.086278	0.4	0.006	0	0	0	0	22	0	1398.745	0	0	1	Welded	Mechanica
0	0	5.4	0.09744	0.4	0.006	0	0	0	0	22	0	1410.979	0	0	1	Welded	Mechanica
0	0	3.96	0.12563	0.4	0.006	0	0	0	0	22	0	994.2651	0	0	1	Welded	Mechanica
0	0	3.88	0.122965	0.4	0.006	0	0	0	0	22	0	972.646	0	0	1	Welded	Mechanica
0	0	5.28	0.072559	0.4	0.006	0	0	0	0	22	0	1374.384	0	0	1	Welded	Mechanica
0	0	5.2	0.076304	0.4	0.006	0	0	0	0	22	0	1350.166	0	0	1	Welded	Mechanica
0	0	4.8	0.108829	0.4	0.006	0	0	0	0	22	0	1231.275	0	0	1	Welded	Mechanica
0	0	4.32	0.120259	0.4	0.006	0	0	0	0	22	0	1093.653	0	0	1	Welded	Mechanica
0	0	4.16	0.113174	0.4	0.006	0	0	0	0	22	0	1049.062	0	0	1	Welded	Mechanica
0	0	4.64	0.099934	0.4	0.006	0	0	0	0	22	0	1184.774	0	0	1	Welded	Mechanica
0	0	5.08	0.087324	0.4	0.006	0	0	0	0	22	0	1314.111	0	0	1	Welded	Mechanica
0	0	5	0.076367	0.4	0.006	0	0	0	0	22	0	1290.257	0	0	1	Welded	Mechanica
0	0	5.28	0.072559	0.4	0.006	0	0	0	0	22	0	1374.384	0	0	1	Welded	Mechanica
0	0	5.2	0.076304	0.4	0.006	0	0	0	0	22	0	1350.166	0	0	1	Welded	Mechanica
0	0	4.8	0.108829	0.4	0.006	0	0	0	0	22	0	1231.275	0	0	1	Welded	Mechanica
0	0	4.32	0.120259	0.4	0.006	0	0	0	0	22	0	1093.653	0	0	1	Welded	Mechanica
0	0	4.16	0.113174	0.4	0.006	0	0	0	0	22	0	1049.062	0	0	1	Welded	Mechanica
0	0	4.64	0.099934	0.4	0.006	0	0	0	0	22	0	1184.774	0	0	1	Welded	Mechanica
0	0	5.36	0.086278	0.4	0.006	0	0	0	0	22	0	1398.745	0	0	1	Welded	Mechanica
0	0	5.4	0.09744	0.4	0.006	0	0	0	0	22	0	1410.979	0	0	1	Welded	Mechanica
0	0	3.96	0.12563	0.4	0.006	0	0	0	0	22	0	994.2651	0	0	1	Welded	Mechanica
0	0	3.88	0.122965	0.4	0.006	0	0	0	0	22	0	972.646	0	0	1	Welded	Mechanica
0	0	5.08	0.087324	0.4	0.006	0	0	0	0	22	0	1314.111	0	0	1	Welded	Mechanica
0	0	5	0.076367	0.4	0.006	0	0	0	0	22	0	1290.257	0	0	1	Welded	Mechanica
0	0	5.28	0.072559	0.4	0.006	0	0	0	0	19	0	496.4245	0	0	1	Welded	Mechanica
0	0	5.2	0.076304	0.4	0.006	0	0	0	0	19	0	490.3923	0	0	1	Welded	Mechanica
0	0	5.36	0.086278	0.4	0.006	0	0	0	0	19	0	502.4875	0	0	1	Welded	Mechanica
0	0	5.4	0.09744	0.4	0.006	0	0	0	0	19	0	505.5305	0	0	1	Welded	Mechanica
0	0	3.96	0.12563	0.4	0.006	0	0	0	0	19	0	400.9448	0	0	1	Welded	Mechanica
0	0	3.88	0.122965	0.4	0.006	0	0	0	0	19	0	395.4422	0	0	1	Welded	Mechanica
0	0	5.08	0.087324	0.4	0.006	0	0	0	0	19	0	481.4023	0	0	1	Welded	Mechanica
0	0	5	0.076367	0.4	0.006	0	0	0	0	19	0	475.4479	0	0	1	Welded	Mechanica
0	0	4.8	0.108829	0.4	0.006	0	0	0	0	19	0	460.6994	0	0	1	Welded	Mechanica
0	0	4.32	0.120259	0.4	0.006	0	0	0	0	19	0	426.1154	0	0	1	Welded	Mechanica
0	0	4.16	0.113174	0.4	0.006	0	0	0	0	19	0	414.8463	0	0	1	Welded	Mechanica
0	0	4.64	0.099934	0.4	0.006	0	0	0	0	19	0	449.0431	0	0	1	Welded	Mechanica
0	0	5.36	0.086278	0.4	0.006	0	0	0	0	31	0	791.0594	0	0	1	Welded	Mechanica
0	0	5.4	0.09744	0.4	0.006	0	0	0	0	31	0	797.4328	0	0	1	Welded	Mechanica

0	0	5.28	0.072559	0.4	0.006	0	0	0	0	31	0	778.3889	0	0	1	Welded	Mechanica
0	0	5.2	0.076304	0.4	0.006	0	0	0	0	31	0	765.8204	0	0	1	Welded	Mechanica
0	0	4.8	0.108829	0.4	0.006	0	0	0	0	31	0	704.5318	0	0	1	Welded	Mechanica
0	0	4.32	0.120259	0.4	0.006	0	0	0	0	31	0	634.4924	0	0	1	Welded	Mechanica
0	0	4.16	0.113174	0.4	0.006	0	0	0	0	31	0	612.0213	0	0	1	Welded	Mechanica
0	0	4.64	0.099934	0.4	0.006	0	0	0	0	31	0	680.7537	0	0	1	Welded	Mechanica
0	0	3.96	0.12563	0.4	0.006	0	0	0	0	31	0	584.5635	0	0	1	Welded	Mechanica
0	0	3.88	0.122965	0.4	0.006	0	0	0	0	31	0	573.7795	0	0	1	Welded	Mechanica
0	0	5.08	0.087324	0.4	0.006	0	0	0	0	31	0	747.1606	0	0	1	Welded	Mechanica
0	0	5	0.076367	0.4	0.006	0	0	0	0	31	0	734.8501	0	0	1	Welded	Mechanica
0	0	5.28	0.072559	0.4	0.006	0	0	0	0	19	0	596.9613	0	0	1	Welded	Mechanica
0	0	5.2	0.076304	0.4	0.006	0	0	0	0	19	0	587.9612	0	0	1	Welded	Mechanica
0	0	4.8	0.108829	0.4	0.006	0	0	0	0	19	0	543.9736	0	0	1	Welded	Mechanica
0	0	4.32	0.120259	0.4	0.006	0	0	0	0	19	0	493.4718	0	0	1	Welded	Mechanica
0	0	4.16	0.113174	0.4	0.006	0	0	0	0	19	0	477.2067	0	0	1	Welded	Mechanica
0	0	4.64	0.099934	0.4	0.006	0	0	0	0	19	0	526.8589	0	0	1	Welded	Mechanica
0	0	5.36	0.086278	0.4	0.006	0	0	0	0	19	0	606.0281	0	0	1	Welded	Mechanica
0	0	5.4	0.09744	0.4	0.006	0	0	0	0	19	0	610.5863	0	0	1	Welded	Mechanica
0	0	3.96	0.12563	0.4	0.006	0	0	0	0	19	0	457.2848	0	0	1	Welded	Mechanica
0	0	3.88	0.122965	0.4	0.006	0	0	0	0	19	0	449.4451	0	0	1	Welded	Mechanica
0	0	5.08	0.087324	0.4	0.006	0	0	0	0	19	0	574.5868	0	0	1	Welded	Mechanica
0	0	5	0.076367	0.4	0.006	0	0	0	0	19	0	565.7549	0	0	1	Welded	Mechanica

RIM_SEC	M_KRA	M_KRB	FITTING	M_V	DECK_TYP	DECK_CO	DECK_SE/	DECK_SE/	COL_NO	COL_DIAM	SELF_SUF	UNDER	HEATED
Rim-mount	0.6	0.4	Detail	11.9		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	12		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.4		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.2		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.7		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.5		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	10.5		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	9.3		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.9		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	10.1		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.2		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.7		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.5		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	10.5		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	9.3		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.9		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	10.1		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.9		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	12		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.4		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.2		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.2		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.7		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.5		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.9		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	12		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.4		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.2		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.2		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	10.5		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	9.3		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.9		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	10.1		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.9		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	12		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.7		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.5		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	10.5		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	9.3		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.9		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	10.1		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.4		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.2		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.2		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.7		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.5		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	10.5		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	9.3		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.9		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	10.1		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.9		0	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	12		0	0	0	8	0	FALSE	FALSE	FALSE

Rim-mount	0.6	0.4	Detail	8.4	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.2	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.2	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.9	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	12	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.4	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.2	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.2	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.7	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.5	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	10.5	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	9.3	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.9	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	10.1	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.7	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.5	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	10.5	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	9.3	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.9	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	10.1	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.9	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	12	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.4	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.2	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.2	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.7	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.5	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	10.5	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	9.3	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.9	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	12	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.4	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.2	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.2	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.9	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	10.1	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.9	0	0	37	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	12	0	0	37	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.4	0	0	37	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.2	0	0	37	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.7	0	0	37	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.5	0	0	37	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	10.5	0	0	37	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	9.3	0	0	37	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.9	0	0	37	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	10.1	0	0	37	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.2	0	0	37	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11	0	0	37	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.7	0	0	31	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.5	0	0	31	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	10.5	0	0	31	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	9.3	0	0	31	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.9	0	0	31	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	10.1	0	0	31	0	FALSE	FALSE	FALSE

Rim-mount	0.6	0.4	Detail	11.9	0	0	31	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	12	0	0	31	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.4	0	0	31	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.2	0	0	31	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.2	0	0	31	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11	0	0	31	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.7	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.5	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.9	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	12	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.4	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.2	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.2	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	10.5	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	9.3	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.9	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	10.1	0	0	8	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.9	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	12	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.7	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.5	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	10.5	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	9.3	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.9	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	10.1	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.4	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.2	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.2	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.7	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.5	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	10.5	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	9.3	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.9	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	10.1	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.9	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	12	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.4	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.2	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.2	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.9	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	12	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.4	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.2	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.2	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.7	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.5	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	10.5	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	9.3	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.9	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	10.1	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.7	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.5	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	10.5	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	9.3	0	0	19	0	FALSE	FALSE	FALSE

Rim-mount	0.6	0.4	Detail	8.9	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	10.1	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.9	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	12	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.4	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.2	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.2	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.7	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.5	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	10.5	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	9.3	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.9	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	12	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.4	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.2	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.2	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.9	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	10.1	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.9	0	0	22	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	12	0	0	22	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.4	0	0	22	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.2	0	0	22	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.7	0	0	22	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.5	0	0	22	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	10.5	0	0	22	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	9.3	0	0	22	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.9	0	0	22	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	10.1	0	0	22	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.2	0	0	22	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11	0	0	22	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.7	0	0	22	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.5	0	0	22	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	10.5	0	0	22	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	9.3	0	0	22	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.9	0	0	22	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	10.1	0	0	22	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.9	0	0	22	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	12	0	0	22	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.4	0	0	22	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.2	0	0	22	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.2	0	0	22	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11	0	0	22	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.7	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.5	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.9	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	12	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.4	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.2	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.2	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	10.5	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	9.3	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.9	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	10.1	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.9	0	0	31	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	12	0	0	31	0	FALSE	FALSE	FALSE

Rim-mount	0.6	0.4	Detail	11.7	0	0	31	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.5	0	0	31	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	10.5	0	0	31	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	9.3	0	0	31	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.9	0	0	31	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	10.1	0	0	31	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.4	0	0	31	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.2	0	0	31	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.2	0	0	31	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11	0	0	31	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.7	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.5	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	10.5	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	9.3	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.9	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	10.1	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.9	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	12	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.4	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	8.2	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11.2	0	0	19	0	FALSE	FALSE	FALSE
Rim-mount	0.6	0.4	Detail	11	0	0	19	0	FALSE	FALSE	FALSE

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We Protect Hoosiers and Our Environment.
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Michael R. Pence
Governor

Thomas W. Easterly
Commissioner

SENT VIA U.S. MAIL: CONFIRMED DELIVERY AND SIGNATURE REQUESTED

TO: Rhonda O'Leary
Enbridge Energy – Hartsdale/Griffith Terminal
1320 Grand Avenue
Superior, WI 54880

DATE: September 30, 2014

FROM: Matt Stuckey, Branch Chief
Permits Branch
Office of Air Quality

SUBJECT: Final Decision
Title V Significant Permit Modification
089-34494-00497

Enclosed is the final decision and supporting materials for the air permit application referenced above. Please note that this packet contains the original, signed, permit documents.

The final decision is being sent to you because our records indicate that you are the contact person for this application. However, if you are not the appropriate person within your company to receive this document, please forward it to the correct person.

A copy of the final decision and supporting materials has also been sent via standard mail to:
John Bauderman, GM – Chicago Region
Lillian Woolley, Barr Engineering Company
OAQ Permits Branch Interested Parties List

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178, or toll-free at 1-800-451-6027 (ext. 3-0178), and ask to speak to the permit reviewer who prepared the permit. If you think you have received this document in error, please contact Joanne Smiddie-Brush of my staff at 1-800-451-6027 (ext 3-0185), or via e-mail at jbrush@idem.IN.gov.

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Michael R. Pence
Governor

Thomas W. Easterly
Commissioner

September 30, 2014

TO: Lake County Public Library – Griffith-Calumet Township Branch

From: Matthew Stuckey, Branch Chief
Permits Branch
Office of Air Quality

Subject: **Important Information for Display Regarding a Final Determination**

Applicant Name: Enbridge Energy – Hartsdale/Griffith Terminal
Permit Number: 089-34494-00497

You previously received information to make available to the public during the public comment period of a draft permit. Enclosed is a copy of the final decision and supporting materials for the same project. Please place the enclosed information along with the information you previously received. To ensure that your patrons have ample opportunity to review the enclosed permit, **we ask that you retain this document for at least 60 days.**

The applicant is responsible for placing a copy of the application in your library. If the permit application is not on file, or if you have any questions concerning this public review process, please contact Joanne Smiddie-Brush, OAQ Permits Administration Section at 1-800-451-6027, extension 3-0185.

Enclosures
Final Library.dot 6/13/2013

Mail Code 61-53

IDEM Staff	VHAUN 9/30/2014 Enbridge Energy-Hartsdale/Griffith Terminal 089-34494-00497 FINAL		AFFIX STAMP HERE IF USED AS CERTIFICATE OF MAILING
Name and address of Sender		Indiana Department of Environmental Management Office of Air Quality – Permits Branch 100 N. Senate Indianapolis, IN 46204	Type of Mail: **CERTIFICATE OF MAILING ONLY**

Line	Article Number	Name, Address, Street and Post Office Address	Postage	Handing Charges	Act. Value (If Registered)	Insured Value	Due Send if COD	R.R. Fee	S.D. Fee	S.H. Fee	Rest. Del. Fee Remarks
1		Rhonda OLeary Enbridge Energy-Hartsdale/Griffith Terminal 1320 Grand Ave Superior WI 54880 (Source CAATS) CONFIRMED DELIVERY									
2		John Gauderman GM - Chicago Region Enbridge Energy-Hartsdale/Griffith Terminal 1500 W Main St Griffith IN 46319-0630 *(RO CAATS)*									
3		East Chicago City Council 4525 Indianapolis Blvd East Chicago IN 46312 *(Local Official)*									
4		Lake County Health Department-Gary 1145 W. 5th Ave Gary IN 46402-1795 *(Health Department)*									
5		WJOB / WZVN Radio 6405 Olcott Ave Hammond IN 46320 *(Affected Party)*									
6		Schererville Town Council and Town Manager 10 E Joliet Street Schererville IN 46375 *(Local Official)*									
7		Shawn Sobocinski 3229 E. Atlanta Court Portage IN 46368 *(Affected Party)*									
8		Mark Coleman 107 Diana Road Portage IN 46368 *(Affected Party)*									
9		Mr. Chris Hernandez Pipefitters Association, Local Union 597 8762 Louisiana St., Suite G Merrillville IN 46410 *(Affected Party)*									
10		Craig Hogarth 7901 West Morris Street Indianapolis IN 46231 *(Affected Party)*									
11		Lake County Commissioners 2293 N. Main St, Building A 3rd Floor Crown Point IN 46307 *(Local Official)*									
12		Griffith Town Council 111 N Broad Street Griffith IN 46319 *(Local Official)*									
13		Calumet Township Trustee 35 E. 5th Ave Gary IN 46402 (Affected Party)									
14		ST. John Township Trustee 1515 Lincoln HWY Schererville IN 46375 *(Affected Party)*									
15		Anthony Copeland 2006 E. 140th Street East Chicago IN 46312 *(Affected Party)*									

Total number of pieces Listed by Sender 14	Total number of Pieces Received at Post Office	Postmaster, Per (Name of Receiving employee)	The full declaration of value is required on all domestic and international registered mail. The maximum indemnity payable for the reconstruction of nonnegotiable documents under Express Mail document reconstructing insurance is $50,000 per piece subject to a limit of $50, 000 per occurrence. The maximum indemnity payable on Express mil merchandise insurance is $500. The maximum indemnity payable is $25,000 for registered mail, sent with optional postal insurance. See ***Domestic Mail Manual*** **R900, S913**, and **S921** for limitations of coverage on inured and COD mail. See ***International Mail Manual*** for limitations o coverage on international mail. Special handling charges apply only to Standard Mail (A) and Standard Mail (B) parcels.

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Mail Code 61-53

IDEM Staff	VHAUN 9/30/2014 Enbridge Energy-Hartsdale/Griffith Terminal 089-34494-00497 FINAL		AFFIX STAMP HERE IF USED AS CERTIFICATE OF MAILING
Name and address of Sender	▶	Indiana Department of Environmental Management Office of Air Quality – Permits Branch 100 N. Senate Indianapolis, IN 46204	Type of Mail: **CERTIFICATE OF MAILING ONLY**

Line	Article Number	Name, Address, Street and Post Office Address	Postage	Handing Charges	Act. Value (If Registered)	Insured Value	Due Send if COD	R.R. Fee	S.D. Fee	S.H. Fee	Rest. Del. Fee Remarks
1		Barbara G. Perez 506 Lilac Street East Chicago IN 46312 (Affected Party)									
2		Mr. Robert Garcia 3733 Parrish Avenue East Chicago IN 46312 *(Affected Party)*									
3		Ms. Karen Kroczek 8212 Madison Ave Munster IN 46321-1627 *(Affected Party)*									
4		Joseph Hero 11723 S Oakridge Drive St. John IN 46373 *(Affected Party)*									
5		Gary City Council 401 Broadway # 209 Gary IN 46402 *(Local Official)*									
6		Mr. Larry Davis 268 South, 600 West Hebron IN 46341 *(Affected Party)*									
7		Ryan Dave 939 Cornwallis Munster IN 46321 *(Affected Party)*									
8		Matt Mikus 1710 Vale Park Rd Apt 302 Valparaiso IN 46383 *(Affected Party)*									
9		Ms. Lillian Woolley Barr Engineering Company 3005 Boardwalk St, Ste 100 Ann Arbor MI 48108 *(Consultant)*									
10		Lake County Public Library-Griffith-Calumet Twp Br 1215 E. 45th Ave. Griffith IN 46319 *(Library)*									
11											
12											
13											
14											
15											

Total number of pieces Listed by Sender 10	Total number of Pieces Received at Post Office	Postmaster, Per (Name of Receiving employee)	The full declaration of value is required on all domestic and international registered mail. The maximum indemnity payable for the reconstruction of nonnegotiable documents under Express Mail document reconstructing insurance is $50,000 per piece subject to a limit of $50, 000 per occurrence. The maximum indemnity payable on Express mil merchandise insurance is $500. The maximum indemnity payable is $25,000 for registered mail, sent with optional postal insurance. See ***Domestic Mail Manual*** **R900, S913**, and **S921** for limitations of coverage on inured and COD mail. See ***International Mail Manual*** for limitations o coverage on international mail. Special handling charges apply only to Standard Mail (A) and Standard Mail (B) parcels.

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